South Dakota School of Mines and Technology

THE HARDROCK

A publication for our Alumni, Faculty, Staff, Students, and Friends

FALL 2007

DUSEL Announcement **Opens New Avenues**

School of Mines Around the World p. 10

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Perspectives



Dear Alumni and Friends,

One of the immutable realities of institutional life is the constant impact of events beyond the campus. We no longer (if we ever did) live in a cloistered villa, able to study and inquire, without the pressures of the "real world." Certainly this is true of the School of Mines.

The down-select by the National Science Foundation of the Sanford Underground Science and Engineering Lab (SUSEL) at

Homestake as the future home of the world's deepest underground laboratory alone is having an impact. Add to this a continuing state agenda to build a research culture across South Dakota higher education, and a community supportive of a research corridor in the Black Hills. All this suggests that the School of Mines of today is a different institution of years past, and will continue to evolve.

While we continue the traditions and expectations that have guided the institution for more than 122 years, new programs and emphases abound. Some of these are highlighted in this issue of the *Hardrock*.

The most common theme cutting across all these articles is that the School of Mines is taking a much broader world view. Homestake offers an opportunity to participate in a world-class research laboratory. Our CAMP teams compete against teams from across the country and beyond. C-Lock illustrates the evolution of research findings to real-world applications. This view necessitates our revising our curriculum (new face of Interdisciplinary Sciences) and coordinating our already expanding globalization efforts.

These are exciting times at the School of Mines. Yours is an alma mater that is growing and changing in response to realworld opportunities. I hope you share in both the pride and successes of our ever-continuing efforts to be "recognized as a premiere science and engineering university."

As always,

Charles Kuch

Charles Ruch President

P.S. If you are not on my bi-weekly president's e-mail newsletter list and would like to be included, please contact my office by e-mailing <carol.jensen@sdsmt.edu> or by phone at (605) 394-2411.



FALL 2007

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On the cover:

Cover Photo: The National Science Foundation (NSF) announced the selection of the Sanford Underground Science and Engineering Laboratory at Homestake as the development site for the Deep Underground Science and Engineering Laboratory (DUSEL). *Story p. 6*

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Greetings, Alumni and Friends!

Only "moments" ago, I was privileged to become your Alumni President, and twelve months shot by. (Is the only thing faster than the speed of light a year's tenure as Alumni President?) It will be a poignant moment for me to relinquish the helm already, but I am delighted to do so for Marlene Nelson (ME74). She will be outstanding in moving our Association ahead for your benefit and our alma mater's future. Continuity of our executive committee gives commitment and momentum, and we have worked diligently to accomplish this. I am pleased to announce she will be succeeded by Ralph Wagner (CE75).



Perspectives

Last spring, I expressed how alumni are an institution's greatest ambassadors, as they span time

and distance. They have great opportunities to represent the college in many ways, but I want to add another adjective: mentoring. There are growing needs for alumni to coach, guide, and share based on perspectives and seasoning from their careers. These are beneficial to fellow alumni (especially new graduates), the campus, and our Association. Your mentoring value is enduring, so speak up and help out with your skills and experiences!

Your Board has accomplished some good things during the past year:

- Developed a strategic framework for our Association, with key strategies, goals, and actions outlined.
- Offered more funding options for alumni, which increased contributions to help sustain programs and events.
- Began specific efforts to improve two essential tools for the future: our information database and the Association website.
- Focused on participation as a driver for promoting alumni engagement, which will definitely be continued.
- Continued area meetings, campus celebrations, and alumni engagement in many parts of the country.

On our "To Do" list is strengthening participation in our area meetings; that will be a key thrust in the next few years. Funding allows us to grow existing programs - and we have a few new ones in mind - so your support is critical.Our office is efficient but we can enhance tools and activities with larger but justified budgets. We also need to strengthen our communications, and implement a few actions each year through Board committees. Our work to bring you value continues.

Campus engagement for alumni will continue to ramp up with the use of advisory boards for departments and the institution. Opportunities will grow for alumni to speak in several forums, advise on design projects, and engage in committees seeking outside perspectives. (I plan to continue my involvement with students!) Furthermore, our Association's strategic framework has linked its plans and actions to the four School of Mines Strategic Initiatives, thus complementing and maximizing our relevance to our school's future.

I have been delighted by alumni meetings I attended and disappointed to miss others. Meeting friends from the past and making new ones has been a joy! Talking with freshman students was fun too. Not only could I "prep" them for future alumni "participation and funding", but I could tell them about an Alumni Association that awaits their involvement as current students. They may go to school here for four (or five) years, but they become alumni for life!

There you have it — my recap of the past year and what we are thinking about for the future. We hope that you actively engage yourself in the Mines campus life, strongly support the Association financially, and actively network with classmates and all alumni. To that ongoing "homework" assignment, I again add "mentoring" in those arenas that impart what you know and how you think. The impact you can have on others is immeasurable!

I still look forward to hearing from you at any time, since a Past President needs a few things to do. (I think Tim has a couple of ideas already.) Best wishes, Ambassadors and Mentors from the School of Mines, and please continue your efforts as members of the most loyal alumni in the world.

Take care, one and all!

Dang Alduk

Douglas E. Aldrich (ChE62) SDSM&T Alumni President

Campus Profile

South Dakota School of Mines and Technology has been a national leader in preparing world-class engineers and scientists since 1885. Our graduates design, construct, and operate the most modern technology to meet complex challenges such as global warming, health care delivery, energy resource development, mineral extraction and processing, environmental quality, futuristic transportation, and national defense. Our alumni are held in the highest regard by their fellow leaders in industry, consulting, government, health, research, and education.

The School of Mines continuously adapts to meet the needs of engineering and science. Rugged individuals and pioneers in engineering and science founded the School of Mines' intellectual environment more than a century ago. Our faculty and students carry on that tradition today.

The School of Mines is a state university that provides graduate and undergraduate degrees in science and engineering.

2007-2008 Enrollment:

2,070 students from 42 states and 32 countries

Costs and Fees:

A School of Mines education has never been more affordable. 2007-2008 annual undergraduate costs for tuition, fees, books, room, and board total approximately \$12,200 per year for South Dakota residents and \$13,400 for non-residents.

Research:

Researchers conduct state-of-the-art research that benefits the state, the region, and the nation through advances in technology and economic development. In Fiscal Year 2007, researchers received more than \$17.1 million in funding for 72 projects. Funding agencies included the National Science Foundation, the State of South Dakota, NASA, the Department of Education, Army Research Laboratory, and many more.

Faculty:

The School of Mines employs 116 full-time faculty members, more than 80 percent of whom hold doctorate or other appropriate terminal degrees.

Honors and Awards:

- One of America's Best College Buys for the tenth consecutive year
- One of approximately 200 Colleges of Distinction

Placement:

Starting salary offers to our graduates average approximately \$54,000. More than 98 percent of 2005-2006 graduates have found jobs in their career fields or graduate professional programs.

Bachelor of Science Degrees

Chemical Engineering Chemistry **Civil Engineering** Computer Engineering **Computer Science** Electrical Engineering Environmental Engineering Geological Engineering Geology Industrial Engineering Interdisciplinary Sciences **Mathematics** Mechanical Engineering Metallurgical Engineering Mining Engineering and Management Physics

Master of Science Degrees

Atmospheric Sciences Biomedical Engineering Chemical Engineering **Civil Engineering Computer Science Electrical Engineering** Geology and Geological Engineering Materials Engineering and Science Mechanical Engineering Paleontology **Technology Management**

Doctor of Philosophy Degrees

Atmospheric and Environmental **Sciences Biomedical Engineering** Chemical and Biological Engineering Geology and Geological Engineering Materials Engineering and Science Nanoscience and Nanoengineering

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Golden Nuggets

School of Mines holds 155th commencement

The School of Mines held its 155th commencement May 12, 2007, and awarded degrees to more than 230 undergraduate and graduate students. In addition, 22 alumni from the class of 1956 attended



Commencement speaker Guardie E. Banister, Jr., vice president - technical of Shell EP Asia Pacific.

the ceremony and received certificates commemorating the fiftieth anniversary of their graduation.

Gaurdie E. Banister, Jr. (MetE80) delivered the commencement address. Banister currently serves as vice president technical at Shell EP Asia Pacific, which is part of the Royal Dutch/Shell Group's global exploration and production business, and chairman of Shell Todd Services in New Zealand. In this position he has responsibility for drilling and development activities in Australia, Malaysia, New Zealand, China, and the Philippines. Mr. Banister is primarily responsible for the \$1.5 billon in capital spent in the region as well as reserves maturation. He also has oversight for strategic technology implementation and information technology.

Jenny Baker (ChE07) represented the graduating



class. While a student at the South Dakota School of Mines and Technology, Baker was actively involved in the campus community. She was a member of the Student Association Senate and was elected as Student Association President in 2006.

Senior class representative speaker **Jenny Baker** (ChE07)

Baker served as President of Alpha Omega Epsilon Professional Sorority, was inducted into the

Leadership Hall of Fame in 2007, and was named 2006 Homecoming Queen and 2005 Ms. Tech. Baker was also involved with Order of Omega, Tau Beta Pi and Phi Eta Sigma Honor Societies, Student Alumni Connection; Society of Women Engineers; Peer Advising and Orientation; and M-Week Homecoming committees.



George F. Dunham (ME56) and Nancy Ward Dunham (EE57)

The School of Mines also honored **George F. Dunham** (ME56) and **Nancy Ward Dunham** (EE57) with the Guy E. March Medal.

After receiving a bachelor's degree in mechanical



The School of Mines 155th Commencement was held at the Rushmore Plaza Civic Center Arena on May 12, 2007.

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Golden Nuggets continued

engineering in 1956, George Dunham served as instructor of mechanical engineering at the School of Mines until 1957. In 1960, he co-founded Dunham Associates, Inc. with wife Nancy Dunham in Rapid City, with subsequent branch offices in Bismarck, Sioux Falls, Minneapolis, Casper, Reno, and Las Vegas. He was also cofounder of SymCom, Inc., Rapidata, Inc., and Meditrol, Inc. He has served as president and chairman of the board for each of these companies.

George Dunham's awards and honors include the School of Mines Centennial 100 Award, Hardrock Club Wall-of-Fame, and West River Notables. He served as national co-chair for the Foundation's Vision 2000 campaign and served on the board of directors of the SDSM&T Alumni Association. Most recently, he led the expansion and refurbishing enhancements for Dunham Field at O'Harra Stadium.

After becoming the first female electrical engineering graduate at the School of Mines, Nancy Ward Dunham cofounded Dunham Associates, Inc. with husband George Dunham (ME56) in Rapid City, with subsequent branch offices in Bismarck, Sioux Falls, Minneapolis, Casper, Reno, and Las Vegas. She cofounded SymCom, Inc. and Rapidata, Inc., and each company employed numerous School of Mines graduates.

Nancy Ward Dunham received the School of Mines Centennial 100 Award, served as national co-chair for the SDSM&T Foundation's Vision 2000 campaign, chaired the Alumni 5-year Reunion Committee Tunnel Activities from 1960-2000, and received the Distinguished Alumni Award in 2000. Most recently, she established the Nancy Ward Dunham Scholarship.

School of Mines Hosts Engineering GIRLS Day

Nearly 200 middle- and high-school girls participated in Engineering GIRLS (Girls Into Real Learning Succeed) Day at the School of Mines April 17, 2007.

The day included a series of hands-on activities to show the fun side of science and engineering. School of Mines faculty and student volunteers helped participants build marshmallow bridges, work in a paleontology lab, and explore wildfire meteorology. Girls also learned about computer programming, created jewelry through metallurgical engineering, and discovered the wonders of engineering and



Students had the opportunity to experience engineering and science hands- on at Engineering Girls Day.

science through many other activities.

"It is vitally important that girls participate in and explore the opportunities that exist in the science, math, engineering, and technology fields," School of Mines President Dr. Charles Ruch said. "We need the contributions from every segment of our society to achieve our economic and scientific goals as a state and a nation."

School of Mines Hosts 2007 Baja SAE Competition

From May 23-26, 2007, 100 teams converged at the School of Mines to compete in the 2007 Baja SAE Competition. Teams traveled to the School of Mines from as close as North Dakota and Iowa and from as far away as South Korea, France, Brazil, Mexico, and Africa.

The School of Mines' underclass vehicle finished in seventh place and the senior team vehicle finished in 11th place overall. The underclass vehicle also took eighth place in the sales portion of the competition.

The Baja cars were judged on design, cost, and safety. Teams gave presentations about their cars, and showed off their performance during hill climb, maneuverability, and acceleration events. The Baja cars and drivers were also put to the test during the four-hour endurance race over rugged terrain that tested the durability of each vehicle.

Golden Nuggets continued



The School of Mines was host to the May 2007 Baja SAE Competition.

Mini Baja simulates real-world engineering design projects and related challenges. Engineering students are tasked to design and build an off-road vehicle that will survive the severe punishment of rough terrain. The object of the competition is to provide students with a challenging project that involves the planning and manufacturing tasks found when introducing a new product to the consumer industrial market.

School of Mines wins DAC Scholars Award

For the third consecutive year, the School of Mines is the recipient of the Dakota Athletic Conference (DAC) Scholars Award.

The award is presented annually to the school with the highest percentage of athletes honored as DAC Scholar Athletes. More than half of Hardrocker athletes were honored for their academic achievements.

In order to be recognized as a DAC Scholar-Athlete, a student athlete must have a cumulative grade point average of 3.25 or better and have earned 12 or more credit hours for a semester in which the student-athlete participates in a conference sponsored sport.



A WORLD OF DIFFERENCE

Engineers Week / February 17-23, 2008

For more information, visit: <www.eweek.org> <http://sdmines.sdsmt.edu/eweek2008>



THE NATIONAL CHALLENGE IS : Assemble a hamburger consisting of no less than: one precooked meat patty, two vegetables and two condiments, sandwiched between two bun halves.

National College Competition: Saturday April 5, 2008 National High School Competition: Sunday April 6, 2008 Where: Purdue University

Local Rube Goldberg Contest Tuesday, February 19, 2008 South Dakota School of Mines and Technology Surbeck Center Ballroom 3:00 - 5:00 p.m.

DUSEL Announcement Opens New Avenues

The South Dakota School of Mines and Technology is delighted to share in the excitement of the recent National Science Foundation (NSF) announcement of the selection of the Sanford Underground Science and Engineering Laboratory at Homestake as the development site for the Deep Underground Science and Engineering Laboratory (DUSEL).

"The School of Mines would like to thank our congressional delegation, Governor Rounds, South Dakota Science Technology Authority, T. Denny Sanford, Co-Principal Investigator Dr. Kevin Lesko, and Barrick Gold

Corporation, as well as those individuals on campus, in community organizations, and our other elected officials that worked to make this happen, beginning in 2000 with the announcement of the Homestake mine closure," School of Mines President Dr. Charles Ruch

said. "While there are many steps remaining, this is a significant milestone that we have reached."

"The project provides for unlimited research potential, and the School of Mines look forward to participating in research in a wide array of fields, from physics to geology to biology. In return, we have had the opportunity to work closely with renowned researchers from the University of California Berkeley, the project lead on DUSEL, as well as eminent researchers from around the world," Dr. Gautam Pillay, vice president for research, said. "We would like to thank Co-Principal Investigator **Dr. Bill Roggenthen** (GeolE69) for his role as the School of Mines liaison with the broader scientific community."

Roggenthen has been heavily involved in the underground lab development from the beginning, and will continue in his leadership role as liaison between the School of Mines and the DUSEL project. "This has been, and will be, a tremendous opportunity to interact with a large number of both nationally and internationally known scientists and engineers. While there is still a long road to seeing the lab to fruition, the announcement represents a monumental achievement and great cause to celebrate," Roggenthen said. "This has the potential to provide new opportunities for students and faculty to form collaborations with areas that weren't as available before."

Roggenthen, also a professor of geological engineering at the School of Mines, should know. He has already received tangible results

This is just the beginning. The School of Mines has real responsibilities to the Homestake Project in both the short—and long—terms.

Dr. Bill Roggenthen (GeolE69) professor geological engineering of his involvement with the Homestake project, as noted by the National Science Foundation's recent selection of Roggenthen and faculty from University of

California Berkeley to conduct a cooperative project on seismic research at the Homestake Mine. The three-year, \$450,000 project is the first of its kind in the world.

The project will test how much a 3D array of seismometers will improve sensitivity. Roggenthen hopes to advance seismology and understanding of the deep interior of the Earth.

Homestake is a perfect fit for this project because of the unique access afforded Roggenthen and his team. With a 3D array, it is necessary to have the ability to distribute seismometers throughout the area, and this is possible at the mine. According to Roggenthen, the project will give them unique insight into how the facility behaves.

Roggenthen isn't the only School of Mines researcher doing studies at Homestake. Dr. Sookie Bang, professor, chemical and biological engineering, is researching thermophiles – microorganisms that live underground at high temperatures. And Homestake, because of its





depth, is the best place to study them.

The introduction of outside influences through the mining operation would have interacted with the once isolated microorganisms, possibly causing mutations that have never been seen before. As the thermophiles grow they produce enzymes and antibodies. These enzymes are thought to be able to sustain higher temperatures than normal, making them very valuable in cellulose material degredation, a necessary process in ethanol creation. The ability of these microorganisms to withstand the higher temperatures has the potential to make ethanol production more efficient.

Dr. Rajesh Sani, assistant professor, chemical and biological engineering, is also studying thermophiles. His research centers on the treatment and generation of energy through microbial digestion systems using these microorganisms. Cellulosic fermentative bioproducts, such as ethanol, have the potential to reduce gasoline consumption. High potential microbes, such as thermophiles, degrade cellulosic waste at greater rates than normal, making production of the bioproducts much more efficient.

Sani's studies have shown that these culturable, unique cellulose-degrading thermophiles are present in the Homestake Mine.

These projects are just the beginning of what looks to be a long and beneficial partnership with the DUSEL project.

Roggenthen agrees. "This is just the beginning. The School of Mines has real responsibilities to the Homestake project in both the short- and long-terms," Roggenthen said. "In addition to the work that our researchers are doing there, we have the opportunity to provide guidance, oversight, and capabilities, and also to interact with other projects."

Team Successes

At the South Dakota School of Mines and Technology, team successes are just as important as those achieved by individuals. By working together, students learn skills such as participation, organization, and leadership that will be invaluable when they enter the workplace.

Competing teams range from discipline-specific (industrial engineering students competing for the National Scholar Award for Workplace Innovation & Design) to multi-disciplinary (freshmen students winning the 2007 EntrepreneurshipWeek USA Challenge). In addition, students in the Center of Excellence for Advanced Manufacturing and Production (CAMP) continue their tradition of developing technical skills in real-world situations that involve fundraising, planning, deadlines, and international competitions.

2007 Aero Design West Competition

The School of Mines team captured second place in design at the competition. They also took fourth place in flight points and sixth place overall. The School of Mines took first place overall at the 2005 and 2006 competitions.

The team members: Yasmin AbuAyed (ME, Big Lake, Minn.), Casey Bergstrom (MetE, Williston, N.D.), Kelsa Christopher (ME07), Camdon DePaolo (ME, Casper, Wyo.), James Kenney (IE, Rapid City), Gustavo Hernandez (ME07), Jon Hurd (ME07), Eric Musil (ME, Huron), Tiffany Pavek (IE07), Lyndsey Penfield (ME, Olds, Iowa), Tyler Relf (ME, Rapid City), Mark Sauder (M.S. ME, Rapid City), Steve Sigdestad (ME, Pierpont), Andy Tate (IS, Hermosa), Jimmy Tomich (MetE, Farson, Wyo.), and Chris Vickery (ME, Luvurne, Minn.).

American Institute for Chemical Engineers

The ChE car team placed fourth at the 2007 regional conference.

The team members: **Ben Bangasser** (ChE, New Hope, Minn.), **Matthew Booth** (CE, Rapid City), **Scott Connor** (ChE, St Bonifacius, Minn.), **Alex Drewitz** (ME, Rapid City), **Nathan Huft** (ChE, Pierre), **Carly Keeney** (EnvE, Rapid City), and **Kristine Murphy** (ChE/EnvE, Rapid City).

The ChE car team placed sixteenth against 30 teams at the 2006 national conference held in November.

The team members: **Matt Booth** (CE, Rapid City), **Joseph Cass** (Math/CSci, Sturgis), **Alex Drewitz** (ME, Rapid City), **Bridget Fiegen** (ChE07), **Evan Keffeler** (GeolE, Sturgis), **Taffy Kempton** (ChE07), **Evan Mohr** (ME07), **Kristy Murphy** (ChE/EnvE, Rapid City), and **Emily Weissenfluh** (ChE, Twin Brooks).

American Society of Mechanical Engineers West Coast Human Powered Vehicle Challenge The School of Mines team placed first in design at



the competition. The competition involved sprint and endurance competitions in addition to design. The team

completed the event with an overall fourth place finish with a total of 83.75 points out of 100.

The team members: **Alex Baldwin** (ME, Rapid City), **Christian Calvert** (ME, Rapid City), **Philip Gardner** (ME, Moorhead, Minn.), **Derek Gouldin** (ME07), **Anthony Johnson** (ME07), **Alex Jones** (ME07), **Dyan Lorge** (CE, Rapid City), **Kacey Mackaben** (IE, New Underwood), **Karl Nelson** (ME07), **Brett Smoot** (ME07), and **Justin Williamson** (ME, Yankton).

American Society of Civil Engineers student conference

The School of Mines chapter finished second out of 14 schools. The concrete canoe team placed fourth overall, including top-three finishes in four of five canoe races, and third place in the canoe paper. The steel bridge team finished second overall. In addition, **Julie Abrams** (CE07) placed third in the technical paper competition and the concrete bowling team took second place.

The team members: Julie Abrams (CE07), Hannah Albertus (CE07), Eric Brandner (CE, Aberdeen), Jennifer Davis (CE /Math, Rapid City), Darren Elder (CE, Cody, Wyo.), Beau Fochtman (CE07.), Brandon Fried (CE07), Ron Green (CE07), Phillip Knodel (CE, Aberdeen), Wade Lein (CE07), William Lein (CE, Batesland), Brent Morford (CE, Brandon), Terri Morris (CE, Belle Fourche), Adam Riley (CE, Pierre), Ben Sampica (CE, Canton), Matt Samuelson (CE, Columbus, Neb.), Teresa Serie (CE, Mitchell), Vanessa Sevier (CE, Pierre), Molly Tobin (CE, Lincoln, Neb.), and Brady Wiesner (CE, Watertown).

American Society of Mechanical Engineers (ASME) student conference



teams. The teams were tasked with a problem to design and build a humanpowered device to distill water. The School

of Mines team led the pack with the most water distilled.

The team members: **Danny Duniphin** (ME, Tonopah Nev.), David Hoffman (ME07), and Seth Oliver (ME07).

2007 EntrepreneurshipWeek USA Challenge

A team of students from the School of Mines won



top honors in the national contest challenging students to take a common evervdav object and create as much value as

possible. More than 200 student submissions from across the country entered the contest that required participants to stretch their entrepreneurial muscle and create a unique, valuable service or product made with Post-it® Notes. The School of Mines students' winning idea was Carbon Post-it Notes.

The team members: Akash Adhikari (MEM, Rapid City), Lance Hildebrandt (IE, Faith), Colin Nelson (CE, Mitchell), Karmen Powell (EE, McIntosh), Caleb Skjervem (CE, Helena, Mont.), and Mark Wager (ME, Gettysburg).

Institute of Electrical and Electronics Engineers Region 5 Competition

The School of Mines team entered four robots in competition against 26 teams. Two of the robots successfully moved to the finals, eventually capturing fourth and sixth place.

The team members: Tony Adams (CEng, Grand

Forks, N.D.), Tony Amundson, (EE/CEng, Hutchinson, Minn.), Jill Anderson (CSci/Math07), Chris Baird (EE07), Alex Beverage (CSci07), Leo **Buzalsky** (CEng07), James Carlin (EE07), Jonathan Huft (EE, Pierre), Evan Hyatt (EE, Longmont, Colo.), Seth Klausen (CSci07), Ryan Kroetch (EE, Rapid City), Logan Loeb (EE, Raleigh N.D.), Steve Malsam (CEng, Rapid City), Jacob Oursland (Math/CSci, Rapid City), Kelsey Stulken (Math, Rapid City), Ben Swan (CEng, New Ulm, Minn.), Bryce TeBeest (EE07), and Mariah Tooley (Math, Platte).

2007 Mini Baja West Competition

The School of Mines' underclass vehicle finished in



seventh place and the senior team vehicle finished in eleventh place overall. The underclass vehicle also took eighth place in the sales portion

of the competition. Other placings for the senior vehicle include first in the hill climb, second in acceleration, sixth in maneuverability, and tenth in the rock crawl. They were also first overall in dynamic events and the team received a trophy and \$800 cash prize from Honda.

The underclass vehicle also took fourth place in the endurance race, seventh in maneuverability, and eighth in the sales portion of the competition. This makes for the best combined effort ever in School of Mines Mini Baja history.

Team members: Sam Becher (ME07). Rob Cass (ME. Watertown), Cody Egle (ME, Palisade, Neb.), Terry Ernesti (ME, West Point, Neb.), Jason Fields (ME, Milbank), Jordan Gab (ME, Brentford), Shane Grimme (ME, Yankton), Craig Grunenfelder (M.S. BME, Billings, Mont.), Jesse Heaton (ME, Midland), Kevin Heiberger (ME07), Todd Hoerler (ME07), Trevor Krugman (ME, Wayne, Neb.), Amery Kuhl (ME/Phys, Worthington, Minn.), Kris Lepine (ME07), Brandon Lingle (ME, Rapid City), Kris Olson (ME, Snohomish, Wash.), Matt Rayne (ME07), John Tines (ME, Venango, Neb.), Jason Williams (ME, Piedmont), Mike VanDerWerff (ME07).

Formula SAE West Competition

The School of Mines finished in sixth place overall against 80 registered teams. The competition

continued on page 33

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Around the World

We live in a global society, and it is becoming more and more critical that students gain the skills to be a part of it. In today's increasing connected world, a good engineer or scientist is one with global perspective, aware of their profession's impact on the world.

Engineers and scientists have a unique ability to work across borders — both literal and cultural — and the School of Mines is committed to promoting the global mobility of students and professors. Through study abroad programs, volunteer travels, and research experiences, our faculty, staff, and students are spreading the School of Mines message far and wide. Most importantly, their experiences give them a better understanding of global issues and the increasingly interdependent nature of the world.

CANADA SOUTH DAKOTA

SCHOOL OF MINES 8 TECHNOLOGY Cruzy, France In summer 2007, Dr. Gerald

Grellet-Tinner, assistant professor, geology and geological engineering, conducted field research in the south of France on dinosaur eggs and eggshells.

Namibia

Drs. Colin Paterson and **Edward Duke**, professors in the geology and geological engineering department, have both served as visiting professors to Namibia. The professors have also done field research in the country on remote sensing and mineral exploration.

Chile

BRAZIL

Students from Engineers and Scientists Abroad (ESA) traveled to Chile as part of a humanitarian mission where they designed a unit to supply power to a school building site for Vocations For Orphans. The students also ran wind, solar, and water sample tests.

Vega Island, Ant

A group of researchers u well-preserved fossil skel juvenile plesiosaur – a m more than 70 million yea

LEGEND

Students from 21 countries MOU/Exchange agreements/programs School of mines students studying or volunteering abroad Field Experiences Fullbright Scholars

Visiting professors

Around the World

Copenhagen, Denmark

One of the School of Mines' six exchange agreements with international institutions is with the Engineering College of Copenhagen. Dr. Duane Abata, School of Mines dean, college of engineering, acts as a guest teacher at the university for one to two days each semester.

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Taskesti, Turkey

A requirement for a geology B.S. degree from the School of Mines is GEOL 410: Field Geology, a five-week summer camp held in Turkey.

Ulaanbaatar, Mongolia

The School of Mines has a memorandum of understanding with the Mongolian Technical University in Ulaanbaatar. Also, in 2006, a group of civil engineering students traveled to the country to do their senior design projects. The students worked with Mongolian professors and students on projects which addressed critical rebuilding needs in Mongolia.

Afghanistan Four School of Mines students are currently deployed in

Afghanistan. One student is deployed to Iraq.

Beijing, China In summer 2007, John Nielson (MinE, Chancellor) interned for Taggart Global LLC in Beijing, China, dealing with coal preparation plants.

Kampala, Uganda

Dr. Thomas Fontaine, associate

professor, civil and environmental engineering, received a Fulbright Scholarship to spend two semesters at Makerere University.

Christchurch, New Zealand

Sara Hagie (ME, Cheyenne, Wyo.) spent the 2007 spring semester studying mechanical engineering at the University of Canterbury. Dr. Scott Kenner, professor and chair, civil and environmental engineering, taught a senior-level class on water resources engineering at the university in 2006.

CHIN

The New Face of Interdisciplinary Sciences

"I have definitely expanded my education by participating in an internship. By gaining that hands-on experience, I am able to build valuable relationships, learn new things, and take advantage of opportunities which will only benefit my career in law."

Jade Herman Senior, Interdisciplinary Sciences Mission, <u>SD</u>_____ The atmospheric sciences specialization is designed for students whose career goal is meteorology or atmospheric research. By working with knowledgeable faculty members, students can take course work to satisfy federal guidelines, such as the National Weather Service, U.S. Bureau of Reclamation, and the U.S. Geological Survey. This specialization also serves as excellent preparation for graduate study in meteorology, atmospheric sciences, or adjacent fields.

Business Applications in Science and Technology

In the business applications in science and technology specialization, a strong background in mathematics and natural sciences is complemented with course work in business. Through collaboration with Black Hills State University College of Business and Technology, students in this area of study complete a minor in either business administration or entrepreneurial studies. These students will be prepared for additional study toward a Masters in Business Administration or Technology Management programs.

Pre-Professional Health Sciences

A strong background in science will prepare students in the pre-professional health sciences specialization for entry into a variety of graduate and professional programs, including medical and dental schools, physical and occupational therapy programs, physicians assistant and chiropractic programs, optometry and ophthalmology specialties, and radiography or medical technology programs.

For students interested in Medical Technology (MT) or Radiologic Technology (RT), the School of Mines has an articulation agreement with Rapid City Regional Hospital, which has fully certified MT and RT programs. Students take prerequisite coursework at the School of Mines before applying to either program.

Science, Technology, and Society

The science, technology, and society specialization combines a strong science background with a firm grounding in environmental, social, and science policy issues. Students pursue a science concentration, such as environmental sciences, or a minor in a science field, which is complemented by studies in areas such as political science, history, humanities, English, or philosophy. This track will build the foundation for additional study in law school or graduate programs in science policy or public policy. In the spring of 2005, the South Dakota School of Mines and Technology realigned the interdisciplinary sciences (IS) program to give students the opportunity to focus in one of four areas to prepare for their careers: atmospheric sciences, pre-professional health sciences, business applications in science and technology, and science, technology, and society.

The IS program is designed for students whose professional goals require that they integrate knowledge from diverse fields in preparation for professional and health services careers, such as law, business, medicine, meteorology, and more. The program provides students with the world-class science education the School of Mines is known for, but with the added benefit of flexibility in a wide range of study. Individual degree design and the opportunity to study natural sciences, social sciences, humanities, and liberal arts from a broad perspective provide a well-rounded program.

"We consciously redesigned the IS degree to provide students with strong preparation for continued study at professional and graduate schools," Dr. Sue Shirley, IS program coordinator and professor, humanities, said. "Because of our excellent science curriculum, students in the health sciences track can easily meet the pre-requisite math and science requirements for medical school, physical therapy, and other allied health programs. The pre-law, or science, technology, and society students can focus on environmental and science policy issues, thus offering law schools an applicant with something different than the traditional political science approach. Additionally, all IS majors complement their math and science studies with humanities and social science course work, providing the liberal arts component that many graduate programs value in their applicants.³

The flexibility of the degree has been one of the main drawing points for many of the students that make up the new face of the IS degree program.

"This program stands out because you can personalize it anyway you'd like," **Melanie Satchell** (IS-STS, Pleasant Dale, Neb.), a sophomore and president of the School of Mines student association, said. "I have such a strong interest in human relations and the interdisciplinary sciences program allows me to work openly with people while learning about science, literature, and policy."

Senior **Robbie Rombough** (IS-BUS, Rapid City) agrees. "I was studying mechanical engineering when the newly revamped IS degree caught my eye," he said. "The opportunity to customize your education seemed really valuable. I feel like this program has really rounded me as a person. I'm not just looking at one career – the flexibility has given me tons of choices. You can do anything with a degree like this."

Another draw of the program was the School of Mines reputation.

"The School of Mines is known for their educational value," freshman **Natalie Weber** (IS-HLTH, Parkston) said. "The university is prestigious in science as well as engineering, and graduating from the School of Mines looks great on a resume."

The successful path of the revamped program wasn't just paved by faculty and administrators, however. The IS Student Advisory Board was established in fall 2006 as a way of strengthening the IS student identity on campus. A group of creative and committed IS majors were invited by faculty to serve as the first members. Their responsibilities include planning and hosting social events for IS students, motivating other IS students to participate in IS and other campus activities, participating in recruitment activities, establishing and maintaining an IS student website, and meeting with other students and channeling concerns about the degree program to the IS Steering Committee.

"The IS students are more focused than ever before," Shirley said. "Most are coming in with clear career goals, and they value the rigor that the School of Mines is known for. They're forward-looking and very enthusiastic about being IS majors."

The changes in the IS program are already gaining results. The 2007 freshman IS enrollment is up from previous years.

For more information about the IS program, visit http://sdmines.sdsmt.edu/is.

Athletic Improvements Benefit University and Community



I believe athletics are a very important part of a student's college experience.

George Dunham (ME56)



In 2006, the South Dakota School of Mines and Technology installed high-quality, state-ofthe-art artificial turf at O'Harra Stadium's Dunham Field. The School of Mines, the City of Rapid City, and the Rapid City Area School District received funding for the project proposed under the city's 2012 civic improvements component.

This synthetic turf allows for all-weather playability, intensive use, and low maintenance. More than 50,000 fans attend football games, track and field events, soccer matches, and other events at O'Harra Stadium each year.

The addition of a multi-media scoreboard also helped to enhance the stadium. But in 2007, the final pieces were added to bring O'Harra Stadium to the forefront of athletic facilities.

This fall, the Hardrocker football team and their coaches found a new home in the state-ofthe-art Dunham Field locker room. The 4,200 square foot building, located beneath the west end of the grandstands, provides 90 maple wood lockers, audio visual capabilities to watch film, offices for coaches, training area, and showers. The football team now reports to the stadium for practice and all football-related activities.

The team's former locker room space was only 800 square feet. The new locker room building also had the benefit of opening up additional space in the King Center locker room area for basketball and track teams.

The funding of \$575,000 for the project was provided by **George** (ME56) and **Nancy** (EE57) **Ward Dunham**. The School of Mines and the Hardrock Club recognized the Dunhams in 2005 for their longtime support by naming the Dunham Field at O'Harra Stadium in their honor.

"I believe athletics are a very important part of a student's college experience. A well-rounded athletics program is a window to university that the public sees through," George Dunham said. "We want to assist the university in making the athletic programs as good as they can be."

Also new to the stadium are six skyboxes. Two sections containing three skyboxes each were constructed on the top rows of the north main grandstand, one to the east of the press box, and one to the west. The cost of the skyboxes was \$172,000 and was provided by private donors at \$30,000 per box. Named boxes are **Dick Schlumpberger** (CE65), **Lowery** (GeolE51) and Mary Ann **Smith**, **Christ** (CE48) and Alice **Woods**, and former School of Mines President Richard and Nancy Gowen.

The skyboxes feature seating for six, a panoramic view of the playing field, restrooms, and satellite television. Construction began in mid-May, with the locker room completed in mid-August and the skyboxes in late September.

Campus Construction Projects 2008-2012

New Construction

Remodel/Renovation

Under Review

Surbeck Renovation Phase I

- Remodeled Square Footage: 30,000
- Estimated Cost: \$7+ million
- Revenue Sources: Up to \$9.99/credit hour increase to General Activity Fees (GAF)
- In fall 2007, students voted for a \$9.99 per credit hour increase in student fees to assist in the project. Student body voter turnout was 41 percent, and 64 percent of the students who voted, voted yes.
- The renovation will add increased student study space, improved infrastructure, and a redesigned food service area with flexible space options.

Surbeck Addition Phase II

- Square Footage: 15,000
- Estimated Cost: \$3-4 million
- Revenue Sources: \$3-4 million private
- The addition will house a Visitor and Cultural Center, providing a welcome area for campus visitors.

Paleontology Center

- Square Footage: 33,000
- Estimated Cost: \$7-10 million
- Revenue Sources: \$7 million 2008 State Laboratory Bond Bill (pending); up to \$3 million federal, up to \$3 million private
- The Paleontology Center will provide both storage of the university's world-class collection and research laboratories to expand research and development in the nation's only graduate program in paleontology.

Field House

• The School of Mines is planning an addition to the PE Center to expand practice facilities and offices. This addition is necessary to prepare for replacement of the Old Gym and to accommodate the fitness needs of Hardrocker students and student-athletes.

Housing

The School of Mines is planning for additional housing to support recent and projected increases in freshmen.

St. Patrick to St. Joseph Connector Road

Distance: ~ 0.45 mile

RFD SMITHGROUP

Estimated Cost: ~ \$2.5 million

IOWARD PET ERSON HALI

MARCH-

- Revenue Sources: \$1 million City of Rapid City 2012 Fund; \$0.5 million Federal Highway Bill; \$1 million pending
- The connector road will connect St. Patrick and St. Joseph streets, providing another entrance point to campus, access to the Black Hill Business Development Center, and additional parking areas.

Campus Construction Projects

Chem/ChemE Building Remodel
The School of Mines is currently planning

for renovations to create non-intensive laboratory research space and upgrading the existing auditorium.

> The South Dakota School of Mines and Technology is dedicated to being a leader in 21st century education. One way that is achieved is by providing students with the best facilities possible in which to learn. To that end, the School of Mines has begun planning for renovations and new construction that will make it a reality.

> The South Dakota Board of Regents also recognizes the importance of this issue, and has approved a comprehensive plan calling for new construction or upgrades to science facilities and laboratories across the public university system. In their budget request to Gov. Mike Rounds, the regents have asked for \$74.5 million in state funding for these improvements, to be bonded over time through the South Dakota Building Authority. Within this funding, the School of Mines would receive \$8 million for a Chemical and Biological Engineering/Chemistry Building and \$7 million for a Paleontology Center. Another \$42.7 million in federal and private dollars would be needed to complete all system projects.

> To access a copy of the Board of Regents announcement regarding the systemwide project; details on the proposed bonding request; and the most current information about School of Mines campus construction projects, visit: <http://sdmines.sdsmt.edu/construction>



U INOUSTRIE

Campus Construction Projects

School of Mines and Partners Announce Launch of C-Lock Technology Inc.

A high-ranking group of state, academic, and industry leaders gathered on Wednesday, May 9, 2007, to announce the official launch of C-Lock Technology Inc., a wholly-owned subsidiary of Evergreen Energy Inc., at the Black Hills Business Development Center, located on the campus of the South Dakota School of Mines and Technology. In concert with Evergreen Energy, C-Lock Technology will market an Internet-based,



South Dakota Governor Michael Rounds addresses the audience at the launch of C-Lock Technology, Inc.

patent-pending technology developed at the School of Mines that accurately quantifies greenhouse gas emissions credits, also know as carbon emissions reduction credits. Dr. Patrick Zimmerman, former director of the university's Institute of Atmospheric Science (IAS) and inventor of the technology, serves as director of technology for C-Lock Technology.

"This is a public-private initiative with a positive impact at the local, state, national, and international levels," said Zimmerman, who owns C-Lock Inc., which has licensed its process on a worldwide basis to C-Lock Technology. "It will generate local jobs, income for regional farmers and ranchers, and create educational opportunities and commercial opportunities using an environmental technology that addresses an immediate need."

C-Lock got its start as a state-funded initiative of former South Dakota Governor William Janklow through a grant to IAS. The research resulted in a patent application filed by Zimmerman. The scientists involved then supplemented the initial funding with grant money from the United States Department of Agriculture and Department of Energy to develop a system for the measurement and quantification of greenhouse gas emission reductions created as a result of management practices to remove carbon dioxide from the atmosphere and also practices that result in the reduction of greenhouse gas emissions into the atmosphere. Zimmerman and his team then negotiated with the university to obtain an exclusive license for this technology.

Subsequently, Zimmerman made agreements with Evergreen Energy, a Denver firm that has developed a process for refining coal so that it burns much cleaner. This product, K-Fuel, not only burns much cleaner, substantially reducing emissions of sulfur dioxide, mercury, and oxides of nitrogen, but it also substantially reduces emissions of carbon dioxide, a major contributor to global warming. C-Lock Technologies was formed to combine the technology of Evergreen Energy with the technology of C-Lock Inc. The result is the potential to reduce greenhouse gas emissions now through the use of K-fuel and through partnerships with agricultural producers who have the ability to grow crops and graze pastures in a way that actually removes carbon dioxide from the atmosphere and stores it as very stable organic compounds in the soil. This process of increasing soil organic matter not only cleans the atmosphere but improves soil fertility, drought resistance, and decreases erodibility. The combination of agricultural carbon sequestration plus the utilization of cleaner coal buys time for the development and construction of economically-viable longer-term global warming solutions.

C-Lock Technology Inc. is housed in the Black Hills Business Development Center on the campus of the South Dakota School of Mines and Technology, and has access to the campus' intellectual and technological resources while operating an applied science laboratory to develop cleaner coal solutions. The laboratory will support the operations of Evergreen Energy's coal refinery in nearby Gillette, Wyoming, while linked closely with the university's Institute of Atmospheric Sciences research and graduate programs.



School of Mines Student Receives Top Honors

Joshua Valder (AES Ph.D., Ballston Spa, N.Y.) received first place in the student speaker contest at the South Dakota Association of Environmental Professionals' annual meeting.

Valder presented the results of his M.S. thesis work on the Deadwood aquifer at Jewel Cave National Monument. His work was supervised by Dr. Arden Davis (GeolE79), Mickelson professor, geology and geological engineering, and Dr. Perry Rahn, professor

emeritus, geology and geological engineering. Valder received a \$1,000 scholarship for his accomplishment.

School of Mines Student Recipient of National Scholarships

Angela Setera (IE, Miles City, Mont.) is the recipient of a \$5,250 David Iden Memorial Safety scholarship from the American Society of Safety Engineers and sponsored by the United Parcel Service (UPS). The UPS Scholarships are ASSE's most prestigious.

Setera is also the recipient of a \$500 scholarship from Alpha Pi Miu, the only nationally accepted industrial engineering honor society.

Students Inducted Into Leadership Hall of Fame

Julie Abrams (CE07), Jenny Baker (ChE07), Sudip Bhattacharya (MES, Bhilai, India), Megan Dangel (CE07), Micah Peters (ME/Math 07), and Travis Walker (ChE/Math, Winner) were inducted into the university' Leadership Hall of Fame. The School of Mines Leadership Development Team created the Hall of Fame to raise awareness about the importance of student leadership and to recognize the valuable



Pictured L-R: Travis Walker (ChE/Math, Winner), Micah Peters (ME/Math07), Sudip Bhattacharya (MES, Bhilai, India), Megan Dangel (CE07), Jenny Baker (ChE07), and Julie Abrams (CE07).

contributions student leaders make. The Hall of Fame recognizes students based on their contributions to the campus community.

Six School of Mines Students Named **Tau Beta Pi Scholars**

Six South Dakota School of Mines and Technology students have been named Tau Beta Pi Scholars for the 2007-08 academic vear. Out of the more than 85 chapters in the nation with recipients, only one chapter boasts more scholars. Each student receives a \$2.000 scholarship.

The students: Daniel Deisch (EE, Elbert, Colo.), Brandon Fredrickson (MinE, Fort Collins, Colo.), Mark Horton (MetE, Wall), Cory Khoury (EE, Rapid City), Dyan Lorge (CE, Rapid City), and Melanie Vedvei (IE, Lake Preston).

School of Mines Student Recipient of **Board of Regents Scholarship**

Amery Kuhl, (ME/Phys, Worthington, Minn.) has been awarded the Marlin R. Scarborough Scholarship by the South Dakota Board of Regents.

The \$1,500 scholarship honors the late Marlin R. Scarborough, who was president of the Board of Regents at the time of his death. The Scarborough Endowment Fund annually provides a scholarship to a student at a South Dakota public university. Applicants must have a 3.50 grade point average, demonstrate leadership potential, and be nominated by their university.

Campus Briefings

Professor opens international conference

Dr. Paul L. Smith, professor emeritus, atmospheric sciences, received the American Meteorological Society's (AMS) Remote Sensing Lecturer Award in 2006 for his work in advancing the quantitative use of radar in cloud and precipitation physics. As a result of this award, he was invited to open the AMS International 33rd Conference on Radar Meteorology, held in Cairns, Australia from August 6-10, 2007, with the keynote speech, "Raindrop Size Distributions: Lies, Damn Lies and Statistics."

School of Mines Professor and Alumnus Brother Named ASCE Fellows

Dr. M. R. Hansen (CE69), professor, civil engineering, and **Dr. Frank Hansen** (CE73) were named Fellows of the American Society of Civil Engineers (ASCE) in 2006.

The rank of Fellow is awarded to approximately five percent of the society membership and acknowledges a lifetime of exceptional contributions to the tenets of civil engineering. To be eligible for consideration the candidate must be a registered professional engineer and active in ASCE for at least the last 10 years.

It is not known if this is the first time that brothers were elected ASCE Fellows, but it is almost certain that this is first time brothers were elected in the same year. M.R. Hansen went into academia after working nine years as an engineer, teaching civil engineering in Wyoming and Oregon before returning to the School of Mines as an associate professor in 1985. In 1993 M.R. earned his Ph.D. in civil engineering from North Carolina State University and became a full professor at the School of Mines in 2001. He has been active on campus particularly with the Ridgeway Award-winning Civil Engineering Student Chapter.

Frank Hansen was employed by RESPEC in Rapid City for several years, where he engaged basic research in thermomechanical rock physics for design and analyses of geologic nuclear waste repositories. In 1982 he graduated from Texas A&M University with his Ph.D. in geology/tectonophysics. In 1988 he joined Sandia National Laboratories, where he is currently a distinguished member of the technical staff.

Professor Spearheads an International Initiative to Address Global Environmental Change

In a Policy Forum article published in Science magazine on April 13, 2007, **Dr. P.V. Sundareshwar**, assistant professor, atmospheric sciences, detailed a plan for an environmental monitoring network for

India. He and his coauthors unveiled a proposal for an integrated system to monitor terrestrial, coastal, and oceanic environments across India, called INDOFLUX. The data gathered will be shared internationally to augment global efforts and will also help evaluate current and future environmental changes in the region. During an Indo-U.S. bilateral workshop sponsored by the IndoUS Science and Technology Forum, the Department of Science and Technology--Government of India, the South Dakota School of Mines and Technology, and India's Anna University, scientists from the U.S. and India developed a blueprint and overarching objectives for the INDOFLUX. The Indian government has now earmarked an equivalent of approximately U.S. \$50 Million for the next five years to implement the proposed INDOFLUX. It is anticipated that this effort will enhance bilateral and multilateral collaborative actions toward addressing global environmental change.

Science is one of the world's leading journals of original scientific research, global news, and commentary and has more than 700,000 weekly print readers and nearly 1.8 million weekly web hits.

School of Mines Welcomes Sioux Falls Liaison

The South Dakota School of Mines and Technology welcomes **Pete Roberts** as the new Sioux Falls Regional Admissions and Community Relations Developer.

Roberts, who has nearly 10 years of experience in various aspects of higher education, received a bachelor's degree in industrial technology from Iowa State University and a master's of education in adult and higher education from Oklahoma State University.

Roberts will be actively involved in all levels of student recruitment and community relations and will serve as a media spokesperson in Sioux Falls. He will also be involved with admissions, marketing, continuing education, academic affairs, alumni, and others to develop partnerships and serve the Sioux Falls and surrounding markets.

"While we all are joined as South Dakotans, there is still a physical distance boundary that creates a separation between the east and west. The Sioux Falls area, with its numerous opportunities for economic growth and prosperity, may not be aware of the benefits of utilizing the services of School of Mines," Roberts said. "I want to work with the various entities in the area to advise them about and welcome them to discover the various resources the School of Mines can offer, from graduates prepared to excel in engineering and science fields to cutting-edge research in new technologies."



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Research Notes

The School of Mines is committed to an active research program that expands knowledge, pushes technological and scientific advancement, and contributes to economic development in the state and region.

School of Mines faculty members and researchers received 72 awards totaling more than \$17.1 million during the 2007 fiscal year. The funding came from many different agencies, including the National Science Foundation, the State of South Dakota, NASA, the Department of Transportation, Army Research Laboratory, Air Force Research Laboratory, and many more.

The School of Mines is home to several research institutions and centers. Plans are currently underway to expand the number of graduate degrees and to enhance the technology-transfer office. William Arbegast, director, advanced materials processing and joining laboratory (AMP), and instructor, materials and metallurgical engineering, and **Dr. Anil Patnaik**, former assistant professor, civil and environmental engineering, received \$70,000 in additional funding from the National Science Foundation for the project, "Friction Stir Processing Industry/University Cooperative Research Center."

Arbegast also received \$30,000 from Transition45 Technologies, Inc. for the project, "Friction Stir Processing of Cast Superalloys," and \$3,000 from Friction Stir Link, Inc. for the project, "Friction Stir Link Plug Welding."

Dr. Sookie Bang, professor, chemical and



biological engineering, and **Dr**. Sangchul Bang, professor, civil and environmental engineering, received \$38,092 from the National Science Foundation for the project, "Microbial Dust Suppression."

Dr. William Capehart, associate

professor, atmospheric sciences, received

\$46,000 in additional funding from South Dakota State University for the project, "Evaluating the Effects of Institutional Change on Regional Hydrometeorology: Assessing the Vulnerability of the Eurasian Semiarid Grain Belt.'



Dr. Andrew Detwiler, professor, Institute of

Atmospheric Sciences, received \$87,912 in additional funding from the National Science Foundation for



the project, "Intergovernmental Personnel Act Associate Program Manager Assignment to National Science

Foundation."

Dr. Daniel Dolan, professor,



mechanical engineering, and **Dr. John** Weiss, professor, mathematics and computer science, received \$690,000 from the United States Department of Defense — Army Research Laboratory for the project, "UAV — Deployed Penetrating Radar for Through-the-Wall Sensing Project."

Dr. Edward Duke, manager of analytical services, Engineering and Mining Experiment Station, and professor, geology and geological engineering, received \$40,000 in additional funding from NASA for the project, "Exploration Systems Mission **Directorate Higher Education** Program."



Dr. Sherry Farwell (Chem66), research scientist



IV, Institute of Atmospheric Sciences, received \$354,593 in additional funding from the United States Department of Defense - Dugway Proving Grounds for the project, "United States Army Dugway - CBART One Year Option for Contract W911S-06-C-0010.'

Dr. Farwell and Dr. Teresa Corbin (Chem80), former research scientist II, Institute of Atmospheric Sciences, received \$44,421 in additional funding from the United States Department of Defense for the project, "IPE Assessment for Real Time Swatch Detection System."

Dr. Mark Hjelmfelt (Mtro75), chair, atmospheric sciences, and professor, Institute of Atmospheric Sciences, received \$262,603 in additional funding from the National Science Foundation for the project, "Collaborative Research: Effects of Non-Uniform Surface Conditions on Lake-Effect Systems." Dr. Jennifer Karlin, assistant professor,



industrial engineering, received \$531,739 from the National Science Foundation for the project, "CAREER: Colleges of Engineering as Learning Organizations: Implications for Student Intellectual Development."

Dr. Jon Kellar (MetE84). chair and

professor, materials and metallurgical

engineering, and Dr. Keith Whites (EE86), professor and Steven P. Miller chair, electrical and computer engineering, received \$461,948 in





for the project, "The 2010 Initiative: Science-Based Leadership for South Dakota."

Dr. Scott Kenner (CE77), chair

Research Notes continued

and professor, civil and environmental engineering, received \$314,800 from the West River Water Development District for the project, "Lower Cheyenne River, TMDL Assessment Project."

Dr. Mel Klasi (Math62), associate professor, civil and environmental engineering, received \$43,905 from the Federal Highway Administration for the project, "South Dakota Transportation Technology Services."

Dr. Charles Kliche (MinE74) and Dr. Zbigniew **Hladysz**, mining engineering and management professors, received \$16,790 from the United States Department of Labor for the project, "Mine Safety and Health Administration (MSHA) State Grant."

Drs. Kliche and Hladysz also received \$40,485 in additional funding from the United States Department of Labor for the project, "Mine Safety and Health Administration (MSHA) State Grant."

Dr. Alvis Lisenbee, professor emeritus, geology



and geological engineering, and Dr. Arden Davis (GeolE79), Mickelson professor, geology and geological engineering, received \$14,970 from the West Dakota Water



Development District for the project, "Mt. Rushmore Ouad-Geol."

Drs. Lisenbee and Davis also received \$14,763 from the West Dakota Water Development District for the project, "Rockerville Quad-Aquifer VULN." Dr. James Martin (Geol71), professor and



paleontology program coordinator, geology and geological engineering, received \$45,946 from the United States Department of Interior -National Park Service for the project, "Provide Quality Paleontological Education Experience at Pig Dig for the 2007 Field Season and 2007/2008

Academic Year." Dr. Martin also received \$1,500 from the United States Department of Interior for the project, "National Park Service / Bureau of Land Management 2007: Fossil Lake Field Paleontology School."

Dr. Anil Patnaik and Dr. Venekataswamy Ramakrishnan, distinguished professor emeritus, civil and environmental engineering, received \$4,600 from the South Dakota Department of Transportation for the project, "Evaluation of Crack-Free Bridge Decks."

Dr. Andre Petukhov, chair and professor.



physics, received \$30,000 from NASA for the project, "Studies of Spin-Charge Conversion in SI : LI Quantum Computing System."

Dr. Gautam Pillay, vice president, research; Dr. Kellar; Dr. Umesh Korde, associate professor,

mechanical engineering; Dr. Hao Fong, assistant professor, chemistry; Dr. Haiping Hong, research scientist III, materials and metallurgical engineering; Dr. David Boyles (Chem78), professor, chemistry; William Arbegast; Dr. William Cross (MetE84), associate professor, materials and metallurgical engineering; Dr. Lidvin Kjerengtroen, professor, mechanical engineering; Dr. Dana Medlin, associate professor, materials and metallurgical engineering; **Dr. James Sears**, director, Additive Manufacturing Laboratory; and **Dr. Robb Winter**, professor, chemical and biological engineering, received \$370,045 in additional funding from the United States Department of Defense — Air Force Research Laboratory.

Dr. Pillay; Dr. Fong; Dr. Boyles; Dr. Korde; Dr. Winter; Dr. Karim Muci, associate professor, mechanical engineering; Dr. Gregory Buck, associate



professor, mechanical engineering; and **Dr. Daniel Dolan**. professor, mechanical engineering, received \$1,371,000 in additional funding from the United States Department of Defense — Air Force Research



Laboratory.

Dr. Pillay, Dr. Hjelmfelt, and Dr. Capehart received \$460,502 in additional funding from the



United States Department of Defense - Armament Research, Development, and Engineering Center (ARDEC) for the project, "Advanced Atmospheric Sciences Technology and Applications to Support NAMK and NAGIK Projects."

Dr. Pillay and Dr. Michael Langerman (ME72), chair and professor, mechanical engineering, received \$240,000 in additional funding from the United States Department of Defense - Army Research Laboratory for the project, "Advanced Materials and Processes for Future Combat Systems."

Dr. Lance Roberts (CE99),

assistant professor, civil and environmental engineering, received \$10,000 from the Judy Company, Inc. for the project, "Optimizing Soldier Piles for Excavation Shoring."

Dale Skillman (ME73), associate professor, mechanical engineering and director, office of



technology transfer, received \$168,300 from Rapid City Area Economic Development for the project, "Office of Technology Transfer at the South Dakota School of Mines and Technology Administered by the Rapid City Area Economic Development Partnership Funded by the Department of Housing and Urban Development."

Dr. Steve Smith, associate professor, nanoscience and nanoengineering, received \$300,000 from the United States Department of Energy (subaward from National Renewable Energy Laboratory) for the project, "Development of Super Resolution Optical Microscopy Techniques for Visualization of Plant Cellular and Cellulose Enzyme

Activity." Dr. James Stone, assistant

professor, civil and environmental engineering, received \$6,000 in additional funding from the National Science Foundation for the project, "Degradation of Antimicrobial Agents



Tylosin and Chlorotetracycline During Swine Waste Treatment."

Dr. Stone and **Dr. Larry Stetler** (GeolE79), associate professor, geology and geological engineering, received \$303,780 in additional funding from the United States Environmental Protection Agency for the project, "South Dakota Uranium Mining Impacts Evaluation."

Dr. Zhengtao Zhu, assistant professor, chemistry, received

\$40,000 from the American Chemical Society for the project, "Charge Transfer and Charge Transport in Nanofibers of Conjugated Polymer and ZnO Nanoparticles."



Rapid City, South Dakota

April showers were greeted by two timehonored spring events — the South Dakota School of Mines and Technology Spring Concert and the Alumni Sports Weekend. The concert featured the School of Mines Concert Choir under the direction of **Dr. James D. Feiszli**, director of music and humanities professor, and the Symphonic Band under the direction of **David Mitchell**, humanities



Concert Choir performance (fall 2006)

professor. In the fall of 1993, the Rapid City Children's Chorus commissioned Dr. Feiszli to compose a set of pieces for them based on Gregorian chant themes. The resulting Liturgical Suite have now been re-worked into a mixed chorus format from their original voicing and were presented to the public for the first time during this spring concert. The Symphonic Band performed an eclectic mix of compositions, and the annual After Hours event, featuring the School of Mines Jazz Band and Master Chorale, was once again a crowd pleaser.



Nick Wald (MetE03) sets to throw alumni TD strike

The following weekend welcomed dozens back for another annual event – the Alumni Sports Weekend. Activities included the annual Golf Tournament, "pickup" basketball and volleyball games, and the annual Alumni/Varsity Football Game on Dunham Field at O'Harra Stadium. The Alumni Varsity football game was one of the best to date as each team had a solid, evenly-matched lineup. However, the game was won in overtime as the alumni scored on the last play of the game to post a 21-18 victory with a two-yard strike on fourth down from quarterback **Nick Wald** (MetE03) to **Rob Lyke** (ChE05).



Bruce Frandsen (MinE82), Rick Wass (IS96), Dave Litzen (ChE81), and Al Baue (MinE82)

Wald ended with 119 yards, completing 16 of 38. **Mike Phenicie** (ME04) led the Alumni in receptions, totaling 56 yards on two catches. Former 1978 All-American **Jim Guthrie** (MinE79) led the ground attack, carrying the ball 10 times for 44 yards. Lyke was picked as the Alumni offensive MVP with his two touchdown receptions and **Derek Colling** (IS04) was the Alumni defensive MVP. Colling had 10 tackles and a sack on the day.

Class of 1957 Reunion and 155th Commencement

Alumni who graduated 50 years ago returned for their Class of 1957 Reunion and received recognition during the spring commencement ceremony. From the 85 surviving members (originally 117 in their graduating class), 23 members and their guests from across the U.S. and even Canada gathered for three days of reminiscing and enjoyed seeing the many advances since 1957 at our alma mater. Twenty-one of the 23 attending alumni also



Alumni President **Doug Aldrich** (ChE62) greets the Class of 1957

participated at graduation, in addition to other activities on and off campus. The 1957 alumni in attendance included **Tom**

Albert (Geol), Franklin, Tennesse; Bill Benda (EE), Salt Lake City, Utah; Jim Bump (CE) Sauk Rapids, Minnesota; Keith Carriere (ME), Manchester, Connecticut; Nancy Ward Dunham (EE) Rapid City; Harland Fawcett (CE), Bismarck, North Dakota; Craig Hanson (GeolE), Montgomery, Texas; Clyde Jundt (CE), Pierre; Dorwin Larsen (ME), Flat Rock, North Carolina; Al Liffengren (ME), Surprise, Arizona; Jon Marble (EE), Minneapolis, Minnesota; Bill May (EE), Los Altos Hills, California; Bill Nissen (MetE), Salt Lake City, Utah; Charles Parks (EE), Arvada, Colorado; Willard Potter (CE), Warner; Ron Sanders (CE), Yakima, Washington; Ben Schatz (CE), Des Plaines, Illinois; Chuck Speice (GeolE), Harrison, Arizona; Jim Thompson (CE), Des Moines, Iowa; Ron Varilek (CE), Sarasota, Florida; Vern Vigoren (GeolE), Deadwood; Tom Waterland (MinE), Nanaimo, British Columbia; and Jim Wilsey (CE), Owanka.



Class of 1957 attending graduation



50- year graduates and guests at March Dake Plaza



Students describe CAMP projects to returning alumni



Donalda & **Tom Waterland** (MinE57) at the Class of 1957 plaque on M- Hill

During the same weekend, the School of Mines held its 155th Commencement, graduating more than 200 new alumni. Jenny Baker (ChE07) from Broomfield, Colorado, was the student speaker. Jenny expressed thoughts on college, classes, classmates, and the challenges ahead, while invoking Albert Einstein to impart that "Education is what remains after one has forgotten what one has learned in school." Gaurdie E. Banister, Jr. (MetE80), vice president at Shell EP Asia Pacific and chairman of Shell Todd Services in New Zealand, challenged the new graduates with the question "Are you ready for the world?" He continued his message with themes of preparedness and global issues as illustrations of what awaits those graduating. Then South Dakota Regent and alumna Dr. Kathy Johnson (Geol86) expressed the need to continue support for the private benefit and public good that equals education.

Also during the ceremony, the School of Mines honored two alumni with the Guy E. March Medal in recognition of their positive interaction with the students, the institution, and the alumni of the School of Mines, and in the spirit of **Dr. Guy March** (EE22). This year the awardees were **George F. Dunham** (ME56) and **Nancy Ward Dunham** (EE57). After receiving a bachelor's degree in mechanical engineering in 1956, George Dunham served as instructor of mechanical engineering at the School of Mines until 1957. In 1960, he co-founded Dunham Associates, Inc. with wife Nancy in Rapid City, with subsequent branch offices in Bismarck, Sioux Falls, Minneapolis, Casper, Reno, and Las Vegas. He was also co-founder of SymCom, Inc.; Rapidata, Inc.; and Meditrol, Inc. He has served as president and chairman of the board for each of these companies. Mr. Dunham has designed mechanical systems for more than 2,000 building projects throughout the United States. As a registered professional engineer in thirty-four states, he has stayed active in many professional organizations. Mr. Dunham's awards and honors include the School of Mines Centennial 100 Award, Hardrock Club Wall-of-Fame, and West River Notables. He served as national co-chair for the Foundation's Vision 2000 campaign and served on the board of directors of the SDSM&T Alumni Association. Most recently, Mr. Dunham has led the expansion and refurbishing enhancements for Dunham Field at O'Harra Stadium. The School of Mines and the Hardrock Club honored George and Nancy for their long-time support of Hardrocker Athletics with the naming of Dunham Field.

After graduating from Wessington Springs High School, Nancy Ward Dunham entered the School of Mines in 1953 at the age of sixteen. She was one of only three women on the entire campus at the time, and was the first female electrical engineering graduate at the School of Mines. She also served as the only drum majorette the School of Mines has ever had, and she proudly led the band in M-Day parades and at football games. In 1960, Nancy cofounded Dunham Associates, Inc. with her husband George. She also co-founded SymCom, Inc. and Rapidata, Inc., and each company employed numerous School of Mines graduates. As a registered professional engineer in many states, her accomplishments include the design of electrical systems for more than 1,500



Nancy Ward Dunham (EE57) and George Dunham (ME56)

building projects in the upper Midwest. Nancy Ward Dunham received the School of Mines Centennial 100 Award, served as national cochair for the SDSM&T Foundation's Vision 2000 campaign, chaired the Alumni 5-year Reunion Committee Tunnel Activities from 1960-2000, and received the Distinguished Alumni Award in 2000. Most recently, she established the Nancy Ward Dunham Scholarship, an endowed scholarship for a School of Mines student majoring in electrical engineering from a small, rural community in South Dakota, preferably someone who participates in varsity athletics.

Rapid City, South Dakota

May 16, 2007 witnessed two milestones in Rapid City, South Dakota – **Dr. Paul Gnirk's** (MinE59) 70th birthday and the 35th year of operations for RESPEC, the company Paul cofounded. Dozens of alumni, friends, and former employees gathered at the company headquarters for a grand celebration. RESPEC CEO and Past Alumni President **Tom Zeller** (ME70) led the festivities and emceed the evening with stories from years-gone-by and glimpses into the future. The evening highlight was when **Dr. Mike Langerman** (ME72), chair of



Tom Zeller (ME70) emcees the celebration alongside **Paul Gnirk** (MinE59) and **Howard Peterson** (GeolE50)

the mechanical engineering department, read the Board of Regents proclamation declaring Dr. Gnirk as professor emeritus in the mechanical engineering department at the School of Mines. The event crescendo included a roaring rendition of happy birthday to Paul and RESPEC.

The previous month, the School of Mines also recognized Dr. Gnirk at the 56th annual Honors Convocation with the Mines Award for Outstanding Public Service. Dr. Gnirk graduated from the School of Mines in 1959 with a bachelor's degree in mining engineering, and from the University of Minnesota in 1966 with a Ph.D. in rock mechanics. He taught at the



Gnirk signs Triangles' paddles in Alumni Office

School of Mines from 1963-1973, and in 1969, he co-founded the Rapid City-based research company, RESPEC, Inc. Dr. Gnirk always makes time for students, staff, faculty, alumni and many others through his dedication and service to our alma mater.

Washington, District of Columbia



Dr. Ruch, Ken Walsh and Bill Tucker (GeolE55)

Nancy and **Bill Tucker** (GeolE56) were once again gracious hosts to several travelers from South Dakota, including School of Mines President Charles Ruch, Governor's Office of Economic Development representative Mr. Jeff Brusseau, and Alumni Director **Tim Vottero** (Chem84), at the historic Washington Golf and Country Club in Arlington, Virginia. The



The Washington, DC alumni and friends

elegant Mediterranean brunch was enjoyed by all, and then followed an engaging and articulate special guest speaker, Mr. Ken Walsh, dean of the White House correspondents, who spoke to the group on the 2008 Presidential campaign. Ken has covered the presidential campaigns since 1986 and has been assigned by U.S. News & World Report to cover the current race. This was Ken's third guest appearance at the DC alumni gathering — one more and we should give him a senior hat!

Knoxville and Memphis, Tennessee

Dr. Larry Simonson (EE69) visited several alumni living in Tennessee during a trip to Knoxville for a Tau Beta Pi meeting in May 2007. **Frank Marion** (ChE55) and Larry were



Bing Kam (CE65) and Frank Marion (ChE55)



Memphis, Tennessee — Dave Gross (EX69), Dick Warder (ME58), Tim Grover, Diane Warder, Jane and Jim Gross (Chem68), Lindsay Cummings (ME00), Kathy and Dennis Roeber (ME69), and Mildred and Fred Voigt (CE51)

treated to lunch thanks to **Bing Kam** (CE65) at his Hunan's Pacifica Palace in Memphis. **Dave Gross** (EX69) hosted also hosted a few Memphis area alumni at his home on the Colonial Country Club. Then Larry enjoyed the hospitality of Carol and **Everett Bloom** (MetE63), along with alumni **Glen Madsen** (ChE50) and **Dana Peterka** (Chem67) and spouses, at the Bloom home in Kingston, Tennessee. Special thanks go to Larry, all alumni hosts, and those in attendance. It always makes travel better to receive such warm welcomes around the country.



Dr. Sally Ann and **Dana Peterka** (Chem67), Jo and **Glen** Madsen (ChE50), and Carol and **Everett Bloom** (MetE63)

Sioux Falls, South Dakota

The 10th Annual Sioux Falls Area Golf Tournament and Dinner was held at the Dells



Dells Rocky Run Golf Course - nice up!

Rocky Run Golf Course in Dell Rapids on a beautiful July day. The four-person scramble included alumni and friends of all skill levels. Afterwards, the group enjoyed a dinner at the course club; an introduction to Pete Roberts and his role to lead the Sioux Falls recruiting and public relations efforts; and the hospitality of Rob and **Kari Karst** (CE86) for a post-dinner gathering at their beautiful home on the 16th hole. Thanks go to **Dean Herll** (CE92) and all the Sioux Falls "brothers" that help keep the flame burning East River.



Pete Roberts greets alumni and friends

Seattle, Redmond, Bremerton, and Fremont, Washington

August found Alumni President Doug Aldrich (ChE62) "Sleepless in Seattle" on a four-city tour of the Pacific Northwest and meeting many alumni and friends of all ages. The Seattle, Washington Area Chapter has been longtime anchored by the dedication and direction of Elinor and Jack Meeker (EE47/ME48). Fortunately, this trip coincided with a celebration of Elinor's birthday, complete with flowers and the Saturday luncheon group's singing of Happy Birthday. Doug also visited alumni in Redmond, Washington and traveled across Puget Sound to rekindle old friendships and establish new ones during an informal gathering at the Boat Shed in Bremerton, Washington.



Jack Meeker (EE47/ME48) and Elinor — happy birthday!



Doug Aldrich (ChE62) enjoying the sights of Seattle



Owen Tripp (ME50/MinE51) with Doug Aldrich (ChE62)



The Bremerton, Washington Boat Shed crew



Alumni President **Doug Aldrich** (ChE62), Past President **Jack Meeker** (EE47/ME48), and President Elect **Marlene Nelson** (ME74)

The journey culminated in Fremont, Washington just north of Seattle at the New Belgium Brewing Company's Tour de Fat and its unique folly into "relevant irreverence" where the vibe included a bike parade, beer garden, and marching band. However, the main reason for this destination was to join alumnus **Steve Morgenstern** (ME83) and experience his kinetic sculpture called the Spirit of Muckle Flugga.

The Spirit of Muckle Flugga, simply put, is a human-powered all-terrain vehicle. It is designed to traverse water, mud, swamps, hills, ferry boats, city streets, and best of all – flat pavement. The principal builders were Steve Morgenstern and Charlie Bodony with nearly 100 others contributing in one form or another. The artwork by Brook Delagarza was



Steve Morgenstern (ME83) and Doug Aldrich (ChE62) flying the Hardrocker banner

finished over a one-year period with an original painting on each wheel.

The Spirit of Muckle Flugga is constructed of thin plywood with a hollow structure consisting of a series of enclosed triangles, almost like a honeycomb. The wheels are 72 inches in diameter and completely watertight with a draft of 30 inches when floating. Each wheel has more than 400 pieces. The only solid wood components are the "rails" where the seats and drive trains are mounted. The Spirit of Muckle Flugga is arranged so each person powers their own wheel via a 15-speed bicycle drive train — just like a mountain bike, only bigger.

The brake system is hydraulic with a single master cylinder and a disc brake for each wheel. The hitch is designed for dual-action freedom of motion making articulation possible. The steering wheel uses a wire rope attached to a steering wheel very similar to those used on motor boats. The Spirit of Muckle Flugga is 15 feet in length, just less than eight feet in width, and weighs a mere 1,600 pounds.

Steve currently is building Spirit of Muckle Flugga II with the same basic design using aluminum wheels. We are grateful for the opportunity to test drive this incredible machine while traveling to the Pacific Northwest. For more information about Steve's kinetic sculptures, email him at <muckleflugga@comcast.net>.

Ketchikan, Alaska

Alumni of the South Dakota School of Mines and Technology met in the "Salmon Capital of the World" — Ketchikan, Alaska — on a beautiful August 11, 2007 day. **Seth Brakke** (CE02), E.I.T. and inspector for the City of Ketchikan Department of Public Works, sent notice of the gathering along with a photo. Thanks go to all the hardy Hardrockers — north to south, east to west, and young and old that share the School of Mines alumni spirit around the globe.



The Spirit of Muckle Flugga with Steve Morgenstern (ME83) and Doug Aldrich (ChE62)



Ketchikan, Alaska — Josh Borns (ME05), Brian Tideman (CE05), Jake O'Hara (CEng02), Harvey Hansen (CE71), Seth Brakke (CE02), Garret Johnson (EE02), Dakota Longbrake (CE03). Present but not pictured: Brett Hanson (ME01), Mike Dorman (ME03), and Colby Brakke (ME, Presho).

Brighton and Midland, Michigan

Just outside the Motor City, Steve and **Stacie Sattler** (IE93) welcomed alumni and family to their home in Brighton for a Sunday barbeque on a great fall day in Michigan. The stories and food were abundant throughout the afternoon



Brighton, Michigan — Sharon and **Butch Hasenwinkle** (EE61), **Loren Anderson** (EE65), **Stacie Sattler** (IE93) and Steve Sattler, and **Robb Peterson** (IE96) with Jodi, Rayleigh, and Quaid

during a wonderful gathering in suburban Detroit. The next stop in the Great Lakes State was Midland, where Alumni President **Doug Aldrich** (ChE62) and chemical and biological engineering department chair **Dr. David Dixon** (ChE78) joined Foundation Vice President **Brad**



Midland, Michigan supper – Richard Adam, Tami (Heilman) Adam (ChE98), Bret Horgen (ChE97), Steve Clark (ChE73), Tom Jackson (ChE97), Lori Stark-Kasley (ChE82), Doug Aldrich (ChE62), Jodi (Jibben) Metzler (ChE98), Sid Hansen (ChE68), Kala Keith (ChE07), Roger Roehl (ChE66), Jenny (Hansen) Ranville, Dan Hammarsten (ChE06), Mike Montoya (ChE07), and Dave Dixon (ChE78)

Johnson (EE92) and Alumni Director **Tim** Vottero (Chem84) in welcoming alumni and friends from the Tri-City area. The lunch and supper events returned President Aldrich and Dr. Dixon to their old Midland "stomping grounds" and to a warm welcome from alumni of all ages. Thanks go to all who had time to greet our School of Mines visitors.



Midland, Michigan lunch – Jon Putnam, Doug Aldrich (ChE62), Anne (Larson) Putnam (ChE05), Vivian Skaug (Chem02), Steven Holty (ChE98), Janice Kohlbrand (ChE74), Byron Wolf (ChE87), Amy Kozel (ChE99), Dave Dixon (ChE78), and Kirby Kozel (ChE99)

Orlando, Florida

It was a sunny, humid day in Tampa, Florida this fall. The alumni had their fill of barbeque



The Florida "fun- in- the- sun" group. Back row: Ron Jeitz (CE69), Gary Simon (CE73), Sandi Simon, Eduard Kouadio (M.S. GeolE90), Curt Eichling, Patti Winkler, Tom Winkler (CE79), Scott Letasi (GeolE00), and Sabrina Letasi; Middle row: Larry Schmaltz (CE79), Jim Schuh (CEng04), Robyn Pekas, Wayne Echleberger, Jr. (CE56), and Brad Pekas (GeolE85); Front row: Juan Villa (GeolE89), Billie Stone, Arling Christensen (EE50), Carolyn Peterson, and Marvin Petersen (Phys48).

pork and chicken with all the usual sides. **Ron Jeitz** (CE69) and **Wayne Echleberger**, **Jr**. (CE56) updated the group on the recent events and news from the college. Everyone visited with old and new friends, and a good time was had by all. Special thanks go to Robyn and **Brad Pekas** (GeolE85) for their tireless support of this recurring event for Florida alumni and friends.

Team Successes continued from page 9

consisted of eight separate events including design, cost, manufacturing, sales presentation, skid-pad, acceleration, autocross, and endurance. Of these



events, the team took tenth place in sales presentation, tied for sixth place in design (which marks the School of Mines team's

first time in the design semi-finals), sixth place in autocross, and seventh place in endurance. The team also placed third in the Design Communication Award presented by Autodesk.

The team members: Chris Atkins (ME, San Diego, Calif.), John Farmerie (ME07), Scott Ferris (ME, Archer, Neb.), Jason Fields (ME, Milbank), Aaron Guliuzza (ME, Rapid City), Clay Hammock (ME/CEng, Sturgis), Chad Kirby (ME, Rapid City), James Lunders (ME, Rapid City), Andy Pautsch (CSci, Gaylord, Minn.), Clay Pojorlie (ME/CEng, Grassy Butte, Neb.), Nolan Pray (ME, Sioux Falls), Nick Proceive (ME, Belfield, N.D.), Casey Ritz (ME, Mandan, N.D.), Mark Sattgast (ME, Huron), Wes Snaza (ME, Webster), Adam Steffes (ME, Bristol), and Nathan Zastrow (ME, Big Timber, Mont).

SAE Clean Snowmobile competition

The School of Mines' alternative fuel vehicle (AFV) team placed second in the zero emissions (electric snowmobile) category of the competition. The team received first in the draw bar pull event, the noise event, and the cost evaluation. Because of these accomplishments, the team was declared the



Rookie of the Challenge team.

Team members competing: **John Capra** (ME07), **Seth Holloway** (EE, Rapid City),

Corey Kauk (ME07), **Anthony Malon** (EE, Rapid City), **Nick Novotny** (ME07), **John Phelps** (ME07) and **Alan Turbiville** (ME, Rapid City)

2007 International Aerial Robotics Competition

The School of Mines unmanned aerial vehicle (UAV) team tied for second place at the competition. The team took first place in the 2006 competition. The School of Mines received second place in the static events by winning the award for best technical paper with a score of 100. It was the first perfect score awarded to a paper in the 17-year history of the competition. In addition to this, the team received honorable mentions for their presentation as well as for innovation of design.

Team members: **Raunaq Bhushan** (CEng, Rapid City), **Andrew Brady** (ME, Rapid City), **John Heiberger** (ME, Rapid City), **Jason Howe** (M.S. EE, Spring, Texas), **Jake Oursland** (Math/CSci, Rapid City), **Aliyah Sanders** (ME, Rapid City), **Mark Sauder** (M.S. ME, Rapid City), and **Justin Williamson** (ME, Yankton).

National Scholar Award for Workplace Innovation & Design

The School of Mines team took the first place award in the competition for their Universal Box Taping Device. The purpose of the NISH National Scholar Award for Workplace Innovation & Design is to encourage college students to design creative technological solutions to barriers that prevent people with disabilities from entering or advancing in the workplace.

The team members: **Angela Setera** (IE, Miles City, Mont.), **Clark Nelson** (IE07), **Nicole Gaffney** (IE07), and **Chris Setera** (IE, Miles City, Mont.).



Area Meetings

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Did You Know? Custer State Park superintendent Richard Miller estimated between 11,500 and 11,700 people attended Custer State Park's annual Buffalo Roundup held on Monday, October 1st, 2007.

Journalists from 18 countries were among the various media snapping photos and shooting video.

- Rapid City Journal

The Hardrock Fall 2007

1930's

Lester Basham (MetE34) is living in retirement home. If you would like to write him a note, his address is 727 SW Rogue River Ave., Grants Pass, Oregon 97526.

Ernie Thurlow (Geol39) from Wickenburg, Arizona, wrote to us recently, "Tim, sadly shortly after receiving the Hardrock Spring 2007 — Rose Marie, my partner of some 65 years, passed away on April 28. I have wonderful memories to keep those years alive. I just returned to Wickenburg after spending two weeks with each of our children and seven grandchildren from Chester, Pennsylvania to Spokane, Washington, celebrating my 90th birthday in Spokane with a round of golf with two sons and a son-in-law. Hi to Bob Haedt (MetE40) for his challenge a year ago!! (RE: golf) The attached pics are for your disposal - maybe in your 'who are those guys?' I don't know but what Gene Woodle (ChE70) is a son of Merlyn Woodle (MinE39). Our careers met briefly on the Minnesota Iron Range in the 60s. Let's keep in touch. With kindest regards. Ernie Thurlow, P.S. Digging these pictures out was prompted by the article on M-Day in a recent Hardrock that brought back a flood of memories." (As a footnote to Ernie's letter, we are saddened to note that **Bob Haedt** (MetE40) passed away last spring. His memorial appears



Ernie Thurlow (Geol39), Ira Stanley (CE39), and Merlyn Woodle (MinE39) holding Class of 1939 plaque on M-Hill



Setting the Class of 1939 plaque in place – **Joe Garrett** (CE39) in background right and **Ernie Thurlow** (Geol39) in background center

later in this issue. Special thanks go to Ernie for his prolific Class Notes from the 30s. Thanks also for the great "pics" from M-Hill. Hang in there, Ernie — you are truly an inspiration to all of us!)

Earle Wells, son of Walter **Plummer "Paul" Wells** (ChE38) emailed last spring, "I was visiting my father recently, and he showed me your beautiful alumni magazine, The Hardrock. We browsed through the sections, especially noticing the 'Class Notes' and 'Memorials' sections. I think he was especially interested in these since he is 92 years of age now. I thought you might be interested to receive an update on Dad for your 'Class Notes' 1930s section. Paul recently relocated to Provo, Utah with Margaret (Cresap) Wells, his wife of 60 years. Paul served with distinction as the city chemist for the City of Aberdeen, South Dakota for 30 vears, until his retirement in 1976. He also spent four years serving in the Chemical Engineer Corps during WWII. Having just celebrated his 92nd birthday, Paul has enjoyed his retirement years, during which he has seen his family grown to include nine children, 50 grandchildren, 30 great-grandchildren, and one great-great-grandchild." A sincere Happy 92nd Birthday goes to Paul and special thanks go to his son Earle for the kind note and update.

<u>1940's</u>

Romauld Bachmayer (ChE40) celebrated his 90th birthday in October of 2006 with family and friends.

Lloyd "Doc" Carlson (MetE42) phoned the Alumni Office recently from Beaver, Pennsylvania to visit for awhile and set the record straight about his nickname. Lloyd received a black briefcase for

his birthday one year during high school. Since it resembled a medical bag, everyone started calling him "Doc" and it stuck. He brought it (the bag and the nickname) to the School of Mines and used to carry his books, among other things. Although he has seen his share of doctors throughout his life, he never did attend medical school (wink, wink). He retired from St. Joe Resources Corporation in 1985, and at age 80 (in 2000) he was still sailing his Albacore. Doc also reminisced about Professor Bancroft Gore and the Chrysler 'one-eye' that he used to drive. He also expressed his congratulations to fellow MetE Dr. Dean Starr (MetE43) for receiving the **Distinguished Alumni Award** last year. Thanks go to Doc for his Hardrocker spirit and for keeping us informed on the School of Mines history.

The Alumni Association received a letter from Edward Deland (ChE43). "First, I'd like to thank the Alumni Office for the thoughtful greeting card on my 85th birthday. Then, maybe a small report: but for the fact that I just clobbered my knee reef diving in Cozumel where my daughter was recently married. I'm rebuilding my '67 Mustang that I bought new for \$2,700. Now, looking back, certainly among the most cherished and favorite memories are from the years on the Mines campus in Rapid City. Though I went on to a doctorate in mathematics, nothing has

stood the test of time better, or more usefully, than that early (ChE) engineering experience. I use it, no question, everyday. It's a way of looking at the world and figuring out a behavior that, unfortunately, most folks simply do not have available to them. Of course, I now envy the students studying the tremendous technical advances of the past 50 years. How different the challenges must be from the way they appeared to us. We expect this exponential expansion to continue, so try to imagine the result 50 years from now when current students have made their contributions. My life has been spent at research or university campuses and I certainly can recommend that, but the exciting developments are done in the field, for example e-mail. Incidentally, I would very much like to hear from my classmates or current students at <edeland@ucla.edu>."

Warren Finch (GeolE48) retired in 1995 with almost 50 years experience, lacking a couple months, and completed his 11th year as emeritus in 2006. In October 2006, he decided to more fully retire. He passed his USGS Representation to the International Atomic Energy Agency Uranium Group, whose annual meeting in June 2006 he attended in Vienna and his position as the USGS Uranium **Resource** Specialist to his colleague, Jim Otton. His emeritus duties now are as a consultant on uranium, which

with the price of uranium at \$72 a pound is in a third uranium boom. In June 2006, he and his wife Mary spent three weeks on a Grand Circle Travel Tour of Italy, including Mt. Vesuvius, Pompeii, Isle of Capri, Naples, the Almalfi coast, Rome, Costello di Oliveto and the Chianti wine country in Tuscany, Pisa and Lucca, the Basilica di Santo Croce and tombs of Renaissance luminaries, including Galileo, statue of David in Florence and Piazza San Marco, and a gondola ride in the canals of Venice. Their son married an Italian, the first Italian in the Finch family.

Robert Haedt, Jr. (MetE40) sent us a note. "I am glad to see by the Fall *Hardrock* that Gale Hanks is still alive and kicking. Our four years together at the School of Mines, 1936 to 1940, were great times and lots of memories. I am fighting prostate cancer with hormone therapy." (We are saddened to report that Bob passed away this past May. His memorial appears later in this issue.)

For 50 years of membership in the AIME, **Ralph Henry** (MinE47) received a Legion of Honor Pin in 1990.

An update from **John Overby** (EE48): "It seems since we moved to our new home we have been in a state of health problems. First my open heart surgery, then Linda having

cancer. She went through a series of chemo, then had a stem cell transplant, and now is in remission. Then I fell and broke the hip bone and had to have it replaced and was in rehab two months. I was home a few months doing well when I fell backwards picking apples and had three pelvic fractures, so I was back to rehab. I am having a slow recovery. The grace of God was with us all the time. We are well blessed. We are enjoying our new home. It has been a little more than three years since moving here. It is hard to believe the time passed so fast. We have wonderful neighbors that keep an eye on us. Linda and family all live in Coulee Dam. All of the boys are living close to Linda and Phil. Steven, the second son, is married and has three little girls. John has joined the Hansen family and living nearby. He bought a 51acre farm." (Shortly after receiving John's note, we received word from his wife Beatrice that John passed away quietly from cancer in March 2007. Her note is paraphrased later in this issue as a memorial to her beloved husband.)

The wife of **Kendrick Scofield** (EE42), Anne, passed away January 24, 2006. They have been married nearly 65 years.

The Alumni office received a letter from **Nathan Steinbach** (MetE43). "Enjoyed a visit with **Dave Gnirk** (ME74) during his stop in Yankton. I am always interested to learn about the latest campus news and the old acquaintances. I was pleased to learn that two friends, Dr. Bill Hughes (EE49) and Dr. Dean Starr (Mete43) were among the 2006 **Distinguished Alumni** honored. I keep in contact with same of the other former miners, including Norbert Vinatieri (MetE43) in California and wonder if the Hardrocker Football team missed a... On a January 29, 1943 the first class of 1943 graduated. We were caught in the WWII accelerated program due to the need for engineers. No summers off: junior on Friday, senior on Monday, and graduation in January instead of May. Memories!"

A note from **Robert Winkler** (CE43): "My wife of 52 years, Joan, died in 2005 and I married my next door neighbor in Florida that I have known for 22 years. We were married in December of 2006 in Sundance, Wyoming. I still play tennis doubles in Florida. Kathy is also a good tennis player when her shoulder permits."

<u>1950's</u>

Roy Appleby (EE54) is looking forward to visiting us again next year.

Fred Beeman (GeolE50) and his wife celebrated their 60th wedding anniversary in June.

Kathleen Braun (Math59) and Charles Braun (Chem59) enjoyed seeing Larry **Simonson** (EE69) twice this year. Larry stayed with them for a couple of nights and they saw him again in Arizona.

Art Childers (CE51) hopes to visit "Mines" this summer.

In May 2007 **Dr. George Garlick** (EE58), was a commencement speaker at the University of Nebraska.

At Iowa State University **Max Gassman** (ME56) teaches a course on "Hydraulic Power Systems." He uses a book that he and two other faculty members wrote. The title of the book is Hydraulic Power Systems Analysis. The book was written for use in teaching 400 and 500 level university courses and is useful for engineers in industry also. Max worked at the John Deere Product

HYDRAULIC POWER SYSTEM ANALYSIS



Engineering Center, Waterloo, Iowa for 30 years before joining ISU. He gained an appreciation and knowledge on fluid power while designing and developing Deere machinery.

J. Robert Hamilton (CE50) has been blessed with 14 grandchildren and four greatgrandchildren. Everyone in their family, including his wife Mary, is in good health. In August, they celebrated their 60th wedding anniversary. Bob still remembers **Earl Dake** (CE24) with fondness. And he adds, "He was an outstanding mentor, a great friend, and a wonderful individual."

The wife of Bob Hayes

(MinE51), Barbara, passed away December 1, 2006 in Fresno, California. A short time later, Bob's son David Hayes passed away in California on January 3, 2007. Our sincere condolences go to Bob, especially during this first year of holidays, anniversaries, and events without his beloved family members.

John Linn (ME56) rode the Wasta bus to Pierre, South Dakota in December 2006 for pie and coffee, and to see the Christmas trees at the capitol. The School of Mines tree caught his eye and he was glad to see Grubby at the top. John is happy to have an expert engineer from the School of Mines living in his neighborhood by the name of **Paul Gnirk** (MinE56) who most of you know is putting together a water system with deep wells and water lines for about 25 members in the rural New Underwood area.

Wesley Mendenhall (CE58) got tired of the big city of Phoenix and the hot summers. He decided to come back home to the Hills in 2005. He enjoys doing a little woodworking and church volunteering, as well as getting reacquainted with the beautiful country around. He also travels a lot from Boston to California to see their 11 grandkids.

In April **John Mohr** (EE56) was floating down the Grand Canyon in a rubber raft. In March, Alice and John went to California to see their newest grandson. While there, they played badminton in the National Senior Badminton tournament.

Karen and **David Papcke** (GeolE58) received the Outstanding Tree Farmer Award for Western South Dakota in October 2006. This work keeps them very busy.

Edward Tegland (GeolE59) had a wonderful time with 59ers at Jose Oshea's and he hopes that they can do it again.

A letter from **Ron Varilek** (CE57) included: "Thank you so much for putting together a very enjoyable few days for the "50-year" people. There were several guys I haven't seen since graduation and that made it all worthwhile. I think the people that didn't come would be disappointed if they knew what we know. I was particularly surprised and amazed at the quality of professors and equipment now being utilized by the students to better prepare them for industry. Again thanks for your efforts. I thoroughly enjoyed my stay and I will be back in 2010."

In spite of retirement in 1998, **Monte Widdoss** (EE59) began consulting to SAIC in 2002, still going two days per week or more, as needed, in business development for Port Security Systems. He plays golf three times per week.

<u>1960's</u>

Karl Bartel (EE68) has recently remarried. His spouse's name is Joyce.

Vincent Bertolotto (ME67) worked for about eight months in 2006 for Hamilton-Sundstrand (Div. of United Technologies) through Ingenium Technologies, a Rockford job shop. Vincent has enjoyed doing stress work on the emergency power system for the European consortium A400M military transport. He and his wife Elizabeth celebrated their 40th anniversary on Hilton Head Island with family. They have two grandsons. In February they traveled the Gulf coast from Sarasota to Houston and went boating, fishing, and biking for a couple of weeks in Northwoods of Wisconsin.

Richard Chambers (ME66) plans to move back to Rapid City, if all goes well. Class Notes

John Collier (ChE61) is now a Florida State University professor of chemical and biomedical engineering in the Florida State University (FSU) College of Engineering. His wife, Dr. Billie Collier, is the Dean of Human Sciences at FSU. They moved to Tallahassee, Florida in October 2006 to take these positions.

James Crouch (MinE68) had a visit from Tom Kuhl (GeolE68) and they had a great time. They have not seen each other for 15 years. Jim does consulting work and he adds, "The old uranium miners are being dug up by the Canadian Junior Mining companies chasing uranium."

Three Arch Partners, a venture capital firm providing emerging medical device and healthcare service companies with access to clinical, business and financial resources, announced that in recent months it has named **Michael Ellwein** (ChE61) as a Venture Partner. Ellwein has extensive experience in the medical technology industry, including 17 years at Medtronic.

After 26 years at the same address in Littleton, Colorado, Phyllis and **Merrill Evans** (GeolE60) moved to New Jersey in 2004 to be near their younger son, their daughter, and their families. They now have four grandchildren, with the last one born in August

2006. They live in gated community for seniors. And he adds, "These developments are numerous in this state. Life is comfortable; however, I miss Colorado and the friends that we left there. As I am approaching my 80th birthday in midsummer, life for me has slowed down considerably. We make an occasional trip into Manhattan to see a stage show and a trip to Atlantic City to make a contribution to Donald Trump. Casinos are not my forte as I am a poor loser. We have been blessed with relatively good heath thus far."

Michael Fischbach (ME64) is still enjoying machining engineering and his six grandsons and one granddaughter. He is planning retirement from full time work in 2008 and finding plenty to occupy his time as volunteer in local community endeavors.

David Frerk (ME61) retired February 2001 after nearly 40 great years.

Ross Grunwald (Geol64) was the very first graduate from the School of Mines to obtain a Ph.D. in 1970. He is an owner of a GeoResource Management, located in Jamestown, California. He is a California registered geologist and he offers consulting in geology, mining, environmental issues, and hydrogeology, including developing natural springs for bottled water. He has also been an expert witness on these issues. His work has taken him to many exciting and beautiful countries, including China,

Palau, Saipan, Yap, Kyrgyzstan, Canada, and Mexico. For him it has indeed been and adventure as a geologist and he highly recommend this profession to any adventurous student. Ross and his wife Barbara have two children living in Idaho, one in Wisconsin, and one in Florida. The youngest daughter lives and works in San Francisco, California.

An update from **Gary Hansen** (Chem62) included, "I am going to be 67 this year; I am still working six days a week. I have six grandchildren and all is well with the world. We still maintain a mining property near Custer, South Dakota, The Kitty #1; maybe someday we can open it."

Dr. M.R. Hansen (CE69) recently published a book on his experiences in Mongolia. Professor of civil engineering at the School of Mines, Dr. Hansen has made several excursions to Mongolia on behalf of the university, and has recruited students and built relationships with numerous people from Mongolia. The book opens with, "What am I doing in Mongolia? That is a question I asked myself numerous times, such as when I was about to sample my breakfast of vodka and cooked guts, when I was staring at the severed arm laying on the highway, or when I was about to eat the marmot kidney in order to help my own kidney. The answer to the question I also found many times, such as when I was admiring the beautiful

MONGOLIA

Where Everything is Free Range



M. R. Hansen

Mongolia by Dr. M.R. Hansen (CE69)

landscape, traveling free on the steppe, or working with the generous and hospitable people in Mongolia."

Carol and **Richard Howard** (ChE64) have 12 grandchildren: five in Pierre, two in Rapid City, three in Lake Havasu City, Arizona, and two in Juneau, Alaska. And he adds, "Our main responsibility is to visit and spoil them all. We are enjoying retirement!"

Bashir Master (ME67) is proud of being a School of Mines graduate from the year 1967! In his note he writes, "I was able to raise five children, three daughters and two sons, who covered five different Ivy schools in the country! My wife Barbara practices alternate health along with a nursing practice. Even our two physician daughters learn healing techniques from Barbara!" James Neuharth (ChE68)

retired from 3M on January 1, 2007. He enjoyed a retirement celebration with Mary and **Gerald Ries** (ChE68), Jean and **Wayne Binfet** (EE68), and Marian and **Don Orton** (EE68).

Better Biodiesel, Inc., a producer of biodiesel fuel employing proprietary production technology, in June 2007 announced that it has appointed Steve A. Nordaker (ChE68) as an independent member of its Board of Directors. Mr. Nordaker has 40 vears experience in energy finance and engineering, including 20 years in the energy group at JP Morgan Chase. Presently, he is senior vice president — finance for The Energy Capital Group (ECG).

Bruce Orton (ME61) just finished a manufacturing plant upgrade in Waterbury, Connecticut. He is heading for China to build a new plant and composites material process system. He purchased a fifthwheel camping trailer and plans on (someday) seeing a lot of the great USA. His wife Vicky is working on publishing a cookbook. Their son Alan lives in Arizona and has a fiveyear-old daughter. Their daughter Debra lives in Texas and is a mother of three.

Randy Parcel (MinE67) is, as of February 2007, officially retired as general counsel of Royal Gold, Inc. Starting in March, Randy will be doing volunteer work in Denver for The Legal Center for People with Disabilities and Older People two days a week. He will also try to elevate his golf game from hideous to merely awful, and catch up reading the books he has been purchasing over the past 10-15 years, but not getting read!

Gold Crest Mines, Inc. is pleased to announce that **Thomas H. Parker** (MinE65) has been named its new president and chief executive officer and a director of the company. Tom was also recently named to the Board of Directors for Ur-Energy Inc. Gold Crest Mines Inc. is a Spokane based gold exploration company with properties in southwest Alaska in the Kuskokwim Mineral Belt and in the Yellow Pine District of Idaho; and Ur-Energy is a junior mining company completing mine planning, baseline studies and permitting activities to bring its Lost Creek Wyoming uranium deposit into production in 2009.

Arlyn Poppen (EE68) was promoted to Associate Corporate Environmental Safety and Health Engineer with 3M in October. Arlyn and his wife Kathie celebrated their 35th wedding anniversary on a cruise to Alaska with Mo and Jim Brady (EE69). He gets together regularly with Pat and Paul Williams (EE69).

Nollenberger Capital Partners Inc is pleased to announce **Dennis Raney** (ChE65) has joined its Advisory Board.

Mr. Raney serves as a board director at four companies, and as a partner at Liberty Greenfield, an advisory firm that provides real estate, financing, and cost management services to corporations.

An update from **Donald Rinzel** (ChE61), "Despite all the global warming the Rinzel clan is thriving with eight grandchildren scattered from Florida to Chicago to the greater Southwest. Got together recently with **Bob** Stofft (CE62) and Bill Sheldon (CE61), both in Tucson, Arizona, Pete Knott (ME62) down from Mobridge, South Dakota, and Ed "Butch" Olson (ME61), former SDIC golf champion. Eight hours of 'remember when' bored the hell out of the wives but we'll do it again next year!"

On the heels of this past summer's announcement that the National Science Foundation chose Homestake as the finalist site for the underground lab, alumnus, Mines' professor, and coprincipal investigator on the Homestake proposal Dr. William Roggenthen (GeolE69) and his colleagues were approved for a \$450,000 experiment at the mine. They will be testing how much improvement you get with a 3D array of seismometers in terms of sensitivity. The project will be the first of its kind in the world and perhaps

will become a unique part of the mine's facilities. The NSF announcement in July also triggers a group of scientists supporting the Homestake proposal, including Roggenthen, to receive up to \$15 million over the next three years to develop a detailed design of the underground lab.

A note from Laurence Rohl (EE66): "At this age we really start to count our blessings. My health has been great and I am still able to fly about 800 hours per year. Even though I'm not working as an engineer, my background lets me help the mechanics understand aircraft systems. My five children range from 38 to 18 in age. My first child, son Brad, is in charge of the maintenance at Last Nation Aviation. Daughter Heidi system engineer from Case Western Reserve — works out of her home for a California Internet Company. Son Rich graduated from Cornell in nanotechnology and works for Intel at Phoenix. Son Steve is a senior at Case Western Reserve and will graduate with a computer science degree. He has already started working in conjunction with school. He is the design person for a new start up company. Daughter Chelsea is a freshman at New York University's Tisch School of Arts. She's planning a second major in neural science. I have three grandchildren, ages one, five, and seven.

Nevada Exploration Inc. is pleased to announce the addition of two independent senior geologists to its Advisory Committee, namely **Kendall W. Sageser** (Min62) and Mr. Garry K. Smith. Mr. Sageser is an exploration geologist with more than 40 years of experience around the world.

On April 22, 2006 Myrna and **Daryl Schultz** (CE60) celebrated their 50th Wedding anniversary. They have three granddaughters.

New grandparents are Cynthia and **Richard Schwanke** (CE69). Their son Robert had a baby boy in December 2006 named **Landon Robert**. He weighed 5lbs. 4oz. Their son Christopher graduated in May.

Dennis Svalstad (ME69) retired and is finishing his Ph.D. at the School of Mines.

Joseph Van Loan (EX64) retired as CTO of Median Communications, the seventh largest cable television Company, in January 2004. Since then, Joseph has been traveling the U.S. by motor home.

Michael Vander Vorst

(Math68) was the featured artist this past May displaying 30 of his photos of night skies, expansive prairies, tranquil woods, and desert skies, at the OPT Underground Gallery in Oceanside, California. He also donated proceeds from the sale of prints to Military Outreach Ministries at Camp Pendleton

and in San Diego. According to the April 22, 2007 article by Linda McIntosh on the <www.signonsandiego.com> website entitled "Photographer donates exhibit's proceeds to military families," the exhibit covered "the last 10 years of his work, including prizewinning pictures, such as a forest scene titled "Shenandoah Fog", which won first place in black-and-white photography at the San Diego County Fair in 2005." His work is viewable via the <www.vandervorstphoto.com> website.

Wife of **Benton Visser** (ME67), Carolyn, received her D.Min. (Doctor of ministry degree) this spring after four years of study. Their youngest son, Aaron, is now a student at the School of Mines in mining engineering. Benton is enjoying retirement spoiling their two grandsons, Ethan and Gavin Visser.

<u>1970's</u>

Jacqueline Akerson (EE79) started new job with Weatherford in December and all members of her family were able to relocate to Cody, Wyoming from Oklahoma City. She will spend most of her time providing technical support for the drive design teams in Great Britain and China. She and her husband Ed celebrated their 25th wedding anniversary this year in April. Their oldest daughter, Megan, is in her third year at Cal Poly in San Luis Obispo, California where

she is working on an architecture degree. Their youngest daughter, Lynn, will graduate from Cody High School this spring and is thinking about pursuing either an engineering or legal degree.

Jean and Jeff Allen (ChE77) are now empty nesters and have moved to a downtown two-story loft in Peoria. Illinois. Their three children are still in school, two in law school in New York City and one in dental school in Los Angeles at WSC. They are looking forward to more traveling and find themselves quite often in Colorado where they visit their business partners Joyce and Ivan Mehlhaff (Chem74) in Woodland Park at the Town & Country Resort.

Kevin Bornhoft (ME78) changed companies and moved to Las Vegas, Nevada two years ago working for Caltrol as the Emerson Process Management rep for California, Arizona, Nevada and Hawaii. Their children are grown up. They have a fouryear-old granddaughter.

Gayla and **Lyle Brink** (CE74) have three sons. They are all married, and Lyle and Gayla feel blessed with nine grandchildren — ages one to 15 years old.

Dennis Bryan (GeolE70) is not about to retire. He is a parttime independent consultant in Industrial Minerals. He feels like he will never retire, he thinks his business is too much fun. One of his classmates, Jim Gibbons, from when Dennis attended the graduate school in Mackay School of Mines was elected Governor of Nevada. So, he was happy to be invited to the Governors Inaugural Ball!

Randy Burggraff (MinE78) moved to Nevada to mine gold. They have seven children in their family. First, Bailey, was married in June. Second, Trevor, is in school. Third, Joe, Jake and Randi graduated from high school.

Dennis Christman (ME71) is getting close to retiring on their property in Chloride, Arizona.

Martha and **Robert Erdmann** (CE74) are in process of building a new home on Enemy Swim Lake. They have moved in, but the process of finishing it along with a lot of landscaping work will take awhile hopefully by the time Bob can retire. He manages to see a lot of Mines grads in his work and travels around North and South Dakota. Old friends are always welcome anytime. His cell number is (605) 881-5545.

Joel Grace (MinE73) continues working as a project manager consultant for Grace Consulting Services Inc. He has worked for Rio Tinto Energy America at the Antelope Coal Mine for the last two years. Business is booming in the Powder River Basin with a lot of expansion and construction activity.

Class Notes

Harriet and **John Grimes** (Geol73) got their first grandchild in September 2006. In March of 2007, John had his 25th operation – second knee replacement in right knee.

On May 8, 2007 Peabody Energy announced that **Jeane L. Hull** (CE77) has joined the company in the new position of senior vice president of Engineering and Technical Services.

Donald Kellar (Phys74) sent Alumni office a note. "Our engineering department participated in two all-hands call-outs to aid in power restoration efforts following storms in November and December. We worked as crew guides for contract line crews who joined with our own crews to help put the lines back up after a heavy snow in November and high winds in December. These were the two most expensive storms in our utility's history. The work was some of the most satisfying in my career."

Richard Kiel (GeolE79) recently paid a visit to the Safford Mine where he saw Walt Griffith (CE79) and Don Keene (MinE76). Others on the project include Greg Henrikson (GeolE03) and Katie Kruger (CE03). The Safford, Arizona area is booming thanks to this new mine development. Richard is still in Golden, Colorado and working on mining and landfill projects.

Darwin Koepp (ChE74) was recently promoted to Site Manager at Invista's Victoria site. Daughter of Darwin and **Patricia Koepp** (ChE74), Angela, graduated from Tulane University couple of years ago with a master's degree in architecture. She is currently a practicing architect in Sydney, Australia where she has resided since graduation.

Susan and **James Laughtland** (CE77) recently moved to Arizona. Their son Josh graduated from Boise State in 2006. Their daughter Kristy is attending Arizona State University in Tempe.

Michael Mahoney (CE72) is still working in the Twin Cities, but HNTB Corp. allows him to work at home on Fridays. He and his wife Cindy are South Dakota residents again and he hopes to be there full time as soon as the new house is paid off. Their youngest son, Brett, joined the Army right after high school graduation last year and will finish his AIT as an interpreter this month — then he's off to Fort Hood. The older boys, Shawn and Brian, are firmly entrenched in the Seattle area. After 34+ years of marriage, they are empty-nesters. They are enjoying that and reconnecting with the Black Hills.

All is well with **Richard Rubendall** (CE79) and his family. He has been two years in the new position as Director of Commissioned Corps Personnel for the Indian Health Service. He had a recent promotion to Rear Admiral, he is busier than ever. His e-mail has remained the same at <rsrubendall@msn.com>.

Robert Sieger (CE73) recently received his 35-year service award from the U.S. Forest Service. Bob and Mary have three grandchildren in their family.

Erik Valset (EE77) spent 10 days in Bangalore, India to help train engineers at the Honeywell facility there. It was a very interesting and rewarding trip, which took place in February/March this year.

David Wentland (CE73) and his wife Jaelene along with their two daughters and son in law spent two weeks in the Fiji Islands where David and Jaelene were in the Peace Corps 30 years ago. Most of his projects (sea walls, jetties, water supplies and a community center) are still intact and functioning well.

1980's

Narasimhan Ayyangar

(ChE89) has an eight-year-old son, Arjun, who is a classical pianist. He has achieved a bit of fame with several TV appearances since age four. He has posted a few of his performances on <www.youtube.com>.

John Bauler (ME88) is still working for Caterpillar Inc.

after 19 years and is living in Decatur, Illinois. He is running several projects on marketing, supporting, and servicing a line of new technology trucks. Developing these strategies is keeping him busy.

James Bier (CE84) has been transferred by his company, Wolverine Fire Protection Co., to their branch office in Cumming, Georgia, north of Atlanta, which is rapidly growing. James is manager of this office that performs fire suppression and fire alarm services across the Southeast.

Daniel Brett (EE81) married Laurie on September 30, 2006. Laurie teaches fourth grade in Salt Lake City and has two sons, Bryan and David. Dan still works at Northrop Grumman Navigation Systems Division as the systems engineering group leader.

Angie and **Patrick Burke** (EE87) have been married 19 years and they have four kids, Kayle (17), Mary (15), John (14) and Pete (eight). Pat is a senior technical lead for Wells Fargo Mortgage and owner of Comartec Telephone Innovations.

Tri-Valley Corporation has appointed **James G. Bush** (Geol82) as vice president, exploration of its whollyowned subsidiary, Tri-Valley Oil & Gas Co.

Ken Chisolm (EE85) was appointed the chief engineer for RME (Rocky Mountain Engineering) within Raytheon. The last 12 years **William Davidson** (ME82) has been living in Brookings, South Dakota. His wife Rose has a successful veterinarian business in town, and their son Luke started college last year. He has been working for Trane for 10 years now. Presently his position is solutions business development leader and he travels extensively.

Charles Gibbs (ME88) is happy to be back to Omaha! Their ranch is still alive and well.

John Harrison (ME83) and his sister Michele opened a company in their hometown, Mobridge, South Dakota. The company makes John's invention, the Smart Nozzle. It is a device that uses Global **Positioning System and** computer data to make sure ground sprayers do not release too much pesticides and fertilizers on agricultural land. "That's good for the land's health and also good for producers' billfolds because it cuts down on chemical and fertilizer costs," the Harrisons said. "The company is in the process of patenting the nozzle, which is more efficient than competitive products made by big corporate names in ag technology."

After 21 years with Ingersoll Rand, **Jeff Heinemann** (MinE86) has joined Sandvik Mining and Construction as their vice president construction US/Canada. Jeff and his family live in Roswell,

Georgia.

Powertech Uranium Corp. is pleased to announce that **Mark Hollenbeck** (ChemE82) has been appointed as its project manager for the Centennial Project in northeastern Colorado and the Dewey-Burdock Project in southwestern South Dakota.

Birch Mountain Resources is pleased to announce the appointment of **Joel Jarding** (ME82) as president, chief operating officer, and director of Birch Mountain effective May 1, 2007.

Tony Jensen (MinE84) was named chief executive officer at Denver's Royal Gold Inc. in July 2006. According to a March 2007 article and interview for the Rocky Mountain News Business section, "Jensen, 46, easily slid into his new role culminating in three major acquisitions over three months totaling nearly \$125 million. Jensen's aggressive style was in keeping with the company's past growth strategy - a fact that led Fortune magazine to rank Royal Gold among the 100 fastest-growing small companies in the nation for consecutive years."

Charles Logan (MinE83) was relocated in November 2006 from Honolulu to Washington, DC. He manages the Navy's programs and policies for nuclear trained officer and enlisted personnel. He is

responsible for developing legislation and appropriations for bonuses and special pays that are key to retaining highly trained nuclear operators and officers.

Jon Maki (MetE82) moved to Mittal Steel this year and he is enjoying it very much. He adds, "It was nice to see some grads and students at the National SME Convention. Special hello to the Hill City Gang."

SunLink Corp recently announced the hiring of John Mead (EE81) to head up its electrical engineering department. "John Mead is one of the most recognized and highly recruited engineers in the solar electric field today," said SunLink CEO, Chris Tilley. John is a registered professional electrical engineer and has more 25 years experience in electrical engineering. John has spent his entire career in the field of electrical power conducting research and designing systems from highvoltage transmission to micropower electronics. SunLink designs, manufactures, and markets the solar industry's most advanced engineered products for integrating solar electric systems into buildings and sites.

BHP Billiton Petroleum announced on June 8, 2007 the appointment of **Stephen O'Rourke** (GeolE83) as president exploration for its global petroleum business. He will be based in Houston and will direct the company's worldwide oil and gas exploration activities.

Chemtura Corporation recently named **Diana Peninger** (ChE86) as their vice president, global consumer industry. Peninger is responsible for the new consumer products industry, which includes all additives important to products created for consumer markets. She previously served as Chemtura's global business director, PVC additives. Prior to Chemtura, she spent 18 vears at Celanese in increasingly responsible positions, most recently as director, glass fiber business, emulsion polymers.

James Pirtle III (MinE86) has changed employers to Kiewit Federal Group, where he is a construction project manager.

Rick A. Ross (ME81) has been with Whiting Petroleum since March 1999, joining the company as operations manager-Rocky Mountains. On May 31, 2007 Whiting Petroleum Corporation promoted Rick to vice president.

Key Technology, Inc. on June 6, 2007 announced that **James Ruff** (ME85), who held position as managing director of Key Technology BV, the Company's European operation for the past three years, is being promoted to vice president of research and development. Ruff will relocate from the Netherlands to the Company's corporate headquarters in Walla Walla, Washington.

Tim Walter (ME80), president of Dakota Valley Products (a South Dakota company) is mixing sunflower seeds with some of the same ingredients found in energy drinks. The product, called Sum Seeds, uses a special roasting process to add ginseng, caffeine, and lysine down into the kernel. Walter plans to add three new flavors — dill pickle, honey barbeque, and salt and pepper, Read more about Sum Seeds via the <www.sumseeds.com> website.

An update from **Jeffrey Weiland** (GeolE85), "I am surviving life in New Orleans, Louisiana post-Katrina. I lived and worked in Hasta for six months but moved back in New Orleans, Louisiana in February. I sustained wind damage, but I live in the oldest part of the city, which did not flood. Come and visit. We need tourism!"

A note from **Douglas Wilson** (ME89): "Misty, Katie, Zachary, and I are doing well and still living near the family ranch in Piedmont, South Dakota. Misty is enjoying staying home with the kids. Katie is six and in first grade now. Zachary just turned two last month. I have been with First Administrator Inc. in Rapid City for just over three years now where I work as the IT director."

Gregory Winker (GeolE80) sent this note, "All our hard work has paid off. Everything has come together and we are now living the good life."

On June 4, 2007 **Lisa Zacher** (Chem85) was promoted to Colonel at a Ceremony at Brooke Army Medical Center at Fort Sam Houston, San Antonio, Texas. Lisa is currently chief of the department of medicine at the Brooke Army Medical Center.



Colonel Lisa Zacher (Chem85)

<u>1990's</u>

Stacey and **Michael Arens** (CE98) are announcing that Jacob Asher Arens was born on May 14, 2006 and weighed 9 lbs. and was 21 inches long.

The Alumni Association received this letter from **Rafe Christopherson** (ChE98): "My wife Leticia and I have moved back to South Dakota. While we will miss the natural beauty of Seattle and the



Leticia & **Rafe Christopherson** (ChE98) at Angel Glacier

Pacific Northwest, we are very excited to be home in South Dakota close to family and friends. At the start of the New Year, I began working with Broin and Associates in Sioux Falls as an environmental engineer. I have been very busy keeping up with the fast-growing world of the ethanol industry. It is amazing how much more I enjoy work now that I am with a company I am excited to work for! With our relocation, Leticia and I have just purchased a home here in Sioux Falls (within a mile of my childhood home in the Southeast area of Sioux Falls)! Leticia and I now have an adorable daughter as part of our family. Her name is Elise and she was born on June 15, 2006."



Elise Christopherson

Jennifer Einrem, P.E. (CE99) was named the N.D. National Society of Professional Engineers (NDSPE) 2007 Outstanding Young Engineer. Jennifer is the airport planning coordinator. She works directly with each member of the group to organize more than 40 active environmental and planning projects. In addition to her professional accomplishments, Jen consistently participates in continuing education



Jennifer Einrem (CE99) during a mission trip to Bolivia

Class Notes

opportunities, has been active in the NDSPE as treasurer, and assists in local E-Week activities. As a professional advocate, Jen is always promoting the engineering field to young individuals. Jen also is very involved with her church, serving as a youth leader and participating in missions to third world countries.

John Foster (M.S. Paleo93) is curator of paleontology at the Museum of Western Colorado. He recently published *Jurassic West: The Dinosaurs of the Morrison Formation and Their World*. The book tells the incredible story of the dinosaurs and other animals that lived in the American West 150 million years ago. The famous bone beds of the Morrison Formation, whose rocks are exposed from

RUSTER DURASSIC JUNE DINOSAUTS OF THE MORTISON FORMATION AND THEIR WORLD

Jurassic West by **John Foster** (M.S. Paleo93) Wyoming down through the red rock region of the American Southwest, have yielded one of the most complete pictures of any ancient vertebrate ecosystem in the world. After more than a century of exploration, the Morrison continues to yield new discoveries about a time so different from our own that it almost seems imaginary. Aimed at the general reader, Jurassic West tells the story of the life of this ancient world as scientists have so far been able to reconstruct it. More information about the book is available via the <www.iupress.indiana.edu> website.

A note from **Martin Jackley** (EE92): "The U.S. Attorney position for South Dakota has been challenging and rewarding. Although we miss the Black Hills, we are enjoying our move to Sioux Falls especially with all of our TECH alumni friends and gatherings. We wish you all the very best!"

Christopher Johnson

(Chem99) resigned his commission as an officer in the US Navy and took a position with Florida Power and Light. Chris is currently in training to supervise operation of two nuclear power units that supply most of the electrical needs for the Miami-Dade area. He resides near Homestead, Florida which is great for scuba diving.

Chris Kinney (MetE97) was credited in Caterpillar's 2006 Sustainability Report. The feature details a description of Caterpillar's Remanufacturing Services along with a picture showing a patented process Kinney developed for Caterpillar that extends the lifetime of machine components. To view the entire 2006 Sustainability Report, visit <www.cat.com> click on "About Cat", then click "Sustainable Development" to view the downloadable PDF document.

Trisha (MetE95) and John Ludeman (MetE94) are proud that Briar Aniston Ludeman was born July 2, 2007. She was born 7 lbs. and 14 oz. in Lincoln, Nebraska.

Edward Mandy (CSc97) is working at Architecture Technology Corp in Minnesota and wife **Tonya Mandy** (ChE99) stays home with their two girls Ava and Petra.

Mary Nair (EE93) and Udaysankar Nair (M.S. Mtro91) are happy to announce the birth of their son, Suman Kumar Nair, on June 1, 2006. Big sister Surya has been enjoying having a playmate at home.

Robert Parker (EE95) became grandparent twice. Baby Cayden born to his daughter Laura and her husband David Tiffetty and baby Hamilton born to his daughter Lisa and her husband Hamilton Williams.

Manuel Penaloza (MetE95) changed jobs. He does not work for U.S. Steel anymore.

He now works for LSI Corp in Wichita, Kansas.

Michael Radford (EE96) sent this note: "Hard to believe that it's been 10 years since graduation! This past year has been one of the busiest of them all. In December 2005 my wife Angela and I welcomed a daughter, Naomi, into the world. I'm still working at Boeing, but did move into a management position in the Environmental Control Systems Organizations just before Naomi's birth."

Jennifer (EE96) and **Jeff Richmond** (Geol97) sent word and photo of their baby girl, Keira Dawn, born July 2, 2007, weighing 9 lbs. even, and measuring 21 inches in length.



Keira Dawn Richmond

Matthew Sittner (CE95) recently graduated from law school.

Kristine Spencer (IS98) and **Zachary Spencer** (ME98) have two children now, Logan and Nadia. They have lived in Sacramento for seven years and love the area.

An update from **Steve Uttecht** (EE92), "I have left

UPMC/University of Pittsburgh and have joined a medical products company called American Radiologist Network. I am able to work from home and do customized programming to support their operations in a number of states. Essentially, they provide medical imaging services to small hospitals, nursing homes, and mobile imaging companies. Such services include clinical reading of these images which is performed by radiologists at their home. I have also created my own consulting company specializing in customized programming solutions to medical imaging called SimpleDICOM,"

John VanBeek (CE98) and Jody Werdel were married September 2, 2006. The couple lives in Rapid City.

Darin Winterringer (EE90) sent this update: "Last March I took a new job with **Interstates Control Systems** doing HMI and PLC programming. Our main office is Sioux Center, Iowa, but we have recently opened a new office in Sioux Falls that I am able to work out of now. We do industrial control systems mostly in the agricultural field, i.e. biodiesel, ethanol, soybean extraction, feed mills, flour mills, etc. Under the Interstates umbrella we also have an electrical construction division. Dave Crumrine (CE86), another Delta Sig, is the president of the engineering and instrumentation division."

2000's

A note from John Hanneman (EE04): "Just a quick note to let you all know that I have taken a new position with POWER Engineers, a consulting firm based in Hailey, Idaho. I will be part of the Transmission & Distribution Department focusing on T&D/SCADA work for clients worldwide. I have enjoyed my last three years at Boeing Spacecraft Development Center in El Segundo, California and have worked on many different exciting projects. You really can't beat the Southern California region and the work that I do; however, the high cost of housing was the single deciding factor prior to starting work in Hailey."

Sarah Lungren (IE06) and **Jesse Suek** (CEng04) married on July 7, 2007 in Talkeetna, Alaska.



Jesse Suek (CEng04) and Sarah Lungren (IE06)

Malone Engineer, Inc, based in Rapid City, celebrated its 5th Annual 5th Anniversary Party in July 2007. That is, the original 5th Anniversary celebration was so good, they decided to repeat it every year since. So if you 'do the math' they are now in their ninth year of operation. Daughter Jen Malone (IE, Rapid City) and son Mike Malone (ME06) continue to work with their dad Steve Malone (ME83) in the company and at the grill (see photo).



Steve (ME83), Jen (IE Rapid City), and Mike Malone (ME06).

Scott Miller (GeolE05) is building geologic models for Exxon Mobil in Houston, Texas.

Vivian Nelson (EE02) and Andrew Nelson (EE02) announced the birth of their daughter, Isabelle Hsien-Yu Nelson. She was born January 9, 2007 and weighed 7 lbs. 4 oz.



Isabelle Hsien- Yu Nelson

Dr. Sarah Rouse

(Chem02/MetE02) announced her engagement to William Janosik. Dr. Rouse is currently attending law school at DePaul University College of Law and is employed as a patent technical specialist at McCracken & Frank LLP in Chicago, Illinois. The couple's wedding was listed as June 2, 2007 at St. Peter's Catholic Church in Jefferson, South Dakota.

Heather Orn and **Craig Smith** (MinE00) announced their engagement and plans to marry in September 2007 at Prince of Peace Church in Gillette, Wyoming.

An article in the March 15, 2007 issue of the San Diego State University Independent Student Newspaper The Daily Aztec by Contributor Maureen Moses mentioned graduate student **Justin Strauss** (Geol05) and his preliminary work with a set of teeth looking at the origin of mammalian carnivores and how the shearing edges developed on teeth. The work is part of research led by SDSU Professor David Archibald to study "the explosion of mammal diversity that occurred after the K-T boundary, a point which marks the extinction of the dinosaurs." The complete article "Finding what's left after the killer comet," is viewable via <www.thedailyaztec.com> website's "Archives" link.

A note from **Michael Waldron** (CSc05): "There are four in our family now with the birth of William "Liam" John Waldon on November 11, 2006."

Rebecca and **Robert Worl** (EE05) announced the birth of their first child Annabelle Worl, who was born on February 16, 2007 in Redmond, Washington.



Annabelle Worl — Future School of Mines Engineer!



EUGENE SCOTT ALLEN

Eugene Allen (ME43) passed away. He was born in Wessington, South Dakota. Eugene was veteran of the U.S. Air Force and had also retired as a Consulting Engineer from DuPont. Surviving him is his wife of 53 years, Mary; his sons Jeffrey, John and Jay; his two brothers; and six grandchildren.

MARK DUANE ALYEA

Mark Alyea (IE04) passed in June after a battle with cancer that had been diagnosed less than two months earlier. Mark was born in Clovis. New Mexico. Mark was born into an Air Force family and lived in Germany, Colorado and Washington State. After graduation in 1982 he joined Air Force for four years. After returning from a year in Korea he married his high school friend, Lori Reid. They had five children. Mark is survived by his parents, his sister and brother. He is also survived by his wife Lori, and his children Gavin, Hannah, Megan, Nathan, and Lydia Alyea all of Rapid City.

LARAMIE EDWARD ASKIN

Laramie Askin (Phys56) passed away at Mount Vernon Nursing Center. Laramie worked at the Patent Office in Virginia for 35 years.

DONAGENE MARIE ZIMMERMAN BELL

Donagene Zimmerman Bell (ChE43) passed away at home. She was educated in South Dakota public schools. Donagene worked in support of the atomic program in Oak Ridge, Tennessee and Boulder City, Nevada. She worked as a chemist for the Kansas Department of Health and Environment from 1968 to 1992. Survivors include her children Joan, Alvin, Jeff, Karl, Kathy and Frank, 27 grandchildren and 29 great-grandchildren. She is also survived by two brothers and one sister.

ANDREW JOHN BETTS

Andrew Betts (Geol42) passed away last spring. He was married to Jacqueline Fox Betts for 62 years and was father of three children, LaVette, Chris (who preceded him in death), and Gary. Andy was born in Farmer. South Dakota. While attending the School of Mines he also participated in track. He once ran a race against Jesse Owens after the 1936 Munich Olympics and beat him. Andy worked for AC Spark Plug Company in Flint, Michigan as a ceramic engineer perfecting and testing spark plugs for bombers in WWII, and he received an award for figuring out a serious problem in the production of war parts. Andv worked in the oil business as a petroleum exploration geologist for many years in the Permian Basin in West Texas. He and his family lived for 20 years in Midland, Texas. In 1967 he moved to Grants, New Mexico where he became a uranium exploration geologist for Homestake Mining Company. He retired in 1980.

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DAVID FRED BICHLER

David Bichler (ME81) passed away at the University of California's San Francisco Hospital following a lengthy illness. He worked for Siemens Water Technologies Corp. as Project Manager. Survivors include his wife, Laura Bichler, his daughter **Briana Bichler** (MetE06), his stepson, Aaron McWilliams, his mother, and two sisters.

NORMAN WILLIAM BLUCHER

Norman Blucher (CE50), a 19year resident of Sedona, Arizona, passed away last January. Norman was born in South Dakota. He is survived by his wife, Bernadine, a daughter, two sons, numerous grandchildren, and a brother and a sister.

RAYMOND MORRIS BRYANT Raymond Bryant (Math71) formerly of Aberdeen, passed

away in January while residing in Austin, Texas. Raymond was born in Des Moines, Iowa. Survivors include his wife Rebecca, children Matthew and Jenny, and a sister.

RICHARD J. BUCK

Richard Buck (ME58) passed away last summer. Dick was born in Huron, South Dakota. He retired in 1996 after 36 years with Sporlan Valve Co. in various sales engineering positions and the last nine years as manager in the application engineering department. He is survived by his wife Phyllis, and children Barbara and Richard.

HOWARD FRANKLIN COOPER Howard Cooper (MetE34) passed away of natural causes. Survivors include son Jerry, daughter Jean, four grandchildren and three greatgrandchildren. He worked in gold mining mills and placer mines in several areas of central Colorado from 1934 until 1939. In 1939 he joined Mammoth St. Anthony Ltd. in Tiger, Arizona, working as a research engineer and supervisor of smelter and copper processing plants. In 1945 he moved to Florida where he worked as an ore dressing engineer with the International Minerals and Chemical Company, From 1948 until his retirement in 1975, Mr. Cooper was with Grace and Company, where he was chemical/fertilizer complex plant engineer for eighteen years.

GEORGE DARREL DEWEY

George Dewey (Math60) passed away in Chestertown, Maryland. He was born in Seminole, Oklahoma. George worked as an insurance agent for Prudential Insurance. He and his wife Mary moved from Kennesaw, Georgia to Chestertown, Maryland in 2005. He is survived by his wife Mary, daughter Kimberli, son Randal, a sister, a brother, and four grandchildren.

HAROLD JOHN DOWNES

Harold Downes (CE42) passed away in Encinitas, California. In 1944, he served in the Pacific Theater of Operations. He completed his J.D. degree in 1948 and became a patent attorney for North American Aviation in Los Angeles, California. In 1957 he joined Lear Siegler, Inc. as vice president of their international subsidiaries. In 1968 he joined Rockwell International in California as vice president of corporate development. In 1971 he joined Lynch Communications in California as vice president, board member, and general counsel. In 1979 he retired. He is survived by his wife Mary Ann.

FRANCIS LOWELL EICKELMAN

Francis Eickelman (MetE45) passed away in April after lengthy and courageous battle with cancer. After graduation he arrived in Pueblo, Colorado to begin his 37-year career in the steel industry as a metallurgist. Francis married Rosemary Rajkowski in 1950. They had six children. He retired from the steel business in 1982, but worked as a metallurgical consultant in the rail industry for some time afterward. Francis is survived by his wife, two brothers, a sister, and his six children and their spouses.

DONALD ERDMANN Donald Erdmann (ME85)

passed away last spring. Don leaves behind his wife, Holly; children Derek, Brittney, Hailey, Dan, and Evan; and his mother. After graduation Don began his civil service career in the United States Navy. From 1985 to 1988, he was assigned as an electronics engineer with the Naval Ship Weapon Systems Engineering Station, Combat Systems Test and Analysis Department of Port Hueneme, California. Don specialized in software management as the database administrator for the design, development, training and maintenance of the department's configuration control system database and software maintenance manager for their configuration status accounting report database. In addition, he served as the Secretariat for the Medium **Range Missile Ship Class** Combat System Change Control Board and software configuration manager for various classes of U.S. Navy ships. In 1988 Don transitioned the United States Air Force working as an electronics engineer for the Air Force Material Command Nuclear Weapons Integration Division and Nuclear Support Office at Kirtland AFB, New Mexico. He was the senior system safety analysis engineer for nuclear safety technical matters involving the Peacekeeper Weapon System, Airborne Launch Control System, Improved Minuteman Physical Security System, and Ballistic Missile Automated Test Equipment. He also served as the Command's voting member and technical advisor on multiple Nuclear Weapon System Safety Group **Operational Safety Reviews.** From 1995 to 2003, Don was selected to work for the newly established Air Force Nuclear Weapons and Counterproliferation Agency. During this period. he held numerous positions as Technical Director for Modeling and Simulation,

Nuclear Weapons Technology, and Chemical/Biological Deterrence. He also provided expert scientific and engineering advice to agency and other government personnel and industry as well as intelligence/targeting support to Operation Enduring Freedom. In 2003. Don reioined Air Force Material Command in the Nuclear Weapons Directorate where he served as the Air Force's nuclear certification engineering program manager to the Air Staff, war-fighting Commands, and weapon system developers. As the certification program manager and technical specialist for Intercontinental Ballistic Missile programs, he was responsible for advising on, reviewing, analyzing, integrating, and certifying development and modification efforts involving missile system hardware and software. This function is instrumental in maintaining the stewardship of these Air Force nuclear weapon systems.

BRUCE FORTRIE ERICKSON

Bruce Erickson (CE61) of Loveland, Colorado passed away last April at a local nursing home. He married Colleen Bamsey in Rapid City in 1960 and they moved to Loveland in 1995. He was a registered Professional Civil Engineer for 46 years in South Dakota, Wyoming, and Colorado and was a member of the American Society of Civil Engineers. Bruce is survived by his wife Colleen, daughter Jeanne, sons Jay and Jon, a brother, ten grandchildren, and two great-grandchildren.

KENNETH DWIGHT FREEMOLE Kenneth Freemole (CE60), 73, passed away at Wyoming Medical Center. During the Korean Conflict, Ken trained as a paratrooper. He remained part of a close-knit friendship with three of his Korean comrades: their last vearly gathering was in October 2006. He established his Emulsified Asphalt Engineering Firm in partnership with his son David. Survivors include his wife Donna, son David, three granddaughters, and a brother and a sister.

ROBERT GERARD FULLER

Robert Fuller (ChemE36) passed away. He was instrumental in the development of synthetic rubber. He is survived by his wife Amy, daughters Elinora and Amy, four grandchildren, and four great-grandchildren. He was a member of the Masonic Order and Triangle Fraternity of the School of Mines.

ROBERT VICTOR HAEDT, JR Robert Haedt (MetE40) passed away last spring. After graduation he moved to Salt Lake City, where he met LaVon Rytting, who became his wife of 63 years. Shortly after Pearl Harbor, he joined the U.S. Navy, serving as an ordinance officer in Canton, Ohio. After the war, he earned his MBA at UC Berkeley before returning to Salt Lake, where he developed a successful career in industrial engineering and sales. Bob is survived by his two sons, Robert and David, and his two grandchildren.

CLINTON HOWARD HERN Clinton Hern (ChE49) passed away in early February. He retired in 1985 after working for 28 years in Saudi Arabia for Arabian American Oil Co. He is survived by his wife Eve and children Curtis and Lorelei.

DALLAS RAE HINRICHS

Dallas Hinrichs (Chem72) passed away in Rochester, Minnesota. He married Cathleen in 1970. He was a Clinical Chemist at the Mayo Clinic from 1972 until his death. Survivors include his wife, daughter Heather, son Matthew, one grandson, a brother, and two sisters.

ELTON JAY HOLLISTER Elton (Holly) Hollister (CE40), 91, passed away in June from heart failure. He was born in Wessington, South Dakota. After graduation he moved to Seattle where he worked as a Boeing Design Engineer for 35 years. Holly is survived by his wife Muriel, son Dick, daughter Joyce, two grandchildren, six step-grandchildren, five greatstep-grandchildren, two brothers, and a sister.

LEONARD LEROY HOWARD Leonard Howard (CE51)

passed away in Daytona Beach, Florida. Born in Ipswich, South Dakota, he lived in Mobile, Alabama until 1997. Then he moved to Florida. Leonard was an Army veteran of WWII, discharged with the rank of Tech Sergeant. He was

predeceased by his wife of 47 years, Virginia.

RALPH GORDON JOHNSON

A day after celebrating his 78th birthday, Ralph Johnson (ChemE52) passed away last December. Diagnosed with dementia, Ralph had spent the past year at Southridge Nursing Home. Ralph was born in Flandreau. South Dakota. After he was stationed in Korea as a Military Police for two years, Ralph returned to South Dakota to earn his degree. After graduation he worked for Eastman Kodak in Rochester, New York. A few years later, he returned to South Dakota and started a grocerv store business with his family. Then he sold out his share and moved to Worthington, Minnesota where he owned Ralph's Red Owl along with a few other stores in the Midwest. Later in life, he left the grocery business and worked for the State of South Dakota. He and his wife, Jo Ann. retired from the State in 2001. He leaves behind his wife Jo Ann; three sons, Michael, Eric, and Halvor; two brothers and a sister: three stepchildren; five grandchildren; and nine step-grandchildren.

HERBERT ALLEN KELLY

Herbert Kelly (GeolE57) passed away after a 13-year battle with Parkinson's disease. He was born in Huron, South Dakota. He met his wife Kay on a blind date. They first met in front of the Rapid City public library. She was standing in front of the library with a cello. They were married in 1959. Allen's work as a mining engineer brought his family all over the world. His career began in South America, first with the Cerro de Pasco Mining Co in Peru and later in Sewell, Chile with Braden Copper Co. In 1965 Allen and his family returned to the United States where he became the general mine foreman of the Homestake Mining Co. in Lead. South Dakota. At the time, this was the largest underground gold and silver mine in the U.S. In 1971, the family moved to Creede, where Allen was the general manager of the Bulldog Mountain Silver Mine. He was also a large presence in Eagle County, where he served as the last manager of New Jersey Zinc Co.'s lead, zinc, gold, and silver mining operations and oversaw the daily management of the town of Gilman. After most mining operations at Gilman ended. Allen and his family moved to southwest Virginia, where he was general manager of New Jersey Zinc's mining operations at Austinville. After retiring from mining, Allen went back to school at Wytheville Community College in Wytheville, Virginia to become a medical laboratory technician. He worked in the medical field at Lewis Gale Clinic in Salem, Virginia for nearly a decade before formally retiring to build a home in Spearfish, South Dakota. He is survived by his wife Kay, and their five children - Heather, Ross, Bret, Holly, and Dan and six grandchildren.

EDWARD WILSON KIEL

Ed Kiel (ChE41) passed away in Birmingham, Alabama this past May. Mr. Kiel was born in Cottonwood, South Dakota. He married Arvella Reed in June 1941 and spent 42 years with Goodyear Tire and Rubber Company before retiring in 1983. Ed and Arvella lived in Akron, Ohio; Gadsden, Alabama; Jackson, Michigan; and Union City, Tennessee. He was a member of Woodland United Methodist Church and active in choir and other church committees. He loved life, telling stories, and entertaining his grandchildren. Eddie was the first in the Kiel family to attend the School of Mines. He was "Uncle Eddie" to those who followed him through the School of Mines. Mr. Kiel is survived by his children, daughters Merrily, Marcia, and Marlene, son James, and their spouses and families including 10 grandchildren and five greatgrandchildren.

CLIFFORD DELMAR KISTLER Clifford Kistler (ME50) passed away in Omaha, Nebraska. Survivors include wife Lida, daughters Gail and Cindy, four grandchildren, and a sister.

WESLEY WAYNE LARSEN

Wesley Larsen (CE68) was born in New Underwood, South Dakota. He passed away last March after long battle with cancer. He was in the U.S. Navy from 1951-1954. In 1957, Wes went to Minneapolis, Minnesota where he met and married Leone in 1959. They moved to South Dakota, and after graduation he went to work at SD Concrete Products and worked there until he retired in 1990. He was licensed in the South Dakota Professional Engineer Society in 1971. Wes is survived by his wife Leone, daughters Linae and Kimberly, four grandchildren, three greatgrandchildren, two brothers, and numerous nieces and nephews.

TOM KWANHO LEE

Tom Kwanho (MetE67) passed away. He worked for U.S. Steel Corp in Gary, Indiana before retirement.

BRUSTUEN H. LIEN

Bruce Lien (Hon96) passed away in Rapid City. Bruce Lien was born in Waubay, South Dakota. He graduated from Rapid City High School in 1945, and the University of Wyoming in 1953 with a degree in business. Bruce married Deanna Browning in 1978. In 1944, Bruce, with his father and brother, co-founded Pete Lien & Sons, Inc. in Rapid City, South Dakota. He served as Chairman of the Board through 2005. Bruce remained with the company until 2006 when he sold his 50 percent share. He was most proud of constructing the lime plant in Rapid City, bringing it online in 1963. He was active in and served as President of both the National and International Lime Associations. Bruce served his country in both World War II and the Korean War. In the Korean conflict, Bruce received a direct commission to become an officer, where he served

approximately three years of overseas duty in Infantry, Tanks, and Demolition. Bruce was a longtime member of the University of Wyoming Alumni Association Board of Directors, Cowboy Joe Club, and served as President of the University of Wyoming Foundation. He was active in Rapid City, having served on the Boards of the Boy's Club, Founder of the Girls Club, the Salvation Army, the United Way, Black Hills Children's Home, and many other charitable organizations. Bruce was also an active member and supporter of the Elks Club, Cosmopolitan Club, Masons, Shriners, Jesters, VFW, American Legion, and Korean War Veterans. He was appointed by President Reagan in 1982 to serve as Commissioner on the Commission on Presidential Scholars, which he held from 1983 to 1990. Bruce received numerous recognitions and awards. Some include 1982 Distinguished Alumnus Award from the University Of Wyoming College Of Business, 1996 Distinguished Alumnus award from the University of Wyoming, 1983 Cosmopolitan International's Distinguished Service Award, 1988 Rapid City Area Chamber of Commerce "George Award," and 1993 Rapid City Area Chamber of Commerce "Granite Award." He also received the Meritorious Achievement Award for Public Service from the South Dakota School of Mines and Technology, as well as being inducted into the South Dakota Athletic Hall of Fame. In 1996, the faculty of the South Dakota

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School of Mines and Technology, in recognition of outstanding service, awarded Bruce its highest award, an Honorary Doctorate of **Business Administration. Bruce** was for many years a member of the Western South Dakota Buckaroos. He truly enjoyed riding and racing motorcycles when he was younger and always enjoyed travel, the arts, tennis, hunting, and fishing. Bruce is survived by his wife, Deanna, and his brother and their extended families.

JOHN ELDON MCCARNEY

John McCarney (CE52) passed away in California. He worked for Ralph Parsons Company and was project manager at Jeddah airport in Saudi Arabia and in Au Dhabi, UAE. He is survived by his wife Jocelyn and daughters Candyce and Kathleen.

DONALD EARL MCGARVIE

Donald McGarvie (GenE42) passed away. Donald was born in Lake Preston, South Dakota. After graduation he was employed by Wright Aeronautical Corporation in Paterson, New Jersey as a Field Service Engineer. His first assignment was at Boeing in Seattle, Washington where Wright engineers were working with the B-17 and B-29 Bomber projects. Until the end of WWII he covered commercial and military activities in the Pacific Northwest. He returned to work in the company engineering department until he resigned in 1947 to accept a sales service position with Betz Labs in northern NJ. He was

promoted to District Manager of the Eastern PA district in 1952. He was then promoted to Vice President of Marketing for Betz Entec, a Betz subsidiary, Horsham, Pennsylvania. He retired in 1982. Survivors include daughter Karen and sons D. Paul and Scott D.

RICHARD EDWARD MILLARD

Richard "Dick" Millard (CE51) died this past July in Napa, California. He was born in Yankton, South Dakota. Dick was a district engineer with Peter Kiewit & Sons from 1951 to 1981, President and COO of Shellmaker from 1981 to 1982, President and CEO of Richard E. Millard and Associates, Inc. from 1983, and troubleshooter extraordinaire to the construction industry. Dick was predeceased by his wife, Lorene. He is survived by his four children, Mark, Scott, Tamara, and Rebecca, and special friend, Judy Corrington.

GEORGE ROBERT MOE Dr. George Robert Moe,

professor emeritus, liberal arts, passed away July 6, 2007. Dr. Moe was born July 6, 1919, in Jackson, Minnesota. In 1938 he joined the United States Army, and after two years at the Army Prep School at Fort Snelling, Minnesota, he received a Presidential appointment to the United States Military Academy at West Point, New York where he earned his B.S. in June 1943. He served in World War II and the Korean conflict, and received two Purple Hearts and two Bronze Stars, plus other medals. He also served as a paratrooper in the Green

Berets. He served as a special agent in the CIC (today's CIA) U.S. Counterintelligence. He received his diploma from the University of Heidelberg, Germany in order to become an associate professor in the German Department at the United States Military Academy at West Point from 1955-1959. Also, in 1959, he was granted his M.A. from the University of Maryland. From 1959-1961 in Hamburg, Germany he represented the United States Army at the German Federal Army Staff College; then he was transferred to the American Embassy in Bonn, Germany where he served in MAAG-Federal Republic of Germany. There he became a certified translator of the German language. In 1964 he retired from active service as a Lt. Col. to pursue his doctoral degree in international relations at American University. With his Ph.D. in hand, in 1966 he joined the South Dakota School of Mines and Technology as professor and head of the department of languages and social sciences. After his retirement in 1983, the School of Mines granted him professor emeritus of liberal arts. Dr. Moe is survived by his wife of 64 years, Eleanore (Rowan); daughters Margaret and Marian; son George; grandchildren; greatgrandchildren; a niece; sistersin-law; and cousins, cohorts, and friends.

PHIL A. MUNDT

Phil Mundt (GeolE51) passed away in May of this year. He was born in Sioux Falls, South Dakota. He met Lorraine while he was in school in Rapid City and they were married while he was getting his master's degree in geology at Washington University in St. Louis, Missouri. His first job was with Mobil Oil in Caracas, Venezuela, and worked again with Mobil the following summer in Houston. From there he went to Stanford University at Palo Alto, California for his Ph.D. He did the class work in one year, and then moved to Billings, Montana, working for a year on his thesis and also starting his lifetime career with Mobil Oil. All of his three children were born in Billings. The family moved to Ankara, Turkey, living there for five years. He was transferred to the New York office and lived in Connecticut for two years, and then to Tripoli, Libya for two years. He was transferred to Mobil's Los Angeles office. The next move was to Dallas where he worked for 15 years. While a homeowner in Dallas, he worked five years in Nigeria and Indonesia. He retired from Mobil in 1986, and a year later moved to Lago Vista, Texas. Dr. Mundt authored the book, A Scientific Search for Religious *Truth*, the result of years of research reconciling science and religion in December 2006. He is survived by his wife Lorraine, sons Alan and Larry, daughter Shervl, a sister, two brothers, and three grandchildren.

JOHN GERALD OVERBY

John "Jack" Overby (EE48) passed away quietly from cancer on March 26, 2007. Jack had been in ill health for a year, but they could not find the reason. It was a fast cancer and he was really down for just two weeks. He missed his 85th birthday by a short time. He and wife Beatrice would have celebrated their 60th wedding anniversary in December. The family flew him back to his beloved South Dakota where he was laid to rest in Northville. He will be dearly missed.

LOUIS CLEMENT PETA

Louis Peta (GeolE53) passed away in June in Pierre, South Dakota. After graduation he entered the Army and served Okinawa for two years and was honorably discharged. He then worked for Standard Oil in Wyoming and Montana. This is also where he met and married Joann in 1958. After three vears the couple moved to Pierre in 1960. He worked for the State of South Dakota in the Department of Transportation for 33 years. He belonged to the Knights of Columbus. He is survived by his sons John, Chris, Jerry, and Joe, daughters Mary and Karen, a brother, and seven grandchildren.

HELGE PETTERSEN

Helge Pettersen (ChE69) passed away at his home in Florida. He was born in Bergen, Norway in 1941. He studied as a civil engineer at the Bergen Technical Institute, and in his final year there he was the school president. His duties included representing the students' welfare as well as ensuring the quality of entertainment. He and his wife came to the U.S. in 1967 as he had been part of a select group of Norwegian students invited to attend the School of Mines. After graduation he joined Cargill, where he worked his entire career. He had many overseas placements including the Netherlands, the United Kingdom, and Brazil. He is survived by his wife Anne, and three children Helge, Eirik, and Alexandra.

CHARLES JOSEPH RAY

Dr. Charles J. Ray (EE32), 95, had a peaceful passing last March at the Clarkson-Mountain View Care Center. After graduation he was seriously injured in a head-on car crash. While recovering at St. John's Hospital he met his future bride, Cecilia (Raddy). He enrolled in the University of Minnesota School of Dentistry and married nurse Cecilia in 1933 and graduated in 1936. He pursued postgraduate studies at Forsythe Dental Infirmary, Boston, from 1936-37, and Eastman Dental Dispensary 1937-38. He and Raddy started their dental practice in Rapid City, South Dakota, in 1938. They formed the Ray Dental Group in 1952. Charles has served as president of both local and International Cosmopolitan Clubs. He was past president of the South Dakota Crippled Children's Society, member of the United States Chamber of Commerce, and also a member of the South Dakota Medical Advisory Board. He belonged to the Knights of Columbus 3rd and 4th degrees and was grand knight 1946-47. Dr. Ray was

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president of the local USO and served 17 years at local and national levels. Among many other memberships in the field of dentistry, he was the chief of Dental Section for seven years - East and West hospitals - for the American Association of Hospital Dentists. Dr. Ray was one of the original members of the Colorado Prosthodontic Society, and was President of the American Prosthodontic Society in 1988. After 62 years of marriage, Raddy died of cancer in 1995. In June of 1996 he married JoAnn, who survives him. His granddaughter and alumna Kristin Stewart wrote, "He used to come to M-Day festivities while I was at the School of Mines and I took him up M-Hill in a Jeep in 1987 to see his name on the plaque ... great memories for me and he sure had great stories of the School of Mines from the 20s and 30s. He leaves behind quite a few School of Mines graduates in the family." He is survived by his children Carole, Margie, Kathy, Jeane, Rita, Charles (EX67), and Chrystal; 14 grandchildren - including Jeff Knight (EX88), Charles "Michael" Ray (Geol97), Jennifer Ray (EX97), Kristin Stewart (ME91), and Robb Meineke (ME, Rapid City); 18 great-grandchildren; one greatgreat-grandchild; and a sister and a brother.

CHARLES EDWARD REED

The Alumni Office recently received word that **Charles Reed** (EE34) passed away in 2005. He was born in Santa Fe, New Mexico. He is survived by

two children, Martha and Barbara.

JOSEPH JAMES ROWETT

Joseph Rowett (MetE43), 88, passed away. Joe married Gail in 1943, and was employed in Flint and Henrietta, Oklahoma before enlisting in the Navy. He served a year before returning to Sturgis when his father died. Joe was employed by the V.A. in Sturgis and Grand Junction, Colorado. Then he worked for the Navy as a civil servant in China Lake, California and with Hercules Powder Company in Salt Lake City. He returned to work for the Navy at Port Hueneme Naval Station in Oxnard, California until retiring in 1981. Joe and Gail resided in Ojai, California from 1967 until 2004, when they moved to Rapid City. Survivors include wife Gail, daughters Mary and Margaret, a brother, five grandchildren, and 11 great-grandchildren.

SHAWN SCHWALLER

Shawn Schwaller (EE95) passed in September 2007 after a short battle with leukemia. Shawn Robert Schwaller, was born February 13, 1972 in Wiesbaden, Germany. He graduated from Brandon Valley High School in 1990. He received a bachelor of science in electrical engineering from South Dakota School of Mines and Technology in 1995. Following graduation, Shawn worked for Rockwell in Cedar Rapids, IA, as a firmware engineer. He then moved to Denver, Colorado in 1998. Shawn was employed at Raytheon Company as a

software engineer where he excelled at problem solving and collaborating with his team members. Shawn was united in marriage to Tricia Mohrhauser (EE98), October 10, 1998 at Hartford. Shawn enjoyed his travels, scenic sites and car shows. His involvement in Tau Beta Pi (engineering honor society) took him and his wife throughout the country several times a year. Shawn also assisted with functions at the Denver Concert Band and traveled with them to Washington, D.C., France, and Germany. His greatest passion was his love for cars, car shows with his dad. His smile and sense of humor touched the hearts of everyone he met and will be missed by all. Grateful for having shared his life are his wife, Tricia, of Centennial, Colorado; his mother, **Rosemary Schwaller of Sioux** Falls; his sister, Amy and her husband, Macy Richardson of Sioux Falls; his grandmother, Marie Palmer of Sioux Falls; his grandfather Joseph Schwaller of Brandon.

CHARLES WILSON SHAFER

Charles Shafer (Chem49) passed away in February. After serving in the Army, Charles earned his B.S. from the School of Mines and his M.S. from the University of Colorado in 1951. Charles married Roberta in 1952. They lived in the New York City metropolitan area for 40 years. As a chemist, Charles spent his professional career with NL Industries and the Mearl Corp. Survivors include wife Roberta; four sons, Charles, Byron, Alan and Dean; daughter Eileen; five grandsons; and three granddaughters.

J. MONTE SMITH

J. Monte Smith (ChE61) was born in 1937 and passed away last March. In 1958, he married Karen Asbjeld of Alcester, South Dakota and in 1961 they moved to New York City where he took a job with Exxon Corporation's chemical affiliate. In 1964 the company transferred them to Brussels, Belgium. In 1969 they returned to the United States and lived in Houston, Texas and Maplewood, New Jersey. They returned to Houston, Texas in 1978 and remained there until 1994 when he retired. Then they moved to Beresford, South Dakota. For many years he was active in the National Petroleum Refining Association and the Independent Lubricant Manufacturers Association. He was an active volunteer for the United Way. After retirement Monte enjoyed woodworking, gardening, and having his grandchildren close by. He also enjoyed travel and time spent in their home in the Black Hills. He is survived by his son Paul, daughter Leslie, four grandchildren, and two sisters. He was preceded in death by his wife Karen and his parents.

RUDOLPH JUSTUS SOEFFING Rudolph Soeffing (EE48)

passed last March. He was born in Germany. At a young age the family moved to America. During his junior year, Rudolph enlisted in the United States Navy and following his basic training, he married Betty in 1944. He served in the Navy as a Radar Sonar Specialist. He received an honorable discharge from the Navy and returned to the School of Mines. Rudolph began his career with the Bureau of Reclamation in Huron, South Dakota. In 1961, the family moved to Billings, Montana and Rudolph continued to work for the Bureau of Reclamation until 1965 when they returned to Huron. He worked for the Department of Energy until his retirement. He is survived by his children Mary, and William, and two grandchildren.

LYLE ALLEN WARREN

Lyle Warren (MetE64) passed away. He began his Armco career as a metallurgist in the former Middletown Fabricating Plant in 1964. His promotions included a special assignment in the Inspection Department, Superintendent, Maintenance Manager, Manager of Planning for Eastern Steel Operations, and Director of Technology. In 1989 Lyle was named Works Manager of the Armco's Middletown, Ohio operations. He is survived by his wife Sandy and children Michael and Tracy.

ARNOLD LEROY WILCOX Arnold "Bud" Wilcox (ChE43) passed away in late February 2007. Following college he was drafted in the Navy and served in Philippines during WWI. He married Claire in 1944 in San Francisco, California and they moved to Connecticut after the war. Bud and Claire moved to Michigan and Bud worked as a water treatment specialist and retired from DuBois Cooper and Associates in 1990. Bud was a retired member of the Walled Lake Rotary. He is survived by his wife Claire; children Phyllis, David, Audrey, and Sarah; a sister; nine grandchildren; and three greatgrandchildren.



KEEP IN

The 2007-2008 SDSM&T Alumni Directory includes information on your classmates and friends from around the globe.

New in this edition are indices that include graduate's majors and years; alumni award recipients, and Lifetime Contributors.

Please mail your check for \$35 (includes tax and shipping) with a memo for "Alumni Directory" to:

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Memorials



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THE HARDROCK E-NEWS

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Personnel Changes

Welcome:

Ann M. Konechne (IE99), exempt, assistant women's basketball coach (8/16/07)

Dr. Lee Alley, faculty, assistant professor, mathematics and computer science (8/15/07)

Dr. Kenneth M. Benjamin, faculty, assistant professor, chemical and biological engineering (8/15/07)

Cabot- Ann Christofferson, faculty, instructor, chemistry (8/15/07)

Dr. Joseph Fazio, faculty, associate professor, civil and environmental engineering (8/15/07)

Kathleen H. Hanley, faculty, instructor, college of engineering (8/15/07)

Julie F. Hutton, faculty, instructor, electrical and computer engineering (8/15/07)

Dr. Lance A. Roberts (CE99), faculty, assistant professor, civil and environmental engineering (8/15/07)

Mitchell A. Ruedebusch (ME95), faculty, instructor, college of engineering (8/15/07)

Dr. Mano J. Thubrikar, faculty, professor, mechanical engineering (8/15/07)

Ivan V. Filipov, exempt, chemical equipment and instrumentation specialist (8/8/07)

Sarah E. Kelly, exempt, Peterson Hall director, residence life (8/8/07)

Scott J. Baird, exempt, certified athletic trainer, athletics (8/1/07)

Luciana A.S. Camargo, exempt, assistant volleyball coach, athletics (8/1/07)

Jennifer K. Ranum, exempt, intramural director/certified athletic trainer (8/1/07)

Arlene P. Lichtenecker, CSA, secretary, mathematics and computer science (7/16/07)

Patricia J. Goldammer, CSA, accounting assistant/event services, Surbeck Center scheduling (7/3/07)

Dr. James J. Niggemann, Jr, faculty, instructor, physics (6/4/07)

Cheryl L. Holt, exempt, hall director, residence life (6/1/07)

Peter J. Roberts, exempt, regional admissions and community relations

developer, university and public relations (6/1/07)

Marsha L. Kelly, CSA, accountant (contracting officer II), sponsored programs (5/7/07)

Mary K. Stein, senior accountant (contracting officer III), sponsored programs (4/23/07)

Dr. Lifeng Zhang, exempt, research scientist I, chemistry (4/2/07)

Dawn M. Jedrykowski, CSA, library technician, Devereaux Library (3/15/07)

Dr. Gurdeep Rastogi, exempt, research scientist I, chemical and biological engineering (3/15/07)

Dr. Rajesh V. Shende, research scientist I, chemical and biological engineering (3/15/07)

Dane H. Finnesand, CSA, computer support specialist, information technology services (3/6/07)

Terry H. Lauritsen, exempt, controller and director of administrative services, business and administration (3/6/07)

James S. Randle, CSA, computer support specialist, materials and metallurgical engineering (3/6/07)

Farewell:

Bonny Baker- Cain, CSA, Higher Education Center-WR (8/21/07)

Dr. Anil K. Patnaik, faculty, civil and environmental engineering (8/21/07)

Prince Y. Amattoe, exempt, admissions (8/10/07)

Dr. Nam- Soo (Peter) Kim (Ph.D. MES04), exempt, Center for Accelerated Applications at the Nanoscale (8/10/07)

Dr. Patrick R. Zimmerman, faculty, Institute of Atmospheric Sciences (7/31/07)

Stephen W. Wuerz, faculty, chemistry (7/27/07)

Dr. David Chaiko, exempt, Center for Accelerated Applications at the Nanoscale (7/20/07)

Teresa Corbin (Chem 80), exempt, Institute of Atmospheric Sciences (6/21/07)

Carrie Greenwald, exempt, Museum of Geology (6/21/07)

Sandra Henry, CSA, human resources (6/21/07)

Jamen Lang, CSA, Center for Applied

Applications at the Nanoscale (6/21/07)

Terje Preber, faculty, professor, civil and environmental engineering (6/21/07)

Karl Lalonde (CSc98), exempt, Institute of Atmospheric Sciences (5/21/07)

Kim Bold, CSA, financial aid (5/18/07)

Laura Baker, exempt, residence life (5/15/07)

Maria Cadwallader, exempt, athletics (5/15/07)

Karen Connors, CSA, Surbeck Center scheduling (5/1/07)

Douglas E. Tabbert, exempt, athletics (4/30/07)

Janet M. Kirsch, exempt, business and administration (4/20/07)

Sheila J. Lien, CSA, sponsored programs (4/20/07)

Stephen Woessner, exempt, Center for Accelerated Applications at the Nanoscale (CAAN) (3/27/07)

Stacey Jackson, CSA, sponsored programs (3/20/07)

Laurie A. Pope, CSA, mathematics and computer science (3/9/07)

Lenn Naughton, CSA, student activities and leadership center (3/7/07)

Linda Beyer, CSA, music (1/26/07)

Change:

Jamie M. Hillyer, from CSA, secretary, business and administration-business services, to CSA, purchasing assistant, business and administration-business services (8/1/07)

Elizabeth M. Honaker, from exempt, assistant volleyball coach, intercollegiate athletics, to exempt, head volleyball coach, intercollegiate athletics (8/1/07)

Dr. John H. Helsdon, exempt, has become the dean of graduate education. He will continue as professor, Institute of Atmospheric Sciences (7/22/07)

Monica L. Darrow, from CSA, purchasing assistant, business and administration-business services, to CSA, financial aid assistant, financial aid (7/2/07)



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School of Mines Reaching Out



Summer 2007 saw the return of the South Dakota Gaining Early Awareness and Readiness for Undergraduate Programs (SD GEAR UP) Honors Program, serving to maintain a 15-year tradition of summer programs for American Indian Youth. This year, the program attracted more than 170 students in grades 9-12 and several college students.



Each summer, the School of Mines gives high school students the opportunity to learn about engineering and engineering careers during Youth Engineering Adventure (YEA) programs, which celebrated its sixth year in 2007. Nearly 200 students have participated in YEA since its inception.



The School of Mines hosted a booth at the 2007 Central States Fair, where the community had the opportunity to learn more about the university and projects such as the Formula SAE car.



E-Week 2007 activities, such as the Rube Goldberg Contest, drew community-wide attention, including that of Senator John Thune (R-SD).



The School of Mines was proud to be a sponsor of a community visit by Dr. Jane Goodall. Goodall spoke to middle school students about her conservation program, Roots & Shoots, and to community members about her work, conservation, the environment and her connection with South Dakota.



The School of Mines hosted the 2007 Cultural Expo in spring 2007. The annual multicultural festival encourages activities which promote friendship and cultural exchange between people of different countries and cultures.

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Calendar of Events

Visit the on line calendar for details: http://sdmines.sdsmt.edu/sdsmtcalendar For details about K-12 events: http://sdmines.sdsmt.edu/SDTechK-12 For details about athletic events: www.gorockers.com For details about adult and professional educational opportunities: http://sdmines.sdsmt.edu/learn November 21-22 Thanksgiving Break — no classes **December 1** Putnam Mathematics Competition McLaury Room 306, 8 AM **December 4** Hanukkah begins Parade of Trees — Surbeck Ballroom. 9 AM-4 PM **December 6** President's Holiday Dinner — Hardrocker Dining Hall, 4 PM Children's Holiday Party — Surbeck Ballroom. 6 PM **December 8-9** Christmas Concert — Our Lady of Perpetual Help Cathedral, 8 PM December 17-19 Introduction to ArcGIS 9 (Professional Program) December 17-21 Final Exams December 22 Fall Commencement — Rushmore Plaza Civic Center Theatre, 9 AM **December 25** Christmas Day **December 26-January 1** Kwanzaa January 1 New Year's Day January 7-9 Working With Geodatabases (Professional Program) January 10-11 Intro to Raster Analysis (Professional Program) **January 14** President's Convocation — Surbeck Ballroom, 9:30 AM **January 16-18** Payment Days January 17 Spring Semester Classes Begin **January 21** Martin Luther King, Jr. Holiday – no classes **January 22** Career Center: May Grads-Job Search Strategies — Surbeck Cove, 3:30 PM **January 25** Last Day to Drop or Add a Course **January 29** Cultural Etiquette Luncheon — 11:30 AM Career Center: Behavior-Based Interviews — Surbeck McKeel Room, 4 PM **January 31** Career Center: Student Intern/Co-op panel, Surbeck Bump Lounge, 12 PM



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Calendar of Events

continued from page 67

February is Black History Month February 8 Mathematical Contest in Modeling -McLaury Building, 8 AM February 17-23 National Engineers Week March 6 All-Campus Planning Session — Christiansen Hall of Fame, 3 PM March 15-24 Spring Break March 17 Whole-Brain Thinking for Innovative Teams (Professional Program) 8:30 AM March 18 Women in Science Conference 2008 March 27 Cultural Expo (School's Day) — Surbeck Ballroom, 9:00 AM March 29 Bauer Invitational Track & Field Meet – O'Harra Staduim, 8 AM COMPASS Day Testing, 8:30 AM Cultural Expo — Surbeck Ballroom, 10:30 AM March 30-April 5 Greek Week April 1 Honors Convocation — Surbeck Ballroom, 11 AM April 9 Career Center: Still Deciding or Switching Major? — Surbeck McKeel Room, 3:30 PM April 10-12 Drama Production — Surbeck Ballroom, 7 PM April 19 Junior Preview Day — Classroom Building, 8 AM COMPASS Day Testing, 8:30 AM School of Mines Spring Concert -Rushmore Plaza Civic Center, 7:30 PM School of Mines Master Chorale and Jazz Band — Rushmore Plaza LeCroix Hall, 9 PM April 20 Earth Day Celebration — Surbeck Center, 2 PM April 22 Senior Design Fair — Surbeck Ballroom, 9 AM - 2 PM Mav 1 Holocaust Remembrance Day May 5 Cinco de Mayo May 5-9 Finals Week May 8-10 Mathematical Contest in Modeling -McLaury Building, 8 AM **Mav 10** Spring Commencement — Rushmore Plaza Civic Center Arena, 9 AM May 11 Mother's Day **May 17** COMPASS Day Testing, 8:30 AM

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