



## Missouri S&T Magazine Summer 2014

Missouri S&T Marketing and Communications Department

Miner Alumni Association

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# GLASS.

7 ways S&T is shattering stereotypes

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PANNING FOR  
GOLD

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HOMECOMING  
2014

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TOUCHDOWN FOR  
STUDENT HEALTH



## *You're the key to our future.*

*But before we unlock the doors of Hasselmann Alumni House to the campus community, we would like for you to celebrate the milestone with us by helping set up our new home. Your generosity will put the finishing touches on the house, and make it a home for you and your fellow Miners to visit for years to come.*

**We've made it easy for you to help us furnish the house using the following registry:**

- **Silver lining.** A gift of \$30 will provide one set of flatware. We'd like 300.
- **Coffee break.** A gift of \$400 will furnish the home with a coffee table. We need three.
- **Raise a glass.** A gift of \$2,500 will supply 400 water glasses – enough for the entire home.
- **Rack 'em up.** A gift of \$3,000 will provide a pool table.
- **Come to the table.** A naming gift of \$5,000 will supply a dining table. We'd love to have 25.
- **Let the music play.** A naming gift of \$15,000 will furnish the home with a baby grand piano.

*To see the complete registry and to make a gift, please visit [mineralumni.com/hahregistry](http://mineralumni.com/hahregistry).*

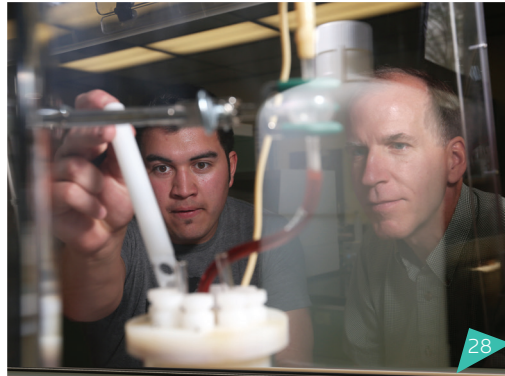
*Don't forget to join us **Saturday, March 14**, for a dedication ceremony and housewarming party — one that we'll celebrate in true St. Pat's fashion.*



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## ◀ ON THE COVER

Glass is so commonplace it is nearly invisible — and probably most noticeable when it's broken. At the Hot Glass Shop, broken glass, like the shards pictured on the cover, is reused in new projects. Glass isn't always fragile, though. At Missouri S&T, researchers use it to kill bacteria, build stronger bridges, store nuclear waste and more.

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Tony Kaczmarek, LSci'87.

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Pageviews on mst.edu during our special "Doge" edition on April 1, 2014, a 643% increase from last year. See page 13.

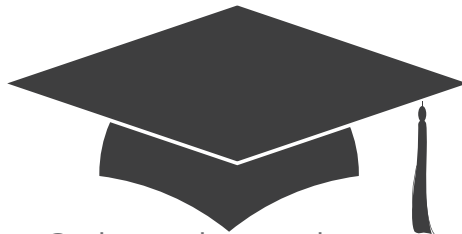


Missouri S&T's rank among public universities for return on investment as determined by the 2014 PayScale College ROI Report. Among all universities, public and private, Missouri S&T ranks 20th.

Missouri S&T's rank among graduate engineering programs, according to U.S. News & World Report .



Employers registered at Missouri S&T's Spring 2014 Career Fair.



Graduates who earned bachelor's, master's or Ph.D. degrees during May 2014 commencement ceremonies.

Recruiters at Missouri S&T's Spring 2014 Career Fair. Students Today, Alumni Tomorrow and Engineers Without Borders hosted a breakfast for alumni recruiters before the fair began.



# 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.

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EDITOR'S  
TOP FIVE  
PICKS

Dear Alumni and Friends,

When we decided to dedicate this issue of *Missouri S&T Magazine* to glass, I was reminded of my arrival at Missouri S&T five years ago. I was both humbled and inspired by a student who greeted me with a vase crafted in the Hot Glass Shop. This housewarming gift was a perfect introduction to the impressive skills that Miners possess. In this issue, we'll give you a pictorial "tour" of the Hot Glass Shop and show you some of the beauty and creativity that can be produced once you understand the science of glass.

But it goes beyond beauty. The variability and strength of the glass material that is studied and produced at Missouri S&T leads to some surprising

applications. On the following pages, you will find stories that demonstrate the role glass plays in some unexpected areas — radioactive waste management, architecture, 3-D printing and even healthcare.

There are a lot of exciting things going on here in Rolla. We've seen record enrollment and the largest Career Fair in S&T history. We have a renewed sense of vision with the unveiling of a new campus master plan. And we anticipate the dedication of the Hasselmann Alumni House this coming March. For all of us at Missouri S&T, I think it's safe to say that our glass is most certainly half full.

**Katie Jackson**  
assistant director  
Miner Alumni Association

- 1} The Hasselmann Alumni House is starting to take shape. Read more on page 13 or get a live look at construction in progress at [mineralumni.com/house](http://mineralumni.com/house). Flip back a couple of pages to see how you can help furnish the house.
- 2} Missouri S&T aims to be best in the nation in four signature research areas. Read more about each of their unique strengths on pages 14-15.
- 3} One of the Minority Engineering Program's first graduates is now director of diversity for Ameren Corp. Meet **Steve Parks**, EMgt'82, on page 6.
- 4} **Mohammad A. ElGawady** replaced 20 percent of the sand in concrete with ground up rubber from discarded tires to create durable masonry blocks. Learn about their benefits on page 9.
- 5} Wow. Much April. So Fools'. Very Doge. Get a look at the Internet-famous dog named Doge that took over the Missouri S&T website on April 1 and read about some of the resulting buzz on page 13.

JAMES E. BERTELSMEYER HALL

Oct. 17, 2014

Join the Missouri S&T family for a day of celebration and appreciation as we launch a new era for chemical and biochemical engineering with the dedication of James E. Bertelsmeyer Hall. More information on page 19.



DEDICATION & DONOR RECOGNITION CEREMONY



## What advice would you share with a new S&T student?

To welcome new students to campus during Opening Week at the start of the school year, we asked upperclassmen and alumni to share advice for new S&T students. Here is what they told us.



“This will be the most impactful four years (or more) of your life. It is a watershed. As an alumnus (retired vice president of a Fortune 500 company) said, “Come to Rolla and change you and your family station in life for generations to come.” Most of us came from modest means. We look back and realize we would not be where we are today if it were not for that decision to come here ... and the stick-to-it-ive-ness to hang in there when it got tough. Best decision I ever made, many of us have said.”

**Bob Stevens**, ChE'81  
Houston, Texas

“Work hard, make friends, workout, stay safe.”

**Jeff Evans**, ME'11  
Kansas City, Mo.

“Join a design team. Employers care more about your campus involvement and leadership skills than your GPA. You can be as smart as Sheldon Cooper, but if you don't demonstrate an ability to work with a team, they won't hire you. I was hired in largely because of my leadership positions with AAVG (Advanced Aero Vehicle Group).”

**Tim Peters**, AE'10  
Derby, Kan.

1. Study hard — Most employers have minimum GPA requirements. 2. Get involved — There are plenty of extracurricular activities to choose from (design teams, faith-based groups, res life organizations, etc.) Starting as a freshman will put you in a good position to be in a leadership position your junior or senior year — another thing employers look for. 3. Actively participate in Opening Week — Class, Project X, make some new friends, and don't forget the evening activities! 4. Make the most of the opportunity — College is your opportunity to try new things, meet new people, build new skills and develop friendships that will last long after you graduate.”

**Gail Lueck**, EMgt'02, MS EMgt'03  
St. Louis

### Tell us. Did you think of that?

We've all seen an invention that's made us stop and say, “Why didn't I think of that?” Help us find Rolla alumni who have demonstrated their ingenuity and innovation through their inventions. In an effort to identify the diverse, distinguished and successful careers of our alumni, we are compiling a list of those who saw a need and created something new to meet that need.

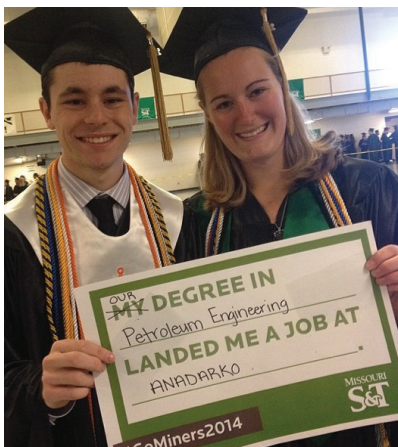
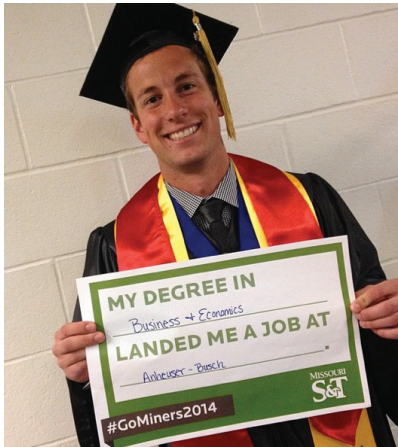
We have already identified several patents owned by Rolla alumni, but we need your help to make this list more complete. If you know of alumni who have invented something, from the serious to the strange, please help us by completing this short online survey found at [rol.la/minerinventors](http://rol.la/minerinventors).

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

Email your answers to [alumni@mst.edu](mailto:alumni@mst.edu), or via Facebook or Twitter, by Dec. 15, 2014.

# S MissouriSandT

We asked our grads to share where their degrees are taking them. See a Storify with these and more at [rol.la/gominers2014](http://rol.la/gominers2014).



## Miner Alumni Association shared a link

It is here! Check out our new website: [www.mineralumni.com](http://www.mineralumni.com)

## @missmariavdubs

Maria Vega-Westhoff, senior in chemical engineering, Columbia, Mo.

Couldn't be more proud to be a Miner after reading the stories about Philanthropy Month at @MissouriSandT and how #minersgiveback



## Missouri University of Science and Technology

Today's #tbt from 1940 features the Shamrock Club, one of many eating clubs that flourished on campus. Some lasted for only a few years while others reorganized themselves as fraternities. Read more about "the way they ate" - <http://rol.la/Ty3z1Y>

## MissouriSandT



## Missouri S&T historian recalls D-Day

On the 70th anniversary of the Allied invasion of Normandy during World War II, Missouri S&T military historian John C. McManus discusses his new book about the Omaha Beach landing, *The Dead and Those About to Die: D-Day: The Big Red One at Omaha Beach*.

## @Cheezburger

Cheezburger  
Missouri University of Science and Technology officially wins April Fools.

## Zach

Ebus at Missouri S&T



Join your alma mater online at [news.mst.edu/social](http://news.mst.edu/social).







Steve Parks, EMgt'82, is director of diversity for Ameren Corp. in St. Louis. (Photo by B.A. Rupert)

## STEVE PARKS: 'FAILURE IS JUST FEEDBACK'

**Steve Parks**, EMgt'82, wants Missouri S&T students to discover who they are much earlier than he did.

One of the first graduates of S&T's Minority Engineering Program, Parks says he felt like an outsider when he came to the university. At least two instructors told him that he wouldn't graduate.

"That's when I decided, whatever it took, I was going to find a way. I tell students, don't set out to prove yourself to someone else — set out to *improve* yourself."

Now director of diversity for Ameren Corp. in St. Louis, Parks regularly returns to campus to interact with students. He talks to them about subjects like the importance of having a mentor and sponsor, and having the right mindset about failure.

"Failure is just feedback," he tells them. "It just tells you it didn't work this time, so try something else."

Parks cautions students to give praise little credence. "If someone says you're good at something, you'll believe it. Then an opportunity may come along that you won't take — you won't even try because you don't want to ruin this perception of being 'good,'" he says. "If you just change your perception of failure, you can take chances. You can fail, without being a 'failure.'"

"I just don't want students to allow others to direct their lives like I did," he says. He hopes they look at themselves to discover what they are meant to do. "I tell them, 'don't allow other people to take this special thing about you and treat it

less than how it deserves to be treated,'" he says.

Now in its 40th year, the MEP was developed by professors and student representatives from the Association for Black Students to bring more minority students to the university through a scholarship program supported by industry. Today, the MEP mission is part of the office of student diversity, outreach and women's programs.

Parks earned an MBA from Fontbonne University, is a certified senior human resources professional, holds memberships in numerous professional organizations and serves on the Chancellor's Advisory Committee on African American Recruitment and Retention. He and his wife, Dee, have six children and five grandchildren. ■

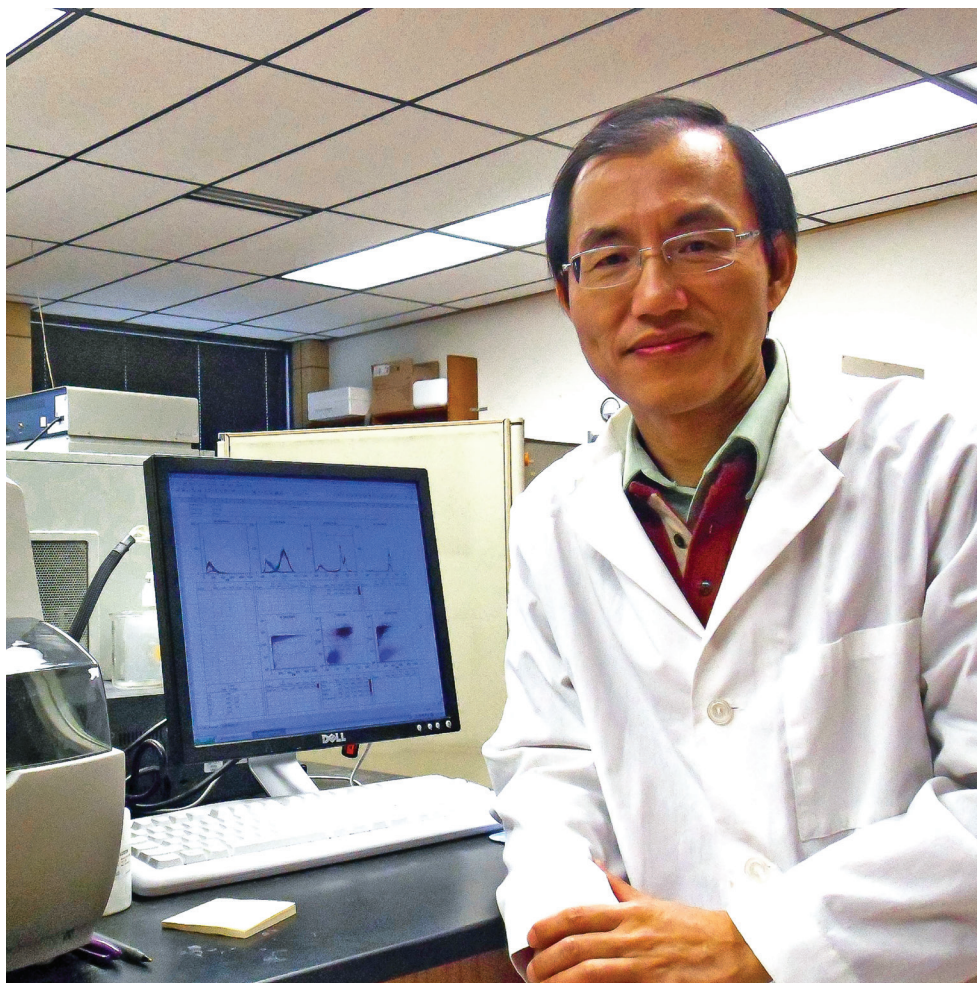


Photo courtesy of Yue-Wern Huang.

## LUNGS MAY SUFFER WHEN ELEMENTS GO NANO

Nanoparticles are found in everything from electronics and medicine to cosmetics and environmental cleanup, but **Yue-Wern Huang** says they can be harmful when inhaled.

Huang, a professor of biological sciences, exposed human lung cells to nanoparticles composed of titanium, chromium, manganese, iron, nickel, copper and zinc, and found that they penetrated the lung cells and destroyed their membranes. The farther to the right an element appears on the periodic table, the greater its toxicity, Huang found.

Huang says that some of the nanoparticles released metal ions, which also played a significant role in cell death. He is now working on new research that may help reduce nanoparticles' toxicity and shed light on how they interact with cells.

"We are coating toxic zinc oxide nanoparticles with non-toxic nanoparticles to see if zinc oxide's toxicity can be reduced," Huang says. "We hope this can mitigate toxicity without compromising zinc oxide's intended applications. We're also investigating whether nanoparticles inhibit cell division and influence cell cycle."

The researcher's findings, "Cytotoxicity in the age of nano: The role of fourth period transition metal oxide nanoparticle physicochemical properties," were published in the Nov. 25, 2013, issue of the journal *Chemico-Biological Interactions*. ■

## CELEBRATING DIVERSITY

This academic year marks milestone anniversaries for many Missouri S&T diversity programs and organizations.

- **Student Diversity/Minority Engineering Program** celebrates its 40th anniversary with a Bridge to Success-themed banquet 5:30–8:30 p.m. Saturday, Oct. 18, in the St. Pat's Ballroom of the Havener Center.
- **Alpha Phi Alpha fraternity** will celebrate its 50th anniversary April 23–26, 2015, with a Friday roast, a Saturday golf tournament, a wine tour and a banquet.
- **Chancellor's Advisory Council** will celebrate 30 years. Events TBD.
- **Women's programs** will celebrate a 40th anniversary during Homecoming 2015. Events TBD.

For more information about these events, contact **Cecilia Elmore**, EMgt'86, director of student diversity, outreach and women's programs, at 573-341-6798 or [elmorc@mst.edu](mailto:elmorc@mst.edu).

## NEW PROVOST



**Robert Marley**, former interim vice president for student success at Montana State University in Bozeman, became provost and executive vice chancellor for academic affairs at Missouri S&T on July 14.

## PANNING FOR GOLD

Men's and women's mucking teams won first place out of 42 teams in the world championship 2014 Intercollegiate Mining Competition, held in April at Missouri S&T. Another women's team from S&T took second.

Teams from the United States, Australia, Brazil, Canada and the United Kingdom came to Missouri S&T's Experimental Mine Facility to compete in events based on mining techniques used in the late 19th and early 20th centuries. Students competed in timed events like gold panning, surveying, hand-mucking, hand-steeling, track-standing, Swede sawing and jackleg drilling. Seven teams from Missouri S&T, including one made up of Botswanan students (pictured below), competed in the event.

At right, **Deanna Fitzgerald**, a senior in mining engineering, pans for gold while **Elizabeth Hunt**, PetE'14, observes.





# RUBBER CEMENT?

Mohamed A. ElGawady, right, and graduate student Ahmed Ghani are recycling old tires to make masonry blocks. (Photo by B.A. Rupert)

Landfills across the country are teeming with discarded tires. But **Mohamed A. ElGawady**, an associate professor of civil, architectural and environmental engineering, says he can solve that problem by turning them into an ingredient for construction materials.

ElGawady is working with Midwest Block and Brick in Jefferson City, Mo., to use ground tires in masonry blocks. He says tires' longevity and resilience make them ideal for the project.

"Rubber has a lot of benefits in addition to its sustainability," he says. "It's very durable and provides good insulation. Among their many potential benefits, these new blocks could cut heating bills by 50 percent."

ElGawady tested blocks with varying percentages of rubber until he found the

right combination. Replacing 20 percent of the sand in concrete with rubber allows the blocks to retain their strength.

He and his students use a compression machine to test and compare the strength of structures built with the rubberized blocks to conventional concrete masonry blocks.

They are testing both rubberized and conventional blocks in an environmental chamber, where they undergo cycles of extreme temperatures and humidity levels that simulate different weather conditions. The rubberized blocks are also tested under cyclic compression loads that simulate an earthquake.

"Construction with these new blocks could improve a building's resiliency during an earthquake by acting as shock absorbers," ElGawady says. ■

## IN PRINT

*The Continental League, A Personal History*, by **Russell D. Buhite**, professor emeritus of history and political science, was published by the University of Nebraska Press in May.

*The Hank Williams Reader*, co-edited by **Patrick Huber**, professor of history and political science, was published in February by Oxford University Press.

*The Dead and Those About to Die — D-Day: The Big Red One at Omaha Beach*, by **John C. McManus**, professor of history and political science, was published by NAL Caliber in May.

## PROFESSIONAL DEGREES

During May commencement, Missouri S&T awarded five honorary professional degrees to recognize these alumni for professional achievement:

- **Richard Smith**, ME'77, MS ME'86, of Waterloo, Ill., director of corporate research and development for Ameren
- **R. Tim Bradley**, PetE'77, of Austin, Texas, retired president of Kinder Morgan CO<sub>2</sub> Co.
- **Ralph J. Hecht**, MetE'64, of North Palm Beach, Fla., retired Pratt & Whitney executive
- **Brian Alan Quandt**, NDD, of Duarte, Calif., entertainment engineering executive and founder of Production Data Services
- **Kevin M. Ijames**, MetE'83, of Sullivan, Mo., president and CEO of ACE Manufacturing Co.

## NEW GRADS GET #SOCIAL



Proud graduates and their families took to social media to celebrate and capture commencement memories through photos using the #GoMiners2014 hashtag.

For a look at the weekend, as seen through social media, visit [rol.la/grad-2014](http://rol.la/grad-2014).

## I'D LIKE TO THANK THE ACADEMY

*In April, 24 alumni and friends were inducted into Missouri S&T academies. Academy membership recognizes a career of distinction and invites members to share their wisdom, influence and resources with faculty and students. Some academies hold induction ceremonies in April, others in October.*

### ACADEMY OF CIVIL ENGINEERS

**FRANCISCO M. "FRANK" BENAVIDES**, CE'70, of St. Louis, executive director of PENTA Engineering Corp.

**REGINALD H. BENTON**, CE'79, of Jacksonville, Ill., president and principal of Benton & Associates Inc.

**MICHAEL W. BURKE**, CE'91, MS CE'92, of St. Charles, Mo., executive vice president for J.S. Alberici Constructors

**JOHN FRERKING**, CE'87, of Columbia, Mo., business development manager for Engineering Surveys and Services

**DALE HOUSESHELL**, CE'72, of Lake Saint Louis, Mo., director of public works for the city of Clayton, Mo.

**RALPH C. JONES**, CE'80, of Overland Park, Kan., board chair and CEO of Structural Engineering Associates Inc.

**ALARD "AL" KAPLAN**, CE'72, of Houston, owner of Energy Projects Consulting

**SANJEEV KUMAR**, MS CE'93, PhD CE'96, of Carbondale, Ill., chair, professor and Distinguished Teacher in civil and environmental engineering at Southern Illinois University-Carbondale

### ACADEMY OF ELECTRICAL AND COMPUTER ENGINEERING

**MICHAEL J. BASLER**, EE'79, MS EE'89, of Highland, Ill., engineering manager for Basler Electric Co.

**CHRIS W. BOLICK**, EE'86, of Rogersville, Mo., manager of administrative services for Sho-Me Power Electric Cooperative

**CHRISTOPHER L. HAMON**, EE'84, of Branson, Mo., chief executive officer for White River Valley Electric Cooperative Inc.

**THEODORE J. "TED" HILMES**, EE'92, of Claremore, Okla., chief operating officer for KAMO Power

**MICHAEL T. LEMANSKI**, PhD EE'02, MS EMgt'08, of St. Louis, an electrical engineer for Boeing

**LESTER C. ROTH**, EE'69, MS EE'78, of Fairfax Station, Va., an analyst with Group W. Inc.

**EDWARD J. WOOLDRIDGE**, EE'81, MS EE'83, PhD EE'91, of Farmington, Mo., technical fellow for Boeing

### ACADEMY OF ENGINEERING MANAGEMENT

**RON JONES**, EMgt'81, of Chesterfield, Mo., principal at Burns & McDonnell's Global Facilities Group

**Kathy Walker**, MS EMgt'82, of Kansas City, Mo., managing director at OPENAIR Equity Partners

### ACADEMY OF MINES AND METALLURGY

**BRADLEY A. AMAN**, PetE'79, of Edmond, Okla., vice president of Northern Region Production for Continental Resources Inc.

**NELSON E. CORTES RODRIGUEZ**, GeoE'73, of Tucson, Ariz., Latin American project manager for HydroGeoChem and Exploration Technologies

**KENNETH D. COCHRAN**, MinE'83, of St. Louis, senior vice president of Arch Coal

**MITCHELL R. ROPER**, PetE'82, of Southlake, Texas, president of BOPCO L.P.

**SCOTT R. SEHLIN**, PhD Phys'94, of Bettendorf, Iowa, program manager of advanced technologies for Cobham PLC, Carleton Life Support, Northrop Grumman and Litton Life Support

**CHRISTOPHER J. WARD**, MinE'96, of Alpharetta, Ga., vice president and general manager of the Southeast Aggregate Business of Hanson

Aggregates Heidelberg Cement Group

**BENJAMIN P. WINTER**, MetE'80, of Northville, Mich., vice president of vehicle engineering for Chrysler Group.



## STEINHART TELLS GRADS: 'LISTEN AND LEARN FROM YOUR MISTAKES'

Be a team player, earn respect, and learn from your peers and mentors. That's the advice **Jeff Steinhart**, EMgt'79, gave to more than 1,000 new Missouri S&T graduates during May 2014 commencement ceremonies. Steinhart, retired vice president of engineering and environmental affairs for Anheuser-Busch Inc., talked about his career with A-B and offered advice to the graduates.

"Today's graduation is a transition point into the next chapter in your lives," he said. "The number one person responsible for the advancement in your career is yourself, and you should never forget that."

During commencement, Steinhart was awarded the doctor of engineering degree, *honoris causa*.

## RASCON IS FIRST GRAD IN MULTIDISCIPLINARY STUDIES

**Eddie A. Rascon**, MStu'14, is the first Missouri S&T student to complete an individually designed program through the new multidisciplinary studies program. He earned a bachelor of arts during the May 2014 commencement ceremonies. Rascon's program combined business, marketing and psychology.

A standout defensive lineman for the Miners, Rascon signed with the Schwabisch Hall Unicorns of the German Football League for the 2014 season.

## NEW LEADERS JOIN S&T



**Ian Ferguson**, former professor and chair of electrical and computer engineering at the University of North Carolina at Charlotte, became vice provost and dean of S&T's new College of Engineering and Computing on Aug. 13.



**Stephen P. Roberts**, former professor and chair of biology at Central Michigan University, became vice provost and dean of S&T's new College of Arts, Sciences and Business on Aug. 4.

## 50 YEARS A MINER

Forty-four members of the class of 1964 — the last class to graduate from the Missouri School of Mines and Metallurgy — returned to their alma mater 50 years after graduation for the 2014 Golden Alumni Reunion May 20–21.

Pictured below at the *Millennium Arch* outside Castleman Hall, the alumni gathered to celebrate and reminisce over luncheons, banquets and a campus update from Chancellor **Cheryl B. Schrader**. Alumni toured their departments and interesting campus spots like the Kummer Student Design Center.

The alumni, like **Tom Chronister**, MetE'64, **Mike Devaney**, EE'64, and **Fred Dickey**, EE'64 (at right), learned about the Human-Powered Vehicle Team and the 13 other teams that make up the Student Design and Experiential Learning Center.





## HASSELMANN ALUMNI HOUSE: MAKING PROGRESS

The Miner Alumni Association began construction on Hasselmann Alumni House in January and after some weather delays, wasted no time pouring the concrete foundation in April. Framing is now complete and workers have started the masonry work. You can watch the progress live at [mineralumni.com/house](http://mineralumni.com/house).

Fundraising for the house continues and naming opportunities remain. The Koepfel Challenge, which offers a \$1 match for every \$2 donated, is still available for gifts of \$25,000 or more. For more information, contact **Darlene Ramsay**, assistant vice chancellor for alumni relations and advancement services, at [ramsayd@mst.edu](mailto:ramsayd@mst.edu) or 573-341-4145. ■

## A GOLDEN YEAR FOR THE EEC

Fifty years ago this September, **Anton Brasuanas** opened Missouri S&T's Engineering Education Center, known then as the Graduate Engineering Center, with nothing but a borrowed desk in an office above a drug store across the street from the University of Missouri-St. Louis campus.

Today the self-supporting center has grown from its humble beginnings — offering two master's degree programs to the 84 students enrolled — to graduating more than 2,700 master's and Ph.D. students over the past 50 years.

Enrollment hasn't been the only change. For the program's first four years, instructors taught courses in makeshift classrooms scattered across the city — even at a local junior high school — before space became available on the UMSL campus. But in 2013, the center moved into offices designed to support the program's modern distance learning approach.

"Almost all our courses are now conducted online," says center director **Victor Birman**, professor of mechanical engineering. "We have three distance classrooms built to teach and deliver HD-video courses by the Internet. Local students in St. Louis can attend live lectures at the EEC or participate in the class from work or home similar to other distance students. We have students all over the world taking classes delivered via the Internet from the EEC." ■

## WOW. MUCH APRIL. SO FOOLS'. VERY DOGE.



For one day in April, Missouri S&T became an Internet sensation when Doge, a Shiba Inu dog known for its raised eyebrows and captioned internal monologues, took over the university website.

Doge (pronounced *dohj*) gained popularity as an Internet meme. The Shiba Inu is even popular on Twitter now, as @DogeTheDog.

Missouri S&T announced the takeover on Twitter and Facebook, and the response was overwhelming. *WIRED* magazine even declared, "Missouri University of Science and Technology just won April Fool's Day." We saved a few of the best comments on Storify. Check it out at [rol.la/dogefools](http://rol.la/dogefools).

## GRAD CELEBRATION

On May 15, the Miner Alumni Association and the Central Ozarks Section hosted a free barbecue outside the alumni office to celebrate the graduation of the 185 attending seniors. The soon-to-be-graduates were welcomed into the Miner Alumni Association at the event.





# FOUR FOR THE FUTURE

THE SIGNATURE  
AREAS WERE  
CHOSEN BASED ON  
THEIR DISTINCTIVE  
STRENGTHS THAT  
POSITION THEM  
TO BE AMONG THE  
NATION'S BEST.

**M**issouri S&T's expertise in advanced manufacturing recently led to a partnership with the U.S. Department of Defense (DOD). S&T is one of 23 universities that are part of the Digital Lab for Manufacturing, a Chicago-based research center for advanced digital manufacturing and design. The center was created through a \$70 million award from the DOD.

**Advanced Manufacturing** is one of four "signature" areas chosen by Missouri S&T Chancellor **Cheryl B. Schrader** as areas of emphasis for research and instruction. The signature areas were chosen based on their distinctive strengths that position them to be among the nation's best.

In the area of advanced manufacturing, S&T will focus on additive manufacturing; energy manufacturing; micro- and nano-scale manufacturing; network-centric and cloud manufacturing; advanced materials for manufacturing; and intelligent, sensor-enabled manufacturing.

Using cloud-based manufacturing, S&T and other Digital Lab partners can connect through an open-source online platform to share and analyze manufacturing design data on projects that address the manufacturing challenges facing the DOD and industry.

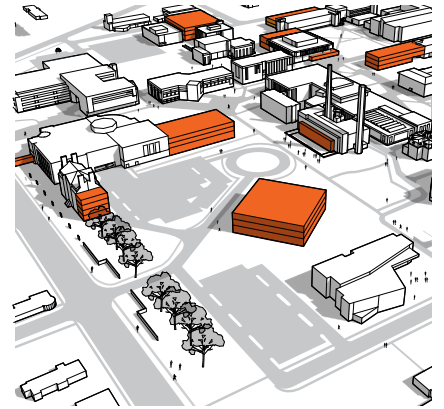
## OTHER SIGNATURE AREAS INCLUDE:

**Advanced Materials for Sustainable Infrastructure**, which will focus on the rehabilitation of urban mass-transportation centers, including highways, bridges, tunnels, rail, airports, and port and water navigation channels, as well as utility infrastructure. Researchers from four S&T research centers and six academic departments are working on projects such as a study of high-performance concrete. They are adding new materials, like old concrete, fly ash, ground-up tires and glass, and fibers, to traditional concrete and testing how well the mixtures perform in bridges, airports, rail systems, and port and harbor facilities.

**Enabling Materials for Extreme Environments**, which will focus on developing new materials for applications involving extreme temperatures, heat fluxes, neutron radiation levels and other stresses. With expertise in chemistry, materials science and engineering, mechanical engineering, nuclear engineering and physics, researchers in this area are developing the ultra-high-temperature ceramic materials that may one day form the leading and trailing edges of future hypersonic aircraft.

**Smart Living**, which will draw on S&T's strengths in cyber security, sustainable energy research, big data analytics, architectural design, behavioral and environmental psychology, and transportation and infrastructure to lead research and development efforts toward a more secure and sustainable society. Current projects include an experimental microgrid that joins the houses in Missouri S&T's Solar Village and allows them to manage and store renewable energy. The multidisciplinary Smart Living initiative will feature faculty from computer science; civil, architectural and environmental engineering; business and information technology; chemical and biochemical engineering; electrical and computer engineering; engineering management and systems engineering; mathematics and statistics; mechanical and aerospace engineering; and psychological sciences. ■

## A LOOK AHEAD



The Missouri S&T of the future could have a clearly defined "arrival district" off U.S. Highway 63, a learning commons at the center of campus, a modern facility to showcase interdisciplinary research, and a mix of student housing, retail and office buildings along Pine Street.

Those developments are all part of the latest campus master plan, which was endorsed by the University of Missouri System Board of Curators at its April 11 meeting.

The plan, which is designed to guide Missouri S&T's physical development over the next 20 to 25 years, is the result of nearly a year of collaboration among Missouri S&T administrators, students, alumni, trustees, faculty and staff in consultation with Rolla community leaders.

Read more about the plan at [rol.la/ourmasterplan](http://rol.la/ourmasterplan).



## MINERS GIVE BACK

Missouri S&T and the Miner Alumni Association hosted the second annual Battle of the Brains Scholarship Banquet and Trivia Night on April 25 as part of Philanthropy Month. The evening was filled with recognition and fellowship as donors dined with the students who benefit from their generosity. More than 200 students attended to thank our generous donors. After dinner, student organizations competed alongside alumni and donors for a chance to take home the title of "Biggest Brainiac." The History Club's team took first place and won \$500. Delta Omicron Lambda won the \$400 second-place prize and Alpha Phi Alpha won the \$200 third-place prize. Winning teams will use the prize money for a philanthropic event, activity or donation of their choosing.





Chancellor Cheryl B. Schrader, right, presents Shannon Fogg with the 2014 Woman of the Year Award.

## WOMAN OF THE YEAR

**Shannon Fogg**, associate professor of history and political science, was named 2014 Woman of the Year at a Philanthropy Month ceremony on April 23.

“Dr. Fogg’s presence on this campus has been an enormous support and inspiration for me and for women faculty in many ways,” wrote one of her nominators. “She perfectly, and gracefully, models the values that demonstrate why women’s contributions to this campus are so important and the values this Woman of the Year Award represents.”

Fogg joined the faculty in 2004. She has demonstrated dedication to student learning and campus diversity, by working to improve the climate for women through participation in service activities like student advising, faculty mentoring and service on campus committees. She has taught more than 40 sections of 11 courses, including seven new courses.

This is the 18th year for the award, which is funded by **Cynthia Tang**, Econ’85, founder and former chair of Insight Industries Inc.

## BOOM GOES THE PH.D.

Missouri S&T is now the first university in the nation to offer a Ph.D. in explosives engineering. The Missouri Coordinating Board for Higher Education approved the new degree program in February.

In the next decade, more than 5,000 mining engineers are expected to retire. Graduates of this program will help fill critical positions in government and industry and can also work in the mining, construction and demolition industries, among others.

The 72-credit-hour Ph.D. program requires a dissertation and explosives engineering core courses and electives. Much of the field work and research will be conducted at Missouri S&T’s Experimental Mine.

## HOW HIGH CAN YOU PI?

**David Copeland** knows his pi — all the way to 791 decimal places.

He proved it during Missouri S&T’s Pi Day contest in March. For his efforts, he won a Raspberry Pi — a pocket-sized computer — donated by the Missouri S&T Bookstore, gift certificates for dessert from A Slice of Pie, and pizza gift certificates from Chartwells, Papa John’s and Domino’s.

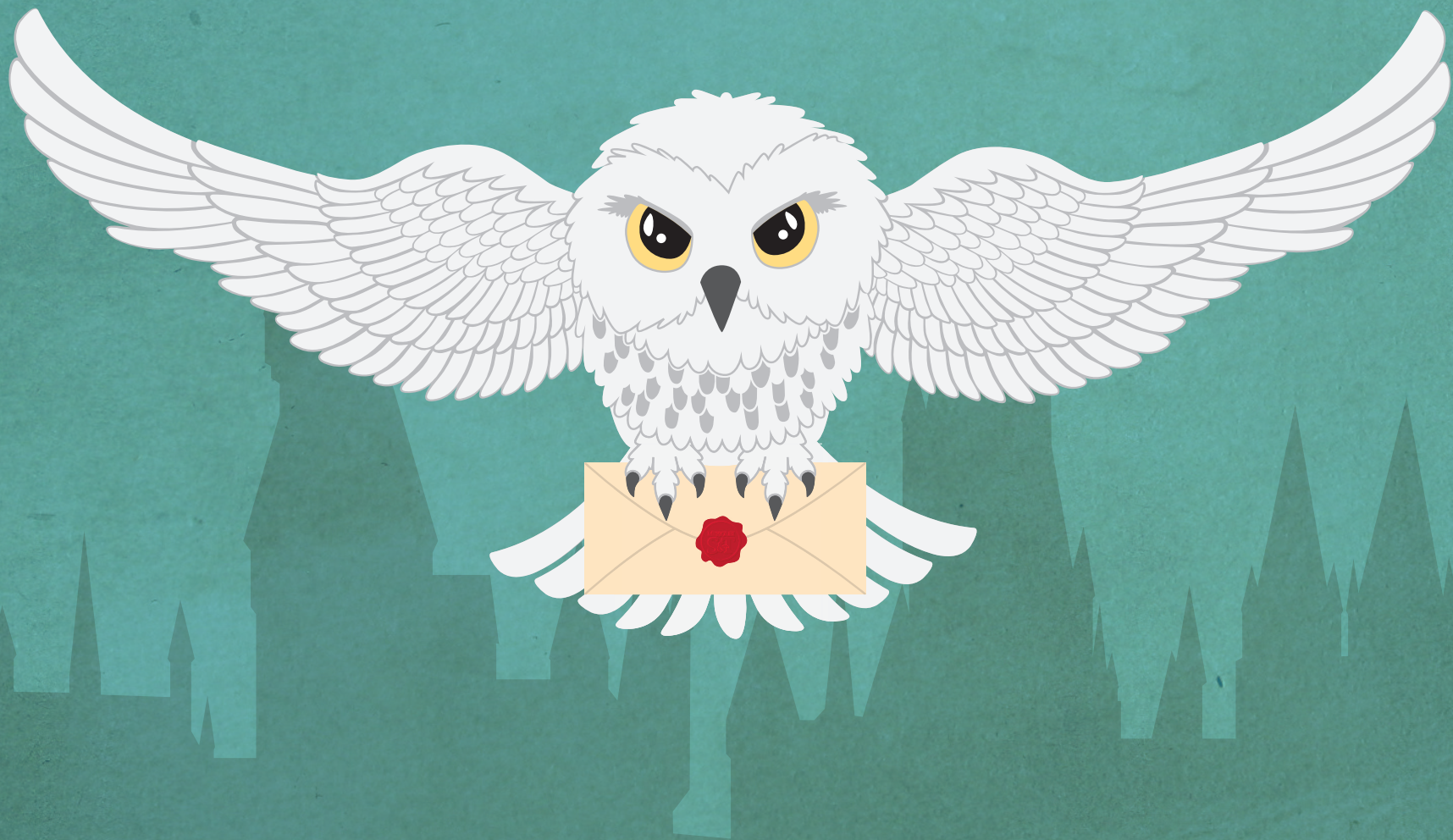
Pi Day, an unofficial holiday that celebrates the irrational number, is held every March 14 because the first three digits of pi (3.14) correspond to the date’s month/day format (3.14).

Watch Copeland, a senior in computer science, and his fellow competitors recite pi at [rol.la/happypiday14](http://rol.la/happypiday14).

## LEGISLATIVE DAY 2014

Missouri S&T alumni and friends visited with lawmakers in Jefferson City to garner support for the University of Missouri System as part of Legislative Day at the Capitol on Feb. 18. Those in attendance included: **Bob Bay**, CE’49; **Matt Coco**, CE’66; **Jim Foil**, CE’74, MS CE’75; **Rusty Goldammer**, CE’78, MS EMgt’79; **Larry Hendren**, MinE’73; and **Susan Rothschild**, CSci’74. Missouri S&T representatives included: **Kathy Inman**, **Katie Jackson**, **Jana Neiss**, **Darlene Ramsay**, MetE’84, **Chancellor Cheryl B. Schrader**, **Travis Sewell**, **Laura Stoll**, **Henry Wiebe**, **John Woodson**, **Steve Tupper** and **Ben Yates**.

THE  
**WI**  **ARDLY**  
WORLD OF MINERS  
— **HOMECOMING 2014** —



**YOUR OWL HAS FINALLY ARRIVED!**

# FRIDAY, OCT. 17

## ALUMNI ASSOCIATION MINER LEGENDS LUNCHEON

Noon–1:30 p.m.  
Havener Center, St. Pat's Ballroom

Help us honor some of our most distinguished alumni as they receive Miner Alumni Association awards.

Tickets for event: \$20

## JAMES E. BERTELSMEYER HALL DEDICATION

4:30 p.m.  
Bertelsmeyer Hall front lawn, 11th and State streets

Join us to dedicate the new chemical and biochemical engineering facility, Bertelsmeyer Hall.

## SILVER AND GOLD GATHERING

5 p.m. Reception  
6:30–8 p.m. Heavy hors d'oeuvre buffet  
9 p.m. Fireworks  
Bertelsmeyer Hall and State Street

Meet our Magical Miners, including our 2014 Miner Alumni Association awardees and student design team members.

Tickets for event: \$25 for adults  
\$10 for children ages 6 to 12  
Free for children under age 6

## JAMES E. BERTELSMEYER HALL DONOR RECOGNITION DINNER

7 p.m.  
Havener Center, St. Pat's Ballroom

Help us honor our generous donors.

Tickets for event: \$40 (includes Silver and Gold Gathering)  
Complimentary for all Bertelsmeyer Hall donors.

# SATURDAY, OCT. 18

## MINER 5K

9:15 a.m. registration start time, race begins at 10 a.m.  
Parking lot Q, north of the Gale Bullman Building

Join us for a beautiful run, jog or walk through the S&T campus. All alumni, friends, faculty, staff and students are welcome.

Registration fee: \$20 by Sept. 15  
\$25 Sept. 16–Oct. 10

Race-day registrants will not be guaranteed a race shirt.

## KICK-OFF TAILGATE PARTY AND FIELD TURF DEDICATION

11 a.m.–1 p.m.  
Alumni Tent, Gale Bullman parking lot

Join us for an authentic tailgate party with grilled hot dogs and hamburgers, \$1 beer and other tailgate goodies. Join us at 11:30 a.m. for the official dedication of the new field turf.

Tickets for event: FREE for those who pre-register online or call by Oct. 10.

Tickets at the door: \$10 for adults  
\$5 for children ages 6 to 12  
Free for children under age 6

## FOOTBALL: MINERS VS. WILLIAM JEWELL

1 p.m.  
Allgood-Bailey Stadium

Tickets for event: \$8 for adults  
\$5 for students (K-college)  
and seniors age 65+  
Free for children under age 6 and S&T  
students with a valid student ID

## MINER ALUMNI SOCIAL

6–8 p.m.  
Public House Brewing Co., 600 N. Rolla St.

Wrap up your Homecoming weekend with a pint and some down-time with fellow alumni. We'll serve complimentary Alex's Pizza, or you can order from the menu (charges will apply). Come and go as you please.

### FRIDAY, OCT. 17

10 a.m.–4 p.m.  
Havener Center Atrium  
5–7 p.m.  
Alumni Tent, Bertelsmeyer  
Hall, 11th and State streets



## WHEN YOU ARRIVE ...

All alumni should pick up their registration packets at the Homecoming Welcome Table.

### SATURDAY, OCT. 18

10:30 a.m.–1 p.m.  
Alumni Tent,  
Gale Bullman parking lot

# THE WI⚡ARDLY WORLD OF MINERS

## THURSDAY, OCT. 16

### ACADEMY OF ENGINEERING MANAGEMENT PICNIC

(for academy members, students, faculty and staff)  
11:30 a.m.–1 p.m.  
Schuman Park

### ACADEMY OF COMPUTER SCIENCE BANQUET

Reception at 6 p.m. with dinner to follow at 7 p.m.  
Sybill's, St. James

### GEOLOGY AND GEOPHYSICS BANQUET

6–9 p.m.  
McNutt Hall Commons  
For more information, please contact  
Franca Oboh-Ikuenobe at [ikuenobe@mst.edu](mailto:ikuenobe@mst.edu).

## FRIDAY, OCT. 17

### ACADEMY OF COMPUTER SCIENCE MEETING

8:30 a.m.  
Computer Science Building, Room 327

### ACADEMY OF ENGINEERING MANAGEMENT BUSINESS MEETING

8:30 a.m.–3 p.m.  
Engineering Management Building, Room 226

### MINER ALUMNI ASSOCIATION COMMITTEE MEETINGS

9 a.m.–4:30 p.m.  
Havener Center

### ACADEMY OF MINES AND METALLURGY MEETING

Continental breakfast followed by  
9:30 a.m. meeting  
Havener Center, Turner Room

### ORDER OF THE GOLDEN SHILLELAGH EXECUTIVE COMMITTEE MEETING

10–11 a.m.  
Castleman Hall, Room 107

### HOMECOMING REGISTRATION

10 a.m.–4 p.m.  
Havener Center Atrium

### ⚡ ALUMNI ASSOCIATION MINER LEGENDS LUNCHEON

Noon–1:30 p.m.  
Havener Center, St. Pat's Ballroom

### TOUR S&T'S UNIQUE REGIONAL ART COLLECTION AND MEET THE ARTISTS

1–3 p.m.  
Havener Center, second floor

### BIOLOGICAL SCIENCES DEPARTMENT HOMECOMING PICNIC

3–4 p.m.  
Schrenk Hall, front lawn

### ACADEMY OF MINER ATHLETICS ANNUAL MEMBERSHIP MEETING

3–5 p.m.  
Gale Bullman Building, Hall of Fame Room

### ⚡ JAMES E. BERTELMEYER HALL DEDICATION

4:30 p.m.  
Bertelsmeyer Hall front lawn, 11th and State streets

### HOMECOMING REGISTRATION

5–7 p.m.  
Alumni Tent, Bertelsmeyer Hall,  
11th and State streets

### ⚡ SILVER AND GOLD GATHERING

5 p.m.  
Bertelsmeyer Hall, 11th and State streets

### JACKLING JOCKS DINNER

5 p.m.  
Bertelsmeyer Hall, 11th and State streets

### ACADEMY OF MINER ATHLETICS RECEPTION

5–7 p.m.  
Bertelsmeyer Hall, 11th and State streets

### ⚡ JAMES E. BERTELMEYER HALL DONOR RECOGNITION DINNER

7 p.m.  
Havener Center, St. Pat's Ballroom

### ACADEMY OF MINER ATHLETICS INDUCTION CEREMONY

7:30–9 p.m.  
Bertelsmeyer Hall, room TBD

### HOME FREE VOCAL BAND

8 p.m.  
Castleman Hall, Leach Theatre  
Tickets available at [leachtheatre.com/tickets](http://leachtheatre.com/tickets)

### ⚡ FIREWORKS FINALE

9 p.m.  
Bertelsmeyer Hall, 11th and State streets

## SATURDAY, OCT. 18

### ⚡ MINER 5K

Registration at 9:15 a.m., race begins at 10 a.m.  
Parking lot Q, north of the Gale Bullman Building

### ALUMNI ASSOCIATION BOARD OF DIRECTORS MEETING

8–11 a.m.  
Havener Center, Carver-Turner Room  
The association's annual meeting will be held in  
conjunction with this event.

### BAPTIST STUDENT UNION OPEN HOUSE

9 a.m.–noon  
610 W. 10th St.  
For more information contact Bruce Wade at 573-364-3354  
or [bsu@mst.edu](mailto:bsu@mst.edu).

### HOMECOMING PARENT MEETING AND RECEPTION

10 a.m.  
Havener Center, TBD

### KUMMER STUDENT DESIGN CENTER OPEN HOUSE

10 a.m.–1 p.m.  
1051 N. Bishop Ave.

### HOMECOMING REGISTRATION

10:30 a.m.–1 p.m.  
Alumni Tent, Gale Bullman parking lot

### MISSOURI S&T ATHLETIC HALL OF FAME ROOM OPEN TO VISITORS

11:30 a.m.–12:30 p.m.  
Gale Bullman Building

### ⚡ KICK-OFF TAILGATE PARTY AND FIELD TURF DEDICATION

11 a.m.–1 p.m.  
Alumni Tent, Gale Bullman parking lot

### ROLLAMO MEMORIES DISPLAY

11 a.m.–1 p.m.  
Gale Bullman parking lot  
View pictures of St. Pat's, classmates and campus  
scenes from your time in Rolla. Reprints of yearbook  
pictures may be ordered.

### ⚡ MINERS VS. WILLIAM JEWELL

1 p.m.  
Allgood Bailey Stadium

### STUDENT DIVERSITY/MINORITY ENGINEERING PROGRAMS DINNER

5:30–8:30 p.m.  
Reception begins at 5:30 p.m.  
Dinner is served at 6:30 p.m.  
Havener Center, St. Pat's Ballroom

### JACKLING JOCKS ANNUAL BANQUET AND BUSINESS MEETING

6–9 p.m.  
Havener Center, Carver-Turner Room

### ⚡ MINER ALUMNI SOCIAL

6–8 p.m.  
Public House Brewing Co., 600 N. Rolla St.

⚡ See page 19 for details.

## SUNDAY, OCT. 19

### CHANCELLOR'S ADVISORY COMMITTEE ON AFRICAN AMERICAN RECRUITMENT AND RETENTION MEETING

1-3 p.m.  
Location TBD

## SPECIAL CELEBRATIONS

### 40TH ANNIVERSARY CELEBRATION OF THE STUDENT DIVERSITY/MINORITY ENGINEERING PROGRAMS

For more information contact Cecilia Elmore, EMgt'86, at 573-341-6798 or [elmorc@mst.edu](mailto:elmorc@mst.edu).

### JACKLING JOCKS 17TH ANNUAL REUNION

For more information contact Delbert Day, CerE'58: 573-364-5569 or [day@mst.edu](mailto:day@mst.edu), or Newton Wells, ME'59: 979-690-3650 or [mnwells1@verizon.net](mailto:mnwells1@verizon.net).

### DEPARTMENT OPEN HOUSES

3-4 p.m. Friday, Oct. 17  
Some departments on campus will host department open houses. For a current list of participating

departments go to [mineralumni.com/homecoming](http://mineralumni.com/homecoming).

Those planning to host to date are:

- Chemical and Biochemical Engineering
- Computer Science
- Electrical and Computer Engineering
- Engineering Management

### ACADEMY OF MECHANICAL AND AEROSPACE ENGINEERS

Members are invited to return to campus Oct. 9-10 for the following events:

Board of Directors Meeting  
12:30-4:30 p.m., Thursday, Oct. 9  
Havener Center, Silver and Gold Room

Induction Dinner  
5-10 p.m., Thursday, Oct. 9  
Havener Center, St. Pat's Ballroom

Annual Membership Meeting  
8 a.m.-3 p.m., Friday, Oct. 10  
Havener Center, Missouri-Ozark Room

Spouse and Guest Event  
8 a.m.-1 p.m., Friday, Oct. 10  
Meet in Havener Center atrium



## REPLY BY OWL

Register at  
[mineralumni.com/homecoming](http://mineralumni.com/homecoming)  
or call 800-JOMINER (800-566-4637)

## MEET OUR HONOREES



### ALUMNI ACHIEVEMENT

**Daniel A. Reed**, CSci'78, vice president for research and economic development, computational science and bioinformatics chair, and professor of computer science, electrical and computer engineering and medicine, University of Iowa

### FRANK H. MACKAMAN VOLUNTEER SERVICE

**Randall Dreiling**, CE'81, vice president and senior structural engineer, Design Nine



### ALUMNI MERIT

**Steven Cary Dunston**, EMgt'88, executive vice president and chief operating officer, American Woodmark Corp.

### ROBERT V. WOLF ALUMNI SERVICE

**Hugh Cole**, EMgt'72, managing partner, AGI-Goldratt Institute



### DISTINGUISHED YOUNG ALUMNI

**Dale Spence**, ME'97, global marketing director for automatic tank gauge, Veeder-Root



### DISTINGUISHED YOUNG ALUMNI

**Jeffery Thornburg**, AE'96, principal propulsion engineer, SpaceX



### ALUMNI ACHIEVEMENT

**Robert R. Holmes Jr.**, CE'87, national flood hazard specialist and coordinator, U.S. Geological Survey, adjunct professor of civil engineering, Missouri S&T



## KNIGHTS OF ST. PATRICK

Eight alumni, staff and friends of Missouri S&T were dubbed Honorary Knights of St. Patrick during the 106th Best Ever St. Pat's Celebration in March. They are:

- **Cheryl B. Schrader**, Missouri S&T chancellor
- **Roy Blunt**, U.S. senator from Missouri
- **Mark Kearse**, Rolla police chief
- **Keith Wedge**, GGph'70, MS GGph'71, PhD GGph'73, retired brigadier general in the U.S. Army
- **Dilek Acar**, a Rolla real estate broker
- **Angela Perkins**, director of student life at Missouri S&T
- **Gary Amsinger**, CE'80, corporate vice president of safety for McCarthy Building Companies Inc.
- **Bob Edwards**, president of Grellner Sales and Service.

In addition, Honorary Knights **Donald Cronin**, professor emeritus of mechanical and aerospace engineering, and his wife, **Sigrid**, who organized St. Pat's celebrations for numerous years, were named Honorary St. Pats and served as marshals for the annual St. Pat's Parade.

## SPORTS BY THE NUMBERS

# 60

Distance in meters of chemical engineering senior **Joe Vellella's** hammer throw at the University of Mississippi on March 22. The throw broke the school record and made an NCAA Division II provisional qualifying mark.

Hits by the Lady Miner softball team in a March 25 win over Christian Brothers. S&T has finished at least one game with 14 or more hits in each of the past nine seasons.



# 13' 1 1/2"

School-record time in the 400-meter hurdles. Biological sciences junior **Katlyn Meier** set the record during an April 5 meet at Southwest Baptist University.

Round-trip miles that will be traveled by Missouri S&T's football team in the 2014 season. The Miners have six away games in locations like Nebraska, Texas and Indiana.

# 4,414

# 608

Wins by the Missouri S&T baseball program since its inception in 1966.



MELISSA ELDER:  
**SELFLESS  
ACTIONS,  
GLOBAL  
IMPACT**

*For Melissa Elder, Honduras is more than just another place on the map. It inspired her career path and her research focus. It's also her mother's homeland.*

Elder, a senior in environmental engineering, traveled to Honduras as a teenager to visit extended family and says she saw first-hand what poverty looks like.

"Being there really made me appreciate all of the things that we take for granted here," she says. "Honduras has a special place in my heart, but there are issues with clean water and poverty all over the world."

Elder wants to end those issues.

Working with **Joel Burken**, professor of civil, architectural and environmental engineering, Elder is studying phytoremediation — the use of plants to detect and remove pollutants from the soil.

She is studying the site of the Busy Bee Laundry in Rolla, which used to offer dry

cleaning services. By testing core samples from trees in neighboring Schuman Park, Burken determined that some of the cleaning solvents seeped into the park's groundwater, causing contamination. Elder is trying to quantify the amount of pollutants the trees can take in to mitigate the soil contamination.

"If we figure this out, we can determine how to use plants and the power of the sun and the wind to better protect human health and the environment," she says.

Earlier this summer, Elder expanded her water research during a nine-week National Science Foundation internship in Costa Rica through the University of South Florida. Her work focused on water treatment practices and food security. And last fall, she joined Engineers

Without Borders to help bring clean water to Honduras. She is also president of the Society of Hispanic Professional Engineers and a peer mentor for Student Diversity Programs.

In May, Elder received the Donald D. Myers Scholarship for the impact she has made on campus through her service, leadership ability and commitment to serving others. She plans to continue her charitable work after she graduates in December. Selfless service runs deep in her family.

"My mother always put me and my three siblings before herself," she says. "Because of her selflessness throughout my life, I've developed a passion for helping people and improving the lives of others."

"I want to do something that is greater than me," she says. "Small actions can have such a great impact on those who need it most." ■

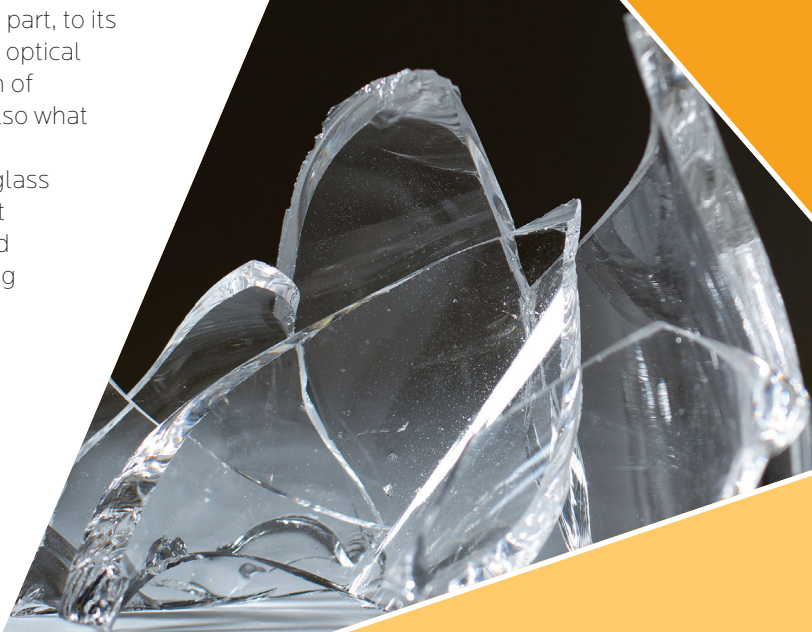
# MODERN. REFRACTIVE. COMPLEX. GLASS.

Despite its nearly ubiquitous presence in our daily lives, glass has maintained a reputation for fragility for centuries. Typically composed of a mixture of fine powders like limestone, sand and sodium borate, the material – so commonplace as to be nearly invisible – is probably noticed most when it's broken. Think of the large, jagged shards that are created when a baseball is thrown through a windowpane or of the pebbles that litter the ground when a car window is shattered.

The use of glass in everyday life can be attributed, at least in part, to its characteristics – hardness, chemical resistance, durability and optical properties. These properties, and its ever-growing combination of compositions, make glass such a perfect substance. They're also what allows glass to move beyond its brittle persona.

Today's modern glasses look very different from the blown glass or lead-crystal glass created centuries ago, and even the sheet glass developed in the early 20th century. No longer restrained by archaic fabrication techniques, today's glasses are shattering stereotypes and causing people to rethink glass. It bends. It heals wounds. It strengthens steel. There's seemingly no limit to what glass can do.

The following stories are just a few examples of how Missouri S&T students and faculty are reshaping the future of glass.



Some radioactive wastes have a half-life as long as 50,000 years. Known for its durability, iron phosphate glass can survive for tens of thousands of years — long enough for even the most dangerous radioactive nuclides to decay away.



# PROTECTS.

by Linda Fulps | [fulpsl@mst.edu](mailto:fulpsl@mst.edu)

For decades, the U.S. Department of Energy (DOE) has combined radioactive waste with borosilicate glass, then placed the mixture in stainless steel containers for storage.

"But certain wastes aren't compatible with the borosilicate, so only small amounts can be added to the glass before the solubility limit is exceeded," says **Richard Brow**, Curators' Professor of materials science and engineering.

"The key is developing a glass that is compatible with as large a fraction of the waste materials as possible," he says. "That way you can manufacture a small volume of the glass, so it takes up the least amount of space."

It turns out that an iron phosphate glass developed at S&T is a good alternative.

"This glass was discovered by accident by **Delbert Day** (CerE'58) and his students 20 years ago," says

Brow. "It's unusual in that it remains very chemically durable, even after you load it with large concentrations of other species."

Brow says the iron phosphate glass passed the DOE's chemical durability tests and that the DOE successfully created it in several large-scale production tests. S&T researchers are now working with the DOE to optimize compositions for specific wastes and try to understand why iron phosphate glasses are so durable.

"We're asking, 'What is it about molecular-level features of this glass that make it so interesting, so useful for this particular application?'" says Brow.



◀ Steel rebar bonded with an enamel coating could prevent costly corrosion that leads to billions of dollars in U.S. bridge repairs annually. The rough surface detailed at left helps the rebar form a stronger bond with the concrete it supports.

# ◀ PRESERVES.

by Mary Helen Stoltz | [mhstoltz@mst.edu](mailto:mhstoltz@mst.edu)

**T**he United States spends more than \$8 billion annually to fix problems caused by steel corrosion in the nation's bridges.

**Genda Chen**, the Robert W. Abnett Distinguished Chair in Civil Engineering, is working on a solution that would prevent corrosion and increase the longevity of

In collaboration with **Richard Brow**, Curators' Professor of materials science and engineering, Chen has developed a system to replace the green epoxy coating with a chemically bonded enamel substance — a type of glass. Chen dips the steel into the slurry of ground enamel and then bakes it at a high temperature.

“ Because the coating is chemically bonded, even if it's scratched, moisture can't seep in. ”

other steel-reinforced structures — and he's using glass to do it.

“Current steel rebar supports are mainly coated with a green epoxy,” Chen says. “It works great, unless the surface gets scratched. Scratches allow moisture to seep in and become trapped between the epoxy and the steel, which actually speeds up the corrosion.”

In fact, a 2002 Virginia Tech study found that the epoxy coating only extended the corrosion service life in bridge decks five years beyond that of bare steel, Chen says.

“Because the coating is chemically bonded, even if it's scratched, moisture can't seep in” Chen says. Plus, enamel increases the rebar's bond strength with the concrete.

Chen is testing the first generation of his work on off-shore drilling platforms in China. He hopes to begin testing in the U.S. in the next two years. In the meantime, he's looking for new ways to bond the enamel coating to make it more uniform and easier to fabricate.

# 3 EVOLVES.

by Mary Helen Stoltz | mhstoltz@mst.edu

Inside a lab in Straumanis-James Hall, graduate student **Erica Ronchetto**, CerE'11, is systematically breaking soda lime silicate glass — the kind found in most bottles, windows and light bulbs — in hopes of finding ways to make it stronger.

Ronchetto begins by drawing molten glass into thin flexible fibers, not much thicker than a human hair. The process looks like dipping honey from a jar. She bends the fibers and clamps them into a device that squeezes that bend until the fiber snaps, then measures its breaking point. During the process, she exposes the fibers to varying temperatures and humidity levels to see how these variables change that breaking point.

Water is key to the weakness of the glass. "Humidity in the air causes glass strength

to degrade," Ronchetto says. "It can worsen fatigue and speed up aging."

"If glass is exposed to humidity long enough, defects will begin to form on the surface," adds **Richard Brow**, Curators' Professor of materials science and engineering. "Those defects eventually lead to weakness. That's why the same piece of glass will be stronger in Minnesota in the winter than it would be in Louisiana in the summer. It all comes down to humidity."

By studying the chemical composition of the glass, they hope to eventually modify its surface to reduce the aging and fatigue water can cause.

The end result, Brow and Ronchetto hope, is a stronger, lighter-weight glass that lasts much longer than today's glasses.

One of only three Category 5 hurricanes to hit the U.S. since records have been kept, Hurricane Andrew caused wind speeds upwards of 175 mph. One of the costliest hurricanes in U.S. history, Andrew killed 43 people and caused \$30.5 billion in damage.



# 4 DEFENDS.

by Linda Fulps | fulpsl@mst.edu

**W**ind damage and injuries following Hurricane Andrew in the 1990s drew **Lokesh Dharani** to glass research.

Dharani, Curators' Professor of mechanical and aerospace engineering, was one of several researchers at S&T to receive National Science Foundation funding to develop a new approach to making a stronger laminated architectural glass.

The laminated glass consists of two soda lime silicate glass layers that sandwich a layer of polymer, like poly vinyl butyral (PVB).

"Roof gravel, asphalt pieces flying from the roof, shingles, windborne pieces of lumber — these are all considered 'missile impact' on glass," he says. "Windborne debris combined with strong winds is the main reason for failure of architectural glazing."

Upon impact, monolithic (single-

pane) glass breaks into dangerous shards, and causes a breach in a building's protective barrier. But laminated glazing, Dharani says, holds the broken pieces of glass in its interlayer, which stays in the frame and maintains the building's structural integrity.

"It's called sacrificial ply design," he says. "We intentionally sacrifice the outer layer, allow it to fracture, crack and absorb all the energy, but the inside layer stays intact."

# 5 HEALS.

by Linda Fulps | fulpsl@mst.edu

For years S&T has been a leader in glass-related medical research, beginning with **Delbert Day's** glass microspheres. These tiny irradiated beads deliver localized radiation to malignant cancer cells in the liver.

**N**ow **David Westenberg**, associate professor of biological sciences, is working with Day, a Curators' Professor emeritus of ceramic engineering, to advance the nanofiber borate glass used in clinical trials to speed the healing of wounds.

Westenberg and his students are working with ground up samples of Day's bioglass. They're testing samples made with various compositions of metals to see how well they kill bacteria.

The students mix powdered glass with diluted bacteria, and then gauge the bacteria's response to the glass using the "zone of inhibition" method. Bacteria that are susceptible to the glass will die, forming a circular ring around the glass particle. That ring makes it easier for researchers to confirm the death of the bacteria.

Westenberg is testing three bacteria: *Staphylococcus epidermidis*, *E. coli* and *Pseudomonas aeruginosa*, a bacteria common with burn wounds. "These are surrogates for disease-causing bacteria, such as MRSA (*Methicillin-resistant*

Westenberg says adding other metals to the glass could help kill different types of bacteria. His next round of experiments will use solid plates of glass to see how bacteria thrive on those surfaces.

“ The glass alone will kill the staph, but *E. coli* is more resistant. ”

*Staphylococcus aureus*), a bacteria that is resistant to many antibiotics and a major concern for hospitals," he says. "But I've got a collection of about 40 to 50 bacteria that we still need to test.

"After 24 hours, you can see that the glass is killing the bacteria," he says. "The glass alone will kill the staph, but *E. coli* is more resistant. When silver is added to the glass, it's much more effective on *E. coli*."

"His work has changed the perspective of my research," the biologist says of Day, CerE'58. "I'm a plant and microbiology person. I had no interest in medical research before working with him, but he's become an incredible mentor to me and to my students."

Missouri S&T senior and biological sciences laboratory technician **Justin Lovelady** (left) works with associate professor **David Westenberg** in Schrenk Hall to develop glass that can kill bacteria and heal wounds.



# 6 TRANSFORMS.

by Peter Ehrhard | [ehrharp@mst.edu](mailto:ehrharp@mst.edu)

**L**ike a mad scientist from a 1950s science fiction film, **Edward Kinzel** spends his days in the lab shooting lasers at glass. Kinzel's laser isn't a weapon, though. He uses it to melt the glass in a unique 3-D printing application designed to make high-tech optical glass for use in various lenses.

Kinzel, an assistant professor of mechanical engineering, uses a carbon dioxide laser to produce a

beam of infrared light that can melt glass with pin-point accuracy, allowing the glass to flow and be formed into various shapes. The process is known as printing gradient-index optics.

With funding from Lockheed Martin and S&T's Materials Research Center, Kinzel and his Ph.D. student **Junjie Luo** are working to produce lenses that can be used in high-powered cameras, like ones found on search-and-rescue planes. The lens' high

power-to-weight ratio will allow for further advances in the field of aerospace optics.

For now, Kinzel's research is limited to smaller pieces, but he believes it can eventually be used in other additive manufacturing processes as a cheaper alternative to silicon. Not limited to scientific uses, the technique could even be used to inexpensively produce objects of art using glass.



# 7 BEAUTIFIES.

by Sam O'Keefe | okeefes@mst.edu

Science and art intersect in the Hot Glass Shop, where students have used their scientific minds to drive their creativity since the facility opened on the Missouri S&T campus in 2007. Only 16 students are accepted into the course each semester since the small workspace restricts the number of participants able to work safely in the shop with its one crucible and one reheat furnace. Once they learn the basics of working in the shop, students are turned loose to express themselves by making a variety of objects for practical application or aesthetic appeal.

The shop contains a freestanding crucible filled with more than 100 pounds of clear glass at 1,135 degrees Celsius. Glass is

gathered from the crucible using stainless steel rods (called punties) or hollow blowpipes, then shaped using a variety of tools to pinch, pull and form the glass. Color is added by fusing colored pieces of crushed glass (called frit) to the hot globules, which are then manipulated to create swirls of color or left alone to speckle the glass.

**Austin Gerlt**, a senior in ceramic engineering (left), and **Martin Langenderfer**, a senior in mining engineering (right), work together in the shop to create an open container with clear glass.





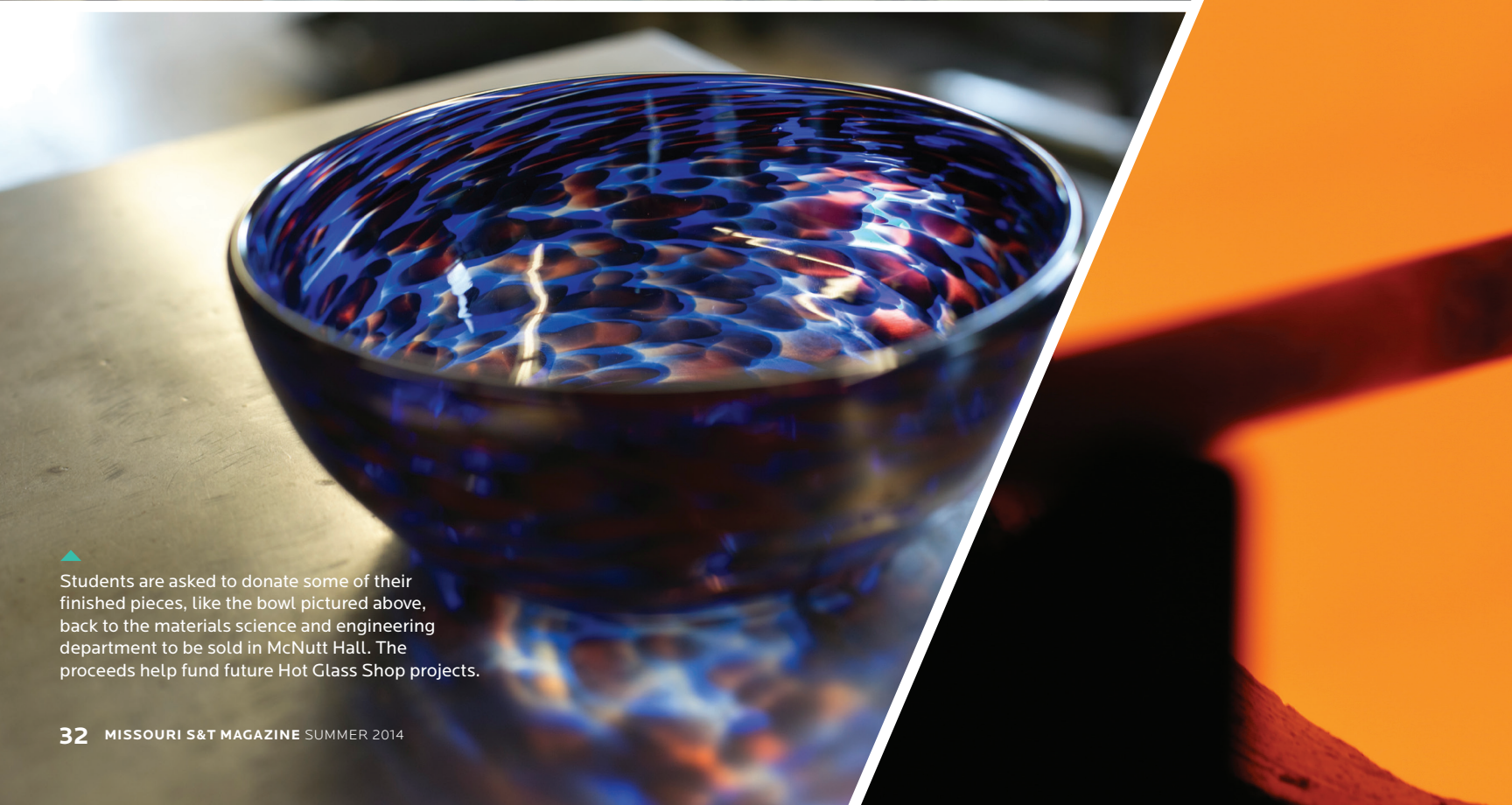
▲ Tweezers steady the punty as the hot glass on its tip is fused with the bottom of a handmade container.



▶ **Mallory Purnell**, a sophomore in ceramic engineering, removes her punty with molten glass from the glory hole before returning to the work bench to shape her piece.



▲ **Evin Barber**, a sophomore in ceramic engineering, cools down a glass paperweight while using jacks to create a line for the glass to separate from the solid stainless steel rod, known as a punty.



▲ Students are asked to donate some of their finished pieces, like the bowl pictured above, back to the materials science and engineering department to be sold in McNutt Hall. The proceeds help fund future Hot Glass Shop projects.



◀ A senior in mining engineering, **Martin Langenderfer** carefully blows into the pipe as it rolls across the bench to keep the glass symmetrical when manipulated with a shaping tool.



◀ The reheat furnace, know as a glory hole, reaches temperatures around 1,250 degrees Celsius to keep the glass malleable during the process.

▶ See these and more images from the Hot Glass Shop at [rol.la/hotglassshop](http://rol.la/hotglassshop).



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Representing more than 56,000 alumni worldwide

For more information about your representatives, go to [mineralumni.com](http://mineralumni.com).

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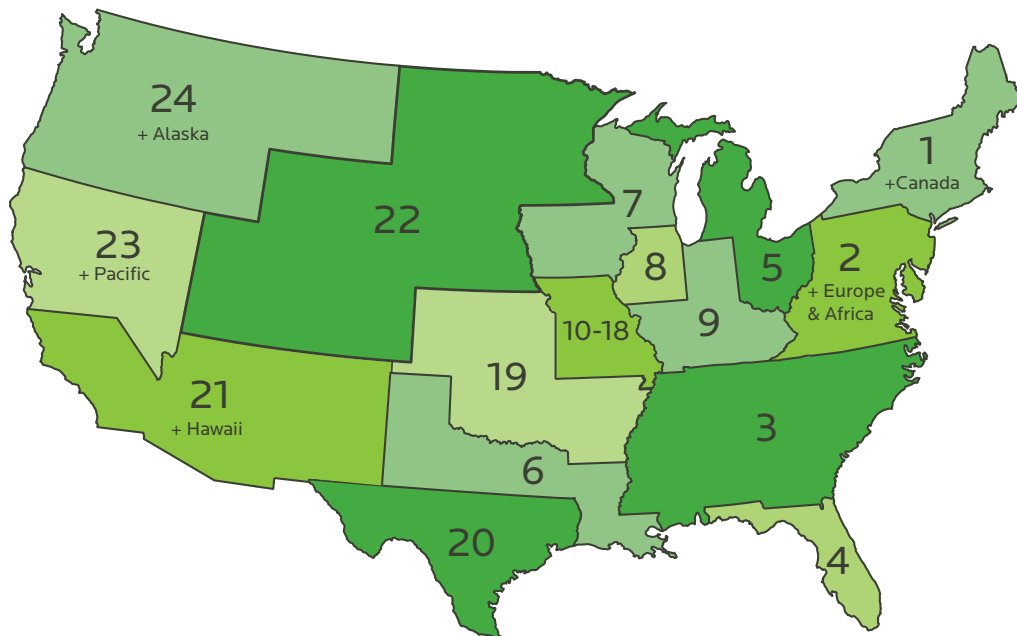
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## ALUMNI AREAS

The Miner Alumni Association board of directors functions as the eyes, ears and voice of our 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.

## ENGAGING STUDENTS

*In 2012, the Miner Alumni Association board of directors consolidated its committees into five groups with broad goals that focus on alumni engagement, financial resources, student engagement, communications and marketing, and strengthening campus relations. In this issue, we introduce you to the Student Engagement Committee.*

“Long-lasting relationships naturally encourage students to become Miners for life after they graduate,” says **Ernie Banks**, ChE’81, chair of the Student Engagement Committee. “Passionately interacting with students as we work toward their best interest creates the ultimate win-win situation for students, alumni and the university. This has personally been a very gratifying collaboration.”

The 25 members of the Student Engagement Committee work to involve current students – in a fun way – to build the foundation to long-lasting relationships with the university and other alumni. The effort works hand-in-hand with the mission of the Alumni Engagement Committee.

“The committee’s biggest challenge is trying to help make an impact on students during the short time they are here on campus in order to make sure they continue to stay engaged after graduation,” says **Travis Sewell**, alumni relations manager and staff representative for the Miner Alumni Association. “As a committee, we want to show students the positive accomplishments of the Miner Alumni Association, and to encourage them to be active alumni after graduation.”

## THE MOST WONDERFUL TIME OF THE YEAR IN HOUSTON

Houston alumni are preparing for their annual holiday party on Saturday, Dec. 6. At 6 p.m., alumni will gather for hors d’oeuvres and conversation, and then sing holiday carols around the piano. Hosts **Phil**, PetE’70, and **Arni Ilavia** have welcomed hundreds of Miners into their home over the years. Why not kick off your holiday season with this renowned Texas tradition? For additional details and to register for the event, go to [mineralumni.com](http://mineralumni.com). Click on the “Events” tab, select Dec. 6, and click the “Registration” button. If you do not have access to register online, please RSVP to **Travis Sewell**, alumni relations manager, at [sewelltd@mst.edu](mailto:sewelltd@mst.edu) or 800-JO-MINER.

## A GATHERING OF MINERS: PAST, PRESENT AND FUTURE



Photo by Bob Phelan

On April 25, a reception for alumni and prospective students highlighted the Human-Powered Vehicle design team at the law offices of Van Pelt, Yi & James in Cupertino, Calif. Alumni host **Lee Van Pelt**, Phys’86, **Chris Ramsay**, MetE’83, MS MetE’85, director of the Student Design and Experiential Learning Center, and **Sarah Moore**, admissions representative, brought past, present and future Miners together for pizza, conversation and a team presentation. Twelve team members traveled to the area for the Human-Powered Vehicle Challenge West Competition, sponsored by the American Society of Mechanical Engineers’ Santa Clara Valley Section. The Missouri S&T team placed third overall in the competition, which was held at the Hellyer Velodrome and the San Jose Fairgrounds.

## CLASS NOTES

### PUBLICATION POLICY

We publish information submitted by alumni, news submitted by employers of alumni, and selected news stories that mention alumni and their affiliation with Missouri S&T. We are happy to announce weddings, births, promotions and other happy occasions after they have occurred. We will print addresses if specifically requested to do so by the alumnus/alumna submitting the note and will mention a spouse's name if it is specifically included in the submission. We reserve the right to edit alumni notes and will use submitted photos as space permits. Due to the production time required for each issue, submissions may take up to six months to appear. Your patience is appreciated.

### BREWER SCIENCE NAMED A TOP EMPLOYER BY MINORITY ENGINEER MAGAZINE

Minority Engineer magazine recently named Brewer Science to its list of 50 top employers in the U.S. The company was featured along with tech giants Google, Apple, Amazon, Intel, Microsoft and Facebook.

Readers selected the companies they would most like to work for and those they believe provide a positive working environment for minority engineers. Brewer Science was also recognized by the *St. Louis Post-Dispatch* as a top workplace in 2012 and 2013.

**Terry Brewer**, NDD'02, is president and founder of the Rolla-based company, which is expanding its operations by adding a new high-volume manufacturing facility at the Rolla National Airport.

### SHARE A CLASS NOTE

Let your classmates know what you've been doing. Send us information about your professional and personal accomplishments — career changes or promotions, weddings, births and other news — and we will publish it in an upcoming issue. Email your update and a high-resolution photo (if available) to [alumni@mst.edu](mailto:alumni@mst.edu).

**Deadline: Spring issue — Nov. 15**

#### 1953

**Eugene A. Lang**, ChE: "I've been retired since 1989. With three sons who are Miner alumni in mining engineering, I stay well connected with events in Missouri. Good luck in your program."

#### 1957

**Thomas E. "Tom" Kalin**, ME, made a gift to the

Miner Alumni Association "to remember the work of **Patrick Davidson**, ME'70, PhD ME'74, and his dad, Professor Davidson, both of whom I appreciate."

#### 1960

**Don J. Gunther**, CE, was named chairman of the board for Pernix Group Inc., a global construction and power infrastructure company.

#### Arthur R. Troell Jr.,

MS GGph: "After 23 years in the petroleum industry and 23 years as a college professor, I retired at age 75 in 2010."

#### 1961

**Mike Kearney**, EE, received the Sigma Phi Epsilon Distinguished Alumnus Award in February at the Carlson Leadership Academy in Chicago.



#### Thomas Joseph "Tom" Mazzone

ME'44

**Thomas Joseph "Tom" Mazzone** celebrated his 93rd birthday and still enjoys following Missouri football games. "I have three sons, six grandchildren and seven great-grandchildren. I was a member of the Phi Kappa Theta fraternity and have fond memories of my days in Rolla. I still follow the stock market closely, which has been a life-long hobby. My wife of 64 years passed away in 2012 and I miss her very much."

## 1962

**Henry Pat Duvall**, Math: “Enjoyed lunch with **Al Dillingham**, MetE’63, and his wife, Emilie, in Del Mar, Calif., in November 2013. Still tutoring math and physics at Seattle Community College and volunteering at the local aviation high school.”

**Floyd H. Hahn**, CE, celebrated 50 years of marriage with his wife, Nancy.

## 1966

**Charlie Lineberry**, ME, MS ME’68, MS EMgt’74, recently published a book about life in small town

Missouri in the 1950s under the pen name Lineus Berry. Based on Lineberry’s experiences, the book, titled *Marceline*, ends with Lineberry leaving for college in Rolla.

## 1968

**Edward W. “Woody” Dorrell Jr.**, Math, retired from Aerospace Testing Alliance after more than 42 years as an information technologist. “My first big project after retiring is now finished. *Prayers from God*, a 382-page book of prayers, is now available online.”

## 1969

**Larry Childress**, GGph, MS MinE’74, was appointed to the board of directors of Global Minerals Ltd.

**Charles W. Foster**, CE, MS CE’70: “I still work in the Department of Defense for the U.S. Army, but I’m looking to retire in the next couple of years. My education was a great investment.”

## 1970

**Jim Michel**, MetE, co-authored a chapter about the degradation of

*(continued on next page)*

## FROM ENGINEER TO MOVIE PRODUCER



After a 38-year career in mechanical engineering, **John Weekley**, ME’74, sold his process control company, PROCONEX, in 2011 to pursue a career in the film industry as a movie producer.

He has been involved in *The Station Agent*, starring Peter Dinklage (of HBO’s “Game of Thrones” series), and *Bonneville*, starring Jessica Lange and Kathy Bates.

His latest project is *Kids for Cash*, a documentary about a judge who incarcerated more than 3,000 children for crimes as petty as creating a fake MySpace page while receiving millions of dollars in payments from privately-owned juvenile detention centers.

“We have backing from notable foundations like the MacArthur Foundation, Annie E. Casey Foundation and the Public Welfare Foundation,” says Weekley, executive producer of *Kids for Cash*. “This is an opportunity to expose how our juvenile courts, schools and police treat our children through a very powerful vehicle: film.” Learn more at [kidsforcashthemovie.com](http://kidsforcashthemovie.com).



### ▲ **Larry W. Campbell** ChE’71

**Larry W. Campbell** retired in October as vice president of materials engineering for General Magnaplate Corp. in Linden, N.J., after 30-plus years. “I served as the Missouri sales representative after moving to St. Charles in 2008. I have been an amateur astronomer since 1973, when I was with McDonnell Douglas, and am now active in two St. Louis astronomy clubs. I have been happily married for more than 37 years to my wonderful wife, Connie. We have two adult children, Kevin and Kristen, who also live nearby.” He and his wife plan to travel in their retirement.



## DOCTORAL STUDENT AN ASTRO PARTICIPANT



Photo courtesy Cheryl Brown, ORAU/ORISE

**Vaibhav Khane**, MS NucE'07, MS ChE'12, PhD ChE'14, recently spent seven months working on models for a new low-enriched uranium core for Oak Ridge National Laboratory's High Flux Isotope Reactor as part of its Advanced Short-Term Research Opportunity (ASTRO) Program. Khane used multi-physics codes to model designs to replace the reactor's current highly enriched uranium core.

Through the ASTRO Program, ORNL investigators host recent master's or doctoral graduates in research areas that support Department of Energy missions in the basic and applied sciences, energy, and the environment.

ASTRO participants use their ORNL research experience to complete their doctoral degrees or, if they already have their doctoral degree, to augment their expertise and experience before entering the workforce.

**Muthanna Al-Dahhan**, chair and professor of chemical and biochemical engineering at S&T, was Khane's research advisor. Khane is now a process engineer at Intel Corp.

copper for the textbook *Environmental Degradation of Advanced and Traditional Engineering Materials*. He is the technical services manager at the Copper Development Association in New York City.

### 1971

**William Bartley**, EE, was named an IEEE Fellow for his contributions to the development of generator and transformer standards for life-cycle planning and risk assessment. He retired as assistant vice president with Hartford Steam Boiler in 2013.

**Jan M. Pottinger**, ME, MS ME'73, was promoted to principal engineer for NORDYNE in O'Fallon, Mo.

**Lance Wade**, MinE, retired from Western Fuels-Colorado in January.

### 1972

**Dale L. Houdeshell**, CE, was appointed director of public works for the city of Clayton, Mo., in February.

### 1973

**William R. Heincker**, ME, MS ME'74: "I retired in August 2013 after 22 years in the Air Force, followed by 16 years as an animal emergency veterinarian technician. Kathy and I will continue to enjoy our family and grandkids. I'm looking forward to traveling abroad and doing more fishing."

### 1975

**Allen B. Agnew**, MS GeoE, retired in January 2007 after more than 31 years as a senior regulatory specialist in coal and solid leasable minerals for the U.S. Bureau of

Land Management. He and his wife, Erika, live in Vancouver, Wash., and would love to hear from classmates and friends who graduated between 1973 and 1977 at abagnew42@comcast.net.

### 1977

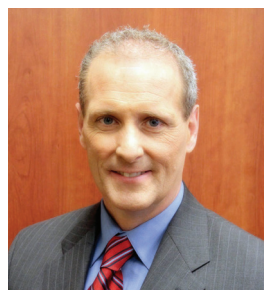
**Torie Ann Vandeven**, GGph: "In my 36th year in the oil biz. My old company, Credo, was bought out by Forestar Petroleum. Still drilling in Kansas and Nebraska."

### 1978

**Terry (Noelker) White**, Math: See Future Miners, page 39.

### 1981

**Robert Hoffman**, ME: See Future Miners, page 39.



### ◀ **Michael X. Schlumpberger** MinE'85

**Michael X. Schlumpberger** joined Passport Potash Inc. as the company's chief operating officer in June 2013. Prior to joining Passport Potash, he spent more than 21 years with Potash Corp. of Saskatchewan. His latest position was mine general superintendent.



### ◀ **David Bayless** ME'87

**David Bayless** was named a 2013 Fellow by the National Academy of Inventors for his development of engineering technologies that address the nation's energy and environmental problems. He is the Loehr Professor of mechanical engineering at Ohio University. Bayless is the son of **Jerry Bayless**, CE'59, MS CE'62, associate professor of civil engineering.

# FUTURE MINERS

**Gary Halligan**, EE'04, MS EE'09, and his wife, Katie, had a boy, Jake Thomas, on May 21, 2013, in Cedar Rapids, Iowa.

**Stephen Hoffmann**, ME'05, and **Meena (Philips) Hoffmann**, EMgt'05, had a boy, Luke Philips, on Nov. 8, 2013. Grandparents are **Robert Hoffmann**, ME'81, and **Mary (Shultz) Hoffmann**, ME'82.

**Jeremiah King**, CE'06, and **Maria (Conte) King**, CE'05, MS CE'10, had a boy, Frederick James, on Dec. 27, 2013. He joins brother Jeremiah David Jr.

**Cori (Lock) Nelson**, Bus'02, and her husband, Derek, had a boy, Dashiell Leland, on July 23, 2013. He joins sisters Cassi Frances, 12, and Georgia Marie, 2. Great aunt is **Terri (Noelker) White**, Math'78.

**Deborah (Hummel) Newman**, GeoE'98, and her husband, Dylan, had a girl, Ella Marie, on Nov. 2, 2013. She joins brother Magnus and sister Maliah.

**Aaron Olson**, NucE'11, and **Ashley (Shockley) Olson**, GGph'10, had a boy, Josiah Aaron, on April 26, 2013.

**Derek Schler**, ME'09, and **Stephany (Rich) Schler**, Math'10, had a boy, Carter James, on Sept. 22, 2013.

**Scott Swiezynski**, EE'03, and **Nancy (Bergner) Swiezynski**, EE'03, had a girl, Anna Marlene, on July 1, 2013. She joins brother Sam, 2.



Halligan



Hoffmann



King



Nelson



Newman



Olson



Schler



Swiezynski

## WOEHL RECEIVES 2014 MUNIR AWARD



**Taylor Woehl**, CerE'09, received the 2014 Zuhair A. Munir Best Dissertation Award from the University of California, Davis. Woehl earned his doctorate in chemical engineering in September 2013. His dissertation is titled "Direct Observations of Colloidal and Nanoparticle Behavior in the Presence of External Fields."

### 1982

**Mary (Shultz) Hoffmann**, ME: See Future Miners, page 39.

### 1985

**Aaron Miller**, MinE, was named chair of the International Lead Association. He is vice president of operations and chief operating officer for The Doe Run Co.

**Greg M. Stowell**, ME, MS ME'87, had a photography exhibit in February at Swing the Teapot Restaurant & Bar in Floral Park, N.Y. You can see his work at [frankfrdgallery.net](http://frankfrdgallery.net).

**Ernest Wolf**, NDD, retired with his wife, Vivienne, to Issaquah, Wash., after 50 years in St. Louis. He founded and managed SKY-TOP Sunroofs Ltd. for 20 years, with help in 1974 from S&T and John Amos.

### 1988

**Jerry Haynes**, EMgt, operates the firm Jerry Haynes, Attorney at Law, which was selected as a top patent firm by *Intellectual Property Today*.

**Chris Kaufman**, GeoE, joined Lamoille Region Solid Waste Management District as its new facility manager in Morrisville, Vt.

**Cordell Edmunds Smith**, Hist, reached a milestone of 17 years with the federal government in October, seven of which were with the Department of Veterans Affairs. "Seems like every day brings a new challenge, which I guess helps keep it interesting."

### 1990

**Kathleen (Ryan) Peters**, EE, joined 41st Parameter as vice president of business development. The company, a part of Experian, produces device-recognition technology.

### 1993

**Robert Wagner**, ME, MS ME'95, PhD ME'99, received the International Leadership Citation during the SAE 2014 World Congress. He is director of the Fuels Engines and Emissions Research Center at Oak Ridge National Laboratory.

### 1997

**J. Ryan Benefield**, GeoE, was named president of the Association of State and Territorial Solid Waste Management Officials in November. He is deputy director of the Arkansas Department of Environmental Quality.

### 1998

**Deborah (Hummel) Newman**, GeoE: see Future Miners, page 39.

**Ted Thomas**, PhD EMgt, spoke at Virginia Tech's Leaders in Action lecture series in February. He is director of the

## GREEN FOR A CAUSE



On March 11, 35 Missouri S&T alumni who work at Honeywell Federal Manufacturing & Technologies volunteered at Harvesters, a non-profit food bank in Kansas City, Mo. The employees packed more than 1,830 backpacks with food for children of low-income families. The group organized the event to coincide with St. Pat's activities and even wore their St. Pat's sweatshirts. Members of the group enjoyed sharing their St. Pat's experiences with other alumni from the '70s all the way through 2013, and they hope to make it an annual event.

Department of Command and Leadership at the U.S. Army Command and General Staff College in Fort Leavenworth, Kan.

## 1999

**Shannon Todd**, GeoE, joined Horner & Shifrin Inc. as an environmental engineer in the firm's Poplar Bluff, Mo., office.

## 2002

**Preston Carney**, CE, MS CE'03, was promoted to associate with Wallace Engineering. He is an active member of the American Institute of Steel Construction and the Tulsa chapter of the American Concrete Institute.

**Donald W. Cone Jr.**, AE, Econ, was promoted in October to supervisory air traffic control specialist and front line manager with the Federal Aviation Administration at the Huntington Airport Traffic Control Tower in West Virginia.

**Cori (Lock) Nelson**, Bus: see Future Miners, page 39.

## 2003

**Scott Swiezynski**, EE, and **Nancy (Bergner) Swiezynski**, EE: see Future Miners, page 39.

## 2004

**Gary Halligan**, EE, MS EE'09, see Future Miners, page 39.

**Glenn O. Pratt**, MS EMgt, was named district

commander of the Portland, Ore., District of the U.S. Army Corps of Engineers in December.

## 2005

**Stephen Hoffmann**, ME, and **Meena (Philips) Hoffmann**, EMgt, see Future Miners, page 39.

**Maria (Conte) King**, CE, MS CE'10, see Future Miners, page 39.

## 2006

**Jeremiah King**, CE, see Future Miners, page 39.

## 2008

**Mike Schroer**, CerE, see Miner Unions, right.

## 2009

**Michael Mueller**, AE, see Miner Unions, right.

**Derek Schler**, ME, see Future Miners, page 39.

## 2010

**Josh Gaghen**, MS CE, was named director of federal programs for McCarthy Building Companies Inc.

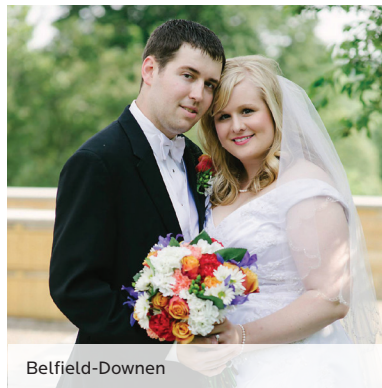
**Ashley (Shockley) Olson**, GGph, see Future Miners, page 39.

**Stephany (Rich) Schler**, Math, see Future Miners, page 39.

**Rebecca (Wentz) Hawkes-Cates**, BSci, Psyc, lives in Kansas City, Mo., where she is continuing her education in nursing. Also see Miner Unions, right.

*(continued on next page)*

# MINER UNIONS



Belfield-Downen



Hawkes-Cates-Wentz



Mueller-Banziger



Schoer-Spies

**Thomas Belfield**, ChE'11, and **Caroline Downen**, ChE'11, were married on June 8, 2013, in Belleville, Ill.

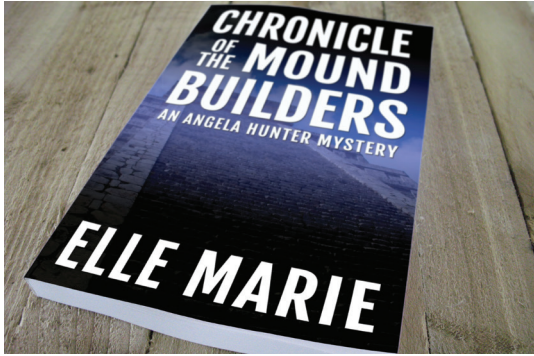
**Oshadee de Silva**, Psyc'11, married Milinda Herath on June 3, 2013. The couple lives in Sri Lanka.

**Joseph Hawkes-Cates**, CSci'11, ECE'11, and **Rebecca Wentz**, BSci'10, Psyc'10, were married on Sept. 1, 2013, at the Jewel Box in St. Louis's Forest Park.

**Michael Mueller**, AE'09, and **Catherine Banziger**, AE'11, were married on Sept. 28, 2013, at St. Ambrose Church in St. Louis and honeymooned in the Virgin Islands. The couple lives in St. Louis.

**Mike Schroer**, CerE'08, married Gretchen Spies on Nov. 9, 2013, in Muscatine, Iowa.

## LONG-LOST CIVILIZATION SPARKS BOOK



A newspaper article about an archaeological dig in Chesterfield, Mo., gave **Ellen M. (Monti) Meyer**, CSci'77, the idea for her first novel, *Chronicle of the Mound Builders: An Angela Hunter Mystery*.

"They found evidence of the long-lost civilization of the Mound Builders, which piqued my curiosity," she says on her website [ellemarieauthor.com](http://ellemarieauthor.com). Meyer uses the pen name Elle Marie.

"I've tried to provide accurate information about the culture and lifestyles of both the Aztecs and the Mound Builders through careful research," she says. "The Chesterfield Valley dig site, known as the Dampier Dig, is real, but many of the artifacts described in the book are invented."

By day, Meyer is a senior project leader with Edward Jones.

## 2011

**Catherine Banziger**, AE, see Miner Unions, page 41.

**Thomas Belfield**, ChE, and **Caroline (Downen) Belfield**, ChE, see Miner Unions, page 41.

**Oshadee de Silva**, Psyc, see Miner Unions, page 41.

**Aaron Olson**, NucE, see Future Miners, page 39.

**Joseph Hawkes-Cates**, CSci, ECE, lives in Kansas City, Mo., where he is a software engineer for CERNER. Also see Miner Unions, page 41.

## 2013

**Nicholas Eshelman**, CE, joined St. Louis-based Tarlton Corp. as a project engineer. ■



### ◀ Ryan Damery

GeoE'12

**Ryan Damery** joined Hanson Professional Services Inc. as a civil intern in the firm's St. Louis office.



### ◀ Kyle Butts

CE'13

**Kyle Butts**, CE, was named project engineer for Micro-Surfacing Contractors LLC in St. Louis.

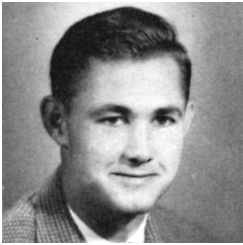
## MINERS RECONNECT IN ISTANBUL, TURKEY



Alumni and friends shared memories of Missouri S&T and university updates at a restaurant in Istanbul, Turkey, in November. From left: **Scott Kalwei**, EMgt'11; **Kubilay Kaya**, MS EnvE'10; **Roberta "Birdie" Morgan**, EngI'87, Hist'87, program director for international affairs at S&T; **Burak Arasli**, MS EMgt'03; Cansu Aytan; **Ugur Yildiz**, EMgt'11; and **Onur Yildiz**, who completed S&T's Intensive English Program in 2011. Kalwei and Yildiz also helped Morgan at a recruitment fair that was attended by more than 6,000 students.

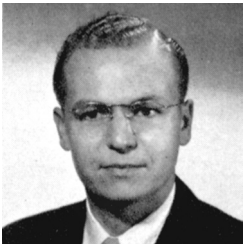
## MINERS REMEMBERED

Missouri S&T Magazine will announce deaths when information is submitted by an immediate family member or published in a newspaper obituary. Notification of deaths that have occurred more than two years before the date of publication will not be published unless a special request is made by a family member. Yearbook photos, if available, will be included for alumni when families submit obituary information.



◀ **Lester W. "Woody" Holcomb**  
MinE'51

**Lester "Woody" Holcomb** was a lieutenant in the Army Corps of Engineers in Germany during the Cold War. An engineer with the Illinois Department of Transportation for 20 years, and the Randolph County (Ill.) engineer for 16 years, he founded Holcomb Foundation Engineering Co. in 1969 and retired in 2000. (Jan. 27, 2014)



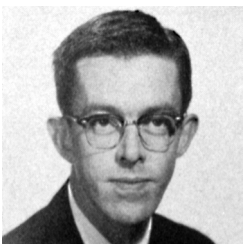
◀ **James R. "Jim" Becker**  
ME'56

**James R. "Jim" Becker** spent his career as a tool and die design forging engineer, which took him to Texas, Pennsylvania, Ohio and back to Texas. The principle speaker at the 1966 Forging Conference held in England, he wrote several papers and co-authored a book. (Jan. 22, 2014)



◀ **Floyd L. Stelzer**  
PetE'56

**Floyd L. Stelzer** was a member of Tau Beta Pi and Sigma Gamma Epsilon and graduated with first honors. He first worked for Phillips Petroleum Co., then spent his career with the conservation division of the U.S. Geological Survey in Tulsa, Okla., retiring as regional oil and gas supervisor in 1985. (Nov. 17, 2013)



◀ **James E. "Jim" McNabb**  
EE'58

**James E. "Jim" McNabb** was a member of Delta Sigma Phi and served in the Navy during the Korean War. He started at Westinghouse, then joined Associated Electric Cooperative Inc. in Springfield, Mo., where he oversaw engineering and systems operations. He retired after 38 years with the company. (Feb. 3, 2014)



◀ **George A. (Jorge) Grau**  
ME'60

**George A. (Jorge) Grau** returned to his native Cuba following graduation to work for Texaco. He left for Puerto Rico during Castro's early regime and later emigrated to the U.S., working for Fluor Corp. in Houston and other engineering companies in Baton Rouge, La. (Feb. 7, 2014)

### 1939

**Lewis J. Graber, ChE**  
(Jan. 31, 2014)

### 1941

**Roy W. Graves Jr.,**  
MS GGph (Jan. 12, 2013)

**Richard G. "Dusty"**  
**Rhodes, ME** (Feb. 1, 2014)

### 1942

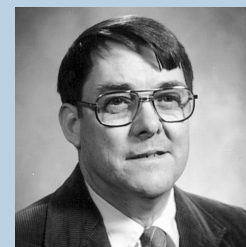
**Joe Van Pool, ChE**  
(Feb. 12, 2014)

### 1944

**Peter Mushovic, MetE**  
(Feb. 19, 2014)

## DR. JAGDISH K. PATEL

Dr. **Jagdish K. Patel**, professor emeritus of mathematics, died on July 18, 2013. He earned a Ph.D. in statistics from the University of Minnesota in 1968. He joined the faculty in Rolla in 1975 and retired in 1999.



## DR. CHARLES J. HAAS

Dr. **Charles J. Haas**, professor emeritus of mining engineering, died on Nov. 10, 2013. He earned a doctor of science degree in mining engineering from Colorado School of Mines in 1964 and joined the faculty in Rolla that same year. He was a former grand knight for the Knights of Columbus. Two of his favorite pastimes were camping and listening to the Lady Miners basketball team on the radio.

1947

**Edwin R. Fogarty, ME**  
(Jan. 30, 2014)

1948

**Maurice H. Ellis, CE**  
(Jan. 9, 2014)

**Paul Kram, CE**  
(Nov. 21, 2013)

1949

**Harry C. Bauman, MinE**  
(Feb. 1, 2013)

**Richard H. Duncan, EE,**  
MS Phys'51 (Jan. 24, 2014)

**Joseph J. Reiss, ME**  
(Oct. 17, 2013)

1950

**Edwin H. Barsachs, MinE,**  
MS MinE'51 (Nov. 16, 2013)

**Robert I. Patten, CE**  
(Dec. 2, 2013)

**Gene F. Robinson, ME**  
(Jan. 24, 2014)

1951

**Gilbert L. Crowell, CE**  
(Oct. 5, 2013)

1952

**E. Lee Bilheimer, MinE**  
(Oct. 28, 2013)

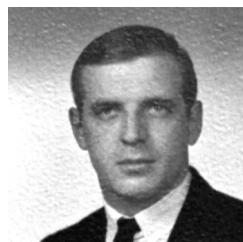
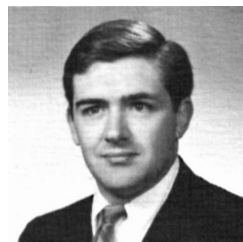
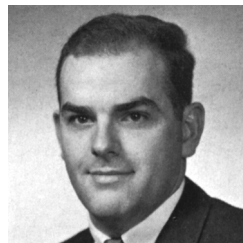
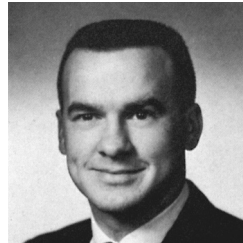
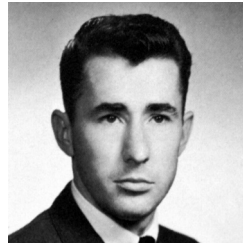
**Donald E. Drewel, MetE**  
(Dec. 20, 2013)

**Wayne A. Hahne, ME**  
(Dec. 2, 2013)

1953

**Romuald L. Buescher, ME**  
(Dec. 11, 2013)

**David I. Steele, CE**  
(June 20, 2013)



◀ **Gerald E. Glass**  
ME'65

**Gerald E. Glass** was a member of Tau Beta Pi and Pi Tau Sigma. He retired from Custom Metalcraft in Springfield, Mo., after nearly 30 years. An accomplished runner, at age 60 he took third place in his age group in the Boston Marathon. (Feb. 11, 2014)

◀ **Richard P. Meyer**  
CE'65

**Richard P. Meyer** was a member of Beta Sigma Psi fraternity and worked for Koehler Engineering & Surveying in Cape Girardeau, Mo. (Nov. 16, 2013)

**Adil M. Godiwalla**  
MS CE'66

**Adil M. Godiwalla** was born in Mumbai, India, and retired from the city of Houston after more than 30 years of service. He most recently was a consultant for Gunda Corp. (Dec. 16, 2013)

◀ **Roger F. Verslues**  
CE'66

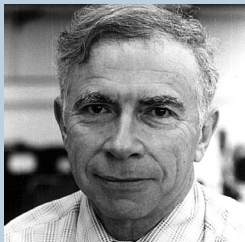
**Roger F. Verslues** was a member of Phi Kappa Theta fraternity and worked on the *Missouri Miner* and the *Rollamo*. He worked for McDonnell Douglas before starting his own business, which he operated for more than 40 years. (Jan. 6, 2014)

◀ **Norris W. Perry**  
EMgt'68

**Norris W. Perry** was a member of Sigma Nu fraternity. He worked in the railroad industry where he enjoyed extensive travel, and at Brenco Inc. for 28 years. He was an avid outdoorsman and enjoyed playing the fiddle and harmonica. (Feb. 7, 2014)

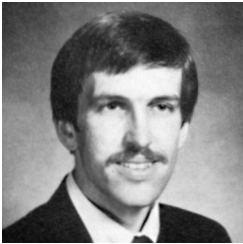
◀ **Cecil R. Taylor**  
CE'70

**Cecil R. Taylor** was a member of Delta Sigma Phi fraternity, played halfback on the Miner football team and was in the Army ROTC. He served in Vietnam and finished his military career as a lieutenant colonel. He volunteered with several organizations and coordinated fundraising for homeless children. (Nov. 8, 2013)



**DR. ROBERT "BOB" GERSON**

Dr. **Robert "Bob" Gerson**, professor emeritus of physics, died on Dec. 12, 2013. He served in the U.S. Army during World War II on Alaska's Attu Island prior to pursuing graduate studies, and earned his Ph.D. in physics from New York University in 1954. He joined the Rolla faculty as professor of physics in 1962, retiring in 1986. He and his wife traveled extensively and he enjoyed the arts. He created poems, short stories, plays, photographs and paintings.

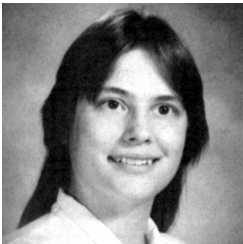


◀ **David W. Duncan**  
ME'83

**David W. Duncan** was a member of Student Council and the Student Union Board and earned an MBA from Vanderbilt University. He was a project manager for Covidien Ltd. in St. Louis and held patents for several inventions. (July 23, 2013)

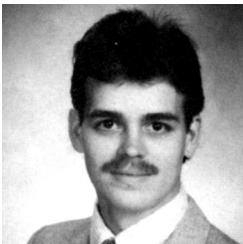
**Kevin M. Messmer**  
CSci'88

**Kevin M. Messmer** was a project scientist with the National Geospatial-Intelligence Agency, a part of the U.S. Department of Defense. (Oct. 20, 2013)



◀ **Barbara Jo Erickson**  
ME'89

**Barbara Jo Erickson** was a member of the Society of Women Engineers and the Jackling Institute, and worked on the *Rollamo* yearbook. She earned a master's degree from Washington University in St. Louis and spent the last 15 years as a design engineer with Brose North America Inc. (Feb. 6, 2014)



◀ **Eric S. Schellenberg**  
ME'90

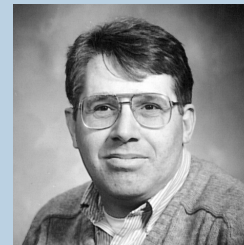
**Eric S. Schellenberg** was involved with the student-run radio station KMNR and worked at Seiler Plastics Corp. as quality assurance manager. (Sept. 14, 2013)

**Jonathan Andrew Pribble**  
EE'04

**Jonathan Andrew Pribble** was an Eagle Scout and graduated magna cum laude from S&T, where he participated in the Christian Campus Fellowship. He also earned a master's degree in electrical engineering from the University of Southern California. He worked for The Aerospace Corp. in El Segundo, Calif., until taking medical leave. (March 13, 2013)

**Majed Al Abbass**  
MS EE'13

**Majed Al Abbass** was president of the Saudi Student Association and was involved in the International Students Club and Solar House Team as a student. (Sept. 5, 2013)



**DR. DAVID S. WULFMAN**

Dr. **David S. Wulfman**, professor emeritus of chemistry, died on Dec. 27, 2013. He earned a Ph.D. in chemistry from Stanford University in 1962 and joined the S&T faculty as assistant professor of chemistry in 1963. He became associate professor in 1966 and professor in 1977, retiring in 1992.

**THOMAS JOSEPH  
"TOM" JERRIS**

**Thomas Joseph "Tom" Jerris**, GGph'07, MS GGph'14, a graduate student in geology and geophysics, died on Jan. 8, 2014. S&T awarded his master's degree posthumously in May. He worked full time at the U.S. Geological Survey and received several service awards in the geological sciences and engineering department at S&T.



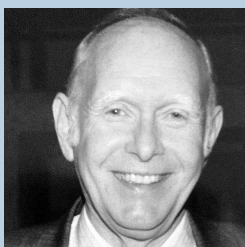
**DR. LINDA BERGMANN**

Dr. **Linda Bergmann**, former director of the Missouri S&T Writing Center and associate professor of English, died on Jan. 12, 2014. She earned a Ph.D. in English from the University of Chicago in 1983. She joined the Rolla faculty in 1996, leaving in 2001 to become director of the writing lab and professor of English at Purdue University.



## SCOTT T. PORTER

**Scott T. Porter**, Phys'55, a member of Sigma Nu fraternity, died on March 23, 2014. A former resident of Granada Hills, Calif., he retired to Arizona. Porter founded two companies and his accomplishments included developments in military radar, missile defense and advanced medical imaging. He established an endowment that supported the creation of the *Millennium Arch*, the sculpture that was installed on the lawn of Castleman Hall in 2000. The sculpture was designed by artist Edwina (Churchill) Sandys, granddaughter of Winston Churchill and a personal friend of Mr. Porter.



## DR. DONALD VINCENT "VINCE" ROACH

Dr. **Donald Vincent "Vince" Roach**, professor emeritus of chemistry, died on March 23, 2014. After earning a Ph.D. in chemistry from the University of Missouri-Columbia, he worked as a research chemist at the U.S. Naval Weapons Laboratory in Virginia. He joined the Rolla faculty as an assistant professor in 1965, became associate professor in 1968 and served as associate chair of chemistry in the 1980s. His research focused on the friction arising during rocket reentry.

During his 32 years at Missouri S&T, Roach was a popular teacher who received many teaching awards. He was well known as the lone faculty member who could consistently tolerate teaching the 7:30 a.m. freshman chemistry class.

An accomplished pianist and gourmet cook, Roach and his wife, Louise, frequently entertained political figures and other visiting dignitaries. His work in community health affected many lives.

### 1956

**Michael G. Mahoney**, CE  
(Nov. 03, 2013)

### 1957

**Robert L. Blount**, EE  
(Dec. 4, 2013)

**William T. Fitzgibbons**, ME  
(Dec. 25, 2013)

### 1958

**Eldon W. Head**, CE  
(July 29, 2013)

**William E. Hurlburt**, CerE  
(Nov. 21, 2013)

**Eugene Robson**, CE  
(Feb. 11, 2013)

**Billy B. West**, MinE  
(Nov. 3, 2013)

### 1959

**Leander A. Neumeier**, MetE,  
MS MetE'60 (Jan. 7, 2014)

**Carl R. Schumacher**, CE  
(Oct. 22, 2013)

**Lee Shell Jr.**, ChE  
(Jan. 15, 2014)

### 1960

**Walter L. Krudwig**, ChE  
(Aug. 30, 2013)

### 1962

**William H. Slocum**, EE  
(Nov. 3, 2013)

**Richard C. "Rich" Swanson**, ChE  
(Feb. 12, 2014)

**Thomas "Mike" Taylor**, CE  
(Dec. 8, 2013)

### 1963

**Jeffrey R. Herbst**, ChE  
(Nov. 9, 2013)

**Kenneth A. Poush**, MetE,  
MS MetE'64 (Nov. 24, 2013)

**Carlton L. Scott**, ME,  
MS EMch'71 (Oct. 6, 2013)

### 1964

**Fredrick D. Lehman II**, CE  
(Jan. 16, 2014)

### 1965

**Marvin L. Byington**, CE,  
MS CE'67 (Aug. 24, 2013)

**Roney L. Haden**, CE  
(Oct. 1, 2013)

### 1966

**Willard Diel**, CE  
(Jan. 14, 2013)

**Paul J. Koehler**, Phys  
(Nov. 27, 2013)

### 1967

**David G. Boulware**, ME  
(Dec. 23, 2013)

**Kevin Foster**, GGph  
(Jan. 20, 2014)

**Henry K. Hachmuth**, ChE  
(Dec. 29, 2013)

### 1968

**Donald R. Deatherage**, EE  
(Feb. 26, 2013)

**Daniel F. Thomure**, EE,  
MS EMgt'73 (Oct. 14, 2013)

## FRIENDS

**David J. Allen**, former director of admissions and student financial aid (Nov. 1, 2013)

**Loraine A. Bookout** (Feb. 1, 2014)

**Charles F. Carroll** (Oct. 31, 2013)

**Elsie Cole** (Dec. 7, 2013)

**Justine Dietz**, wife of the late Robert O. Dietz, ME'44 (July 5, 2013)

**Vivian Doerr** (Dec. 28, 2013)

**Richard "Rick" Henry** (Nov. 4, 2013)

**Mary Jo Horn** (Jan. 14, 2014)

**Carl H. "Chuck" Huber** (Feb. 3, 2014)

**Pamela Rae Keller** (Feb. 20, 2014)

**Robert D. Lewis**, retired from the S&T mailroom (Nov. 25, 2013)

**Jack MacCash** (Feb. 23, 2014)

**Shirley Mae Parrish** (Feb. 10, 2014)

**Kenneth R. Peak** (April 19, 2013)

**Kristie Perez** (Dec. 12, 2013)

**Joanne Reynolds**, human resource specialist at S&T (Jan. 22, 2014)

**Ova Rice** (Nov. 12, 2013)

**Mary L. Sands** (Dec. 11, 2013)

**Sara Shackelford** (Dec. 5, 2013)

**Bruce Tengblad** (Aug. 2, 2013)

**Bennie "Leroy" Tipton**, former instructional laboratory coordinator at S&T (Feb. 15, 2014)

**Leslie White**, retired boiler maker at the S&T Power Plant (Jan. 20, 2014)

**Daniel L. Wiedeman** (Feb. 13, 2014)

**1969**

**John B. "Jack" Dimond, ME**  
(Oct. 25, 2013)

**1970**

**James R. Butler, EMgt**  
(Dec. 30, 2013)

**Gregory E. Praznik, PetE**  
(Dec. 2, 2013)

**1971**

**Allan R. Kroupa,**  
MS EMgt (Feb. 2, 2014)

**1972**

**Joan D. Dietzmann, Hist**  
(Dec. 25, 2012)

**Joseph R. Moore, CSci**  
(Aug. 4, 2013)

**1974**

**Ronald E. Gray,**  
MS CSci (Sept. 25, 2012)

**Lairy J. Gritz,**  
MS EMgt (Jan. 29, 2014)

**1975**

**Gerald J. Wessel, CE**  
(Oct. 30, 2013)

**1979**

**Thomas D. Benignus, EE**  
(Feb. 11, 2014)

**1980**

**Wilfred F. "Will" Bereswill,**  
CE (March 24, 2013)

**Steven F. Kane,**  
MS EMch (Nov. 1, 2012)

**1981**

**Wesley K. Haisty, NDD**  
(Feb. 6, 2014)

**Russell O. Weller, Hist**  
(Nov. 3, 2013)

**1984**

**Derick G. Warrick, MinE**  
(Dec. 22, 2012)

**1985**

**Robert "Bob" Reyner,**  
MS EMgt (Dec. 17, 2013)

**Calvin E. "Cal" Stites,**  
EMgt (Dec. 27, 2013)

**1990**

**David Mark Allen, EMgt**  
(November 2013) ■

**WILBUR S. FEAGAN**

**Wilbur S. Feagan,** MS EMgt'76, retired president and CEO of F&H Food Equipment Co., in Springfield, Mo., died on March 29, 2014, at the age of 100. He co-founded F&H in 1959 and retired in 2005. He continued his service on the company's board of directors until his death. Mr. Feagan was a member of the Academy of Engineering Management and was a major supporter of his department and the Miner Alumni Association.



**DR. PAUL R. MUNGER**

Dr. **Paul R. Munger,** CE'58, MS CE'61, professor emeritus of civil engineering, died on April 19, 2014. He joined the Missouri S&T faculty in 1958 and served as director of the Institute of River Studies, retiring in 2000. He earned a Ph.D. from the University of Arkansas in 1972 and was a member of the Academy of Civil Engineers for both S&T and Arkansas.

Munger held many leadership roles, including 17 years on the Missouri Board for Architects, Professional Engineers and Land Surveyors, with 14 years as chair. During his tenure, he helped investigate the 1981 collapse of the Hyatt Regency skywalks in Kansas City, Mo., one of the deadliest structural failures in U.S. history. He led the licensing disciplinary actions following the tragedy.

His work to change registration procedures following the collapse earned Munger the Outstanding Service Award from the Missouri Society of Professional Engineers and the Distinguished Service Award from the National Council of Examiners for Engineering and Surveying, where he later served as president. He was a National Society of Professional Engineers Fellow, an American Society of Civil Engineers Fellow and an MSPE Hall of Fame inductee.

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TONY KACZMAREK:  
**TOUCHDOWN**  
*for*  
**STUDENT HEALTH**

*When Missouri S&T upgraded its Student Health Services Center four years ago, former Miner football player and Rolla physician Dr. Tony Kaczmarek, LSci'87, saw an opportunity to improve the facility for Missouri S&T's current student-athletes.*

Kaczmarek and his wife, **Julie**, a registered nurse, gave \$100,000 to Missouri S&T to upgrade the university's athletic training facilities and establish the Kaczmarek Sports Medicine Center, located across the street from Allgood-Bailey Stadium.

"Missouri S&T gave me the foundation that allowed me to be successful," says Kaczmarek. "As a former student-athlete, I believe academics and athletics are crucial to the development of mental maturity. Getting involved with the athletic training center was a chance for me to give back to the university and its student-athletes."

Kaczmarek, the president and owner of Central Missouri Urology Clinic, was an all-conference football player for the Miners from 1983-86 under the late **Charlie Finley**, who recruited him following his high school career in Salem, Mo. Kaczmarek had planned to go into the medical field and knew Missouri S&T had a high medical school placement rate.

Kaczmarek credits a few of his professors, coaches and fellow students with helping him succeed in college.

Biological sciences faculty members **Nord Gale**, Curators' Teaching Professor emeritus, and **Roger Brown**, Chancellor's

Professor, "went above and beyond to help me recognize my potential," he says. Finley and the late **Bud Mercier**, position coach for Miner defensive backs, "made a boy into a man."

"They assisted me in striving for excellence," Kaczmarek says. "None of my achievements at Missouri S&T were done on my own. They were done with the help of others."

While he is pleased with the current sports medicine program at Missouri S&T, Kaczmarek sees room for future improvement.

"I would like to see a full rehabilitation service for student athletes," he says. "Currently, we are able to prevent and treat injuries and get the student-athletes back in the game. But we need services for rehab after the initial injury." ■

▶ **GLASS SHOP**

Molten glass on the end of a rod is fused with glass granulates, known as frit, and then returned to the 1,250-degree-Celsius reheat furnace before the colored glass is shaped into the final product.



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