

IDAHO DIRT TRENDY TASTES



MINER SPECIALS



**MINER
MUNCHIES**

*Miner
Vintage*



11

BIG NEWS IN
NANOWIRES

Yogurt **FIX**



← **STRAIGHT OUTTA BOMBAY**

17

BUILDING UP
THE COMPETITION

48

COMING FULL
CIRCLE

BLUEPRINT FOR SUCCESS



THE POWER OF PARTNERSHIP

Missouri S&T is focused on the future with a blueprint for success. From the campus growth visible in Hasselmann Alumni House and Bertelsmeyer Hall to a record enrollment, we are moving forward with momentum.

No matter what the project, one thing remains the same: the power of your partnership. Your tax-deductible gift in support of the University Annual Fund will keep us moving forward.

give.mst.edu



◀ ON THE COVER

Like a sandwich board on a cafe sidewalk, our cover lists a sampling of the fare available inside. This issue features tales from the food and beverage industry. From food trucks to college dining halls and chili cook-offs to large-scale factory production, you can find something for every taste on our menu.

IN YOUR WORDS

Q&A and Social

What is your favorite place in Rolla?

4

AROUND THE PUCK

Film for thought

Max Tohline, Engl'07, uses movies to encourage critical thinking.

6

St. Pat's 2015

Scenes from the 107th Best Ever.

8

For family, for country, for the future

Luis Pereira recruits Hispanic students to STEM fields.

9

Spotlighting the champions

Our Honor Roll of Donors and Volunteers is now online.

16

Former secretary of state to speak at S&T

Condoleezza Rice will be the 31st Remmers presenter.

18

Carrying the torch

The Zdvorak brothers are second-generation Miner soccer players.

19

FEATURES

Miner specials

A look at Missouri S&T alumni who work in the food and beverage industry.

21

BEYOND THE PUCK

Section news

Leading on the coast.

35

Class notes

Find out what your former classmates are up to.

36

Memorials

We remember our classmates and friends.

44

Donors

Tim, PetE'77, and Kay Bradley.

48

BRIEFLY { BY THE NUMBERS }

5

S&T students selected for the University of Missouri System's first Entrepreneurial Scholars and Interns Program. A total of 15 students were chosen from the four UM campuses.



St. Pat's celebrations in Rolla since the first Best Ever in 1908. 2015 marked the first celebrated in Hasselmann Alumni House.

230

Companies recruiting during the Spring 2015 Career Fair — a record for the spring event.



Students who graduated from Missouri S&T with a 4.0 GPA during 2014.

15

Missouri S&T's rank in the *Princeton Review's* 2015 listing for Best Career Placement.

20

Missouri S&T's ranking among the 50 best online master's in engineering programs as ranked by *U.S. News & World Report*.

MISSOURI S&T MAGAZINE

Missouri S&T Magazine is written, edited and designed by the staff of the Missouri S&T Marketing and Communications Department and the Miner Alumni Association.

CHANCELLOR

Cheryl B. Schrader

VICE CHANCELLOR FOR UNIVERSITY ADVANCEMENT

Joan Nesbitt

MINER ALUMNI ASSOCIATION PRESIDENT

Richard W. Eimer Jr., EE'71

EDITORS

Katie Jackson (Alumni)

Mary Helen Stoltz, Engl'95 (News & Features)

ASSOCIATE NEWS EDITORS

Maridel Allinder Peter Ehrhard Mindy Limback
Andrew Careaga John Kean Joe McCune

ASSOCIATE ALUMNI EDITORS

Nancy Hatch Joe McCune Travis Sewell

DESIGN AND PRODUCTION

Jake Otto Nikki Pirch Lishia Stevens

STAFF PHOTOGRAPHER

Sam O'Keefe

CONTRIBUTORS

Arielle Bodine Greg Katski

Missouri S&T Magazine (ISSN 1084-6948) is issued three times per year (April, August, December) in the interest of the graduates and former students of the Missouri School of Mines and Metallurgy, the University of Missouri-Rolla and Missouri University of Science and Technology. *Missouri S&T Magazine* is published by the Miner Alumni Association, Missouri S&T, 1100 N. Pine St., Rolla, MO 65409-0650.

Missouri S&T Magazine is printed by R.R. Donnelley, Liberty, Mo. Covers are printed on 114 lb. - 7 pt. Sterling White; interior pages are printed on 60 lb. Sterling White.

Missouri S&T Magazine is printed using soy-based ink.

Send letters to:

Darlene Ramsay
Miner Alumni Association
1100 N. Pine St.
Rolla, MO 65409-0650
Phone: 800-JO-MINER
Fax: 573-341-4706
Email: alumni@mst.edu

News & features:

Phone: 573-341-4328
Fax: 573-341-6157
Email: news@mst.edu

magazine.mst.edu

Dear Alumni and Friends,

No matter where we live, what degree we earned, what our careers look like or what our cultural background is, Miner alumni have at least one thing in common: We all need to eat.

In this issue, we feature alumni with interests that are connected to food — some professionally and others for recreation.

Back in October, we asked our alumni “foodies” to step forward and tell us about their jobs in the food and beverage industry. And boy did they ever step forward. We could have filled two magazines with all of the responses.

We heard from a barista, a sous chef, a soybean oil producer, a dentist, two farmers, a personal chef, a fast-food worker and several home cooks. One of those home cooks is a dad who cooks for his family and compares cooking to a chemistry lab experiment you can eat. Of course, we also heard from a handful of readers who just like to eat.

It was a tough task, but we narrowed the group to seven alumni with unique stories. They include a chili cook-



off competitor and the manager of a production plant for an international multi-brand corporation. It's a fun issue. I hope you enjoy it.

I also want to thank those of you who helped us find Miners we've lost touch with. **James A. Faletti**, EMgt'71, MS EMgt'79, won our “Lost Miners” giveaway, featured on page 31 of the Spring 2014 issue. He received a 2015 St. Pat's sweatshirt for his efforts. It's not too late to help out. Alumni can still review a list of lost Miners under the “Alumni Connect” tab at mineralumni.com.

Mary Helen Stoltz

Engl'95
news & features editor

EDITOR'S TOP FIVE PICKS

- 1} **Max Tohline**, Engl'07, uses movies to inspire his Study of Film students to think more deeply about life. Read his story on page 6.
- 2} Don't you hate watery ketchup? **Tyler Richards** does too, so he and a buddy invented a ketchup bottle lid that prevents it. Check it out on page 21.
- 3} See page 18 for details on an upcoming lecture at Missouri S&T by former U.S. Secretary of State Condoleezza Rice, and find out how you can get free tickets this month.
- 4} Fans of *The Walking Dead* should read page 14 to find out how **Ivan Guardiola** worked a zombie apocalypse into an engineering management course.
- 5} There's a new general manager at public radio KMST. We'll introduce you to him on page 19. You can listen to the station online at kmst.org.

CORRECTIONS

In the story titled “Taking on a castle” on page 40 of the Fall/Winter 2014 issue, we failed to mention degree information for **Vewiser Dixon**, ME'73, founder of the Kansas City Business Center for Entrepreneurial Development. Both Dixon and **Daniel Edwards**, ArchE'11, who was the subject of the story, are members of Alpha Phi Alpha. See page 16 for a story about the fraternity, which is celebrating 50 years at Missouri S&T in 2015.

Degree information for **Gail (Dolan)**, ChE'82, and **Donald E.**, ME'72, **Hahn** was inadvertently reversed in the listing of Bertelsmeyer Hall donors in the Fall/Winter 2014 issue. We regret the error.

Q

What is your favorite place in Rolla?

For some alumni, a campus locale holds a special place in their heart. Others have fond memories of recreation spots or enjoying the great outdoors. We asked about your favorite place in Rolla. Here is what you told us.

A

So many choices just on campus alone. If I had to pick one it would be the S&T Golf Course. Convenient, rarely crowded, and the price was hard to beat — a major consideration for a cash-strapped college student.

John Walker, Econ'77
Russellville, Ark.

Three places came to mind immediately: Bill's Burger Basket, on Sundays when no meal was available; the Top Hat Lounge, where my polymers class often met with our professor; and Table Rock on the Gasconade River — truly my favorite place to swim, dive, tube and canoe.

Bill Alexander, ChE'70
Kansas City, Mo.

The Rolla roller skating rink was my favorite place. I learned how to skate backwards in 1960–61 and became a floor guard. I got a free soft drink during work breaks, skated for free, met many nice people and had a break from my metallurgy studies.

Walt Mulyca, MetE'65
Massena, N.Y.

My favorite place in Rolla was probably the Giddy Goat coffee house. There were always students in there, and it was a great place to study and drink amazing coffee. I practically lived in there my senior year.

Rexann Whorton, Psych'11
Lake Forest, Ill.

My favorite place was Jackling Gym, now long gone. I was a student athlete and one of 12 men who lived in the gym. Eleven guys were football players. I was the only track man. To the best of my knowledge, I was the only person who survived junior and senior years living in the gym and actually graduated. All the others joined fraternities or dropped out of school. If not for the gym, I probably could not have made it financially.

Herbert S. Kalish, MetE'43
Manchester Center, Vt.

Probably my most favorite place was Maramec Spring Park. My '65 Homecoming date and I visited there. The weather and fall colors were beautiful. Two dates and two months later, she became my fiancée. It has been 49 years, and we are still together. I think it will work out.

Will Sudduth, CE'66
Decatur, Ill.

Maramec Spring Park and Montauk State Park. Ten semesters of "Trout Lab" helped me keep my GPA up.

Dwight Gookin, PetE'75
Traverse City, Mich.

Watch for the next question in your Miner Alumni Association eNewsletter.

Email your answers to alumni@mst.edu or respond via Facebook or Twitter.



@StephEvz43

Stephanie Evans, AE'12, Sacramento, Calif.

Congratulations to the @MissouriSandT M-SAT Team for winning the University Nanosat Program competition yesterday! #MinerPride



@UncoverRolla

Rachel Jung, MBA'09, Rolla, Mo.

...And may the #MinerPride shine warm upon your face...
@MinerAlumni #MinerNation #107thBestEver #ProudAlum



@hhffman

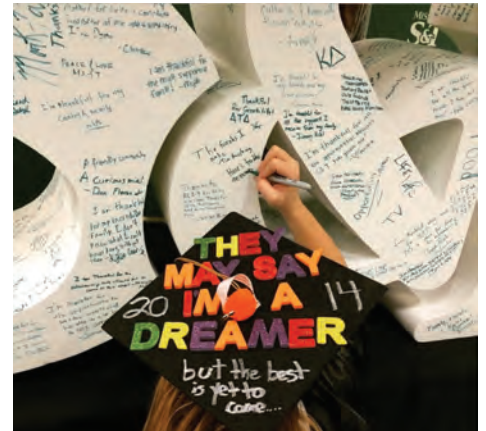
Haley Hoffman, junior, multidisciplinary studies, Rolla, Mo.

St.Pats has begun ladies and gents. #107thbestever



MissouriSandT

In January, this 400-pound bronze cast of the historic emblem was installed in Hasselmann Alumni House.



MissouriSandT

As part of our #ThankfulMiners project, December graduates expressed their gratitude on a 4-foot-tall 3-D S&T logo.



MissouriSandT



Missouri S&T Final Exam: Motorized Couch Race

Students in last fall's Introduction to Design and Engineering class built and raced motorized couches for their final exam. The course is taught by Ryan Hutcheson, ME'03, MS ME'05, an assistant teaching professor of mechanical and aerospace engineering.



@UMStudentRep

Tracy Mulderig, student representative to the University of Missouri System Board of Curators, doctoral student in industrial/organizational psychology at the University of Missouri-St. Louis

Alumni house dedication. This is such a beautiful building! #107thBestEver



Join your alma mater online at news.mst.edu/social.



Twitter



Facebook



YouTube



Flickr



Instagram



Storify



Delicious



Vine



Subscribe



LinkedIn



MAX TOHLINE: FILM FOR THOUGHT

Max Tohline came to Missouri S&T from Madeira, Ohio, in 2002 with a plan to study aerospace engineering. But an elective course in film caused his true passion to take flight.

"I always had an interest in film," says Tohline, Engl'07. So he enrolled in Study of Film, a course taught at that time by **James Bogan**, Curators' Teaching Professor emeritus of art history and film.

"Jim took this little spark of interest in film and turned it into a projector beam on full blast," Tohline says.

It began during the first day of class. "He asked us what our favorite movie was," Tohline recalls, "and someone said *The Graduate*. And I scoffed." Bogan heard it and, according to Tohline, replied, "I hope that was a scoff for everybody who hasn't seen the movie."

Bogan's playful rebuke led Tohline to watch the movie again. That second

screening gave Tohline a new perspective on the film.

These days, Tohline is trying to help current students take a different perspective on life by having them watch and analyze movies. A lecturer in arts, languages and philosophy, he teaches the same course Bogan taught him — and countless other students for more than four decades.

The course attracts a wide array of majors, as it did during Tohline's student days. Students may enroll because of their fondness for film, but there's more to the course than weekly movies. Tohline uses the issues raised by the films he shows as entrées into serious philosophical discussions.

"In many disciplines, we are learning how to find the answers to questions that have been around for a long time," Tohline says. "The right answer is already known. It's in the back of the book."

"But if we want our graduates to take the lead in the future," he adds, "they'll need to come up with questions that have never been asked. That's how innovation happens."

That brainstorming happens at the end of each Tuesday night movie. After the credits roll, Tohline and the 50 or so students enrolled in his course hang around to discuss the questions posed by that evening's flick.

"I like to think of it as a questions laboratory, where we ask, 'How can I push myself to think a thought that I've never had before?' Thought-provoking films are a great way to do that," Tohline says. ■



BUILDING DIVERSITY IN COMPUTER SCIENCE

Missouri S&T is one of 15 U.S. universities to receive \$90,000 to help recruit women and underrepresented minorities to the computer science field through the Building Recruiting and Inclusion for Diversity (BRAID) initiative. Currently 7 percent of Missouri S&T's undergraduate computer science students are female. The national average is 17 percent.

This past fall, Missouri S&T revamped its Introduction to Programming courses to feature assignments that focus on more contemporary, real-world problems that include domains in the natural sciences, humanities and social sciences to make them more appealing to women. That model will be expanded to other courses over the next two years.

As part of the program, **Jennifer Leopold**, an associate professor of computer science, accompanied a group of female computer science students to the Grace Hopper Celebration of Women in Computing, held in Phoenix in October.

S&T TO TRAIN CYBERSECURITY EXPERTS

Missouri S&T received a \$3 million grant from the National Science Foundation to reduce threats to cybersecurity by training the next generation of cybersleuths.

The grant will fund 16 "Scholarship for Service" master's and Ph.D. students who will specialize in cybersecurity. The project is part of the U.S. government's CyberCorps Scholarship for Service. Colleges and universities can earn the grant only if they are certified by the National Security Agency as a National Center of Academic Excellence for Information Assurance Education. Missouri S&T was the first institution in the state to achieve that designation and has held the title since 2007.

"Cybersecurity is often taken for granted by Internet users," says **Dan Lin**, an assistant professor of computer science who leads the program. "If we didn't have it, we would be lost. Banking, shopping and more would be impacted; it is not just something like social media concerns."

Lin hopes to use this grant to promote experiential learning opportunities. The program will also help the department recruit and retain more women and minority students.

MCMANUS NAMED CURATORS' PROFESSOR



John C. McManus, professor of history and political science at Missouri S&T, is the first faculty member in the humanities or social sciences at Missouri S&T to be named Curators' Professor. His appointment took effect Jan. 1.

The University of Missouri Board of Curators bestows the Curators' Professor title upon outstanding scholars with established reputations in their field of study.

An internationally recognized authority on American military history, McManus is the author of 11 books on the subject. A member of the editorial advisory board at *World War II* magazine and *Global War Studies*, he is the historical advisor for a forthcoming PBS documentary titled *Over There: Doughboys in the Great War*.

ST. PAT'S 2015

Miner alumni and friends celebrated the 107th Best Ever St. Pat's in grand style at the Bauer Bar in the John O. Farmer Alumni Lounge of the newly constructed Hasselmann Alumni House (right). After an official dedication ceremony — complete with a surprise performance by the Missouri S&T Marching Band — guests watched the parade with a prime view of Pine Street from the front porch. Following the parade, guests joined their fellow Miners for complimentary hot dogs, bratwursts and hamburgers.

The front porch of Hasselmann Alumni House wasn't the only coveted spot to watch the parade. These St. Pat's revelers (below) took in the parade from above — on the roof of Peacock Stained Glass in downtown Rolla.





FOR FAMILY, FOR COUNTRY, FOR THE FUTURE

Nearly everything **Luis Pereira** does, he does for future Hispanic college students — especially his 4-year-old brother, Johann.

“I want my little brother to know, ‘You can do it; you can go to college,’” he says. “One of my passions is being a role model for my little brother; 15 years from now, I want to be visiting S&T with him.”

Pereira, a senior in computer science, transferred to Missouri S&T from State Fair Community College in Sedalia, Mo., in fall 2013. The first in his family to attend college, he wants to be an example of the

opportunities Hispanic students have in the science, technology, engineering and math (STEM) fields.

He helps organize ¡Sí Se Puede! (Yes, We Can!), an annual weekend retreat for Hispanic and Latino high school students who want to learn more about pursuing a college education in a STEM field, ideally at S&T. Four high school students who attended ¡Sí Se Puede! last year enrolled at S&T in the fall 2014 semester.

Pereira says student organizations and events like ¡Sí Se Puede! are essential in recruiting Hispanic students to STEM fields.

“Within the Hispanic community, especially if your parents haven’t gone to school, you don’t know anything about college,” Pereira says.

In January, Pereira returned to Honduras for a third time with Engineers Without Borders as the team’s translator.

Pereira, who lived with his grandmother in Honduras until he was 12, says he remembers calling American volunteers in Honduras “gringos” when he was a child. “I never imagined I was going to be a gringo,” he says, laughing. “I’m so proud of being a gringo, coming back to my country and helping.” ■

CHANCELLOR ENCOURAGES PH.D. GROWTH

With \$4.5 million in strategic funding from the University of Missouri System, Chancellor **Cheryl B. Schrader** plans to create 70 new Ph.D. research assistant, teaching assistant and fellowship positions and increase the number of doctoral students at S&T by 12 percent — from 583 to 653. The initiative also provides competitive funding for the equivalent of 350 existing graduate research and teaching assistant positions.

S&T NAMED A TOP UNIVERSITY FOR MILITARY

Missouri S&T was again chosen by Military Advanced Education (MAE) as a top choice for active-duty military personnel and veterans wanting to pursue a college education.

MAE selected colleges and universities based on their military-friendly culture, financial aid for veterans, flexibility, on-campus support and online support services.

For more information about opportunities for military veterans and active-duty military men and women, visit military.mst.edu.



COLLIER TO GRADS: STAND UP FOR YOUR PRINCIPLES

Pursuing a successful career while leading a balanced life can be a rewarding experience for new graduates if they stand up for their principles, **Harvest Collier** said during commencement ceremonies at Missouri S&T on Friday, Dec. 19, and Saturday, Dec. 20.

In his commencement address, the professor emeritus of chemistry and former vice provost of undergraduate studies at Missouri S&T asked the graduates to stand up for courtesy, integrity, perseverance, indomitable spirit and self-control.

"With these principles being a part of you, you will be rewarded in many ways," Collier said.

Graduates who started as freshmen first heard Collier speak about integrity during Freshman Convocation.

"Part of that message included the emphasis on a tradition of working hard, a culture of collaboration, a proper perspective toward inclusiveness and a strong emphasis on integrity and excellence," Collier said. "Arriving at this day, you have demonstrated a clear understanding of the value of integrity. Continue to stand up for integrity, and this banner will be one of the most important characterizations of your life."

During commencement, Collier was awarded the Chancellor Medal, which is given to individuals who have contributed to the well-being, growth and development of the university.

BIG NEWS IN NANOWIRES



Manashi Nath (left) and Jay A. Switzer stand in front of their respective nanowire creations.

Two Missouri S&T chemistry researchers are growing nanowires using electrodeposition. Their work could improve batteries and fuel cells, among other applications.

Manashi Nath, an assistant professor of chemistry at Missouri S&T, is growing nanowire arrays with a determined diameter and length and a uniform consistency.

First she writes a file that creates a pattern for the desired shape and size. Then using electron beam lithography, she stamps the pattern onto a polymer matrix and applies electric current to grow the

nanowires. This uniform approach could improve efficiency of solar cells and fuel cells. The wires could also be used in the biomedical field to maximize heat production in hyperthermia treatment of cancer.

Nath's work is funded by the American Chemical Society.

Jay A. Switzer, the Donald L. Castleman/Foundation for Chemical Research Professor of Discovery at Missouri S&T, is growing nanowires out of germanium from an aqueous solution. The process, which Switzer compares to growing rock candy on a string, could

make it more feasible to use germanium in lithium-ion batteries.

Germanium is a better semiconductor than silicon, Switzer says, but it is too expensive to process for widespread use in batteries, solar cells, transistors or other applications.

"The high conductivity (of germanium nanowires) makes them ideal for lithium-ion battery applications," Switzer says. His research, which could lead to a less-expensive way to produce the material, is funded through a \$1.22 million grant from the U.S. Department of Energy's Office of Basic Energy Science. ■

WALK A MILE IN HER SHOES

Joe's PEERS, a group of Missouri S&T students who promote healthy behaviors, invited men and women on campus to join the international movement "Walk a Mile in Her Shoes" in November. Participants walked from the Puck to the library and back in high-heeled shoes to raise awareness of sexual assault.

SPRING 2015 CAREER FAIR

The Spring 2015 Career Fair broke records at Missouri S&T with 230 employers in attendance. The total included 34 new employers. More than 2,250 alumni and students attended, and nearly 900 participants secured interviews.



SEEKING INVENTORS

Help us find Rolla alumni who have demonstrated ingenuity and innovation through their inventions. *Missouri S&T Magazine* is compiling a list of alumni who saw a need and created something to meet it. Below is a list of alumni inventors we've heard from so far. Don't see your name listed? Help us out by completing this short online survey found at rol.la/minerinventors.

- **Paul Abney**, EE'76, one patent for the apparatus for automatically decelerating and stopping a sewing machine motor.
- **Gary Amsinger**, CE'80, one patent for a crane safety device.
- **Buddy Austin**, EE'60, (deceased) 10 patents related to cooking stoves and ranges.
- **Ralph S. Barr**, EE'65, one patent for an auxiliary lighting system for vehicle-mounted bike racks.
- **Steven L. Blair Sr.**, ME'77, one patent for fluid conduits with integral end fittings.
- **George Clark**, ME'79, 28 patents for surgical instruments and consumer and industrial products.
- **Michael P. Dallmeyer**, ME'84, 47 patents for fuel injection systems or gasoline fuel injectors.
- **Red J. Dietrich**, EE'57, seven patents for antenna parts and related satellite batteries.
- **Simon Dirnberger**, Met'03, ME'05, one patent for Dremel quick release for cut-off wheels.
- **Daniel M. Doerer**, MS CSci'88, 22 patents for 3-D numerical control machining, blown vinyl plastisol and footwear construction.
- **Charles L. Dohogne**, ME'61, 12 patents in chemistry, metallurgy, electro-chemistry and biomechanics.
- **Paul Eckler**, Chem'69, 21 patents for process and applications technologies related to polyols in the pentaerythritol family.
- **Lee M. Etnyre**, Phys'60, three patents related to navigation and global positioning systems.
- **Michael D. Gerdes**, ME'88, 22 patents for automotive service equipment.
- **Rodger Grantham**, ME'78, 33 patents, most related to gasoline refueling equipment.
- **Marvin Havens**, ChE'71, MS ChE'73, PhD ChE'76, 39 patents on antistatic polymers and oxygen detection.
- **Robert H. Huck**, EE'59, two patents for video disc processing and manufacturing.
- **Bill Jacobs**, ME'64, four patents for voice mechanism marketed by Mattel Toys.
- **Ingrid Kaufman**, ME'97, three patents for vibration-based machine health monitoring developed for Ford Motor Co.
- **Anna (Sell) Kelley**, ME'10, three patents for medical devices.
- **Earle Long**, EE'83, one patent for a radio system with one-to-many dispatch.
- **Dale R. Lutz**, Chem'71, 11 patents related to CO₂ emissions and fiber optic sensors on high-voltage power lines.
- **William R. Morgan**, ChE'81, one patent related to aluminum production.
- **Mark B. Pickell**, CE'73, one patent for a foam viscometer.
- **John M. Raley**, ChE'74, five patents for paper products and manufacturing processes, non-woven manufacturing processes and absorbent products design.
- **Allen J. Rushing**, MS EE'70, PhD EE'73, 36 patents in imaging technology.
- **Richard Schafermeyer**, ChE'73, MS ChE'75, 14 patents in food science.
- **Ardell J. Schelich**, EE'57, two patents for filter driers for air conditioning and refrigeration systems.
- **David Schuehler**, MS CSci'93, nine patents, seven pending, mostly for real-time financial data processing systems.
- **Danny Scott**, ME'70, 99 patents for oil well drilling products and improvements.
- **Michael M. Sinar**, ME'69, five patents for a steel cable shock absorber and automotive industry improvements.
- **Ricky A. Sisk**, ME'98, 25 patents for medical devices.
- **Willard Sudduth**, CE'66, invented an Angle Gripper, which is similar to a Vice Grip.
- **Ralph D. Taylor**, EE'68, three patents in aerospace and aircraft testing.
- **Scott C. Wehner**, GeoE'80, one patent related to oil recovery.
- **Paul Steven Weitzel**, ME'68, seven patents, with another application pending.
- **Lawson G. Wideman**, Chem'66, MS Chem'67, 159 patents, many related to resins and polymers.
- **Robert R. Wright**, CE'59, two patents for the thermal process used to convert high-salt brine into fresh water and dry salt.
- **Yuhui Tom Xu**, MS ChE'93, PhD ChE'95, eight patents related to bio-processing.

HELP US REMEMBER: 150 YEARS OF MINER LEGACY

The year 2020 will mark Missouri S&T's sesquicentennial celebration. A special commemorative book is being planned for the occasion, and we need your help. Please share remembrances of your alma mater and you may see your story in the book. All stories will be shared with the University Archives. Email your stories to 150@mst.edu or visit magazine.mst.edu/150memories. We look forward to hearing from you!

IGEM PROJECT COULD CLEAN UP COAL

Burning coal gases may one day stop releasing nitrogen oxides into the atmosphere and instead produce essential fertilizer components, thanks to research by Missouri S&T's chapter of iGEM, the International Genetically Engineered Machine Foundation.

iGEM students presented their findings in November at the iGEM Giant Jamboree in Boston. S&T's project proposed using genetically modified organisms to remove all forms of nitrogen oxides from coal exhaust.

S&T WINS MACURH SUSTAINABILITY AWARD

Missouri S&T received the Midwest Affiliate of College and University Residence Halls (MACURH) Commitment to Sustainability Award for its environmental sustainability efforts.

S&T's bid for the award highlighted the Solar House and Solar Car design teams, the geothermal energy project and the eBus electric campus shuttle, among other sustainability efforts at Missouri S&T.

SURVIVING A ZOMBIE APOCALYPSE

Students in **Ivan G. Guardiola's** Operations Research course learned to survive a zombie apocalypse while learning the fundamentals of managing global supply chains and large-scale industrial operations.

To help students better learn the basics of the course, Guardiola, an associate professor of engineering management and systems engineering, designed a zombie doomsday case study. His results were published in the journal *Quality Approaches in Higher Education*.

Guardiola's course manual, titled "Zombie Apocalypse: Optimizing Survival," outlines an evolving story that begins with a zombie invasion of the Missouri S&T campus. The 21 students enrolled in the course are the only known survivors. They take refuge in the campus's student center, while some 450 living dead approach their enclave. The manual guides students through a series of situations and options that require them to determine the best choices for their own and their classmates' survival.

"I wanted students to understand that their decisions have consequences," he says. "Operations research is all about optimization. The whole class is about understanding the techniques of optimization. This was the perfect project for helping to teach those principles."



ALUMNI OF INFLUENCE

Three years ago, Missouri S&T honored our first class of Alumni of Influence — alumni who, through their wisdom, discoveries, inventions and generosity, have made their mark on the world. This tradition will continue in 2016, when we gather to honor the next class of Alumni of Influence.

We're looking to you, our alumni, for recommendations.

For nearly 145 years, graduates of what is now known as Missouri S&T have accomplished remarkable feats. Tell us about them at influence.mst.edu/nominate.



SOCIAL NETWORKS CAN STRENGTHEN KNOWLEDGE-SHARING

Some people think social networks waste time. But three engineering management and systems engineering researchers at Missouri S&T think those networks could improve project management and help spread specialized knowledge in the health care sector and other large organizations.

Steven Corns, Elizabeth Cudney, PhD EMgt'06, and **Suzanna Long**, Hist'84, Phys'84, MS EMgt'04, PhD EMgt'07, say that creating a specialized web-based knowledge management system or KMS can help large organizations capture, retain and communicate project results and staff knowledge. These systems

can also prevent knowledge drain and provide training as "lessons learned" after specific occurrences and the resolution of staff problems.

In a recent *International Journal of Collaborative Enterprise* article, the three examined a process for creating a social network to improve information-and knowledge-sharing for a large health care organization.

Their next step is to create an actual internal social network specific to the group they're working with and to implement recommendations for using it to share information. ■

A KMS
(KNOWLEDGE
MANAGEMENT
SYSTEM) CAN
HELP LARGE
ORGANIZATIONS.

SPOTLIGHTING THE CHAMPIONS OF MINER NATION

Miner Nation is made up of alumni, friends, corporations, foundations, faculty, staff and students who care, connect and contribute. This year for the first time, our Honor Roll of Donors and Volunteers was published in an online format at honorroll.mst.edu. The listing encompasses two years of giving — both the 2013 and 2014 fiscal years, which run from July to June. The power of Miner pride has never been greater — and we have an extraordinary honor roll to prove it.

S&T EARNES HONORS FROM ASEM

A team of four engineering management students won a case study competition in October at the annual American Society of Engineering Management (ASEM) Conference in Virginia Beach, Va.

The team was assigned a case based on the engineering management principles used at Google Inc.

Led by **Ivan G. Guardiola**, an associate professor of engineering management and systems engineering, the team comprised juniors **Delaney Sexton** and **McKenzie Scott** and seniors **Karl Sample** and **Andrew Feldmann**.

During the conference, the Missouri S&T student chapter of ASEM was awarded the Founders Award for best student chapter. The Missouri S&T chapter also won the award in 2000.



The founding members of the Epsilon Psi chapter of Alpha Phi Alpha: (first row), Wayne C. Harvey, Henry Brown. (Second row), David B. Price, Wayne R. Davis. (Third row), Maurice W. Murray, John H. Jackson, Lloyd Sowell, Gregory Bester, Louis W. Smith, Walter G. Reed. (Fourth row), Howard Manning Jr., John D. Abrams Jr. (fifth row), Robert L. Coleman, Gerald Lyons (sixth row), Reginald L. Ollie, Daniel H. Flowers. (Seventh row), Theodore T. Marsh Jr., Paul L. Silvers Jr., and (Eighth row), Kwesi Sipho Umoja (Eugene D. Jackson). Not pictured: James E. Brown III. (Contributed photo)

ALPHA PHI ALPHA AT S&T TURNS 50

Chartered in 1964 at the height of the civil rights movement, Missouri S&T's oldest African-American fraternity encountered obstacles on the way to its 50th anniversary, especially in the early years.

"There were some early difficulties in getting the fraternity off the ground," says **Henry Brown**, CE'68, one of 18 founding members of the Epsilon Psi chapter of Alpha Phi Alpha fraternity.

Brown says founders felt resistance from university administrators, who questioned the need for a new historically black fraternity in Rolla when there were already a handful of nationally recognized fraternities on campus.

"But it wasn't a realistic possibility for us to walk up and join one of the fraternities already on campus," Brown says.

The students eventually convinced school administrators with the clout of local chemist **Lawrence C. George**, who had agreed to be the fraternity's resident advisor. George, who died in March, later joined the staff at Missouri S&T and retired in 2006 as the special assistant to the chancellor for affirmative action and equal employment opportunity.

George stepped down as the fraternity's advisor in 2013, but continued to help. "He's touched a lot of people's lives," says **Lister Florence**, CE'95, the fraternity's current advisor. "He's been a father-like figure in my life."

Alpha Phi Alpha will hold a celebration for its 50th anniversary Thursday, April 23, through Sunday, April 26.



BUILDING UP THE COMPETITION

For a college student, it doesn't get more hands-on than being a part of a student design team at Missouri S&T. This year's competitions kicked off in March and won't wrap up until October. Whether it involves racecars, concrete canoes or traversing Mars-like terrain, design projects offer students a healthy dose of experiential learning. Learn all about the teams at design.mst.edu.

Advanced Aero Vehicle Group

Aero Design-West
April 24–26 in Van Nuys, Calif.

Rocketry Engineering Challenge
June 26–28 in Green River, Utah

Baja SAE

May 7–10 in Baltimore

Concrete Canoe

April 25–26 in Lawrence, Kan.

Engineers Without Borders

May — Santiago, Honduras
June — Nahualate, Guatemala
August — Los Eucaliptos and Tacachia, Bolivia

Formula SAE

Formula SAE-Michigan
May 13–16 in Brooklyn, Mich.

Formula SAE-Lincoln
June 17–20 in Lincoln, Neb.

Formula SAE-Electric

June 17–20 in Lincoln, Neb.

Human-Powered Vehicle Challenge

HPVC-West
April 24–26 in San Jose, Calif.

HPVC-East
May 8–10 in Gainesville, Fla.

Hydrogen Design Solutions

TBD

iGEM (International Genetically Engineered Machine)

Sept. 24–28 in Boston

Mars Rover

May 28–30 in Hanksville, Utah

Robotics

June 5–8 in Rochester, Mich.

Solar Car

July 26–31 in Austin, Texas

Solar House

Oct. 8–18 in Irvine, Calif.

Steel Bridge

April 23–25 in Lawrence, Kan.

FACULTY AWARDS

Seven faculty were recently recognized.

Elizabeth Cudney, PhD EMgt'06, an associate professor of engineering management and systems engineering, was named a Fellow in the American Society for Engineering Management.

Suzanna Long, Hist'84, Phys'84, MS EMgt'04, PhD EMgt'07, an associate professor of engineering management and systems engineering, was named president-elect of the Society for Engineering and Management Systems.

Mohammad Tayeb Ghasr, an assistant research professor in electrical and computer engineering, was named Young Engineer of the Year by the IEEE Instrumentation and Measurement Society.

Bright Light City: Las Vegas in Popular Culture, by **Larry Gragg**, Curators' Teaching Professor of history and political science, was one of two finalists for the Spur Award for Best Western Nonfiction Contemporary.

Patrick Huber, a professor of history, received a Deems Taylor/Virgil Thomson Award for an essay titled "Black Hillbillies: African American Musicians on Old-Time Records, 1924–1932," which appeared in *Hidden in the Mix: The African American Presence in Country Music*.

Kamal H. Khayat, the Vernon and Maralee Jones Professor of civil, architectural and environmental engineering, earned the G.H. Tattersall Award at the 2014 ECO-CRETE International Symposium on Sustainability held in Reykjavik, Iceland.

John J. Myers, a professor of civil, architectural and environmental engineering, was named a Fellow of The Masonry Society.



FORMER SECRETARY OF STATE TO SPEAK MAY 14 AT S&T

Missouri S&T will present a lecture by Condoleezza Rice, the 66th U.S. secretary of state, in May. She is the 31st presenter in the Remmers Special Artist/Lecturer Series.

The series is supported through a fund established by the late **Walter E. Remmers**, MetE'23, MS MetE'24, and his late wife, **Miriam**, to bring renowned speakers and performers to the campus. The first Remmers Lecture was held in 1979 and featured former President Gerald Ford.

Rice will speak at 7:30 p.m. in the Gale Bullman Building, 10th Street and Bishop Avenue in Rolla. The lecture is free, but tickets are required. For details, contact the Leach Theatre Box Office at 573-341-4219 or visit leachtheatre.mst.edu. Tickets are limited to four per person.

Rice is currently the Denning Professor in Global Business and the Economy at the Graduate School of Business at Stanford University, where she is also the Thomas and Barbara Stephenson Senior Fellow on Public Policy at the Hoover Institution. A founding partner of the international strategic consulting firm RiceHadleyGates LLC, Rice has authored and co-authored numerous books, including two bestsellers, *No Higher Honor: A Memoir of My Years in Washington* and *Extraordinary, Ordinary People: A Memoir of Family*.

TIM AND KAY BRADLEY: COMING FULL CIRCLE



Kay and Tim, PetE'77, Bradley display some of Tim's handcrafted furniture. (Photo by Moira Photography)

Nearly 40 years after **Tim Bradley**, PetE'77, took Leonard Koederitz's enhanced oil recovery (EOR) survey course, his class notes made a cameo appearance at an industry conference.

"I remember 'Dr. K' lecturing on CO₂ enhanced oil recovery back in 1976," says Bradley, who went on to serve as president of Kinder Morgan CO₂ Co. "When I was preparing to give a talk a few years ago, I went up in the attic, found my class notes and used them in my presentation."

While those notes are a testament to Koederitz's influence, Bradley is also leaving his own legacy at Missouri S&T through a graduate fellowship he established with his wife, Kay.

"Kay and I wanted to give back where it would make the greatest difference," says Bradley, whose \$2 million gift established the R. Tim and Kay Bradley Petroleum Engineering Graduate Student Fellowship Endowment.

Tim joined Shell Oil Co. in West Texas after graduating. During the next 20 years, he advanced from manager of Shell's EOR operations in Mississippi to president of Shell CO₂, a joint venture between Shell and Kinder Morgan. In 2000, Shell sold its stake and Tim was named president of Kinder Morgan CO₂. Under his leadership, the company became North America's largest producer, transporter and marketer of carbon dioxide and the second-largest oil producer in Texas.

The Bradleys both retired in 2013 — Kay as director of church life for Houston's

Memorial Drive Presbyterian Church — and they moved to Austin to be near their children and grandchildren. Today they pursue their passions, Kay for photography and Tim for handcrafting wood furniture. They also continue to make a difference at Missouri S&T.

A member of the Academy of Mines and Metallurgy and Kappa Alpha fraternity, Tim received a professional degree in petroleum engineering in 2014. He and Kay are members of the Order of the Golden Shillelagh and contributors to the Dr. Leonard F. Koederitz Scholarship Endowment, the Russell Perry Scholarship Endowment and the Kappa Alpha house expansion.

"Tim's studies at Rolla have blessed our lives today, and we feel privileged to give back," says Kay. ■



Bob Zdvorak, EMgt'86, with his sons David (right), a senior, and Chris (left), a freshman, who are both second-generation Miner soccer players. Bottom left is David on the field, and bottom right is Chris on the field.

CARRYING THE TORCH

Bob Zdvorak, EMgt'86, a wing defender in the early days of Miner soccer, is now a regular in the stands cheering on his sons, who are the first second-generation players in the program's history.

As a defender, Bob helped the defensive unit record 16 shutouts in three years. His son, **David**, a senior in civil engineering, scored four goals last fall, including the only goal scored in the Miners' first win at the University of Wisconsin-Parkside in September. Bob's other son, **Chris**, a freshman in engineering, played in over half of his freshman season games.

"Every single day is a challenge at this institution," David says. "Playing soccer here at S&T has taught me to live my life under pressure and competition through successes and failures, which I feel will help me in the workforce following graduation."

Playing in a competitive league like the Great Lakes Valley Conference while trying to meet Missouri S&T's academic demands is a challenge, but the brothers say it has prepared them well for the future.

"I knew that if I could take care of academics and be successful in the soccer program at Missouri S&T, life would be a lot easier," says Chris. "Having to focus on academics and soccer has proven to be challenging already but not unmanageable."

KMST NAMES NEW GM



John Francis, program manager for public radio station KMST since 2002, was named general manager of the station in January. He replaced **Wayne Bledsoe**, who retired last fall.

"I'm excited to have the opportunity to work in this new capacity with the great staff and loyal membership of KMST," Francis says. "The world of radio is changing rapidly, and we have our work cut out for us to stay on the leading edge of that change."

Francis first joined KMST in 1994 as producer of *We're Science*, a syndicated science program that aired through 1999. He taught music at Rolla Junior High School from 1999 through 2001, then rejoined KMST as program manager in January 2002.

KMST, Missouri S&T's 100,000-watt National Public Radio affiliate, serves listeners in 18 counties in south-central Missouri and online at kmst.org.

BROWN NAMED ALL-AMERICA



Will Brown, a senior in engineering management, is the first Miner football player in 21 years to be named to the American Football Coaches Association's All America Team. Brown set the GLVC single-season record with seven interceptions and led the league with 11 pass breakups. Brown has drawn the interest of several NFL teams and is expected to participate in an upcoming pro day.

SAVE THE DATE: HOMECOMING 2015

Make plans now to attend Homecoming 2015 Oct. 23–24. More details will be published in the Summer issue of *Missouri S&T Magazine*. For hotel information and other accommodations in the area, go to mineralumni.com/homecoming.

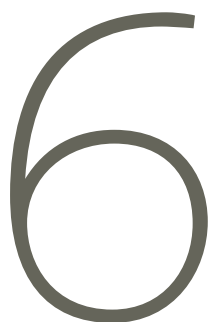
SPORTS BY THE NUMBERS



Goals allowed by the S&T men's soccer team in eight of its nine games during October 2014. The team gave up three in its first game of the month.



Goals scored by Missouri S&T's women's soccer team in the penalty shootout in the Great Lakes Valley Conference semifinal game against Quincy, allowing S&T to advance in the tournament.



Points Missouri S&T's volleyball team trailed by in the third set of its Nov. 1 match vs. Wisconsin-Parkside. The Lady Miners rallied to win that set and two others to win the match in five sets.



Yards on a touchdown pass from **Lamar Wilkes**, a freshman in biological sciences, to **Melvin Stovall**, a senior in history, in the Miners' Oct. 11 win over Lindenwood-Belleville — the longest play from scrimmage in school history.



Consecutive years Missouri S&T's women's cross-country team has had an all-conference runner.



GOOD RIDDANCE TO SOGGY BUNS

The SNAP Cap, designed by S&T freshman Tyler Richards and his friend, Jonathan Thompson, is pictured on the plate.

The solution to the soggy bun epidemic may be the brainchild of Missouri S&T freshman **Tyler Richards** and his friend, Jonathan Thompson. And it all started as an assignment for their high school Project Lead the Way capstone course, Engineering Development and Design. That's when the Liberty, Mo., teens decided to tackle a common problem: How to keep water from running out of the ketchup bottle when it's squeezed.

"If you don't shake the bottle, any water that has separated from the ketchup will not be mixed back in," Richards says. "It will come out the bottle before the ketchup does, leading to soggy buns. Soggy buns are gross."

The Pythagoras cup, a clever vessel invented by the Greek mathematician and philosopher Pythagoras of Samos, served as inspiration for the pair. Designed to encourage drinking in moderation, the cup can only hold an optimal amount of liquid.

Richards and Thompson explored dozens of ideas over the course of the school year before coming up with their Syneresis Negation Apparatus (SNAP), a mushroom-like cap they created using a 3-D printer.

"Like the cup, our design uses pressure to force a substance up and over a tube," he says. "It was also based off a plumbing trap — though instead of stopping gas with water, our cap stops water with ketchup."

The pair has received widespread media attention for their invention. They've applied for a provisional patent for the design and are working on leasing the patent to other companies to produce.

"This whole ketchup cap project and the attention that followed was certainly an experience," Richards says. "It's not often a high school student spends months researching ketchup. I just loved doing the hands-on projects and designing solutions for assignments."

He credits the project with helping him understand the process that goes into designing and creating new things.

HOW IT WORKS



The SNAP cap works like a Pythagoras cup. Pressure in the cap forces ketchup up and over a tube, trapping the water in the mushroom-shaped basin.

"It has also taught me that sometimes the simplest approach is the best," he says.

A former member of his high school's FIRST robotics team, Richards is majoring in engineering at S&T and is looking forward to joining a design team.

"I chose Missouri S&T because it is a great school for people interested in science and technology," he adds. ■



MINER SPECIALS

The best buffets offer fresh options, delightful delicacies and a smorgasbord of choices. This issue of *Missouri S&T Magazine* is no different. On the following pages, we will fill your plate with stories about Miner alumni who are shaping the way we eat.

On the menu that follows, you'll read about an environmental engineer who helps influence the way food is produced — from backyard gardens to large farms. A team of engineers who ensure Doritos, Sunchips and other snacks are always within reach. Two engineering management graduates who are crafting new careers — one with an Indian food truck, the other with a California winery. Plus you'll discover what it takes to feed today's college students from an MBA graduate, get a behind-the-scenes look at campus dining at Missouri S&T and learn the secret to some serious chili from a civil engineer.

This is just a taste of what Missouri S&T alumni are cooking up these days. Dig in and bon appétit.



MINER MUNCHIES

by Peter Ehrhard, ehrharp@mst.edu
Photo by Sam O'Keefe, okeefes@mst.edu

Catherine Swift, ME'10, pictured in front of the Frito-Lay display at the Spring Career Fair, is just one of a handful of Miners who work in the company's Topeka, Kan., plant.

Frito-Lay's Topeka, Kan., plant operates 24 hours a day. So while most of us are sleeping, **Catherine Swift**, ME'10, is monitoring 10 production lines and the 59 automated packaging tubes that take raw ingredients like corn and potatoes and turn them into bagged snack foods, ready for supermarket shelves.

"As a core plant, we produce major products like Doritos, Lay's, Sunchips, Tostitos and Fritos," says Swift. Each year the Topeka plant produces over 175 million pounds of snacks.

Swift, who has been with Frito-Lay for four years, started out there on an undergraduate internship. Now she is a manager on the plant's third shift.

Swift closely monitors the plant's production process for moisture and oil levels, and each shift compares its batches to a reference product for appearance, flavor and texture. Swift ensures that the snacks that leave the Topeka plant are the same quality as the ones made in other locations.

"We ship directly to stores, so our warehouse operation is very similar to large delivery companies," Swift explains. "For our process, shuttle robots run through our aisles finding products and getting them ready for shipping to stores throughout the country."

When Swift isn't working, she coaches a local high school girls' soccer team, making use of skills she honed as a Lady Miner

"... something about working third shift has me really starting to like Funyuns."

goalkeeper for four years at S&T. She also frequently makes trips back to Rolla.

"Since graduating, I haven't missed a career fair yet," says Swift. "I return every spring and fall to recruit other Miners."

Several other Missouri S&T alumni also work in the Topeka plant, including **Chris Emesih**, EMgt'14, **Kori Louvall**, EMgt'13, **Everett Moore**, ME'86, **Ryan Schmidt**, EMgt'13, **Aimee Snell**, ME'13, **Brooke Ryan**, Arche'11, and **Amiel Weerasinghe**, CE'10, MBA'12.

No matter where she goes, Swift says she is always asked about her favorite snack. "I used to like the Nacho Cheese Doritos best, but something about working third shift has me really starting to like Funyuns." ■



Yogurt FIX

by Mary Helen Stoltz, mhstoltz@mst.edu

Photo by Stuart Palley

More than 18,000 servings of Yoplait dairy products are consumed around the world every minute. Many of those servings come from the Carson, Calif., General Mills plant, which sits right in the middle of metropolitan Los Angeles. Plant manager **Mike Noble** oversees the production facility, which helps the brand produce the more than 11 different types of yogurt and over 85 flavors available across the Yoplait product line.

The plant is in operation 24/7 nearly 320 days a year. Noble, Phys'91, gets to work at 6:30 a.m. to check the facility's overnight performance. He makes sure there aren't any safety issues, then looks at the production numbers.

"If I see any issues, I walk the production floor to get a feel for how things are running or follow up on previous problems," he says. "Being in a food production industry, sometimes just getting the job done isn't as important as how we get the job done."

Hundreds of thousands of gallons of milk move through the plant every day, as do several thousand pounds of strawberries, blueberries and peaches — Yoplait's three most common varieties. In an average day, nearly 1 million yogurt products are

made, packaged and prepared for shipment to retailers across the nation.

Throughout this process, quality control is essential. Workers ensure each flavor goes into a properly labeled cup, and every 30 minutes a tester pulls a cup for a sensory check to examine color, consistency, mouth feel and flavor.

"We want our products to taste good and to look appealing so you would want to eat them," Noble says. "Our employees are very quick to identify when something is a little off. A flavor pump could be operating too fast and adding too much flavor, or too slowly and not adding enough."

Noble is no stranger to solving those technical problems. After a five-year stint as an aircraft maintenance officer, he started his career with General Mills at a plant that produced Betty Crocker baking products.

One particular technical issue required Noble and his team to think and act quickly.

"I remember a critical piece of the production line failed in the middle of a shift one day, resulting in 2,000 pounds of chocolate frosting on the floor," says Noble.



Mike Noble, Phys'91, oversees the Yoplait production facility at the General Mills Carson, Calif., plant. The plant operates 24 hours a day, seven days a week.

With safety and cleanliness a top priority for Noble, he and his team spent more than an hour cleaning up and repairing the production line for operation.

"Having to clean up that much chocolate frosting makes one less interested in chocolate for a while," he says.

A background in physics gives Noble a unique perspective on the manufacturing process.

"I don't believe that anything just happens," Noble says. "There is a cause for everything, and we can solve everything. Describe why it happened and find the reason. Then we can fix it."

"In school, (physics professor) **Don Sparlin** would tell us, 'Make new mistakes as fast as you can.' He would explain that if you're making new mistakes it means you're moving forward, solving problems as you go. It's absolutely true," Noble says.

Noble sees a correlation there with human behavior and is working to more fully understand the way the human brain works so he can help his employees be more productive.

"I work in a very technical manufacturing environment with lots of equipment," Noble says. "We're always trying to solve problems and make things run more efficiently. In the end, though, we're working with other people to solve those problems."

"People who know how to solve technical problems and know how to make a team work well together — those are the kinds of people who will be the most successful."

"We all get as much technical education as we need," Noble says. "We think we're always going to be using our brains to solve technical problems, but we're also going to be using those brains to solve people problems."

Noble always advises company interns to take more psychology courses as electives.

"People who know how to solve technical problems and know how to make a team work well together — those are the kinds of people who will be the most successful." ■

Photo by Sam O'Keefe, okeefes@mst.edu





A DAY IN THE LIFE OF S&T DINING

By 5:30 a.m. on an average day, the Chartwells food service staff at Missouri S&T already has begun preparations to feed S&T students, faculty and staff for the day. Before they finish, the Havener Center and Thomas Jefferson Residence Hall (TJ) food services will serve over 2,000 meals.

All diners, including the nearly 2,200 S&T students on dining plans, have access to homemade and fresh foods at every dining station. Nearly everything at S&T dining is made from scratch, from the fries at “Rustic Range” to the tortilla chips at “Sono,” the Mexican restaurant in the Havener Center.

Over the course of one week, Havener and TJ dining services will take delivery of over 52,000 pounds of food and beverages. Nearly 6,000 pounds of that is fresh produce.

When the dining services close around 7 p.m., the workers will spend extra hours cleaning up the messes left behind. And at 5:30 a.m. the next day, they will start all over again.







by Mary Helen Stoltz, mhstoltz@mst.edu
Photo by Michael McNamara


Larry Eastep, CE'69, MS CE'76, started cooking chili competitively in the early '90s. He competes five to 10 times a year, making everything from traditional red chili to chili verde and salsa in 18 states and Canada. Eastep is considered a Grand Master Cook by the International Chili Society (ICS).

The major sanctioning organization for chili cook-offs, the ICS began in 1967 when founder Carroll Shelby, an engineer and developer of the Shelby Cobra Mustang, started a chili cook-off with a group of friends. Today, the ICS sponsors over 200 competitions a year.

“The secret is keeping it simple.”

This past fall, Eastep's red chili recipe won the Central States Regional in Illinois to qualify for the ICS World Championship, where he will face over 140 competitors.

“Good chili is as much about the process as it is about the ingredients,” says Eastep, who also cooks chili for charitable events. “The secret is keeping it simple. When I read complex recipes with lots of ingredients I just chuckle, because that's not chili.”

Eastep retired from the Illinois Environmental Protection Agency in 2005. He is an independent environmental consultant specializing in contamination remediation. 





Inspired by a reality television show and missing the foods of his homeland, **Siddharth “Sid” Panchal**, MS CpE’03, opened Bombay Food Junkies in 2013.

The Mumbai, India, native and his wife, **Krupa**, serve vegan and vegetarian meals from their food truck at St. Louis-area hospitals, industrial parks and college campuses, dishing out authentic Indian street food.

The business idea started when the couple watched “The Great Food Truck Race” on the Food Network. That was enough to spark the idea of delivering authentic street food to the people of St. Louis.

“The key to our success is finding what foods sell and where.”

Panchal started scouring Craigslist for vehicles that could be converted into food trucks and called local food truck operators for tips and hints. After finding a truck, the Panchals launched a Kickstarter campaign and raised the necessary funds to get the truck wrapped in banners and fully modified.

Less than two years after opening, Bombay Food Junkies took second place in a Best Vegetarian Food Truck competition sponsored by mobile-cuisine.com

“The key to our success is finding what foods sell and where,” says Sid. “Our samosa chole is the biggest seller, while veggie burgers were a surprise flop. Picking the right location is important too; not all scenes are looking for a vegetarian option.”

Krupa runs the day-to-day operations of the truck, while Sid, a senior consultant for project management at Daugherty Business Solutions in St. Louis, helps out at the truck some weeknights and on weekends.

“My wife was used to driving a Honda Civic, and suddenly she had to learn to drive a 28-foot truck filled with two fridges, a three-compartment sink and two pizza ovens,” says Sid. “The business will be two years old this month (April 2015). We haven’t had any accidents yet and are still going strong.”



by Andrew Careaga, acareaga@mst.edu
Photos by Bethany Baker

A key ingredient for an herbicide that protects crops from weeds originates from a dark, dirt-like substance mined in Idaho. **Molly Prickett**, EnvE'13, is responsible for making certain that substance, phosphate, is mined and processed in an environmentally safe manner.

Prickett, a native of Kearney, Mo., works as an environmental engineer for Monsanto. The St. Louis-based agricultural products company plays a major role in how food is produced — from backyard gardens, where products like RoundUp help control weeds, to large farms where the company's seed products yield bumper harvests of corn and grains, to research labs where scientists develop drought-resistant strains of plants. Though far removed from the process of producing food, Prickett nevertheless feels a bond between her work and efforts to feed a growing global population.

"The world population is going to be over 9 billion by 2050," Prickett says. "It's already a struggle to feed everyone, and since we're not gaining any land in this world, we have to be more efficient in how we produce food."

Prickett works at the only elemental phosphorus plant in the Western Hemisphere. Located near Soda Springs, Idaho, the plant and nearby phosphate mines are where an important ingredient

"... we have to be more efficient in how we produce food."

for the herbicide RoundUp is found. At those surface mines, workers extract phosphate ore — which "looks just like potting soil," Prickett says. It is hauled 10 miles to the plant, where it is turned into phosphorus, combined with quartz and silica, and transported to a Monsanto plant in Luling, La. There, it becomes glyphosate, the main ingredient of RoundUp.

"Every bottle of RoundUp that you've ever seen in a store starts from the dirt in these mines," Prickett says.

None of this can happen, however, if the company runs afoul of state and federal environmental and safety regulations. That's where Prickett comes in. She's responsible for ensuring that the plant and mine comply with numerous environmental rules. Her job requires her to stay abreast of state and federal laws regulating storm water, groundwater, surface water and air compliance for the mines. She spends her days checking



Molly Prickett, EnvE'13, an environmental engineer for Monsanto, is pictured at a phosphate mine near Soda Springs, Idaho. Prickett works at the only elemental phosphorous plant in the Western Hemisphere.

processes and procedures at the phosphate mines and at the processing plant.

"I really like the hands-on aspect of this job," she says. "I like how I am able to operate autonomously and seek ways to continuously go above and beyond compliance with our environmental permits."


Prickett also enjoys the outdoors and the surroundings of Big Sky country. "I'm only 3 or 4 hours away from Yellowstone and just a couple of hours outside of Grand Teton National Park. I love it out here."

Even though she's stationed in a remote part of the country, she stays connected with Monsanto through a program called the Local Leadership Exchange. She was one of 42 Monsanto employees chosen for the leadership development program, which brings up-and-coming employees together to "get a broader view of the company."

Through this program, Prickett has learned more about issues related to genetically modified organisms, or GMOs. In

some circles, the term has gotten a bad name. But Prickett sees Monsanto's work as being crucial toward developing sustainable food supplies globally.

"A lot of our work in seed technology is about plant breeding, which is how corn came to be over many generations," she says. Corn, wheat, strawberries and many other fruits and vegetables have been "modified" over the years through selective breeding techniques. "Our efforts are about increasing crop yields with fewer inputs — less water use and less tilling, all of which saves farmers time and reduces the use of fossil fuels. Our whole point is sustainability."

Prickett learned a lot about sustainability while an environmental engineering student at S&T, where she also served as an officer on the Student Union Board and took part in Miner Challenge, the alternative spring break program. Her interest in sustainability continues as she pursues an MBA online from S&T with a certificate in sustainable business. 





by Arielle Bodine, news@mst.edu
Photo by Bryan Gray Photography

Chad Angelo, EMgt'87, is a systems engineer with Boeing, but he also operates Angelo Cellars, a Napa, Calif., winery that specializes in red wines.

California's Napa Valley is home to over 400 wineries that specialize in everything from merlot to chardonnay. **Chad Angelo**, EMgt'87, a systems engineer with the Boeing Co. in Colorado Springs, Colo., owns one of those wineries.

Founded in 2005, Angelo Cellars focuses on red wines like cabernet sauvignon and zinfandel.

Trips to Missouri's St. James Winery piqued Angelo's interest in wines and winemaking 20 years ago, when he was still a student at Missouri S&T.

"I liked wine and winemaking because it was so different from the methodical exactness of engineering," Angelo says. "Winemaking is chemistry, but also art."

"You have to let
your taste buds be
your guide."

"Grapes from the same vineyard might taste different," he says. "You have to let your taste buds be your guide, and then winemaking and blending becomes an art."

Since founding Angelo Cellars nearly 10 years ago, he has handcrafted every wine the company distributes.

Though each wine is different, Angelo has a well-honed winemaking process.

"In April, the grapes start coming alive," he says. "By September or October of the same year, I have purchased my grapes from a vineyard and they are crushed and in the barrel by December."

Throughout the next 18 months, or longer, the wine only leaves the barrel during periodic barrel cleanings. From the vine to the bottle, each wine takes two to three years.

Angelo's systematic and artful approach to winemaking has won double gold and silver awards at the San Francisco International Wine Competition, the largest international wine contest in America.

But Angelo says he gets more satisfaction out of seeing his wine listed on a restaurant menu.

"When you go to a high-end restaurant and see your wine listed next to wines that have been coming out of Napa for 20 or 30 years, it's really gratifying," he says. ■

TRENDY TASTES

by Arielle Bodine, news@mst.edu
Photo by Sam O'Keefe, okeefes@mst.edu

Michael Wuest, Bus'07, MBA'08, pictured in the University of Missouri-Columbia's modern and elegant Plaza 900 dining room, is marketing manager for MU's Campus Dining Services.



Feeding a college student is hard work. Feeding thousands of them every day is even harder. With various allergies, dietary restrictions and personal preferences, college students are arguably among the pickiest of eaters, says **Michael Wuest**, Bus'07, MBA'08.

It's Wuest's job to please the palates of thousands of college students every day. As the marketing manager of the University of Missouri-Columbia Campus Dining Services, he knows how hard it is to find and implement dining options that students will like.

Wuest and his team serve over 4 million meals a year. They accommodate all the needs and preferences of each student through options — lots of them.

"Every restaurant has at least one vegetarian option, and other dining options have gluten-free meals," Wuest says. "Both standard facilities and specific restaurants have those options."

When choosing new dining options and locales, Wuest takes everything from student feedback and historical data to traffic flow patterns and upcoming construction into account — all while staying innovative and on top of current trends.

"The biggest component of our success is open communication with our primary customers — the students — and providing the options they want when we know it's a good fit," he says.

With so many choices, it is hard to ensure quality and consistency and eliminate waste. Wuest says batch cooking solves all three problems.

"We know how many students will come in during a certain time, and we know roughly how much we can make in a certain

"Campus dining is not 'plop and slop.'"

amount of time," Wuest says. "During our busiest times, we make 10 to 30 servings of a food item at a time, and when there are only a certain number of servings left, we make more."

Wuest says that cooking in batches does not involve taking frozen food from a box and putting it in the oven.

"Campus dining is not 'plop and slop,'" he says. "Dining programs nationwide, including the University of Missouri, are returning to the traditional way of cooking by making the majority of our food in-house from scratch."

In addition to prioritizing quality, cutting waste and implementing from-scratch cooking, Wuest stays on top of major trends in campus dining systems.

"The big three things on everyone's radar are regional and ethnic cuisines, sensitivity to special dietary needs and having facilities that allow students to order what they want," Wuest says. "The all-you-care-to-eat system of the past is going away."

Wuest and his team are sure they will please the palates of nearly every student.

"People will pay for the food they enjoy," Wuest says. "So, as long as we have the right quality, service and value, we will accomplish our mission." ■



MINER ALUMNI ASSOCIATION

Representing more than 56,000 alumni worldwide

For more information about your representatives, go to mineralumni.com.

PRESIDENT

RICHARD W. EIMER JR. '71
retiredexec4@gmail.com

PRESIDENT-ELECT

HELENE HARDY-PIERCE '83
hpierce@gaf.com

VICE PRESIDENTS

ERNEST K. BANKS '81
ernie.banks@prodigy.net

DELORES HINKLE '75
deloreshinkle@gmail.com

RONALD W. JAGELS '86
ronjagels@gmail.com

MIKE MCEVILLY '80
michaeljmcevilly@comcast.net

CHRIS RAMSAY '83
cramsay@mst.edu

STEPHEN W. RECTOR '72
swr@rimop.com

TREASURER

W. KEITH WEDGE '70
bk670wdg@fidmail.com

ASSISTANT TREASURER

RICHARD L. ELGIN '74
elgin@rollanet.org

SECRETARY

BILL BRUNE '75
tallbill@bruneweb.com

DIRECTORS-AT-LARGE

ROBERT "R.J." AGE '03
rageeumr@gmail.com

TESSA C. BAUGHMAN '04
tessa.russell@gmail.com

PRESTON CARNEY '02
pcarney@cox.net

MICHAEL EMANUEL '87
mjmanuel@swbell.net

KURT HASLAG '07
khaslag@askbrinkmann.com

DARRIN TALLEY '88
darrin.l.talley@exxonmobil.com

STUDENT REPRESENTATIVES

Student Council President
REBECCA JACOBSEN
rsj7w2@mst.edu

Graduate Student President
ERICA RONCHETTO
earp7c@mst.edu

Student Union Board President
NICHOLAS MCGRAW
nrm7cd@mst.edu

Students Today, Alumni Tomorrow
TIMOTHY VICTOR
trv7w6@mst.edu

COMMITTEE CHAIRS

Student Engagement
ERNEST K. BANKS '81
ernie.banks@bjc.org

Alumni Engagement
KURT HASLAG '07
khaslag@askbrinkmann.com

Strengthening Campus Relations
MICHAEL MCEVILLY '80
michaeljmcevilly@comcast.net

Financial Resources

STEPHEN W. RECTOR '72
swr@rimop.com

Marketing and Communications
DARRIN TALLEY '88
darrin.l.talley@exxonmobil.com

PAST PRESIDENTS

ROBERT D. BAY '49
rdbay673@yahoo.com

ROBERT T. BERRY '72
rberrytwin@aol.com

JAMES E. BERTELSMEYER '66
pinnacleinvestmentsllc@gmail.com

ROBERT M. BRACKBILL '42
rbrackbill@hotmail.com

MATTEO A. COCO '66
cocohm@sbcglobal.net

JOHN EASH '79
johnneash@miner.mst.edu

LARRY L. HENDREN '73
lhendren@ess-inc.com

ZEBULUN NASH '72
zebnash@sbcglobal.net

JAMES R. PATTERSON '54
jrpatt@charter.net

DARLENE (MELOY) RAMSAY '84
ramsayd@mst.edu

PERRIN R. ROLLER '80
roller@miner.mst.edu

SUSAN HADLEY ROTHSCHILD '74
srothsch@swbell.net

GERALD L. STEVENSON '59
stevenson63@verizon.net

JOHN B. TOOMEY '49
starmgmt@aol.com

STAFF

SARAH GROSE
Secretary
groses@mst.edu

NANCY HATCH
Alumni Relations Manager
hatchn@mst.edu

KATHY INMAN
Administrative Assistant
inmank@mst.edu

KATIE JACKSON
Assistant Director
jacksonkj@mst.edu

DARLENE (MELOY) RAMSAY '84
Assistant Vice Chancellor for Alumni
Relations and Advancement Services
ramsayd@mst.edu

TRAVIS SEWELL
Alumni Relations Manager
sewelltd@mst.edu

RENEE D. STONE
Accountant
renees@mst.edu

AREA DIRECTORS

Area 1: DOUGLAS MARQUART '82
dwmarquart@yahoo.com

Area 2: STEPHEN SCHROCK '11
schrock.stephen@gmail.com

Area 3: DANIEL RYAN '12
daniel.lewis.ryan@gmail.com

Area 4: JOHN KEATING '73
jmkeating@aol.com

Area 5: DAWN STUFFT '99
dmstufft@marathonpetroleum.com

Area 6: GARY HINES '95
ghines3@tx.rr.com

Area 7: BERNARD HELD '75
bhheld@cmtengr.com

Area 8: RICHARD BERNING '69
richtbern@aol.com

Area 9: MICHAEL GROSS '88
smoky1001@yahoo.com

Areas 10-18:
ELIZABETH BAUMBACH '90
elizabeth.baumbach@gmail.com

MICHAEL BUSBY '78
mike@airsolutionsinc.com

ALAN ERICKSON '75
alerickson@gmail.com

RUSSELL GOLDAMMER '78
russell_goldammer@ctsinc.biz

RACHEL JUNG '09
rik_755@hotmail.com

JEREMIAH KING '06
jeremiah.king@askbrinkmann.com

WILLIAM MCALLISTER III '76
bmcallister@burnsmcd.com

JOHN RENZ '81
johnwrenz@gmail.com

STEPHEN SQUIBB '98
steveandamie@gmail.com

Area 19: DANIEL BAILEY '03
daniel.jaye.bailey@gmail.com

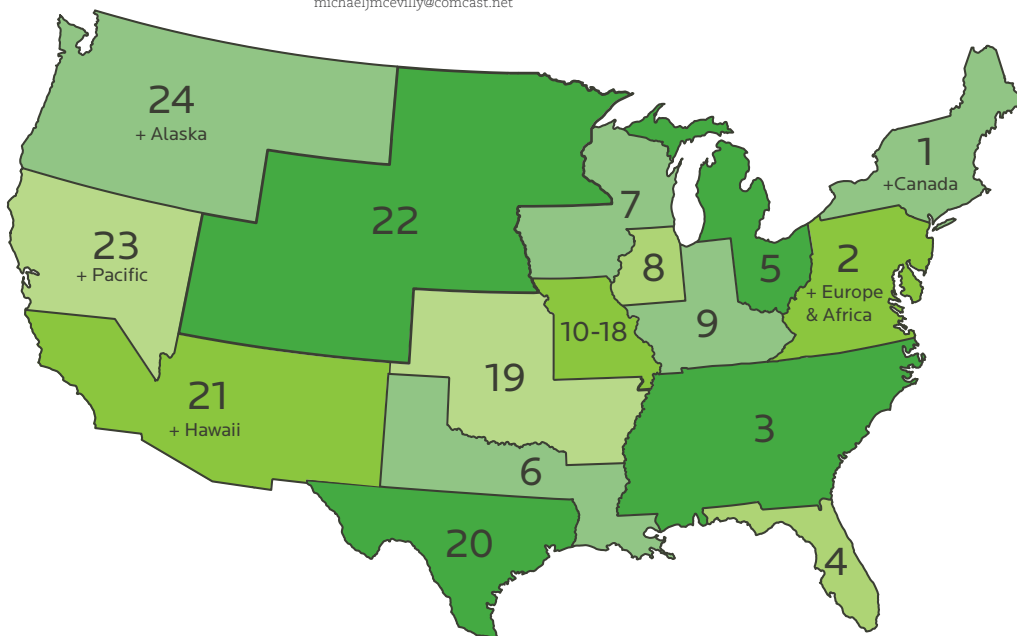
Area 20: JOHN CAMPBELL '74
campbjr@msn.com

Area 21: DANIEL JACKSON '90
djack1003@cox.net

Area 22: KIMBERLY MORRISON '96
kimberly@morrisongeo.com

Area 23: DENNIS LEITTERMAN '76
dennis_leitterman@yahoo.com

Area 24: DAVID HEINECK '79
heineck@frontier.com



ALUMNI AREAS

The Miner Alumni Association board of directors functions as the eyes, ears and voice of more than 56,000 living alumni. Please check the map at left and the "area directors" list above to identify your current area director. We encourage you to contact your area director.



LEADING ON THE COAST

Dennis Leitnerman, EE'76, MS EE'77, Bay Area Section president and Area 23 director for the Miner Alumni Association, hopes to bring more alumni into the fold by offering a number of events in the San Francisco Bay Area throughout the year. Missouri S&T Magazine staff asked him a few questions about his section.

How do you connect with alumni?

We offer a wide range of activities spread around the year, but we also vary the time, day and venue almost every year to try to connect with more alumni who have not attended a previous event. It's a very welcoming group, and we hope to reach all alumni in the area and meet up.

Why get involved with an alumni section?

Bringing alumni together to celebrate, reminisce and make new friends is very rewarding. I enjoy interacting with alumni and students of all ages and academic backgrounds, whether at our annual St. Pat's party or cheering on the Human Powered Vehicle Team at its California competition.

Why do you serve as an officer?

I've held leadership positions in almost every group and organization I have been a part of since joining the Scouts as a boy. Leading the Bay Area Section is a very gratifying way to support Missouri S&T.

What is your favorite event in the Bay Area?

All of our events are fun, but if I have to pick a favorite, it would be St. Pat's. The stories that alumni share about their student days during St. Pat's are amazing.

FORGING NEW FRIENDSHIPS

In 2012, the Miner Alumni Association board of directors consolidated its committees into five groups with broad goals. In this issue, we introduce you to the Strengthening Campus Relations Committee.

The committee finds and then builds upon potential areas of collaboration between the Miner Alumni Association and the other areas of the campus.

"In other words, we are trying to get people engaged with the life of the campus while they are students and then continue that engagement after they graduate," says committee chair **Mike McEvilly**, CE'80, MS EMgt'81.

The committee invites representatives from campus organizations to each of its meetings to raise awareness of the association and its projects among the university's various departments.

Lifetime alumni engagement is an important part of Missouri S&T's strategic plan. The committee already made an impact around campus by restructuring the alumni speaker's bureau and increasing attendance at Homecoming's 2013 Legends Banquet by approximately 250 percent compared to the 2012 event.

"Campus units can turn to this committee for help reaching alumni and finding common ground," says **Katie Jackson**, assistant director of the Miner Alumni Association. "Getting the word out to campus that alumni are interested in what is going on will lead to better interactions on both sides."

NEW ROLE FOR YOUNG ALUMNI

To help engage young alumni — and serve their unique needs and interests — the Miner Alumni Association formed the New Alumni Council (NAC) in April 2014. NAC sponsors programs and events to encourage young alumni and current students to connect and get involved with the alumni association.

"I wanted to stay involved with the school as much as I could after moving over 2,000 miles away from Rolla," says co-chair **Maggie Bowman** CE'13, a production support engineer with the Boeing Co. in Redmond, Wash. "Being involved with young professionals with the same mindset of giving back to the university with our time and ideas was something that I could really benefit from."

To find out how you can get involved with the New Alumni Council, contact **Katie Jackson**, assistant director of the Miner Alumni Association at jacksonkj@mst.edu.

"It's imperative that we create opportunities for young alumni to grow their connections while their student network still exists," Jackson says. "It's much more difficult to re-engage someone who's been out of the loop for years without any remaining connections."

TIM AND KAY BRADLEY: COMING FULL CIRCLE



Kay and Tim, PetE'77, Bradley display some of Tim's handcrafted furniture. (Photo by Moira Photography)

Nearly 40 years after **Tim Bradley**, PetE'77, took Leonard Koederitz's enhanced oil recovery (EOR) survey course, his class notes made a cameo appearance at an industry conference.

"I remember 'Dr. K' lecturing on CO₂ enhanced oil recovery back in 1976," says Bradley, who went on to serve as president of Kinder Morgan CO₂ Co. "When I was preparing to give a talk a few years ago, I went up in the attic, found my class notes and used them in my presentation."

While those notes are a testament to Koederitz's influence, Bradley is also leaving his own legacy at Missouri S&T through a graduate fellowship he established with his wife, Kay.

"Kay and I wanted to give back where it would make the greatest difference," says Bradley, whose \$2 million gift established the R. Tim and Kay Bradley Petroleum Engineering Graduate Student Fellowship Endowment.

Tim joined Shell Oil Co. in West Texas after graduating. During the next 20 years, he advanced from manager of Shell's EOR operations in Mississippi to president of Shell CO₂, a joint venture between Shell and Kinder Morgan. In 2000, Shell sold its stake and Tim was named president of Kinder Morgan CO₂. Under his leadership, the company became North America's largest producer, transporter and marketer of carbon dioxide and the second-largest oil producer in Texas.

The Bradleys both retired in 2013 — Kay as director of church life for Houston's

Memorial Drive Presbyterian Church — and they moved to Austin to be near their children and grandchildren. Today they pursue their passions, Kay for photography and Tim for handcrafting wood furniture. They also continue to make a difference at Missouri S&T.

A member of the Academy of Mines and Metallurgy and Kappa Alpha fraternity, Tim received a professional degree in petroleum engineering in 2014. He and Kay are members of the Order of the Golden Shillelagh and contributors to the Dr. Leonard F. Koederitz Scholarship Endowment, the Russell Perry Scholarship Endowment and the Kappa Alpha house expansion.

"Tim's studies at Rolla have blessed our lives today, and we feel privileged to give back," says Kay. ■

► **BEST EVER**

Just before dawn on the morning of the parade, St. Pat's Committee members and alumni painted Pine Street green.





Miner Alumni Association
1100 N. Pine St.
Rolla, MO 65409-0650

ADDRESS SERVICE REQUESTED

Parents: If this issue of Missouri S&T Magazine is addressed to your son or daughter who has established a separate permanent address, please notify us of the new address: 573-341-4145 or alumni@mst.edu.

NONPROFIT ORG.
U.S. POSTAGE PAID
LIBERTY, MO
PERMIT #143

A PUBLICATION OF THE MINER ALUMNI
ASSOCIATION REPRESENTING AND
SERVING ALUMNI OF MSM, UMR AND
MISSOURI S&T

MINER SPECIALS

SPRING 2015 VOL. 89 NO. 1

MAGAZINE.MST.EDU

APRIL IS PHILANTHROPY MONTH



Come together with alumni, friends and university family members who are making a difference as our campus celebrates the philanthropic spirit throughout April.

To the right is a partial list of Philanthropy Month activities. Many events are scheduled the week of April 13–18, when leadership meetings will bring university trustees, alumni association board members and academy members to campus.

APRIL 13-18

**Academy, Alumni Association
and Trustee Meetings**

APRIL 16

Lab Dedication

Celebrate 11 upgraded instructional labs.

APRIL 15

TAG Day (Thanking All Givers)

Look for tags honoring S&T donors.

Woman of the Year

The 18th annual Woman of the Year Awards Luncheon.

APRIL 17

Battle of the Brains

Scholarship students and donors will team up for an evening of fellowship, feasting and fun as they compete for the title of Biggest Brainiac.