

THE HARD ROCK™

SUMMER 2016



SOUTH DAKOTA

M

SCHOOL OF MINES
& TECHNOLOGY

THE HARDROCK™

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About the Cover
Vanesa Gomez, a senior applied biological sciences major from Rapid City, has spent the summer immersed in healthcare as a patient care technician at Regional Health.



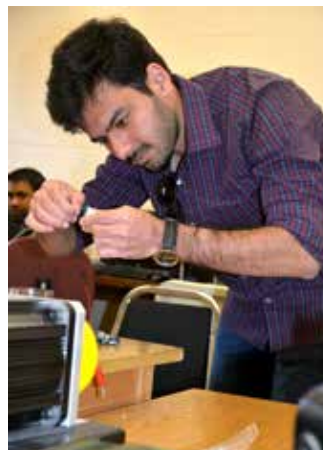
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Greetings Alumni and Friends,

The best part of the job as alumni president is to have the opportunity to meet so many of our alumni. Bonnie and I took a road trip in April to visit family in South Carolina. I wanted to take advantage of the trip to get together with alumni along the way. Katie Harwood, our assistant director, along with our area alumni representatives set up alumni gatherings in Kansas City, Kansas; Atlanta, Georgia; Pittsburgh, Pennsylvania; Columbus, Ohio; and Peoria, Illinois. Special thanks go to Jessica Hartman (ChemE 03) and Bill Jones (IE 96) in Atlanta, Susan "Booty" Kuhns (GeolE 75) in Pittsburgh, Spencer Ferguson (CE 14) in Kansas City, and Steve Bickett (ME 04) in Peoria. It was great to see and talk with everyone and give updates on campus happenings.

The Alumni Association has implemented some recent changes. Our new director, Larry Simonson (EE 69), started his position April 1. Larry is a familiar face around campus and to many of you. Before coming to the Alumni Association he traveled extensively to athletic events and alumni gatherings, taking advantage of these opportunities to meet and engage alumni. We look forward to continuing to improve our alumni contact and your involvement with the campus.

The Alumni Association office has moved out of its familiar location in Surbeck Center in anticipation of the construction of the Gail and Guy March Alumni Center. The office is temporarily located on the ground floor of the Foundation building located at 306 East Saint Joseph Street, one block northwest of Surbeck Center. This move took place in July. Once constructed, the Gail and Guy March Alumni Center will be located just off campus at the corner of East Kansas City Street and Birch Avenue. The university asked for our space in Surbeck to start a Student Success Center for the fall 2016 semester. In the words of Alumni Association board member and math instructor Deb Bienert (EE 78), "the catalyst is the development of a Student Success Center with qualified, dedicated people to assist students with targeted academic advisement, testing, and tutoring as well as referrals for other intervention and support services. I can speak from experience that these resources have been missing for the past few years, and we need them desperately to aid students who struggle with transition to college and its academic requirements." The goal of the Student Success Center is to retain students. We want to grow our student body by not only recruiting new freshman, but by retaining current students.

More changes, all for the better, are in the works to strengthen our engagement with alumni and our working relationships with SD Mines and our partner organizations on campus.

Thank you for supporting the Alumni Association by supporting the Mines Annual Fund.

Go Hardrockers!

Dave Berg (ME 73)
2016 President
SD Mines Alumni Association

Plenty of shovels, buckets, and manpower were needed to build O'Harra Stadium. This photo was taken May 18, 1931, on the first day of construction of what would become one of the most unique football stadiums in America, with drive-up tailgating.



130 years ago 1885/1886

Franklin Carpenter is appointed the first dean at the School of Mines in December of 1885. The original building is completed in February of 1886 and eventually becomes known as the Prep Building. Later that spring, the Bailey collection of minerals, ores, and fossils are placed on display in the Prep Building, the beginning of the Museum of Geology.

60 years ago 1955/1956

The School of Mines Glee Club becomes the Singing Engineers. The National Geographic Society and the School of Mines hold a twentieth anniversary celebration of the November 11, 1935, Stratosphere Flight. After thirty-six years at Mines, George Thompson, superintendent of Buildings and Grounds, dies. The new School of Mines television series entitled "Science and Engineering, A Key to Modern Life" begins in December of 1955. The thirty-minute program airs on KOTA television on Friday evenings.

40 years ago 1975/1976

President Harvey Fraser retires, and Richard Schleusener is named president. The Hardrockers win SDIC titles in football and men's basketball. The school's inaugural women's basketball team, the Rokerettes, takes to the court for the first time and finishes the year with a winning record. Engineering programs are offered at Ellsworth Air Force Base, and the first Guy E. March Medal is awarded to Thomas Malone (GenE 40). Bruce and Chuck Lien (Hon 77) purchase a portion of M Hill and give the deed to the Endowment Association. During the nation's Bicentennial year, the spring commencement is held at Mount Rushmore.

10 years ago 2005/2006

Grubby celebrates his thirty-fifth birthday. A team of Mines students competes with seventy-four other teams in the World Finals of the ACM Programming Contest and earns an honorable mention. The university begins offering a PhD in biomedical engineering in July. The School of Mines Concert Choir and Master Chorale travel to an international festival in Ireland and return home with three first-place trophies and a second-place certificate. The School of Mines' T-28 storm-predicting aircraft is retired in the summer of 2006 after thirty-four years of service. The concrete canoe team places first in the regional competition hosted by the School of Mines.



Women in Science and Engineering at Mines hosted experiments for participants of the 2016 Princess Camp held on campus earlier this summer.



Dear Hardrocker Friends,

The first time I remember meeting Becca Ceremuga was when she was finishing a 5K race that ended at the arch on the quad. I had heard about her semester abroad as a Brass Life scholarship recipient, but I didn't know she was a runner, too. As is my habit, I suggested coffee when she asked if she could meet with me.

Becca is studying mechanical engineering and was interested in finding an internship in biomedical engineering. Through connections at the Foundation, she ended up spending the following summer at Medtronic. When I saw her after her internship, she had learned something important. She knew that she wanted to spend time with patients, not just developing devices that could improve their health. The arc of her life was bending toward medical school and orthopedic surgery. It was a timely conversation.

Mines has always placed several graduates a year into medical school and several more into physical therapy, occupational therapy, pharmacy, and dental schools. With the degree in applied biology in its third year, we are getting more and more students interested in the pre-health professions.

When our new provost, Dr. Demetris Kouris, came on board, he made strengthening the pre-health pathway a priority.

It is now a reality. Students can major in anything and take electives to prepare themselves for healthcare fields. A new advisor who specializes in pre-health will come on board this fall to help coordinate the internships, job shadows, and special experiences that are unique to students interested in graduate school in the health professions. With half a dozen students a year, it is fairly easy to find placements, as we did for Becca. But as the program grows, we need to create close relationships with the healthcare industry as partners so that highly capable students are getting the experiences they need to be ready for the graduate school of their choice. To make sure we get it right, we've established an external advisory board of alumni and healthcare leaders who will meet with Dr. Kouris and the faculty twice a year to give us advice.

Mark my words: within five years, the best pre-med program in the region will be at South Dakota Mines. Pre-health will take its place alongside so many other programs where we are best in class.

Challenging academics, personal attention, the right internships and experiences, and a great value—that's why our graduates continue to be in demand.

Hard to beat!

Warm Regards,

Heather Wilson

President

South Dakota School of Mines & Technology

Enduring Boyhood Friendship Leads to Generous Lisenbee Scholarship

Less than twenty-four hours before he was to board a plane for the five-week international field camp in Turkey, Alvis Lisenbee was in his old campus haunt organizing rocks in the Mineral Industries Building depository.

“Every rock has a story,” he says back in his office around the corner, room 302—the same office with the same chalkboard and possibly the same paint on the walls that he’s occupied since 1972, except for seven years during his tenure as department head.

By the time he landed in the Black Hills forty-four years ago, the structural geology expert had already honed his skills during years of international experience. Among his exotic locales was Turkey. Lisenbee, PhD, considers Turkey a second home along with his native state of New Mexico, where he has maintained close relationships with childhood friends.

The most enduring of all has been with Peyton Yates, with whom he hit it off as a second grader in Artesia, New Mexico. They Scouted together, camped in the New Mexico desert, and explored its sand dunes in Lisenbee’s dilapidated 1943 Ford Jeep.

They each went on to successful careers, with Yates following in the family oil and gas development business. Despite the distance between them, the bonds of boyhood friendship

flourished with each phase of life. Lisenbee was Yates’ best man when he married.

Last spring, Yates honored his childhood friend by establishing the \$10,000 Alvis Lisenbee Scholarship, one of the most prestigious and highest-value scholarships at Mines.

“In many ways I’ve lived my life and career in a blissful bubble, surrounded by great students and colleagues and getting to do pretty much what I love to do in a beautiful place. I was just stunned to hear about this scholarship,”

says a humbled Lisenbee, seventy-five.

“He’s done something for me that I can’t repay, and it has taken a while to get my head around that I don’t have to repay it necessarily with money but I can give back in other ways,” he says.

Lisenbee retired in 2006 but continues to be active as professor

emeritus in the Department of Geology & Geological Engineering teaching field camps throughout the Black Hills and international locations.

“This generous scholarship from Peyton Yates is a testament to friendship between two boys who have remained friends for a lifetime. Alvis Lisenbee is a wonderful teacher and exceptional geologist, and it’s a pleasure to have a scholarship to help students continue his life’s work,” said Mines President Heather Wilson.



Courtesy Photo

School of Mines to the White House

Alumnus Bill Tucker is No Ordinary Engineering Grad

A degree from the South Dakota School of Mines & Technology takes graduates all over the world in countless number of career paths well beyond engineering. William Tucker (GeolE 56) took his degree from Mines, as well as a juris doctor degree, all the way to the Oval Office.

After graduating with his bachelor's degree, he worked as an engineer and served in the US military before enrolling in law school at the University of Oklahoma.



Tucker began his career as counsel for

the Marathon Oil Company and later rose to the rank of assistant attorney general for the State of Colorado. He argued one of his many precedent-setting cases before the United States Supreme Court and won.

Leaving Colorado for Washington, DC, Tucker

steered his career into political and government circles. He was appointed by President Gerald Ford as a representative to the United Nations Special Commission on Prevention of Crime in 1977. In 1981, he was invited to join the White House Counsel's office as a legal advisor for President Ronald Reagan, a position he held for four years. He also served as a delegate on many international US trips and assisted with political campaigns and state visits by world leaders.

Tucker is now chairman and certified management consultant in international trade, strategic planning, government affairs, and public relations for his company, Tucker & Associates, in Washington. He also serves as area vice president for the SD Mines Alumni Association and organizes an annual luncheon for area alumni.



"The School of Mines requires a certain amount of discipline, which I think bodes well for a graduate throughout their life," says Tucker.

Launching the Next LinkedIn

Students Build Software to Help Companies Find Their Perfect Campus Hire



Picture building LinkedIn from scratch. In one year. On a three-person team. Of fulltime students.

Kevin Hilt, Colton Fuhrmann, and Dan Halloran don't have to imagine. Logging upwards of 3,200 hours between development, testing, documentation, and sales, the three computer science students launched KnewRecruit: a network that connects the brightest students to the companies searching for them.

The product resulted from a senior design project, in partnership with Pixel Pines. KnewRecruit streamlines the recruiting process, searching for students, scheduling interviews, connecting at career fairs, and exporting ready-made résumés. The platform creates interactive profiles that showcase internships, projects, and more with embedded videos, links, and even lists of fellow teammates—all filterable by any criteria of choice.

Already, 100 computer science and mechanical engineering students from Mines are registered, along with 100 business students from Black Hills State and forty recruiters representing thirty-five different companies.

Check out the product online at <https://beta.knewrecruit.com/>

New Master of Engineering Degree Offered

A new Master of Engineering (MEng) degree program offers advanced engineering, applied management, and leadership courses, with emphasis areas in Civil & Environmental Engineering, Electrical Engineering, and Materials Engineering & Science.

The degree is a professional management program aimed at working engineers. Delivery will be a mix of traditional face-to-face courses, hybrid courses, and online courses.



CASPAR Experiment

Mines Leads the Effort to Unlock Secrets of the Universe at Sanford Underground Laboratory

In a cavern buried beneath a mile of rock at the Sanford Underground Research Facility, a School of Mines team has spent the last year assembling an accelerator that could forever alter the scientific world with quiet bursts of energy.

The Compact Accelerator System Performing Astrophysical Research (CASPAR) experiment hopes to understand the origins of the universe by mimicking nuclear fusion in stars, studying the smallest scale possible to understand the largest scale possible.

Led by South Dakota Mines' Frank Strieder, PhD, the team of physicists includes researchers from the University of Notre Dame and the Colorado School of Mines, as well as seven Mines students—three doctoral students and four undergraduates. Strieder designed the forty-five-foot-long accelerator and has spent the past year purchasing or machining parts, and then assembling them. Data collection is expected to begin within the next month.

The idea behind the experiment is to generate the type of energy inside a star, allowing scientists to understand how stars were formed and where they are in their lifespan, which could lead to other discoveries about life in the universe.

One kilometer away inside another cavity of the sprawling deep underground laboratory, Ray Davis observed for the first time fifty years ago that neutrinos came from the sun. Davis earned the Nobel Prize for his discovery.

"We know basic principles. We know stars produce energy by nuclear fusion, but there are things we need to understand better, including how the elements between iron and uranium on the elements chart originated," says Strieder, who is the principal investigator on CASPAR.

Only hydrogen and helium resulted from the so-called Big Bang almost 14 billion years ago. "All the other elements around us, potassium in our bones, the air we breathe, oxygen, carbon, all of these elements were done in the stars, later in the universe," says Strieder, whose childhood fantasy of traveling into space morphed into a study of astronomy and then astrophysics.

The experimental aspect of physics, to be able to work with his hands designing and building accelerators, was attractive to him and ultimately led him to the deep underground experiments, where results are shielded from cosmic rays.

"It was always my dream to understand the stars, and I ended up doing experiments a mile underground in the same place where Ray Davis made his groundbreaking discovery of solar neutrinos. That was the proof that solar energy is provided by nuclear reactions, and here we are studying nuclear reactions. So everything is coming back full circle," says Strieder.

Strieder previously worked with the world's first underground accelerator project, the Laboratory for Underground Nuclear Astrophysics, at Gran Sasso Laboratory in Italy.



www.sdsmt.edu/hardrockextra



The South Dakota Mines team: junior Chamaka Senarath, doctoral students Tyler Borgwardt and Mark Hanhardt, senior Joseph Van Driel, and Frank Strieder, PhD. Opposite page: Strieder designed and built the accelerator, housed a mile underground at the Sanford Laboratory in Lead.

Researchers Uncover Dangerous Genes in Bacteria from SD Rivers

Kelsey Murray

The Big Sioux River and Rapid Creek winding through the heart of South Dakota's two biggest cities transform into nature's playground during the summer months, but they are far from pristine. They are among the nearly 70 percent of waterways on the state's list of impaired bodies that do not meet water-quality standards.

The Big Sioux has been on the list nearly two decades, but until last year no one had sampled it for genes that can make the often-harmless *E. coli* into a disease-causing pathogen, which sickens around 95,000 Americans annually, according to the Centers for Disease Control.

School of Mines faculty researchers Lisa Kunza, PhD, an aquatic ecologist, and Linda DeVeaux, PhD, a microbiologist and geneticist, along with biomedical engineering doctoral student Kelsey Murray, are searching for answers that could ultimately improve public safety.

Their initial findings last spring caused alarm among Sioux Falls city and county officials. Ninety-five percent of the samples pulled from Skunk Creek and the Big Sioux, both in Sioux Falls, contained a Shiga toxin gene that can turn *E. coli* into a dangerous strain. Intimin, a gene that helps

E. coli colonies embed themselves in the human gut and thrive, was found in 100 percent of the samples.

In comparison, toxin gene presence in every other state where similar experiments were conducted only reached 30 percent.

An additional \$50,000 from the East Dakota Water Development District and the City of Sioux Falls will fund SD Mines research to discover the magnitude of the problem and potential for super bugs to appear.

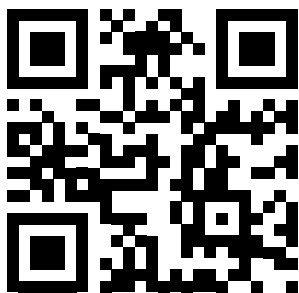
In Rapid City, Mines researchers found disease-causing traits from six testing sites in Rapid Creek.

Work progresses to gain better understanding of the problem. Are all traits carried in the same bacterium, suggesting an immediate health concern, or do different bacteria have different traits, posing a future health risk? Is the primary cause related to fecal matter washing into the water after storms or is it so embedded in the ecosystem the problem is re-suspension?

Though answers remain elusive, the commitment to help ensure the public's health is not. Kunza, DeVeaux, and Murray also presented at the South Dakota Public Health Association's meeting in June.

Ask the Mines Expert

Jon Kellar (MetE 84), PhD
Department of Materials &
Metallurgical Engineering



Q: Just how big is the counterfeiting problem in America, and how is research at SD Mines and its partner universities combating the problem?

Scan to learn more

A: It has been estimated that counterfeiting is a \$1.8 trillion enterprise, up nearly threefold from a 2008 estimate of \$650 billion. The counterfeiting impact is widespread; nearly every major sector, as well as national security, is impacted by its effects. Counterfeits account for roughly 1 percent of the medicine in the US and 10 percent to 30 percent in developing countries. Fake automotive parts surged by 83 percent in the US in 2014.

The reasons for the growth of counterfeiting can be attributed to increasingly transnational supply chains, digitization tools available to counterfeiters, Internet sales, and the thirst of consumers to purchase bargain products. There is a clear and present need for greater public understanding of the illicit economy, and the creation of innovative security and anti-counterfeiting technologies.

In 2014 we established the Center for Security Printing and Anti-Counterfeiting Technology, a multi-institutional research center involving faculty from South Dakota Mines, South Dakota State University, and the University of South Dakota. The major facility of relevance is the Direct Write Laboratory at the School of Mines, where we use state-of-the-art digital fabrication equipment to embed and test covert messaging in QR codes and develop other research methods to combat the threat posed by counterfeiting.

Turning Tomatoes into Electricity: Innovative Solution to Challenges of Modern Society

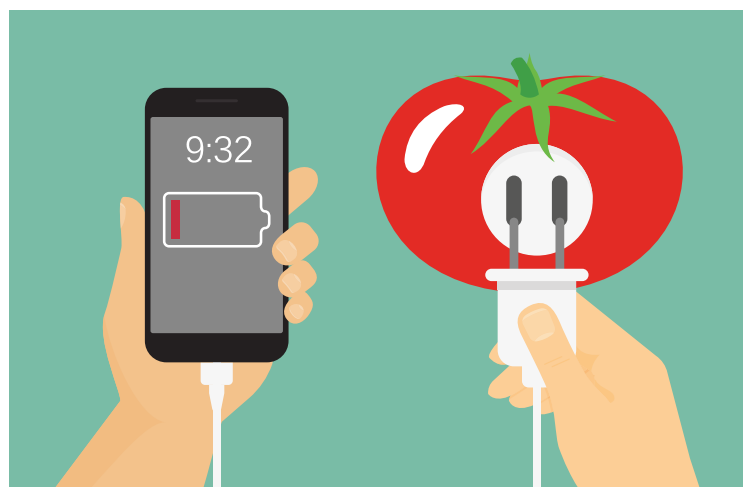
It's not every day that you hear about decomposing fruit being converted into electricity. In March, a South Dakota Mines research team announced just that, highlighting but one example of innovative research being conducted on campus.

The pilot project led by Venkata Gadhamshetty, PhD, Mines graduate students, and researchers from Princeton University and Florida Gulf Coast University, involves a biological-based fuel cell that converts tomato waste leftover from harvests, grocery store shelves, and ketchup production plants into power. The inherent characteristics of the waste make it a perfect fuel for enhancing electrochemical reactions.

Researchers designed and built a new electrochemical device to test and extract electrons from tomato waste. The power output is small: 10 milligrams of tomato waste results in 0.3 watts of electricity. But Gadhamshetty notes that with a scaled-up device and continued research, electrical output could be increased by several orders of magnitude.

The success paves the way for an efficient low-cost new alternative energy source. "It might be possible to one day put this device at the bottom of my kitchen sink" to convert waste into household electricity, Gadhamshetty notes.

The project is especially important to Florida, where tomatoes are a key crop, and 396,000 tons in discarded tomatoes are generated each year.





PRE-HEALTH AT MINES

Students Find New Pathways To Health Careers

With measured steps and her hands braced for a stumble, Vanesa Gomez inches her way around the nurse's station of Rapid City Regional Hospital's tenth floor. It's a familiar ring around the northwest pod of the Orthopedics/Neurological/Surgical Unit. She's circled around countless times on this one day alone.

Her companion on this trip is Donte Bledsoe, hunched over and clutching a walker. "How do you feel?" she asks Bledsoe, as they slowly make their way back to room 1004. Gomez prepares a pad with circulating hot water to help relax Bledsoe's stiff lower back muscles.

Gomez, a senior applied biological sciences major from Rapid City, South Dakota, has spent her summer gaining invaluable experience as a patient care technician, helping nurses in a variety of tasks to provide quality care for patients.

"You need more hands for certain things that you do for patients, like turning them on their sides or helping bathe them. Sometimes they want to take a walk around. It's just caring for patients, getting them what they need and helping

them to be comfortable. My job at the hospital is a great hands-on experience for me interacting with patients, and I also get to see a lot more of what doctors do," says Gomez, whose career goal is to care for patients as an emergency room surgeon.

The new Pre-Health Pathways Initiative at South Dakota Mines is poised to propel students like Gomez into healthcare careers by offering more research opportunities and seminars, developing stronger internships and professional experiences, strengthening faculty advising and mentoring relationships, and increasing support for student organizations.

Announced last spring, the initiative is designed to prepare students for advanced education, whether it is medical school or a physical therapy training program.

With the new applied biological sciences major one of the fastest-growing at Mines, and the projected growing need for healthcare professionals for decades to come, the time was right to launch the initiative.

"The program helps keep me focused, but I think most of the preparing is done by me going out into the world and getting

experience. The school has aided me with great resources such as Dr. David Gilley and Lori Coble to guide me in pre-health,” says Gomez, who is enrolled in a summer course with Gilley, the lead faculty pre-health coordinator, who this summer is teaching how to deliver professional research presentations.

“The class is helping with confidence speaking and getting more familiar with difficult subject matter, which we may come across when we’re out in the world as working health professionals. I also hope it will help me a lot with medical school interviews,” she says.

Graduates from engineering disciplines and any major can prepare for health professions—pre-health is not a separate major at Mines—and an increasing number of graduates are pursuing advanced studies toward becoming doctors, dentists, physical therapists, occupational therapists, physician assistants, and other health-related professionals.

“After a review saw that an increasing number of graduates are being accepted into medical school and other advanced health training programs, we are changing the way we support students to help them establish successful careers and help meet the growing need for healthcare providers,” says Mines President Heather Wilson.

The fast-growing Applied Biological Sciences (ABS) degree established in 2014 had grown to 82 students last spring semester. By 2019 it will be among the top three programs at Mines.

South Dakota Mines is the only institution in the state offering an undergraduate degree related to biomedical engineering, whose emphasis, along with pre-med/pre-health professions, are the most popular of the ABS specialties.

Nationwide, healthcare occupations are among the most in-demand and growing, with an additional 2.3 million positions expected to be added from 2014-2024, more than any other sector, including practitioners and technical occupations requiring advanced education beyond a bachelor’s degree, according to the US Bureau of Labor Statistics.

In addition to the academic advisor in their department, selected faculty members from each major are specializing in pre-health advising to help students ensure they have all of the prerequisites for their post-graduate studies and help secure internships and research experiences essential for success.

Partnerships with hospitals, doctors, and other key leaders in the healthcare industry are being strengthened, or in some cases

established, and an external board is advising the School of Mines on how to continue shaping the program according to needs.

Young alumna Erika Toyoda (IS 11) earned her medical degree from the University of South Dakota Sanford School of Medicine in May. While she says her academic preparation at Mines was more than adequate for success in medical school, she felt somewhat on her own in figuring out the best way to advance her career.

“During my time at Mines, resources to aid preparation for a career in medicine were rather limited. It was quite difficult figuring out what courses you needed to get into medical school, seeking out physicians to shadow to gain clinical experiences, researching what resources were the best to study for entrance exams, etc.,” says Toyoda, who is headed to a residency in family medicine in Cedar Rapids, Iowa.

“I am very excited to see the development of the new Pre-Health Initiative. The various resources and advisors specific to students pursuing a career in medicine will be a wonderful asset and will open many doors for future health professionals,” Toyoda says.



Rebecca Ceremuga

Senior Rebecca Ceremuga is a mechanical engineering major who plans to practice medicine as an orthopedic surgeon. She already completed an internship with a medical device company and recently shadowed a surgeon. She looks forward to the additional resources and support opportunities that will now be available to her as she prepares to take the MCAT for entry into medical school.

“This is really going to help us focus on what we need in order to get into these pre-health programs. People are realizing that the School of Mines isn’t just an engineering school and that even with an engineering degree you can do other things with it,” says Ceremuga.



GILLEY BRINGS BREAST CANCER RESEARCH TO MINES

Photo courtesy of Indiana University School of Medicine

David Gilley, PhD, presents a series of colorful slides zooming in on cells with the Amyloid precursor protein that could eventually lead to Alzheimer's. He is much more at home analyzing slides with samples of human breast tissue from his cancer research.

"When you give a talk, it's good to have both words and pictures at the same time. A picture can be worth a thousand words," he says. Other sage advice for these future healthcare professionals: don't memorize word for word, leave time for questions, and be prepared for "gotcha" zingers.

Just one year ago, Gilley was packing up his home near Indiana University's School of Medicine to join the South Dakota School of Mines & Technology faculty ranks. He is widely recognized among the medical and scientific community for his breast cancer research, which identified precursors in otherwise healthy cells that could be prone to mutations and, thus, breast cancer.

At Indiana University he primarily conducted research and had little interaction with students. At Mines, though, he is a faculty lead on the university's new Pre-Health Pathways Initiative to boost advising, support, and resources for a growing number of students advancing to professional careers in healthcare. He will resume his breast cancer research on the Mines campus this fall once his laboratory is fully equipped, part of the chemistry building's \$6.5 million renovation.

Originally from Colorado, Gilley had been looking to head back West for some time and was searching for a place he could

continue his research and have more of an influence in the lives and careers of students.

"I connected with people I met here on a professional level almost instantly. I was also impressed with the student population. They are very eager to learn. Most of my career has been spent with graduate students or post-docs at much larger universities, but here it's great getting to know the students in a smaller atmosphere," he says.

As a post-doc himself at the University of California-San Francisco, Gilley researched under Elizabeth Blackburn, who went on to win the Nobel Prize in Medicine in 2007 for her breakthroughs in breast cancer research. He continued that research at Berkley National Laboratory before landing at IU.

His research requires patience and persistence in developing highly sensitive methods to identify cell changes and spending inordinate amounts of time searching for rare mutations, not from haystacks but fields of haystacks.

It's a lesson worth sharing with up-and-coming medical researchers and practitioners because, despite incredible advances in medicine and technology over the years, "we are still in the dark ages of cancer research," Gilley says.

"Our goal is to help students develop into a more complete person, not just the stereotypical doctor or scientist. This is what I'm most excited about, watching their world expand and seeing their eyes open and witnessing them run when they get out of here."



NEVER TOO LATE

Dr. David Slama Returns to the School of Mines Nearly 50 Years Later to Earn his Bachelor's Degree

Mines' reputation as a solid foundation for healthcare professionals stretches back decades.

Nearly half a century after he left the university to pursue a career as a surgeon, Dr. David Slama (ABS 15) returned to campus last year to complete his bachelor's degree.

Three months after graduating from Washington High School in Sioux Falls in 1967, Slama packed up his Chevrolet and drove across the state to enroll in Mines, back in the days when everyone called it "Tech." He described himself as a "science fair engineering type of kid" and tried physics, chemical engineering, and chemistry as majors before realizing what he was really searching for in life was the sense of fulfillment that would come with helping people heal and improve their quality of life.

So a handful of credits shy of a bachelor's degree, he left the School of Mines after being accepted into the University of South Dakota's School of Medicine. At the time, the USD Med School was a two-year program, so from there Slama went on to the Emory University Medical School in Atlanta.

Even though he hadn't earned his bachelor's degree, Slama felt there was no need to delay his pursuit of an MD.

"As Tech students we were just loaded up with science, and I had everything I needed without my four-year degree. That dense science background was a favorable thing for me," says Slama, who remembers taking his MCAT in a tiny room of the administration building.

Eventually, Slama opened a private practice as a general surgeon in Rapid City and operated on patients to remove gall bladders, appendices, hernias, and cancers of the stomach and intestines. He and his wife Iris, a surgical assistant, ran the practice together for twenty-eight years before Slama closed the doors six years ago to begin caring for America's veterans at the Veterans Affairs Black Hills Health Care System in Fort Meade, South Dakota.

Despite his flourishing career, the sense of something left unfinished always nagged at him, and one day a conversation with a patient helped shape his life's next trajectory. That patient happened to be a Mines administrator.

continued on next page

“Patients will tell you the darndest things. And he said, ‘Maybe you can graduate from the School of Mines. Let’s scrounge together your transcripts,’” Slama remembers. Earned credit for his medical school courses satisfied all but one hour that stood between Slama and a bachelor’s degree from Mines.

So nearly five decades later, Slama re-enrolled, this time as a senior in the new applied biological sciences program. Department head Richard Sinden, PhD, helped him develop a thesis research project. As a student in an independent study class, Slama spent most of his time back on campus last fall in Devereaux Library and finally walked across the stage to receive his diploma in December 2015.

“I think students at Tech today are in a great place to get ready to go into medicine,” Slama says. “But the basic things are still true. You have to care about people, and you have to listen to people.”

What’s next for the 66-year-old Slama? Some things are a given. “I look forward to a time when, even though I will be less active in medicine, I can do some volunteer work in a third-world country or a short-term medical mission,” Slama says. “I really like to work with my hands, and the part about surgery that is gratifying is that I am solving a problem.”



Oculus Rift Offers a New Artistic Medium: Virtual Reality

Over a career spanning four decades, Arthur Amiotte debuted his paintings at the National Museum of Natural History and served on the Presidential Advisory Council for the Performing Arts. Now, one of the most influential Lakota artists of the past century was saying farewell with a final exhibit at the Dahl Arts Center. Two students from Mines would preserve the moment forever.

From a technical communications course, computer science majors Alex Nienhueser (CSc 16) and MacKenzie Smith (CSc 16) transformed an idea into virtual reality, creating a gallery of the retrospective exhibit with an Oculus Rift headset.

The prototype’s success propelled the senior design project past semester’s end. Currently, the Rapid City Arts Council (RCAC) and humanities professor King Adkins, PhD, are applying for grants to scale the venture and allow more users to experience a gallery showing from anywhere in the world.

“Any time the arts and sciences, including technology, engineering, and math, come together, it benefits the communities they co-exist in,” says the RCAC’s Executive Director Pepper Massey.

Industry Partners Support New Design For Manufacturing Curriculum

Longtime industry partners Cargill, Nucor, and Caterpillar have come together to help develop the Design for Manufacturing hands-on curriculum.

Last academic year, seven students received special training and \$1,500 company stipends for their work as mentors to other students in the machine laboratory in the mechanical engineering department. With their specialized training from industry partners, the mentors guide other students through their projects.

“We created the mentor scholars program as a way to help students and the department while connecting future employees with our industry partners,” says Aaron Lalley, mechanical engineering instructor and lab coordinator. “The scholarship approach for the mentors recognizes student achievement as well as compensating them for their time.”



Fomento Scholar Lyle Vaz, a sophomore in mechanical engineering, has a keen interest in design engineering, renewable energy, and the inner workings of everyday things. As a Caterpillar intern, he's detailing parts for machines worldwide, ready to translate his real-world experience into classroom design projects this fall.



FOMENTO SCHOLAR PROGRAM BRINGS INTERNATIONAL TALENT TO MINES



Trading life in the coastal belt of southwestern Goa for a maze of metal and glass in Tokyo, Ishaan Shetye traveled over 4,000 miles as a student delegate of the government of India to Japan—in the eighth grade. Though designed as a cultural exchange program, for Shetye, the real treasures of his visit lay in his eye-opening exposure to science touring pollution control centers and Toyota and Mitsubishi factories.

The moment was pivotal, sparking a passion that led him to Poland less than six months later as a student delegate yet again, where he studied the life and work of Marie Curie, the first woman to win the Nobel Prize.

Now an electrical engineering sophomore at South Dakota Mines, Shetye's accomplishments before graduating from high school are staggering on their own. But he's part of a

growing group of Fomento Scholars from India enrolled at Mines, and collectively the students' credentials are nothing short of amazing.

The Fomento Scholar Program was begun three years ago by alumnus Auduth Timblo (EE 71), scion of his family's Fomento Group in Goa, India, who had been encouraged decades earlier to pursue an engineering degree by family friend Krishnakant Vernenkar (MS MetE 64). Goa has etched its name on the mineral map of the world, with markets in Europe, Asia, Africa, and Latin America.

Timblo was back on campus to visit his alma mater in 2012, and the time felt ripe to build another legacy. As part of the Fomento Group's educational mission, Timblo decided that each year he would select four to six aspiring Goan engineers to receive a need-based aid to Mines.

Selected through a competitive process, the scholars come from India's top tier and are chosen from over 200 applicants.

"In India, we have this extremely prestigious engineering entrance examination to some of the public universities. About 1.4 million take the exam every year, and only 10,000 students are selected, so it's like 140 students competing for just one seat. Some of the scholars who have made it into the Fomento Scholar Program at Mines could have also made this top 10,000 and then chose to come here. That speaks a lot about the university," Shetye says.

Out of the nine Fomento scholars at Mines, six had 4.0 GPAs in the spring semester and have earned internships from Caterpillar to Sencore. Five new scholars will arrive as freshmen in the fall.

The program aims to provide Goa with its next generation of leaders, which Timblo anticipates will be the most rewarding part. "Fomento Scholars will bring a rich experience from Rapid City to Goa, where they have enjoyed academics with a flavor of adventure and fun," Timblo says.

Like a tree growing from its roots up, there is an expectation that all scholar recipients will give back. Shetye himself hopes to do so by teaching at India's public universities.

This summer, Shetye, who came in with twenty-one credits and five languages, including Sanskrit, the world's oldest, is continuing a departmental research assistantship sponsored by the US Air Force. He develops sensors for military-smart shelters that activate everything from automatic lights to intruder detection.

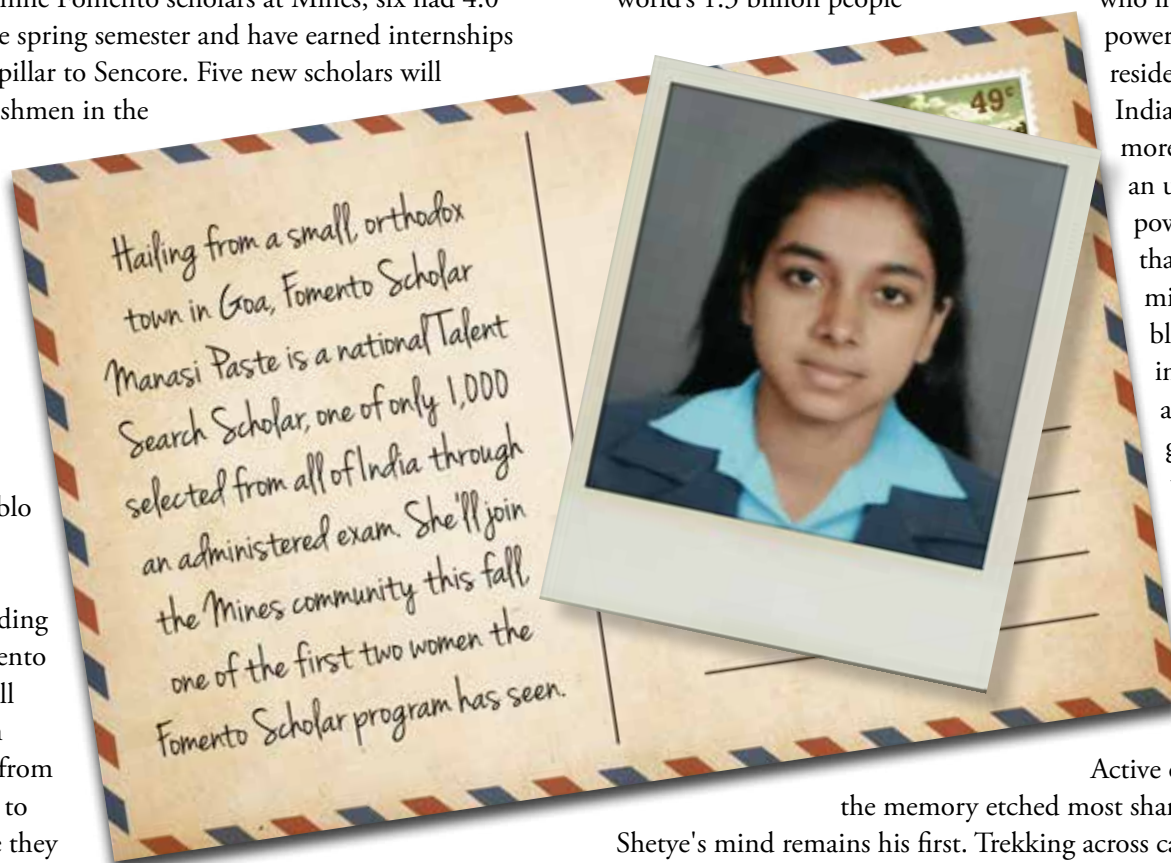
The project piqued his interest in control systems, which

he hopes to apply to alternative energy sources in future research. To better harness energy, Shetye wants to combine energy generation, storage, and distribution into one dynamic feedback loop.

His interest stems from an upbringing in a country of 1 billion people, where engineering projects must be cost-effective, optimized, and scalable to meet population demands plagued by insufficient power supply.

The country is ripe for renewable energy development. India is the fifth-largest electricity generator globally. Yet of the world's 1.3 billion people

who live without power, a quarter reside in rural India. Millions more live with an unreliable power grid that sent 600 million into blackout in 2012, and the government wants to supply twenty-four-hour power to villages by 2022.



Active on campus, the memory etched most sharply in Shetye's mind remains his first. Trekking across campus, he stopped to ask for directions and was personally escorted to his class by the department head. Shetye was stunned.

"It was incredible. I don't think any department head would help a new student find a room at a larger university and nowhere in India, because there are so many students. And that was after Kevin and Heather Fannin of the International Students Inc. welcomed me in person at the airport."

He says gestures like that make Mines a second home to this growing family of Fomento Scholars, who will for the first time this fall welcome two women into their fold.

Spirit of Innovation

Unique Electric Paramotor Just the Beginning of Hillard Brothers' 'Crazy Goals'

John and Phillip Hillard; photo courtesy of Elevated Lab, LLC

Before they were old enough to even think about enrolling at the School of Mines, Rapid City brothers Phillip and John Hillard filled their bedrooms and family garage with hundreds of airplanes and other types of remote-controlled vehicles they'd built from scratch.

"Our rooms were trashed. Our garage was trashed, in the best way, of course. Our dad was nice enough to let us use his tools," remembers John, a 20-year-old sophomore.

Now mechanical engineering students at Mines, the brothers have built a unique electric paramotor, an energy-saving alternative to the gas-powered paramotor they purchased several years ago. Without the glider's parachute-like wings attached, the contraption looks something like futuristic jetpack depictions from the 1960s.

Paramotoring is considered a sport alongside paragliding and hang gliding. With the machine strapped onto your back, the thrust can propel you hundreds of feet into the air. The flier steers the wing with hand-held controls.

"We've been building RCs (remote-controlled vehicles) for as long as I can remember, and of course, the next thing is you want to be the one flying them," says senior Phillip, 28, who was on his way to becoming a professional pilot when he realized it wasn't quite the path he wanted to

chase in life. So he took several years off from his educational pursuits to work in the North Dakota oil fields, paying down student debt before returning to Rapid City and Mines.

That's about the time his younger brother John enrolled.

Builders by nature and inspired by their former Navy helicopter pilot father, David Hillard, the two embarked on their electric paramotor. Mines supported the brothers with laboratory space, tools, and technical advice from both the mechanical and electrical engineering departments. The motor mounts, electrical component mounts, and plenty of other parts were all machined by John in the machine shop on campus. The belt drive cover and throttle were all 3D printed in house, as well. John and Phillip also gained valuable experience working with international suppliers and personally paid for other components.

Their paramotor was built at a third of the price offered by the biggest competitor, and the Hillards are now working with the university's entrepreneurs-in-residence program to market their machine.

Eventually, they plan to start their own aviation company, building and designing ultralight aircraft.

Innovators and adventurers at heart, "we're preparing to launch a pretty crazy future. We've got some pretty crazy goals," John says.





Chasing Disaster

Mines Alumnus is Combating Landslide Devastation on Guatemala's Slopes

A country oft-stricken by natural disasters, Guatemala is second only to Haiti in landslide-related fatalities in the past decade. The problem looms especially large in Guatemala City. Beset by poverty amid a population boom, crowded conditions are forcing people to settle in surrounding communities on dangerously steep slopes—with devastating consequences.

On October 1, 2015, a landslide ripped through El Cambray II, a Guatemala City suburb, engulfing homes and burying families alive. The death toll would rise to nearly 300 with dozens missing to this day, lost under 120,000 tons of earth.

Despite the frequency of such fatal landslides, research on Guatemalan disasters is among the lowest in the region, compounded by the lack of geologists and geological engineers to monitor landslides during the rainy season.

In Guatemala City, Mines graduate David LaPorte (GeolE 15) will make his home for a year beginning January 2017. Funded by a Fulbright Scholarship, the current Colorado School of Mines graduate student will develop cost-effective ways for residents of at-risk communities to monitor the movement of the large landslides on which they live.

LaPorte is the first Mines student to earn a Fulbright.

Working alongside CONRED, Guatemala's government agency that assesses disaster risk, LaPorte will help residents collect rainfall data, monitor slope movement, and watch for the precursor signs to develop early alert systems for potentially catastrophic events.

LaPorte hopes to better connect residents with CONRED while developing a system to detect accelerations in ground movement from critical rainfall levels before a large failure.

To scope out the terrain before the project commenced, LaPorte flew to Guatemala City this spring—on a one-way

ticket. While he is one of over 1,900 US Fulbright Scholars who will address critical challenges abroad, he is the only one to have made the 2,400-mile trek back from the heart of Central America to Austin, Texas, on a 10-speed bike custom built by him and a Guatemalan friend.

Averaging sixty miles and one flat tire a day, he made the trip in six weeks, crossing Guatemala's deserts and mountains, camping at 1,200 feet on frigid nights, before passing into Mexico.

LaPorte's journey had him cruising the coastline on a narrow cliffside road that wound through colonial mountain towns like Zacatecas, where locals held a parade in celebration of Mexican Independence Day. While there, he even hiked to a sacred lake nestled in a nearby volcano's caldera.

Supportive and adventurous themselves, his family members are accustomed to his long-distance journeys by bike. While attending Mines, he rode from South Dakota to Tennessee: 1,800 miles, eighty miles a day. This time around, he took minimal supplies, including a bivy, or lightweight, waterproof shelter, sleeping bag, pad, and liner, air pump and lock, bike repair kit, basic hygiene items, pocket knife, water bottle and water treatment tablets, a map, sunscreen, and one change of clothes and socks.

Though an economical way to travel, it was ultimately a love of adventure that prompted LaPorte to journey on bicycle, almost at one with the earth he will soon be studying.

"I love traveling simply and especially by land. Hitchhiking and tour cycling, to me, are the greatest ways because you get to see everything along the way, little by little. People are so hospitable. I'll probably bike or hitchhike down just to see it again," he says, before relocating to combat the devastating failures of densely populated slopes and helping an underserved people achieve a higher quality of life.



HERE TO SERVE

Truman Scholar **Vaughn Vargas** Finds Personal Strength to Overcome Odds

Vaughn Vargas dreams big. Despite a series of personal challenges, Vargas has been forced to dig deep to turn those dreams into reality.

Vargas was recently awarded the prestigious Truman Scholarship, one of fifty-four in the nation. He was previously named a national Udall Scholar and one of the National Center for American Indian Enterprise Development's "40 Under 40."

"Vaughn is thoughtful and caring, but driven and motivated, more so than any other person I've known," says industrial engineering professor Carter Kerk, PhD, whom Vargas has described as the father figure he never had.

An enrolled member of the Cheyenne River Sioux Tribe, Vargas grew up in Rapid City and is a senior majoring in industrial engineering. He started his college career at Black Hills State University in 2009 but withdrew after a traumatic death in his family. Determined to continue his college education, Vargas later enrolled at Oglala Lakota College in the fall of 2011 and transferred to the School of Mines in the fall of 2013.

"Vaughn is an exceptional young man," says Mines President Heather Wilson. "The best students at Mines can compete for scholarships like the Truman with the best students from anywhere. Vaughn is our first Truman scholar, and we're very proud of him."

Vargas has learned to never put limitations on what he can do and to take advantage of opportunities to be innovative. "The top gets higher for any motivated person," says Vargas, who will receive a \$30,000 award for graduate education as recipient of the Congressional Truman scholarship.

With the guidance of industrial engineering associate professor Dean Jensen, PhD, Vargas is finding ways to apply engineering concepts to the justice system.

Rapid City Police Department Chief Karl Jegeris last year appointed Vargas as cultural advisory coordinator at a time when tension in the city's Native American community was high, and Vargas is integrating his police duties with his engineering studies. His senior design project will use concepts in organizational behavior and culture learned throughout his industrial engineering studies to increase the number of Native American police officers.

To gather information for his project, Vargas has been meeting with Native American youth about their interests and with parents about their concerns. He hopes the outcome will eventually lead to a law enforcement team more reflective of Rapid City's demographics.

Preserving the Native American culture for generations to come is a passion for Vargas.

He spent the summer bringing Lakota Star constellation stories to life with animation software funded by the South Dakota Space Grant Consortium. In June he gave a TEDx presentation on how STEM can impact Native American culture. He has also conducted research in security printing and developing QR codes to help prove the authenticity of Native American artifacts.

"I want to give our younger Native American students a way to preserve our culture while introducing them to science and math," he says.

Vargas will graduate in December with his bachelor's degree and hopes to pursue an internship with the Bureau of Indian Affairs in Washington, DC, before putting his Truman Scholarship to use at law school. These experiences will help him build a career in urban development serving South Dakota.

"I'm a person for the people. I'm here to serve."

Larry Simonson Takes Reins at Alumni Association



Larry Simonson (EE 69) has been named the new executive director of the Alumni Association, becoming just the fifth person to lead the organization

since its founding in 1934 to foster and develop continued interest and support of Mines alumni and friends.

The Roslyn, South Dakota, native has dedicated his life's work to the university, earning bachelor's, master's, and doctoral degrees in electrical engineering from Mines in 1969, 1971, and 1974.

Simonson briefly left Mines after completing his doctoral studies to work at Texas Instruments for two years but returned as a professor in the Department of Electrical & Computer Engineering in 1976. He was a member of the faculty for thirty-two years, and spent four of those years as the department chair.

In 2008, Simonson transitioned to a full-time development position with the SD Mines Foundation, allowing him to further develop contacts while attending campus activities and visiting former students. He worked in development until taking over as alumni executive director on April 1.

In his new role, Simonson will focus on continued collaboration with alumni to increase engagement by developing alumni chapters across the country. These chapters could grow the university's presence at career fairs, help alumni network, and create support groups for students and their families.

"We need to work on activities that will provide added value for the university. We are all working toward a goal of supporting the students at Mines. We must never forget that," says Simonson.

New Mines Alumni App Keeps You Connected



The South Dakota Mines Alumni Association has a new app that allows devoted Hardrocker alums to stay connected to their alma mater while on the go. Download the SD Mines app from Android and Apple stores to:

- Search for your classmates
- Keep up to date on events in your area
- Follow campus happenings

Strengthen your SD Mines connections.



1940s

Mitch Liss (ChE 47) remembers that for his first job he drove to New York City in a Model A Ford, where he got a job with Aramco in Saudi Arabia working on the 1,000 mile pipeline. Then he built fertilizer plants in India, Canada, and the United States. He's now retired at ninety-one.

Harlan Meyer (CE 44) enjoys receiving copies of *The Hardrock*. He is amazed by the accomplishments and successes of Mines graduates. The memorials keep him informed of friends who've passed. His wife, Inez, has been in a care institution for over nine years. He notes he is in good health considering his age (ninety-three).

Armand Sedgeley (CE 49) and Anne don't get around much anymore, but they still love hearing from friends.

MEMORIALS

Albeno Panerio (ChE 46)

Raymond N. Pengra (EE 43)

Richard P. Young (CE 48)

1950s

Louis 'Jim' Buccholz (EE 50) notes that two years ago he sold the house he had built and lived in for over sixty years. They moved in with their daughter, Renee in Rye, Colorado.

Carl Buttemeier (EE 59) is retired but staying busy with choir, taking care of his wife, Sylvia, and enjoying grandchildren. Ahalyssa, twenty, had the highest score in a chemistry test of 165 students. Alexandra, twenty-two, is a graduate of Gonzaga University and is teaching first grade in Spokane, Washington. Both have or had full-ride scholarships.

William Cohan (MinE 55) is working on his last consulting project and will be retiring this year after being active for sixty years. He served three terms on Colorado's Mined Land Reclamation Board and on the Mining, Energy, and Geology Advisory Board to the Governor of Colorado in the 1990s. He also consulted in Africa, Kazakhstan, and the Ukraine. He stays in touch with Frank Tagliamonte (Geol 55) by email. He and his wife live in Grand Junction.

John Garrison (CE 51) notes he and Jan are downsizing by building a new home in Sebastian, Florida.

Max Gassman (ME 56) is retired after thirty years as a design engineer at the John Deere Product Engineering Center and twenty-five years employment with the Iowa State University Department of Mechanical Engineering. His BSME degree from SD Mines provided him with fifty-five years of excellent employment. He stays busy with grandchildren activities, sports, and church activities.

Melvin Glerup (GeolE 58) moved to Arizona in 2015 and is enjoying the sunshine.

Jack Goth (MetE 50) continues to enjoy retirement. He had his three sons join him at the reunion last July. He had a great time including a hike up M Hill. Ree is now using a walker and wheel chair to get around their unit. They celebrated their sixty-third anniversary last December.

Joe Hansen (ME 54) received his MS ME from the University of Washington in 1963. He was licensed as a professional engineer in Washington state in 1960. He is a veteran of the Rapid City Army 109th Combat Engineers, and served from 1950-1952.

Harold Hanson (EE 53) has been retired for thirty-one years and is in good health. He has been widowed for four years. He enjoys the outdoors and is an active camper with his trailer. He also keeps busy with his house, his church, and friends.

Allan Hins (MetE 59) has engaged in a health club biking regimen to keep strong. He has biked 2,550 miles in twenty-one months. He is hoping there is one more trip in store to the Quetico canoe wilderness area this year with his two grandkids.

Everett Holgate (ME 55) is still alive but feeling very old!

Vernon Holt (ME 51) notes a few of the classes of 1950 and 1951 are still traveling.

Rodney Iwan (EE 56) notes that his wife succumbed to small cell lung cancer on September 5, 2015. They enjoyed a good seventy-six years together. It was only with her help that he was able to attend SD Mines and graduate.

Clark Kurtz (EE 59) and Joan visited SD Mines with his brother **Lynn Kurtz** (Math 59) and his wife, Anne, when they were in Rapid City for the RCHS Class of 1955 sixtieth reunion last September. They are enjoying their two young granddaughters, Evelyn and Norah, who live nearby.

John Mohr (EE 56) and Alice moved into a retirement facility on April 29, 2016. Their son is buying their house. They will again be playing badminton in the Senior Olympics.

Charles Parks (EE 57) has been busy restoring 1930 Model A Tudor doing a ground-up restoration which means total disassembly then repair and painting, about a three-year job.

Jerry Popowski (EE 59) and Laura, his wife, finally revisited Custer State Park after a six-year absence due to their shoulder issues and three hip surgeries. He stayed there summers and weekends while attending SD Mines and vacationed with his family while and after working at Boeing in Seattle, Washington.

Ronald Sanders (CE 57) became a published author in 2015, "God In Imax—A Panorama of Divine History."

Taylor Smith (CE 50) notes his wife, Katie Mae, passed away December 5, 2015, after a long struggle with cancer and congestive heart failure. They met in Abilene, Texas, in 1944 while he was stationed at the Abilene Army Air Base during WWII. They have lived in San Bernadino, California, since his graduation in 1950.

Roy Strom (EE 53) notes that after a year and a half of starts and stops, they are finally going to downsize. He and Peggy signed a contract on their house and moved in the spring.

Ernest Sundstrom (ME 58) and Esther are enjoying the Georgia climate and surrounding area of Athens. They were in Deadwood in June 2016 for his brother's seventieth wedding anniversary.

Rex Teets (EE 59) notes his family is growing. He has five grandkids and three great grandchildren. His family totals twenty-two people. He and his wife have been married for sixty-one years.

Jim Thompson (CE 57) can't believe he has been retired since 2000. He and Connie sold their home in Des Moines after forty-five years and moved to Florida to be closer to two of their sons and their youngest grandchildren. Their daughter and two eldest grandchildren are in Iowa and the other son and granddaughter are in Austin, Texas. Their Florida sons are hot air balloon pilots and they sometimes crew

and fly together. Their oldest grandson is a third generation balloonist and is carrying on the competitive activities.

Stuart Ulfers (EE 58) and Frances have moved to a senior's apartment and are adjusting to the change. They recently saw Shirley and **Dave Strasser** (EE 58). They enjoy good health, but have cut down traveling.

Richard Warder (ME 58) is flunking retirement! He continues working with engineering programs preparing for re-accreditation or initial accreditation from ABET. **Earl Hoskins** (MinE 56) will join him on two visits this spring and early summer.

MEMORIALS

Tom Albert (GeolE 58)

James V. Armstrong (Chem 53)

Edwin F. Atkinson (MinE 53)

Farlow C. Davis (MinE 52)

Bill B. May (EE 57)

Robert L. Nauman (GenE 58)

Marlin E. Olson (EE 59)

Grove A. Rathbun (MinE 52)

Dale Schoenfield (ME 59)

John C. Stevenson (ME 56)

Wayne K. Wilcox (GenE 58)

1960s

Doug Aldrich (ChE 62) notes it has been a pleasure being strongly involved with Mines' facility projects: Chemistry renovation, new residence hall,

proposed Alumni/Foundation center, etc. When he isn't helping Mines, he likes to travel.

Theodore Andrews (CE 62) and Louise will both reach ninety-three soon and will celebrate seventy-two years of marriage. Theodore bowls in a league, and Louise enjoys working with her embroidery machine.

Ronald Angerhofer (ME 63) retired December 1, 1998, from Kodak. His son, Timothy, is a high school math teacher in Amesbury, Massachusetts, graduating from Purdue with a math degree. Todd received his degree in naval architecture and marine engineering from MIT. His son, Thomas, has a degree in voice and music with a PhD in music. He is an assistant professor of voice and opera at Ithaca College. He has two grandsons, Gabriel and Xavier.

Pete Avotins (MetE 61) has just started playing duplicate bridge again. He hopes to achieve life master status in a few years.

Daniel Baldauf (CE 61) is retired. He and Lona moved to Taylors, South Carolina, to be with three of their children. They will celebrate their sixtieth anniversary next year.

Glenn Barber (CE 60) and Ardie downsized and moved to Westhills Retirement Village in Rapid City last summer. He is recovering from back surgery and a broken leg and is hoping to be back in circulation soon.

Karl Bartel (EE 68) notes that after twenty-one years, he has retired from Polyphaser and is now at Sonoma Scientific.

Sam Begeman (ME 64) notes all is well in Kerrville, Texas. He hopes to have another gathering of the handful of SD Mines graduates in the surrounding area this year. He is planning a campus visit in the middle of May to look at all the progress.

Larry Blair (CE 61) is still consulting about half time on flood control. He plays tennis and racquetball five times a week. He is restoring a 1966 Corvair, and spends time fishing and hunting in between.

Robert Bottge (GeolE 62) notes after twenty-six years of retirement he is still enjoying life; after three months, he is still cancer free; after twenty-five years he is no longer doing taxes for AARP-Tax-aid; and after a twenty-six year hiatus he has started sculpting again. He has moved from stone to bronze.

Al Broz (Phys 68) occasionally consults for NASA and others. His wife, Beverly, paints, travels, and much more. His daughter teaches pre-school children at Harvard. His son-in-law is a graduate student at Harvard. They are almost done demolishing and renovating their kitchen/dining room.

Carl Coad (Math 60) is getting ready to celebrate his fiftieth anniversary. He and Inge took a trip to Hawaii to retrace where they honeymooned.

David Coe (CE 60) reports enjoying retirement and living in Nebraska. He and his wife travel between the east and west coasts two to three months of the year.

James Crouch (MinE 68) really enjoyed the Casper alumni dinner and meeting March 5.

Lester Davis (ME 67) is enjoying retirement, sixteen years now, and still keeping busy administering polygraph examinations and traveling. They spend a month in Arizona during the winter.

Ernest Endes (EE 65) enjoyed the five-year-reunion and especially the 'golden' graduation festivities where he saw people he had not seen in fifty years!

Mike Fischbach (ME 64) is enjoying retirement with the grandchildren's activities. Six of the eight are local. He also keeps busy with volunteer work and classes in philosophy and theology at the Kansas University extension in Overland Park. He loves hearing from Miners near and far.

Warren Fisk (CE 65) still gets to commute five blocks to work each day. His boss signs his paycheck and calls him dad. He and Jan are loving condo life!

Alan Freiberg (ME 68) retired from being a consultant for Petrohunt/PursueEnergy in January 2012. He flies his airplane to Jackson, Mississippi, once or twice per year for retirement luncheons where he visits with Herbert Hunt.

Frank Hahn (CE 66) recently designed, built, and moved into a new home. They remain in Prescott, Arizona, after thirty years. He kept enough voting shares that they can't fire him from Hahn Surveying Group that he started in Indianapolis, Indiana, forty years ago. He just completed a three year commitment to fund the Engineers Make Great Entrepreneurs Speaker Program at SD Mines.

Gary R. Hansen (Chem 62) is working full time and doing more creative work. Their four sons, a medical doctor, Matthew; building contractor, Ben; Michael; and Jon work in the family business, GRH Precious Stones. They have five grandchildren.

Ron Jeitz (CE 69) and Jean continue to enjoy the rural Georgia lifestyle. He had a mini reunion with **Steve Miller** (EE 69), **Steve Stahly** (Ex 69), and Carv Trudeau in Naples, Florida, in early February.

Gary Johnson (Geol 63) presented two research papers on Permian shark teeth from Texas at conferences in Australia during late July to early September 2015. The first was the International Symposium on Early/Lower Vertebrates in Melbourne; it was preceded by a trip to the Devonian-age Gogo Formation, a fossil reef comparable to the Great Barrier Reef. After a vacation to New Zealand the second conference was held in Alice Springs followed by

a tour of Sidney Harbour and Ayers Rock. While camping he witnessed the Milky Way Galaxy from horizon to horizon. He also stopped by South Korea to find the places near where he was stationed in the Army.

Gary Keffeler (ME 68) is getting by as all mid seventy-year-olds do. Arthritis has plagued him and his titanium shoulder, which is waiting for its cousins in his knees.

Roy Kimbell (ME 61) enjoyed a wonderful thirty years at Pratt and Whitney in West Palm Beach, Florida. He returned to South Dakota after the loss of his wife in 2006. He stays involved with twin airplanes and flying.

Eugene Krell (ME 66) is finally fully retired and in his third year working as the volunteer marketing committee chairman for the T-Bone Walker Blues Fest, June 3-4, 2016.

Al Kurtenbach (EE 61) notes life is good!

Steve Lenards (EE 63) is retired and enjoying living in Arizona.

Gary Lower (ME 69) has had three new grandchildren, all boys, with two identical twins.

Richard Lyke (EE 66) and Pat are enjoying their retirement. They especially enjoy traveling. He continues to work part-time as a consultant to AK Steel Research and Innovation.

Bashir Master (ME 67) notes his family is growing. He and Barbara are keeping active. His

youngest grandson, Eamon, is now eighteen months old. Eamon is the child of his son Yousef and his wife, Sarah.

Bob Miesen (CE 61) enjoyed seeing many late fifties and early sixties graduates at the 2015 All School Reunion last summer. Go Hardrockers and 1960 Rough Riders!

Richard Moen (MetE 62) notes life is good aside from a few health challenges. His first two grandsons entered college this year, opening up new opportunities. He and Mary Jo both are fully retired now.

Glenn Morgan (ChE 69) has been retired since 2014 and has been traveling with Patty. He was president of the local Rotary club. He has been busy with fundraisers to help the Valley Fire victims from September 2015.

Paul Norman (ChE 62) just returned from skiing in Zurs Austria with family. He stayed in the same hotel as he did fifty-two years ago.

Howard Noziska (CE 67) and Mary Ann have moved back to South Dakota. They are living in his grandparents' home built in 1905 located seven miles west of Newell, South Dakota. They have four grandchildren, one in Portage, Michigan, and three in Carver, Minnesota. They are enjoying the milder winters and dry air of South Dakota after nearly fifty years in Minnesota.

George O'Clock (EE 62) is still a graduate student in biomedical engineering at the University of Minnesota. He completed course work and earned his highest GPA ever. He is working to get an electrotherapeutic device developed and approved for the treatment of macular degeneration (an eighteen-year-effort); his second device functions better than the first.

Loren Peters (ME 61) still practices law in San Antonio with no plans to retire as long as his health continues.

Laurel Peterson (CE 64) recently recertified as a volunteer power equipment operator for the Peoria Park District. A twenty-inch chainsaw is his tool for removing trees that are blocking a trail or in danger of falling on a trail.

Robert Peterson (EE 61) went on to work for Lockheed Aircraft in Burbank. Then two years later, he transferred to the Lockheed Georgia Company where he was doing stability analysis studies on the C141. One year later, he went to school for aircraft maintenance and pilot training at Moody Bible Institute in Chicago where he earned his A&P Mechanic license and commercial pilot license. He served with Wycliffe Bible Translators for forty-two years flying. He retired two years ago and is presently working with Nepali/Bhutanese refugees in Charlotte. Their granddaughter, Gabrielle Martin, had a summer internship at SD Mines.

Milford Peterson (CE 61) relates spring has sprung in Central Texas. The garden is being planted and asparagus is being harvested.

Bill Preston (EE 67) is active in county and state politics. Illinois still celebrates President Lincoln's contribution to our country and the world.

Jay Preszler (ME 65) held a special memorial service for his wife, Rita, on Saturday April 21, 2016. It was her wish to be remembered when spring time was in blossom. She asked for spring blooms and a lighthearted event full of joy and laughter.

Jeff Ransom (Chem 69) has six grandchildren now, three months to nine years. Congrats to **Dr. Larry Simonson** (EE 69), Mr. Director, from the great class of 1969!

Carol Reed (Geol 66) moved in February from a split foyer to a ranch style home. She still works part time for the Minnilusa Pioneer Association at the Journey Museum in Rapid City. She is enjoying the Black Hills after living thirty-five years in North Dakota.

Laurence Rohl (EE 66) had his right femur repaired and a bone marrow transplant after seventy-two years of perfect health. He has five children. Two of his sons are in the aviation business with him; Brad does all the maintenance and Richard, a Cornell engineering graduate, has left the consulting business to take over the aviation

business. They have twenty-six aircraft. His daughter, Chelsea, is in Los Angeles writing for Comedy Central. Heidi, his second daughter, works out of her home in Ohio. Steven, his fourth child, is a programmer in Cleveland.

Dick Schlumberger (CE 65) is enjoying his sixteenth year of retirement. He just returned from touring in Costa Rica for ten days. He still stays in touch with Shirley and **Mike Doyle** (ME 65).

Jim Sealey (ME 67) is now retired and loving life. They love their home in the Colorado mountains.

Jim Smolik (MetE 63) and Bonnie are still in good health. They are dividing time between residences in Washington and Arizona. He still has a consulting business.

John Steichen (MetE 68) notes his family is doing fine. He is still busy running the pheasant hunting lodge each fall.

Conrad Sterkel (MetE 60) notes his first wife, Phyllis D. Gramm-Sterkel, was the first M Day queen in the history of SD Mines; she passed away in 2007. He is remarried to Anita and they are both retired with homes in Yuma, Arizona, and Eagle, Colorado.

Walter Sutherland (GeolE 60) recently collaborated with **Carl Strande** (GeolE 62) on a consulting job in Anchorage, Alaska.

Ken Trompeter (ME 62) notes all his brothers—**Walter Paulson** (ME 62), **Doug Aldrich** (ChE 62), and **Jim Damm**—wish **Arv Richter** (Phys 62) a speedy recovery from heart surgery.



Brian and Anita in Meteora, Greece

Brian Tucholke (Geol 68) and Anita continue to take advantage of their retirement, enjoying grandchildren, pursuing hobbies, doing volunteer work, and traveling. Their most recent trip was to Greece, where they toured archeological sites and visited some of the islands. As scientist emeritus at Woods Hole Oceanographic Institution, he is still doing basic research and publishing papers, but without the necessity of raising research funding.

Gary Velder (CE 62) and Linda are the proud grandparents to nine grandchildren. Gary still holds several mining claims and does recreational gold panning from time to time. He helps out with farming.

Dick Wheelock (EE 61) retired from Northrup in 1990 and moved to Washington. He

has enjoyed golfing, playing cards, and skiing. He had a stroke in 2009. He can't do much anymore and is feeling his eighty-one years. He notes his cancer is in remission.

Darwin Wika (ChE 63) and Kathleen just had their first great grandchild in Texas, Avery Sanchez, born October 28, 2015.

MEMORIALS

Bruce W. Apland (MetE 69)

Donald G. Hollister (EE 67)

Godfrey L. Loudner (Math 69)

Robert M. Maggard (MS Phys 67)

Marshall A. Maudlin (ChE 66)

Theodore Roghair (EE 61)

1970s

Leonard Alberts (MinE 78) retired from his engineering career after thirty-four years. He still operates the family farm. His oldest son, **Brandon Alberts** (EMGT 14) received a master's degree from SD Mines, he and his family recently moved back to South Dakota and he works for Anderson Industries. His middle son, Michael, is a teacher at Langford School and shares coaching duties with **Roy Pulfrey** (CE 76). Nick, his youngest son, graduated from Mines in May with a degree in electrical engineering. and a couple of Hardrock track team records. He is working at a grain processing corporation.

Kathleen Ammon (Math 70) relates the "no snow" winters in Arizona are wonderful. Her third career, real estate, keeps her busy and challenged along with family and friends.

Scott Barber (ChE 71) recently opened Remote Control Hobbies Orlando in Orlando, Florida, with his son, Nicholas. The store sells and services all types of high quality remote control cars, boats, planes, helicopters, and drones. He also plays golf three days a week in The Villages, Florida.

Mike Bates (EE 70) and Sharon had a great time at the 2015 Reunion. He also enjoyed fishing with **Joe Vig** (CE 71), **Bob White** (CE 72), **Dave Krull** (Ex 70), **Jim Brown** (CE 70), and **Les Thiel** (ME 67) for their annual fishing trip in Canada.



Alan Bergeron (EE 74) retired after forty-one and a half years at Rockwell Collins. While there he held various positions in engineering, program management, and international sales; he was fortunate to have visited fifty-four countries. The best part was meeting Elizabeth, his wife, in 2003. They married in 2005. Since retiring, they have squeezed in several trips including a drive across South

and North Dakota and a trip to the UK for their tenth anniversary.

Michael Bowlby (MinE 76) sold his business, Mack Hills Inc, a metal supplier, in January 2015. He is now retired.

Alan Boyd (ChE 76) and Sandy, his wife, have retired to a 55+ community near Denton, Texas, after a forty-year career. Their children live nearby with their three granddaughters.

Orson Burton (ChE 78) retired on April 1, 2016, after almost thirty-eight years with 3M. He is enjoying spending time at the cabin and with grandchildren.

Carlos Calderon (MinE 71) is living in Arlington, Texas. He is semi-retired, hoping to do teaching or consulting. He is not quite ready to be fully retired. They hope to travel toward the Dakotas soon.

Richard DeSomber (MetE 78) retired after thirty-eight years in the mining industry, which involved over twelve years overseas. He is enjoying family and hobbies.

John Dolan (GeolE 77) recently donated all of his geology, geological engineering, chemistry, and math textbooks to the "Tate Geological Museum" at Casper College.

Ron Christensen (ChE 71) and Kay are enjoying retirement after a career in agricultural research.

Bob Erdmann (CE 74) notes his last daughter at home,

Mary, graduated from Waubay High School in May. His son, Greg, is in graduate school and student teaching in Rapid City. His son, Ryan, is in his emergency room residency in a Detroit suburb. They are expecting their first grandchild from Marija, his daughter, in mid-August. Gabrielle, his daughter, is a sophomore at SDSU. His wife, Martha, opened a women's boutique, Mary Lucy, in Webster, South Dakota, last summer. He sends his personal congratulations to **Larry Simonson** (EE 69).

Gary Evensen (MinE 72) retired from the Postal Service in October of 2014, and his wife retired from the US Geological Survey on December 31, 2014.

LaVerne Goehring (EE 70) is enjoying retirement in Prior Lake, Minnesota. He lives alone, but gets to see his two sons and their families in the Twin Cities and his other son and two granddaughters in Grand Forks, North Dakota. He often plays in foosball tournaments and enjoys guitar.

Harvey Hansen (CE 71) and Nettie, his wife, retired in 2010 and have been touring the country in their RV volunteering for various Bible Camps, Colleges, and Children's Homes. They are enjoying retirement and plan to be in Rapid City this summer.

Gordon Henderson (Math 73) notes his wife, Mary, of fifty years died of cancer last October.

Steven Hoffman (CE 71) has cut back to working just one day per week. He is in the process of figuring out what to do with his extra time while he waits for his wife to retire in June 2017. In the meantime, he is planning on many playdates with their four grandkids.

Jeff Hohle (GeolE 78) and his wife, Johanna, are enjoying retirement and living in the Black Hills.

Robert Howe (EE 72) enjoyed the reunion last July and seeing old friends and campus changes. He is enjoying retirement and keeping busy with family events.

Allen Jones (EE 72) and wife, Ellen, bought a condo in Naples, Florida. He became a Florida resident and is enjoying the 0 percent state tax. He and Ellen play a lot of duplicate bridge in several regional and national tournaments each year; it is great brain exercise. He still plays tennis and golf. He returns to Iowa several times a year to see the four grandkids and attend Hawkeye football games.

Sandra Kastner (MinE 78) notes her son, Kyle, is a PhD student at Montreal Institute for Learning Algorithms Universiti de Montrea, QC Canada. Her daughter, Courtney, is a production engineer for OxyChem in Ingleside, Texas. Vic, her husband, retired from a management career in the minerals industry.

William Keller (ME 71) retired from Hills Materials

Company on January 15, 2016. His stepdaughter, **Abigail Salkowski** (IE 15), is engaged to **Jeff Wientjes** (IE 15).

Wayne Larsen (GeolE 76) notes William Christopher Bahrij, grandson number three, tipped the scales at ten pounds eleven ounces. He joins his cousins, Archer (three and a half years old) and Holden (one and a half years old) Larsen. In addition to the tree farm, Wayne has taken a full time position as operations manager for the Tea Area School District. Margaret continues as plan administrator for Retirement, LLC.

Gerald Loomer (Phys 72) notes his first grandchild, Montessa Loomer, was born in October 2014. He asks, how many other Hardrockers have retired to The Villages, Florida? He congratulates **Larry Simonson** (EE 69) on becoming alumni director.

Doug Matthew (CE 77) is happily retired since 2010 and lives in beautiful Colorado. He spends his time fishing, honing his guitar skills, traveling, and riding motorcycles with Sheila in God's country.

Daniel Merteley (EE 76) is enjoying his work at the large array radio astronomy site on the high plains of west-central, New Mexico.

Ken Nelson (GeolE 71) is selling farm equipment in Belle Fourche. He loves his work and has no desire to quit. He had a great time at the Triangle Reunion Party.

Larry Pearson (ME 72) is enjoying the winter in Arizona. While there, they have had the opportunity to visit with Jeanne and **Gary Callahan** (ME 70), Sharon and **Tom Zeller** (ME 70), Sue and **Jim Cameron** (ChE 71), Sandye and **Lynn Kading** (CE 73), Diann and **Dave Habicht** (EE 74), and Bonnie and **Dave Berg** (ME 73).

James Pesek (ChE74) recently retired for the second time and moved back to his hometown, Rapid City, with his wife, Carol.

Linda Pirtle (ChE 79) and Shane have moved to the country; cows, bees, and a garden! It is tranquil, sitting on the back porch having morning coffee.

James Quinn (CE 73) retired from Exxon Mobil after thirty years and returned to Rapid City in 2008. He has been active with Mines as an Entrepreneur in Residence and mentoring students for business plan competitions.

Irshad Rana (MetE 70) retired in January from Fluor Enterprises after forty-five years in mining. His daughter, Aisha, lives in Dallas, Texas, and has her MS in accounting. His wife, Shahida, is serving LLNL as the senior optical engineer. Abbas, his son, is serving Baylor Medical in Houston, Texas, as a surgeon.

William Rieger (EE 79) retired from Boeing on June 1, 2015 after thirty-five years. He has two great grandchildren.

Steven Roeber (ME 75) is glad to hear Jim Crompton (MetE 77) has retired after over forty years in the steel industry.

Ed Schaefer (EE 71) retired from Intel in August 2013. In May, 2014, he sold his house and moved into an independent living facility. He hasn't totally retired; he contracts for KinderCare Education—a company with about 1,500 centers nationwide caring for children from age six weeks to twelve years.

Wes Schrooten (CE 76) retired at the end of 2015. He is looking forward to more time on the links and traveling.



Mark Scott (GeolE 72) has seven grandchildren: Madeline and Connor Scott; Porter, Davis, and Harris Emerson; and Callum and Colby McMurtrey. He made it through the ups and downs of the oil industry and retired after forty-three years in January of 2015. He and his son, Eric, bicycled with a tour group 3,700 miles across the Northern US last summer, from the Pacific to the Atlantic. The fifty-day tour also passed through the Black Hills.

Gerry Suelflow (CE 78) retired from Northrop Grumman in December 2012 after thirty-five years of building airplanes, cars, and satellites. He is enjoying retirement and learning to play guitar.

Dale Thomason (CE 71) is enjoying retirement in North Texas. All of his daughters live within easy driving distance which helps with seeing grandkids. He went to Texas in 1979 for a three-month job assignment and has never left.

Steven Thorson (EE 71) retired from DirecTV on his sixty-fifth birthday. He and his lovely wife Ceci have been married for forty-one years.

Richard Twigg (MetE 70) is doing well and is mostly retired. Business is slow due to low oil prices. He and Joyce have nine grandchildren.

Robert Von Der Ahe (ME 76) is still building airports around the country. His current project is over \$500 million at LAX.

Leo Van Sambeek (MinE 72) went to part-time employment at the first of the year. He is still ranching in Hermosa, South Dakota, and helping to build a new Catholic church there.

Jerry Wright (CE 71) is still on the City Council for Rapid City, South Dakota. He is getting ready to enjoy grandchildren as his first great grandchild was due in May of 2016. He still serves as a Foundation trustee. He survived lymphoma in 2014.

Luanne Zoller (ChE 79) and Geri are enjoying their new home, a condo in the Pearl District of Northwest Portland, in the core of downtown breweries, restaurants, theaters, and beautiful parks.

MEMORIALS

Dennis Deinert (ME 70)

Ronald R. Oney (Math 72)

Douglas M. Turbak (ME 70)

1980s

Sandi (McColl) Arnold (Math 88) married Skip Arnold on June 13, 2016 in Estes Park, Colorado. They live in Cheyenne, Wyoming. Sandi currently works for the University of Wyoming in the Laramie County Extension Office teaching nutrition and food safety.

Hilary Brook (GeolE 81) retired from Shell in November 2015 after thirty-four-and-a-half years.

Don Charron (EE 87) updates that his wife, Kari, is from Rapid City and graduated from Stevens High School and Idaho State. His son, Sam, graduated from Indiana University and is now a second year law student at Marquette. His middle daughter is in her second year at Butler and his youngest is a junior in high school.

Kim Dockter (ME 85) and Becky are doing fine. They are empty nesters with Jordan at NDSU and Jeremy in graduate school at Syracuse.

Jeremy graduates in May and will start his internship as an athletic trainer with the New England Patriots. Jordan has an internship at the Minnesota Zoo. He will graduate in December with a degree in zoology.

Randal Evans (EE 80) retired as the Boeing Director of Advanced Systems and Development after thirty-three years. He is living in Enumclaw, Washington, in the general area of Seattle as a small cattle farmer.

Steven Fischer (MinE 82) is spending his fourteenth year in California. He is still traveling around Southern California building power plants. His latest project takes him to the Valero Refinery in the Port of Long Beach. He and Grace enjoy their travels to different parts of the world, most recently Denmark and the Philippines. They have five grandchildren and will have a sixth in October.

John Gasseling (ME 88) moved back to Rapid City in 1999. Prior to moving back he worked for Schlumberger in Bakersfield as a field engineer. He has one patent and is trying to get it on the market.

Mike Gentry (CSc 89) and Jean proudly note their daughter, Sara, is in her first year at the University of Louisville.

Tom Harrison (Phys 84) is in his twenty-fourth year at New Mexico State University as the staff "Observatory Scientist." After attending SD Mines he attained his PhD in astrophysics

at the University of Minnesota in 1989. He then spent three years at the Australian National University and has spent the remainder of his career at NMSU. He has produced eight PhDs and seven of them are in astronomy.

Richard Howie (MetE 81) and Wanda celebrate their daughter, **Erica's** (IE 16), graduation from SD Mines.

Jody Kelso (MetE 80) has his R&D company called JR Kelso & Associates, LLC.

Ken Koemmpel (ChE 83) is preparing to retire in January 2017 from the civil service for the Navy after thirty-three years. He is looking forward to his next phase of life. Two of his three children have completed college and are starting their lives. He enjoys being a grandpa to their first grandchild, Vera Lynn Bach.

Todd May (ME 89) is proud to note his son, Ethan, is in his first year at SD Mines and majoring in computer science.

Michael Mueller (ME 85) and Julie are enjoying the grandparent role. **Tiara Marcus** (IE 11) gave them a grandson, Levi, and Marisa a granddaughter, Brooklyn. He is now a project manager in the construction department at Regional Health.

Mark Rantapaa (GeolE 87) notes all is well in Elko, Nevada. He is entering his twenty-fifth year at Barrick and is currently the manager of the open pit at Cortez Mine.

Lonny Stormo (EE 85) finished a fascinating thirty years at Medtronic. He is now leading an emerging diabetes medical device company, POPS! Diabetes Care.

MEMORIALS

Frederick E. Otte (CE 82)

1990s

Samer Al-Haj (CE 96) lives with his wife and four children in Denver. They enjoy the beauty of Colorado.

Martin Drefs (ME 92) just started a new job as director of e-commerce for Sabre Airline Solutions and will be moving to the Dallas area.

Jeff Heikes (ChE 99) works as vice president of project management in POET's Sioux Falls corporate office. Jeff has spent the last thirteen years overseeing and leading engineering, procurement and construction projects within the company.

Mike Rahe (IE 93) retired from Snap-On Tools April 1, 2016, after over twenty years. He will remain in Burt, Iowa, following retirement. His hobbies include gardening, farm equipment restoration, fishing, and travel.

Paul Larson (ME 93) notes he and Amy are blessed with eight children and one on the way. They are thankful for God's favor and blessings.

Bradley Lawrence (ME 90) took a new job as the electric utility director for the City of Madison, South Dakota. It has been a great move with a lot of opportunities.

Paul Oien (CE 99) started a new position with John Deere Power Systems in February 2016. His new position is a continuous improvement engineer supporting turbochargers for the 6090 and 4045 engines. Prior to this, he worked in the dealer technical assistance center.

Jeff Richmond (Geol 97) is celebrating twenty years of marriage in 2016!

Marijane White (CEng 99) joined the Ontology Development Group at the Oregon Health and Science University Library in Portland, Oregon, as an ontologist in mid-February. She will be working on the SciENCv and Open Research Information Framework (OpenRIF) projects, after spending four years as a semantic modeler and data scientist for Thetus Corporation in downtown Portland.

MEMORIALS

Marilyn J. Moore (Math 92)

James E. Mann III (ME 90)

David A. Mattox (CEng 95)

2000s

Andrew Downs (EE 08) is leaving industry to go back to school to pursue his PhD in electrical engineering at Iowa State University in Ames, Iowa, with the goal to teach at the university level.

Kajda Downs (ChE 09) left Puget Sound Naval Shipyard after the birth of her and **Andrew Downs'** (EE 08) daughter, Mary Ann, in 2012. In November 2014, she began training to become a fertility care practitioner at Pope Paul VI Institute of Human Reproduction and is now self-employed.

Brian Drake (ChE 00) is proud of the new addition, Charles Xavier Drake, in 2015.

Linda Foster (GeolE 03) was profiled in January 2016 in *Xyltt* (formerly *Professional Surveyor Magazine*) as one of "40 Under 40 Geospatial Professionals" to watch in 2016.

Charles Hankins (CE 09) is a civil engineer within the water division at Black & Veatch. His wife, Chandra, recently graduated from Northwestern Health Sciences University with her doctorate in chiropractic. They welcomed their first son, Dexter Daniel Hankins, in January 2016. They were married in August 2014.

Joanna (ATM 08) and **Shawn Jacobs** (ATM 09) note Shawn is a meteorologist for the National Weather Service in North Platte, Nebraska, while Joanna teaches math and

meteorology classes at North Platte Community College. They have a two-year-old daughter, Madeline.



Adam Lungren (ME 08) and Ammanda welcomed their first baby boy, Brendan Archie Lungren, on December 26, 2015.

James Moisan (ME 07) is excited about the **Nick Rogakis** (CE 07) engagement and looks forward to linking up with the Delta Sigma Phi crew in Denver this August.

Kristin Molstad (EE 01) moved to Brookings, South Dakota, in August 2015. Her husband is teaching high school math. She is teleworking with John Deere in the area of engine control systems. Their two daughters are in the third and first grades this year.

Thomas Riley (ME 02) and his wife, Jean, welcomed their second son, Cash Thomas Riley, on July 12, 2015. His big brother is Chance.

Stephen Roe (Math 01) married the love his life, Jennifer, on September 5, 2015, at St Francis of Assisi Parish in Colorado Springs, Colorado. They live in Denver, with their black lab-coon dog mix, Jasper, and long haired dachshund, Samson.

Erin (Chem 06) and **Travis Schmidt** (MetE 09) are expecting their fourth child, a baby boy. Travis is currently pursuing his MBA and MSIE.

Jennifer Walz (CE 08, ACM 09) and Trevor are expecting their first child mid-April.

Henry Tanner (ChE 08) and his wife, Kayla, live in Casper, Wyoming. Hunter is nine, Madeline is seven, and Sydney is three. They spend most weekends fly fishing and exploring the great outdoors.



Kristen Yates (GeolE 05) and Rob celebrated the arrival of their first little one, Elizabeth Lynn, on December 12, 2015. She arrived in the evening at eight pounds five ounces and nineteen inches long and with a full head of blond hair.

MEMORIALS

Joseph Sharpe (GenSt 08)

2010s

Jason Connot (MinE 15) married Kelli Adelman in Ithaca, New York, on October 16, 2015.

Melody Dodd (ACM 10) and **Cody Alsaker** (ACM 10) married March 14, 2015. Cody received his PhD in math

statistics from Colorado State University on February 17, 2016. He is in a two-year post doc research project as a statistician at Colorado State University.

Amber Horsley (IS 14) is currently attending Texas Chiropractic College in Houston, Texas.

Rachel Joseph (ME 13) and **Travis Clark** (ME 13) were married on October 3, 2015.

Loryn (IE 11) and **Kyle Lichty** (ChE 11) have a son, Wade Benjamin Lichty, born September 1, 2015. They took Wade to visit the SD Mines campus, Dr. Carter Kerk, and industrial engineering intern at Vishay Dale, Jennifer Zeise (IE student).

Michelle Ozarowski (PhD Geol/GeolE 14) moved to Fort Collins, Colorado, in November 2015 and started her own geological engineering consulting firm.

Stephen Smock (ME 13) proudly relates Gwendolen Victoria Smock was born August 22, 2015. She was seven pounds and two ounces and twenty inches long.

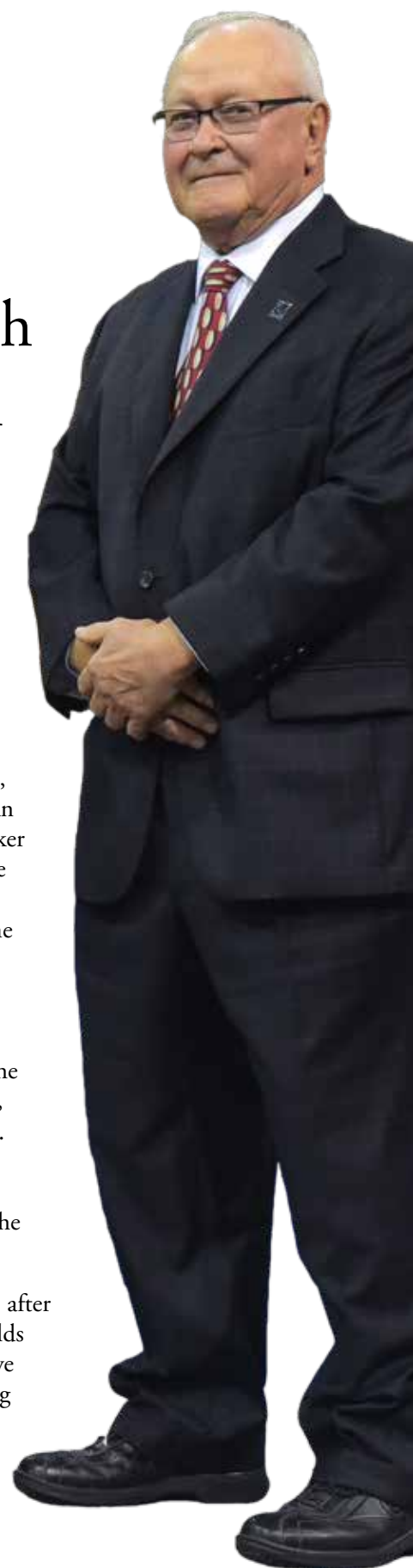
Alumnus Bob Miesen Honored with Guy E. March Medal

Robert (Bob) Miesen (CE 61) was honored as the Guy E. March Medal recipient at the 173rd commencement ceremony held May 7.

Formerly of Zell, South Dakota, Miesen was a four-year letterman and co-captain for the Hardrocker football team and earned a place on the All-Conference team. Miesen was also a member of the M Club, American Society of Civil Engineers, and Theta Tau fraternity.

Miesen has been a member of the Hardrock Club since the 1960s, supporting athletic scholarships. He also served as Alumni Association president in 1987 and 1988 and currently chairs the Relationship Committee.

He is retired in Houston, Texas, after a forty-two-year career in oil fields worldwide but continues to serve South Dakota Mines by assisting alumni area vice presidents. He also recruits students for SD Mines at Houston's private schools.



AREA MEETINGS

1: Casper, Wyoming, March 5—Rick Wass (IS 96), John Dolan (MS Geol/ GeolE 77), Melisa and Jim (MinE 68) Crouch, Errol (CE 59) and Bev Miller, Ben (GeolE 06) and Melissa Hauser, Ardell Knudson, Cheri and Joe (GeolE 82) Corbett, Dave Berg (ME 73), Mark Opitz (CE 74), and Bonnie Berg (photo by Beth Opitz)



2: In September 2015 a small contingent of the Class of 1968 embarked on a cruise up the East Coast and through the Saint Lawrence Seaway. Ports of call included Boston, Bar Harbor, Quebec and Montreal. Couples from left to right are Craig (EE 68) and Kris Nordby, Wayne (EE 68) and Jean Binfet, Dennis (EE 68) and Sandy Krause, Kathy and Jim (EE 68) Kotas, Bonnie and Dick (CE 68) Storm. The cruise was a special tribute to the success of the Class of 1968 Endowed Scholarship.



3: St. Louis, Missouri, May 16—Front, L-R: Tim Ogdie (ChE 80), Susan (ChE 80) and Lydell (Phys/ EE 80) Frasch, Russ Roeber (ChE 70), and Arnie (Phys 54) and Gladys Mueller. Back, L-R: John Knie (MetE 99), Tim (ME 11) and Kayla Luchini, Kurt (ME 86) and Deborah Selzle, Pam Roeber, Matthew Schwarz (MetE 81), Marty Schamber (MinE 78), Kayla Dye (MetE 88), and John Mohr (EE 56)



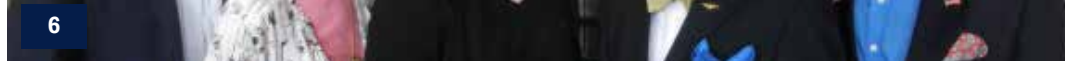
4: Knoxville, Tennessee, May 19—Front, L-R: Charlene Dubs (MetE 81), Bill (ME 73) and Jo Jones, and Jo and Glen (ChE 50) Madsen; Back, L-R: Seth Petra (Met E student), Jim Webster (EE 58), Joe Hansen (ME 54), Curt and Tricia (EE/CSc 98) Gomulinski, and Darla and Doug (MetE 69) Roeber



5: Charlotte, North Carolina, May 20—Diana and Bill (ME 82) McMillan, Lindell Sunde (ME 74), and Don (MinE 68) and Shelly Del Bosco



6: Washington DC, May 22—Lyle (former EE department head) and Dorothy Feisel, Karen Zapp (GeolE 79) and John Withers, and Bill Tucker (GeolE 56)





7



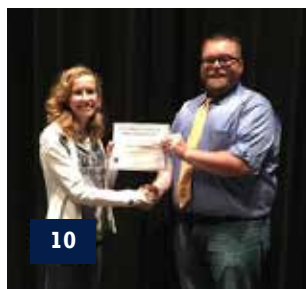
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7: Washington DC, May 22—Bill Tucker (GeolE 56) with Kathy (ME 84) and Al (CE 81) Sehn

8: Indianapolis, Indiana, May 23—Seated: Bernie Biberdorf (EE 50); Standing, L-R: Rees Morgan (Phys 62), Mike Gentry (CSc 89), Dan Daniels (ME 72), Jerry Bollinger (CE 11), and Wayne Baumberger (ME 96)



9



10

9: Moline, Illinois, May 24—Front, L-R: Prapa Black, Kathy Halter, Al Bergeron (EE 74), Carole Jost, and Joe Lauzon (Met E student); Back, L-R: Pat Ward (ME 78), Monty Jost (ChE 76), Bryon Black (MetE 94), Bruce Halter (MetE 89), Liz Bergeron, Steve (ME 93) and Holly Rieck, Audra Hawkinson (ChE 89), and Dan Nielsen (ME 77)

10: Paige Schnetter, incoming freshman from Harrisburg High School, is presented a scholarship by Erik Engelmeyer (EE 10).



11



12

11: John Hewitt, an incoming freshman from James E Taylor High School in Katy, Texas, is presented a scholarship by Lorraine Padden (EE 83).

12: Midland, Michigan, April 12—Alumni gather to hear campus updates from President Heather Wilson.



13



14

13: Mines Masters, Chandler, Arizona, April 9—Mark Lux (MinE 80), Bob Steever (CE 74), Roy Pulfrey (CE 76), and John Hull (MinE 77)

14: Mines Masters—Dan Carlson (ChE 77), Steve Newlin (CE 75), Mark Rezac (MetE 77), and Mike Kahler



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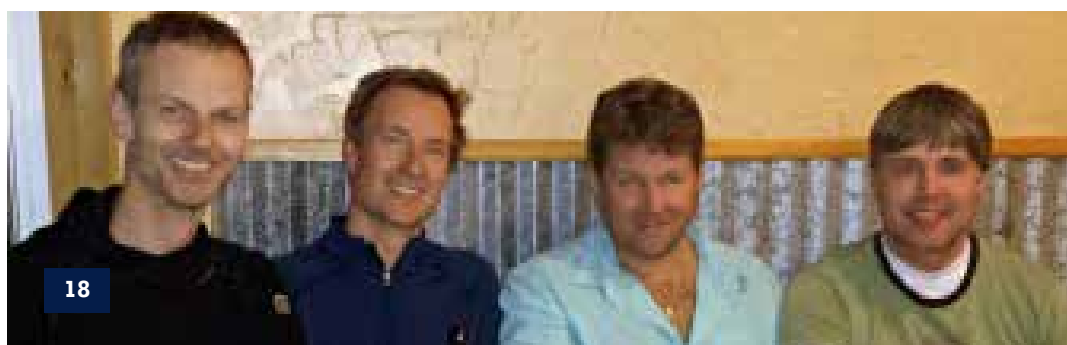
15: Mines Masters—Michelle Newlin, Katy Kahler, and Jeane Hull (CE 77) won with a group net score of 46.

16: Mines Masters—Megan Barnes (ME 06), John Loranger (EnvE 03), Joel Lueken (SD Mines Athletic Director), and Tami Nelson (MetE 86)

17: Front, L-R: Steve Newlin (CE 75), Mark Lux (MinE 80), John Hull (MinE 77), Michelle Newlin, Nancy Hull, Kileen Rezac, Jan Lux, Bernie Hoogestraat (GeolE 56), Jeane Hull (CE 77), Joel Kinkart, Carrie Pulfrey, James Pulfrey, and Bob Steever (CE 74); Middle, L-R: Hugh Boyle (CE 79), Hal Nelson (GenE 58), Ed Bearg (GenE 58), Jeff Zacher (Chem 83), Pam Zacher, Barbara Berg, Gary Kelley (CE 84), Bob Kelley (CE 58), Matt Kelley, Rick Kelley (CE 88), Tami Nelson (MetE 86), Mark Rezac (MetE 77), Dan Carlson (ChE 77), Deb Hoogestraat, Nate Brown, Ryan Larsen, and Shane Larsheid; Back, L-R: Ralph Wagner (CE 75), Larry Todd (MetE 78), Gary Vallon, Jim Gray, Roy Pulfrey (CE 76), Bob Burrill (MetE 76), John Loranger (EnvE 03), and Megan Barnes (ME 06). Note: not everyone in the middle and back rows are identified by name.



18: Norwegian Alumni gathering in Colorado, L-R: Rolf Knutsen (EE 96), Andreas Gluck (EE 96), BA Askildsen (EE 96), and Atle Borsholm (EE 96)



19: Norfolk, Nebraska, April 13—Front, L-R: Lesley Hanson (IE 02), Kody Heller (CE 12), Brad Johnson (EE 92), Jordan Smith (MetE 13), Jerry Anderson (MetE 78), Jim Hill (MetE 81), and Kevin Kortje (ME 89); Back, L-R: Matt Hicks (MetE 13), Derek Nordby (MetE 12), Jeremy Pirner (ME 12), Brett Jackson (MetE 95), Terry Rasmussen (MetE 91), Karl Barfuss (IE 08), and Kevin Gray (MetE 11); Not pictured: Anthony Shearer (CE 00).



20: South Dakota Sports Hall of Fame Induction, April 9—L-R: President Heather Wilson, Ken Wrede (MinE 77), South Dakota Sports Hall of Fame Inductee Doug Schlepp (MetE 74), Joe Vig (CE 71), Steve Weiland (CE 76), Tom White (MetE 76), and Larry Simonson (EE 69)

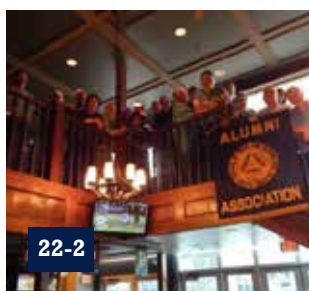


21: Columbus, Ohio, April 12—Bonnie Berg, Conrad Fuchs (ME 59), and Dave Berg (ME 73)





22-1



22-2



23

22-1, 2: Pittsburgh, Pennsylvania, April 9—Alumni tour the Warhol Museum on a trip organized by Susan “Booty” Banks (GeolE 75).

23: Kansas City, Kansas, March 28—Spencer Ferguson (CE 14) organized the alumni gathering.



24

24: Norfolk, Nebraska, April 4—Twenty-seven mechanical engineering, metallurgical engineering, and industrial engineering students tour the Nucor Norfolk facilities. Faculty members accompanying the tour: Michael West, head of the Department of Metallurgical Engineering, Paula Jensen (IE 98), Aaron Lalley (ME 91), and Jon Kellar (MetE 84). Alumni participating: Terry Rasmussen (MetE 91), Brian Ellefson (MetE 13), Jordan Larson (MetE 01), Dan Tiede (ME 01), Emilia Juhl-Simmons (MetE 11), Luke Wheeler (IE 10), Anthony Shearer (CE 00), Kevin Gray (MetE 11), and Karl Barfuss (IE 08)



25

25: Dogskin Lake, Manitoba, August 20, 2015—Les Thiel (ME 67), Joe Vig (CE 71), Bob White (CE 72), Dave Krull, Pete Rodman, Jim F. Brown (CE 70), Jim Kullbom, and Mike Bates (EE 70) were among attendees on a Triangle fraternity brothers fishing trip.



26



27

26: Midland, Michigan, curling, February 27—L-R: Nathan Johnson, Tracy Johnson (ChE 97), Travis Hoon (ChE 12), Brandon Johnson (CSc 95), Katie Johnson, Daniel Hines (ChE 13), Shari and Tom (ChE 84) Workentine, Cody Marnach (ChE 14), Trudy (ChE 84) and Rich (ChE 82) Wells, and Evan Waddell (ChE 10)



28

27: SME Phoenix, Arizona, February 23—Gathering of college friends: Leo (MinE 72) and Deb Van Sambeek, Dave Berg (ME 73), Lynn Kading (CE 73), Gary Callahan (ME 70), Larry Pearson (ME 72), and Larry Todd (MetE 78)

28: Peoria, Illinois, April 14—Steve Bickett (ME 04) organized a gathering of alumni at Caterpillar.

AREA MEETINGS

29-1, 2, 3: Zero Year Reunion—The Alumni Association and Foundation welcome new graduates to the Alumni Association in an event attended by over 100 Hardrockers.

30: Jason Deitsch (ChE 09) and Staci Bogue-Buccholz (ChE 94) welcome students to the spring career fair for ADM.

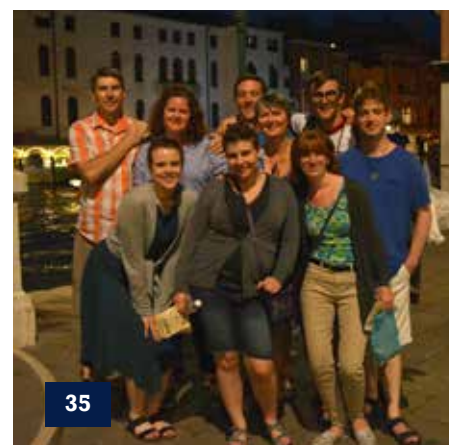
31: Caterpillar alumni recruit students at the spring career fair.


32: Rapid City, South Dakota, January 11—SD Mines alumni and former professors watch the National Collegiate Football Championship Game. L-R: Karen Hagelstein, Paul Gnirk (MinE 59), Larry Simonson (EE 69), and Terry Mudder (Chem 74)

33: Atlanta, Georgia, April 2—Alumni tour Delta Technical Operations. L-R: Diana and Bill (ME 82) McMillan, Dave (ME 73) and Bonnie Berg, Ron Jeitz (CE 69), Del (EE 66) and Cheryl Gran, Cammi and Bill (IE 96) Jones, Lindsay Lipps (IE 04), and Jeff (ChE 02) and Jessica (ChE 03) Hartman. Children in the engine are Warner, Lawson, and Munch Jones.

34: The SD Mines University Choir and alumni traveled and performed through Europe, including in Konstanz, Germany, in May.

35: University Choir enjoying Europe—Back, L-R: Shon (former student) and Tori Anderson, Cody Cooper (ME student) and Alexander Schimbeno (EE student); Middle, L-R: Tami Nelson (MetE 86) and Paul Blasi (CSc 15); Front, L-R: Hannah Covey (CE Student), Caitlin Taggart (CSc/Math 16), and Emily Brossart (ChE Student)





Campus Improvements

by the numbers

6,500,000

Dollars in renovation costs for the south side of the Chemical & Biological Engineering/Chemistry Building project, rehabbing classrooms and adding new laboratories, offices, and a building front.

15

Number of major state capital improvement projects under way on campus this summer.

244

New seats installed in the main lecture hall of the Classroom Building.

0


Number of minutes for industrial engineering students to get to the Quad from their new department location in the garden level of Devereaux Library.

1,100

Student mailboxes will be in place with the Surbeck mailroom renovation that adds 400 new boxes and triples the package storage area for a growing student body.

2,432

Number of normal and tumor human tissue section slides to be stored in the new research laboratory of Dr. David Gilley for breast cancer research.

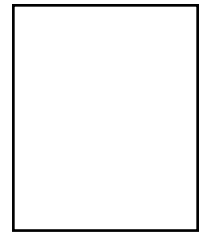


SOUTH DAKOTA



SCHOOL OF MINES
& TECHNOLOGY

501 E. Saint Joseph St.
Rapid City, SD 57701



Hardrocker
**HERITAGE
AWARD**

The **Hardrocker Heritage Award** is intended to attract additional highly qualified first-time, full-time nonresident freshmen and transfer students to South Dakota Mines who have at least one parent or legal guardian who earned a degree from SD Mines. Qualifying students will pay tuition and fees at the in-state rate.