News from Holden Hall

Virginia Tech Department of Mining and Minerals Engineering

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The Mill Report —Dr. Greg Adel, Professor and Department Head

Spring semester 2015 has come to a close and another group of Virginia Tech mining engineers is entering the work force. Welcome to the latest edition of News from Holden Hall! It seems that graduating classes in the mid 50's have now become the norm, and the Class of 2015 is no exception. Over the past seven years, we have graduated our four largest classes (Class of 2014 – 56, Class of 2015 – 54, Class of 2009 – 54, and Class of 2013 – 47). This year we also have witnessed the largest group of female mining engineers to ever graduate from our program at one time (16).

Likewise, our graduate program is booming. We produced a record 16 graduate degrees during the 2014-15 academic year, including 7 Ph.D.'s—the largest number of Ph.D.'s we have ever produced. Based on data reported by the American Society for Engineering Education, Virginia Tech has produced 35% of all the Ph.D. mining engineers in this country over the past five years. With many mining engineering faculty members across this country poised to retire, we are in a position to have a significant impact on the future professorate.

With lab renovations out of the way, contractors begin installing new storage and equipment.

Research is also on a record pace. We are on track to generate research expenditures topping $700,000 per faculty member, and we have been averaging this amount for the past seven years, making us one of the top research programs at Virginia Tech.

Of course, all of this activity has severely stressed our limited resources. I am happy to report that we have nearly completed renovating new lab space in Randolph Hall, and, more importantly, Virginia Tech should have an A&E firm on board by mid-June to begin the preplanning for the renovation of Holden Hall. If all goes well, there could be a new, much larger, Holden Hall in another five years. Likewise, we have expanded the faculty to 10 for the first time in our history with the addition of Dr. Cheng Chen, our first hire in the area of natural gas engineering. Dr. Chen comes to us from Haliburton and we are looking to him to help us build a program in this new area.

Inside This Issue

Department Welcomes New Distinguished Alumni, pg.3

New Faculty Hire To Grow Natural Gas Program, pg. 5

Hatfield Inducted into Academy of Engineering Excellence, pg. 6

Mine Reclamation Field Trip, pg. 7

Clearly, the Department is poised for some significant changes in the future and I have decided it is time for a change in leadership. I will be stepping down as Department Head as of August 10, 2015. Dr. Erik Westman will be serving as Interim Department Head for the 2015-16 academic year while a search is conducted to find the next leader for this program. I feel privileged to have been given the chance to lead the greatest mining engineering program in the country, if not the world, over the past seven and a half years. But as many of you know, Kim and I have a very talented son who has become a regular substitute in the percussion section for the Cleveland Orchestra. His career is poised to take off and we want to be a part of his life. We also want to be free from the university calendar to have the flexibility to travel and enjoy other things. I will be returning to the faculty for the 2015-16 academic year to allow time for the transitioning of the many things I do (ABET, advising, placement, scholarships, etc.), after which, I plan to retire.

I have been blessed with a very fulfilling and rewarding career over these past 33 years. But of all the things I have done, the most fulfilling and rewarding has always been working with the

students. As a teacher, I get to touch the lives of many young men and women, hopefully in a positive manner. I have been privileged to have taught roughly 70% of our living alumni. Hopefully, I have had a positive impact on a few of you out there. Nevertheless, I have enjoyed my career at Virginia Tech immensely, and I hope to keep enjoying it as an emeritus professor, only on a more flexible schedule.

At this point, Kim and I don't plan to leave Blacksburg, at least not for the near future, and many of you know where we live (you've been to the senior cookout!). Even in retirement, I still want to hear about your new jobs, your promotions, your weddings, your kids, or your grandkids, so don't be a stranger! Thanks to all of you for a great career, and please enjoy this issue of News from Holden Hall.

Dr. Greg Adel
Head, Department of Mining and Minerals Engineering
Virginia Tech

In Memoriam: Cameron Smook

With great sadness the Department announces the loss of Cameron Smook, a Mining and Minerals Engineering senior and member of the Class of 2015. Cameron went missing in March 2015, after reportedly falling overboard from the cruise ship Carnival Glory. He will always be remembered by faculty members as an excellent student who was known for his energy, his spirit, and his ability to make others laugh.

Emily Sarver, assistant professor of mining engineering, recalled Smook from classes that he took under her during his sophomore and senior years. "Cameron was a student in one of the first classes I taught in the mining engineering department. I am so fond of him. I can remember his smile on the first day of class—friendly, interested, a bright spirit. I got to know him well over the past few years, and I'm grateful for that," she said. "He was one of those students who would crack a joke in class, but it was always appropriate and appreciated. Light sense of humor, and so well liked by his peers. He had great potential to do good things in the mining community. We're like a little family here in mining, and Cameron will be sorely missed. Our very best wishes are with his family at this difficult time."

Cameron Smook

According to department head Greg Adel, "Cameron was an excellent student and an outstanding young man. He was about to embark on a career with Martin Marietta Corp. after graduation. He had a wonderful future ahead of him and it was truly sad to hear of this."

Smook graduated from Deep Run High School in Glen Allen, Virginia, and was scheduled to graduate from Virginia Tech this spring with a Bachelor of Science Degree in Mining Engineering. "He thoroughly enjoyed his experiences at Virginia Tech, had just accepted an employment offer, and was looking forward to a very bright future," said his family in a statement.

"The entire Virginia Tech community extends our deepest condolences and sympathies to Cameron's family and friends at this moment of tragedy and grief," said Virginia Tech President Timothy D. Sands. "My heart also goes out to our students and faculty who feel tremendous sorrow at this loss. I know this is a strong and supportive community, and encourage us all to turn to one another for support and solace."

A memorial mass was held for Cameron on March 27 at St. Michael Catholic Church, in Glen Allen, Virginia. Among those in attendance were members of the department's faculty as well as classmates and friends. To honor their son, the Smook family has established the ***Cameron Smook Memorial Scholarship***. To date more than $22,000 have been raised for the fund. If you would like to contribute, please visit the Cameron Smook Memorial Scholarship page online at *http://www.mining.vt.edu/sponsors/CSMS.htm* and follow the instructions to make a contribution.

Smith, Sutherland Named Distinguished Alumni

On April 24, 2015, the Department held its Annual Scholarship and Awards Banquet at the Inn at Virginia Tech in Blacksburg, Virginia. During the event two alumni were ushered into the ranks of department Distinguished Alumni.

Bryan Smith (l) is presented with the Distinguished Alumni Award from Dr. Mike Karmis

This year's first recipient is **Bryan W. Smith**, the Mine Development and Blasting Manager at Luck Stone Corporation. Born in Richmond, Virginia, Bryan's father held a Mechanical Engineering degree from Virginia Tech. Bryan signed up for the "mining challenge" in his sophomore year at Virginia Tech. The summer before graduating with his B.S. Degree in Mining Engineering in 1979, Bryan worked as a student with Luck Stone and was offered a position in its management training program. He would go on to serve 35 years in the aggregates industry as a Luck Stone associate. At Luck Stone, Bryan rose through the ranks of plant and general foreman. As a plant manager, he developed the initial team at the then new Powhatan, Virginia Plant, crushing over 1,000,000 tons in its third year of operation. After he served as area manager for Luck Stone's Southern and Northern area operations, Bryan started performing "true" mining engineering for the company. He had already accumulated significant mining experience, but he soon realized that to perform cutting-edge mining engineering at that time, he would be more effective if he partnered with younger talent. Bryan hired a mining engineering student from Virginia Tech to work with him during the summer, and the summer hire soon developed into a full-term Co-Op. This relationship has become one of the strongest co-op programs for Virginia Tech's mining engineering students each year. Today Bryan is involved in the company's blasting program, support of the Mining Engineering Team, fostering relationships with explosives providers and drilling contractors, and supporting the management of the company's mobile equipment fleet. He is actively connected with the mining community and has given presentations at numerous industry seminars, professional conferences and SME meetings. He served as Chairman of the Goochland County Career and Technical Advisory Committee and the Virginia Aggregate Association's Operations Committee. He is a member of the ISEE Potomac Chapter Board of Directors.

Sam Sutherland (r) receives his award from Dr. Jerry Luttrell

The second recipient, **Sam Sutherland**, is Vice President of Global Mining for Univar. Sam's career has taken him on a path that started in Grundy, Virginia, and led him through 45 US states, and 25 countries. Born in Richlands, Virginia, he was raised in neighboring Grundy by a family who was inseparably tied to the mining industry given coal's prominence in Buchanan County. His parents and grandfathers helped him easily decide that mining was a career worth pursuing. Attending Virginia Tech was an easy decision, where he encountered professors and peers who would solidify his passion for mining. He credits Mike Karmis, Bill Foreman, Louis Prelaz, Greg Adel, Ertugrul Topuz, Roe-Hoan Yoon, Chris Haycocks, Jerry Luttrell and Richard Lucas as not only great instructors, but also as men he respected, admired and trusted. During his junior and senior years Sam was awarded the United Coal Company's scholarship, and in the spring of 1986 he graduated with his B.S. in Mining Engineering. Sam's career started with Nalco Chemical in Mingo County, West Virginia, in the spring of 1987. There he worked under the stewardship of Virginia Tech alums Steve Abbatello and Charlie Stone, two men he admires and respects to this day. Sam spent the next 8 years working in the Kentucky, West Virginia and Ohio coal markets unit, until he was transferred to Florida to re-start Nalco's phosphate and industrial mineral efforts in 1995. Here he helped the company explore new opportunities in Mexico and Venezuela while managing a multi-state territory with direct reports in phosphate, kaolin and the ag sectors. In Florida he met the love of his life, Karyn, whom he married in 1996. Three daughters soon followed, and he considers these four ladies a pinnacle in his life and his most precious possessions. In 1999 he served as Sales Manager for Custom Chemicals, where he expanded their phosphate and industrial minerals portfolio until they merged with ArrMaz in 2003. Sam earned an MBA from the University of South Florida in 2004, and his international activities increased as he established new markets for ArrMaz in countries where their presence remains today. In 2007 he was promoted to their Vice President. In early 2013 Sam received an offer to build on his international experience by developing mining markets around the world. He was soon serving as the Vice President of Global Mining for Univar—an $11 billion, privately held, global leader in chemical distribution. Currently Sam is developing mining commercial teams in multiple global geographies to best position Univar to supply modern mines with needs ranging from silica in North Carolina, copper in Arizona to gold in Ghana.

Thank You to Our Donors

One of the biggest challenges we face each year is finding sufficient funds to operate the Department. Our annual budget allocation is sufficient to cover most of the faculty salaries and some of the staff salaries, but there is virtually nothing provided for the day-to-day operations (telephones, copying machine, supplies, etc.). Nearly all of our operating revenues come from research overhead, interest on our endowment, and gifts from our alumni and friends. In fact, as our student body grows, it is becoming increasingly difficult to provide sufficient funding to support scholarships and student organizations. That is why your gifts are so important to us. We would like to take this opportunity to extend a heartfelt thank you to the following donors for their support during calendar year 2014.

Tony DiRico of Martin Marietta Materials

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If you donated to the Department during Calendar Year 2014 and your name is not listed above, please contact us. We strive to ensure that our information is accurate and we want to know if a mistake has been made. It is also helpful if you specify "Mining Engineering" on your check to ensure that your donation goes directly to this Department. Likewise, if you donated directly to the Burkhart Mining Society or one of our other student organizations, these donations do not come through the Department. Nevertheless, these donations are important to us and we thank you for helping with student activities. Finally, if you prefer to donate on-line, we have established a link on our website for giving to the Department. Visit http://www.mining.vt.edu/sponsors/giving.htm to donate on-line via credit card. Please follow the instructions provided to ensure that your gift goes to Mining and Minerals Engineering.

Erik Westman Appointed Interim Department Head

Erik Westman

Dr. Erik Westman, interim associate dean for Academic Affairs and professor of Mining Engineering at Virginia Tech, has been selected to serve as the Interim Head for the Department of Mining and Minerals Engineering. "I am very pleased to report that Erik Westman has accepted my invitation to serve as the interim head for Mining and Minerals Engineering," said College of Engineering Dean Richard Benson. "I have enjoyed working closely with Erik the last two years and I have great confidence in his skill and dedication."

Erik holds a B.S. in Geophysical Engineering from the Colorado School of Mines, an M.S. in Civil Engineering (Geotechnical) from the University of Colorado, and a Ph.D. in Mining Engineering from Virginia Tech. He spent about five years in consulting engineering and five years in government research prior to becoming a faculty member at Virginia Tech in 1999. Among Westman's credentials are a National Science Foundation CAREER Award and a stint with the U.S. Bureau of Mines from 1991 until 1996.

While serving as the college's associate dean, Erik continued his duties as instructor and advisor for the department's senior design project course and the SME/NSSGA-sponsored student design competition team. "As both a dean and a professor, I've enjoyed mentoring undergraduate and graduate students and am very proud of their successes," said Westman, "and I am looking forward to working closely again with a great team of colleagues in the department."

Newest Faculty Member To Build Department's Natural Gas Engineering Program

Cheng Chen

Virginia Tech's Department of Mining and Minerals Engineering is proud to welcome its newest faculty member, Dr. Cheng Chen, who will help develop a new natural gas engineering program in the department. Chen's arrival marks the faculty's first natrual gas engineer and expands the faculty to ten members—the first time in the department's history.

Dr. Chen comes to the department after having served as a reservoir engineer and project leader at Halliburton from 2012 to 2015. His research is directed at enhanced oil recovery, rock characterization using computerized-tomography (CT) and scanning electron microscopy (SEM) imaging, lattice Boltzmann (LB) method, and multiscale simulation of flow and transport in porous media. He has authored or coauthored 17 peer-reviewed journal papers and more than 20 conference papers. He earned a BS degree in hydraulic engineering from Tsinghua University, China, and a PhD degree in civil and environmental engineering from Northwestern University.

Faculty Members Honored by SME

Gerald H. Luttrell, E. Morgan Massey Professor of mining and minerals engineering at Virginia Tech, is the recipient of the Stefanko Best Paper Award for the paper *Micro-Price Optimization of Coal Processing Operations*. Luttrell is widely recognized for his contributions to the development of innovative technologies for materials processing. Among his many honors are the Frank F. Aplan Award, Pittsburgh Coal Mining Institute of America Stephen McCann Educational Excellence Award, and he is a 2013 inductee into the National Academy of Engineering.

Assistant Professor **Emily Sarver** is the recipient of the Outstanding Paper Award by the SME's Environmental Division for the paper, *The Elk River MCHM spill; A case study on managing environmental risks*, co-authored with Virginia Tech graduate students Meredith Scaggs and Lucas Rojas Mendoza.

Robert C. Bratton, department Senior Research Associate, received the Frank F. Aplan Award "for substantive contributions to the research, development, demonstration and deployment of new processing technology for the coal and minerals industries." Bratton holds a B.S. degree in chemical engineering from Virginia Tech and is a Virginia licensed professional engineer. Bratton is a member of the American Institute of Chemical Engineers and served as a 2011-2012 SME Henry Krumb Lecturer.

Department Faculty Receive Dean's Awards for Excellence

Two members of the mining and minerals engineering faculty were recognized for teaching innovation, research, service, and outreach during the eighteenth annual Virginia Tech College of Engineering faculty reception.

Dean Richard Benson presented the *College of Engineering Faculty Fellows Award* to Kray Luxbacher. The award carries an annual $5000 account for the next three fiscal years to support the recipient's research. Kray is a department associate professor and also serves as the assistant director for the Virginia Center for Coal and Energy Research. Her primary research interests are in underground mine ventilation, mine health and safety, and unconventional oil and gas reservoir engineering, with involvement in research projects totaling over $4 million.

Nino Ripepi was presented with the Dean's *Outstanding New Assistant Professor Award*. Nino is an assistant professor with the department, and his expertise lies in areas of coalbed methane and shale gas production, as well as carbon sequestration and health and safety. Nino is currently engaged in research efforts focusing on carbon dioxide storage in coal seams and assessing capacities within the Central Appalachian Basin.

Virginia Tech Honors Engineer Ben Hatfield for his Career Achievements

Bennett "Ben" K. Hatfield of Charleston, West Virginia, who earned his bachelor's degree in mining engineering from Virginia Tech in 1979, is a 2015 inductee into Virginia Tech's College of Engineering Academy of Engineering Excellence, joining an elite group of 135 individuals out of more than 60,000 living engineering alumni.

From left: Ben Hatfield, inductee; Richard Benson, dean of the College of Engineering; and Greg Adel, department head of Mining and Minerals Engineering.

Hatfield grew up as a coal miner's child and was raised in the coal-mining town of Sprigg, West Virginia—the youngest of six children. During the week his father supported the family by working in the mines of Island Creek Coal Company and was a minister on weekends at Freewill Baptist church. At Virginia Tech Hatfield became a Massey scholar, enjoying the dual benefits of paid tuition and secure employment during summers and holidays. When he graduated in 1979, he became a project engineer at Massey's Wolf Creek Collieries operation in Kentucky. For the next 23 years, he served in various engineering, operations, and corporate management capacities in Kentucky, Colorado, West Virginia, and Virginia. In June 1998, he was promoted to executive vice president and chief operating officer for Massey Energy Company.

After resigning from Massey Energy in 2001, he accepted the executive vice president position at El Paso Corporation's Coastal Coal subsidiary. Here he successfully prepared the coal holdings for an organized sale, until joining Arch Coal in March 2003 as its president of eastern operations. Hatfield became president and CEO of the International Coal Group in 2005, and six years later he joined Patriot Coal Corporation as executive vice president and was promoted to president and CEO in 2012. Hatfield is recognized with growing International Coal Group from a small shell of bankrupt companies into a $3.4 billion corporation and successfully reorganizing Patriot Coal Corporation out of Chapter 11, saving over 4,000 jobs, and preserving medical care for thousands of retirees. Today Patriot is one of the largest holders of Eastern U.S. coal reserves.

Recently, Hatfield left the company that he reorganized and is enjoying a brief sabbatical until his next career choice. He currently serves on the board of directors for both the West Virginia Coal Association and the National Mining Association. He is an advisory board member of the Virginia Center for Coal and Energy Research, and a member of the Central Appalachian Section of the Society of Mining Engineers, The Old Timers Club, Careers In Coal, and the King Coal Club.

Virginia Tech's Mining Engineering Students Get Down and Dirty on Mine Reclamation

BY ALLIE ROBINSON GIBSON | BRISTOL HERALD COURIER

Future mining engineers got a taste of mine reclamation efforts this spring in Wise County. About 50 students visited the Black Creek restoration area, an abandoned mine land project the state Department of Mines, Minerals and Energy (DMME) has been working on for about two decades. The Black Creek watershed reclamation area is a completed abandoned mine land project, said Richard Davis, DMME's abandoned mine land projects coordinator.

Joey O'Quinn, reclamation program manager for the state Department of Mines, Minerals and Energy, speaks to Virginia Tech mining engineering students about reclamation efforts on Wise County's Black Creek.

The site was mined about 60-70 years ago, most importantly, before 1977, when the Clean Water Act was passed, Davis said, and the remaining coal had leached iron into the creek, which feeds into the Powell River. Red River Coal Co. has been remining the area since 1995, using current standards, which has removed that source of pollution in the river, he said. The company is about 75 percent finished with that project. "This was Virginia's worst case of acid mine drainage in the state," Davis said.

The creek has been shored up with nylon bags for overflow, and pipe ventilation, he said. Two wetlands have been created around the creek to further filter out pollutants.

Exposing the students, who are taking an environmental management class for mining engineering, to sites like this is helpful, said Emily Sarver, assistant professor in the mining and minerals engineering department at Virginia Tech. She's been bringing her students to Wise County for the past several years and also incorporates a visit to the Powell River and Mountain Rose Vineyard, which is built on an old mining site.

"In this class, we do half the semester on law and liability, corporate responsibility, environmental ethics and permitting," she said. "The second half is on aquatic chemicals, and mine-influenced waters."

Students tour a facility at the Mountain Rose Vineyard—a family-owned winery situated on reclaimed surface mine in Wise County, Virginia.

Joey O'Quinn, reclamation program manager for the DMME, said bringing the future mining engineers to Southwest Virginia is a chance to show them what the DMME does and frame it in the context of history. "We come from the generation before there were these environmental regulations," he said. "The current generation doesn't have that contrast to see how things have changed."

Tarah Kesterson, DMME spokeswoman, said part of the DMME's job is to train the next generation. "This is a great opportunity to show them exactly what we do and how we do it, so they know when they get into the field," she said. "So much of what we do is environmental."

Dillon Clark, a senior mining engineering major at Virginia Tech, is from Wise County. He said he had been to Black Creek before, but never knew it was a reclaimed mine area. He said he thought it was helpful for his classmates—most of who aren't from Southwest Virginia—to actually see the mine sites and the coalfields. "They hear about this stuff, but to actually see it first-hand helps them understand," he said. "You can relate what you hear in class to real life." Clark said he plans to work in coal mines when he gets out of college, even if that means finding a job out of state. "I grew up in the area around mining," he said. "It's in your blood."