



News from Holden Hall

Department of Mining and Minerals Engineering
Virginia Polytechnic Institute and State University

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Fall 2012

The Mill Report

—Dr. Greg Adel, Professor and Department Head

The holidays are rapidly approaching and another semester has come to an end. That means it is once again time for *News from Holden Hall*. This has been a banner year for the Department of Mining and Minerals Engineering. For the first time in our history, we have over 200 undergraduates in the program. We are projecting a graduating class of nearly 50 for 2013, and we expect to break our previous record of 54 with the Class of 2014. Our faculty accounted for over \$7.5 million in research expenditures in Fiscal Year 2012 and led the College with almost \$950,000 of research expenditures per faculty member. Finally, we are back up to nine faculty members with the addition of Dr. Nino Ripepi (Class of 1999), who officially joined us in Fall 2012.

While records are nice, our resources in terms of space, equipment, and operating funds are being stretched to the breaking point. As the new Signature Engineering Building becomes available in 2014, we are hoping to gain vacated space in Randolph Hall to help alleviate our severe shortage of laboratory space. Likewise, the new Enrollment Control Plan, which the College of Engineering is implementing with the sophomore class of 2013, should help us maintain a more manageable and sustainable enrollment going into the future. Finally, as far as operating funds, all we can say is THANK YOU to all of you who continue to donate and help us fund this operation.

In this issue of *News from Holden Hall*, we highlight some of the organizations that help fund our operation through scholarships and discretionary donations. In fact, many of these donors are making it possible for Virginia Tech to host the national meeting of Women in Mining in April of 2013. You will learn more about this event being led by Dr. Emily Sarver and Dr. Kray Luxbacher with assistance from our student officers. You will also learn about the latest awards and honors received by our faculty, including Dr. Michael Karmis, who received the first Gunter Fettweis Award from the International Society of Mining Professors (SOMP), and Dr. Jerry Luttrell, who was honored by the Australian Coal Preparation Society with the Arthur Le Page Lecture and Award. As many of you may know, Dr. Luttrell is in great demand for his very practical short-courses and training in coal preparation, and it is nice to see him being recognized around the world as a leading expert in coal preparation. Speaking of outstanding faculty members, you will also learn about the latest addition to our faculty, Dr. Nino Ripepi. Dr. Ripepi has been involved with our department for some time now, having worked with Dr. Karmis in the Virginia Center for Coal and Energy Research; however, we are happy to have him officially on board. He brings to us some very timely expertise in carbon sequestration, coalbed methane, and shale gas production. We also are very happy to welcome Sam Shrader (Class of 1963) as our newest addition to the College of Engineering Academy of Engineering Excellence. Please see this article to learn more about Sam's pioneering work and long career with Consol. Finally, our *Blast from the Past* comes to us from an old Burkhart Annual Report. See if you can tell us who is pictured and when this was taken.

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I would like to close this note with a plea to the alumni. As noted earlier, we will be producing a lot of new Hokie mining engineers over the next several years. If any of you have entry-level positions that you would like to fill, please contact the department. Opportunities for summer internships and co-ops would also be welcome. We have a lot of very bright and eager young men and women who would just like the opportunity to show what they can do. Please help us give them a chance.

I hope you enjoy this latest edition of *News from Holden Hall*.

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

Highlights from the 2012 Scholarship and Awards Banquet

Faculty, alumni, industry representatives and students turned out in strong numbers once again for the 2012 Mining and Minerals Engineering Department Scholarship and Awards Banquet, held April 13th at the Inn at Virginia Tech and Skelton Conference Center in Blacksburg, Va. The annual event aims to recognize and honor students for their academic achievements as well as honor the careers of distinguished alumni.

Highlights of this year's banquet included the awarding of the *Old Timer's Club Award* and gold pocket watch to William Hines by Ben Hatfield, President and CEO of Patriot Coal. Alumni Richard Bolen and Ronnie Marcum, of CI Coal Group, presented this year's *Careers in Coal Award* to Andrew Marion, a graduating senior accepting a position with Arch Coal.

Rising senior Lynn Kern was the recipient of the *Evanson Award*, and the banquet saw the first presentation of the *Marshall Miller Scholarship* to rising juniors Tyler Faulkner and Chris Miller.

Among the department's graduate students, Steve Schafrik and Lei Pan [not pictured] were each recognized with *Outstanding Graduate Student* awards.

The department congratulates the many other students who were honored at the banquet and expresses its deep appreciation to those individuals and corporate sponsors who have contributed to our program's success.



William Hines is presented with the Old Timer's Club Award from Ben Hatfield



Ronnie Marcum (l) and Rick Bolen (ctr) present Andrew Marion with the Careers in Coal Award



Justin Douthat (ctr) presents Tyler Faulkner (left) and Chris Miller with the new Marshall Miller Scholarship



Lynn Kern is presented with the Evanson Award from Dr. Westman



Steve Schafrik presented with the Outstanding Graduate Student from Dr. Luxbacher

Thank You to Our Donors

It would be impossible for us to ever properly thank all of the individuals and corporations who provide support to the Mining and Minerals Engineering Department. However, we would like you all to know that this support is invaluable to us. In addition to the nearly \$200,000 in scholarships that are supported by companies and individuals, nearly \$150,000 in faculty and staff

salaries must be raised each year to run this department. Included among this group of externally supported positions are our Writing and Communications Coordinator who helps put this newsletter together and provides our students with the valuable communication skills they need to enter the workforce; our IT Manager who helps make sure our software and hardware are properly maintained and our undergraduate computer lab is in working order; and our Lab Mechanic who helps build the equipment that is used to support the \$7.5 million in research we performed last year. In addition to our usual listing of the donors for Fiscal Year 2012, we would like to

take this opportunity to give special recognition to those companies who each provide over \$20,000 in support on an annual basis. Many of these companies give their donations as “discretionary,” which allows us to not only support scholarships, but also the positions mentioned above. These donors, pictured here, include: Alpha Natural Resources, Consol Energy, the Massey Foundation, Newmont Mining Company, Peabody Energy, and Unimin. Thanks so much to all of you for your continued support.



Alpha Natural Resources



Peabody Energy



Unimin



Consol Energy



Massey Foundation



Newmont Mining

Individual Donations

1950's

Akers, Peter (Class of 1950)
Barbery, Paul (Class of 1959)
Billings, Virginia (Wife of the late George Billings, Class of 1953)
Bucklen, O.B. (Class of 1959)
Phillips, Charles (Class of 1950)
Van Meter, Horace (Class of 1959)

1960's

Bucklen, Jerry (Class of 1962)
Daugherty, Roger (Class of 1960)
Lin, Chung H. (Class of 1967)
Shrader, Sam (Class of 1963)
Skaggs, Gary (Class of 1968)
Suboleski, Stan (Class of 1967)

1970's

Artrip, Patrick (Class of 1979)
Bates, Dan (Class of 1979)

Bolen, Richard (Class of 1970)
Dirico, Tony (Class of 1979)
Hatfield, Dennis (Class of 1979)
Hibbitts, Charles (Class of 1974)
Marcum, Ronnie (Class of 1970)
Ross, Timothy (Class of 1976)
Saunders, James (Class of 1978)
Smith, Bryan (Class of 1979)
Snavelly, Charles (Class of 1978)
Wall, Kevin (Class of 1978)
White, David (Class of 1974)

1980's

Bartkoski, Mark (Class of 1981)
Brown, Mike (Class of 1983)
Carter, Roger (Class of 1981)
Compton, Tim (Class of 1983)
Craynon, John (Class of 1982)
Mullins, David (Class of 1983)
Prelaz, David (Class of 1984)
Stallard, Cary (Class of 1982)
Stover, Gary (Class of 1982)

Tussey, Joe (Class of 1982)
Whipkey, Kevin (Class of 1983)

1990's

Barksdale, Drew (Class of 1998)
Bush, Terry (Class of 1996)
Jablonski, Dianna (Class of 1990)
McAvoy, Michael (Class of 1998)
Saunders, Philip (Class of 1994)
Snyder, Matthew (Class of 1999)

2000's

Campbell, Rosalyn (Class of 2008)
Kegley, Derrick (Class of 2006)
Kim, Richard (Class of 2002)
Meador, David (Class of 2009)
Murphy, Tyson and Crystal (Class of 2004 and 2006)
Relyea, Caroline (Class of 2009)
Smith, Joshua (Class of 2006)
Smoak, Justin (Class of 2003)
Sprague, Nick (Class of 2009)

(Continued on page 4)

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Sprick, Paul (Class of 2006)
Sullivan, Jonathan (Class of 2007)
Tyndall, Travis (Class of 2008)

2010's
Greenberg, Marc (Class of 2011)
Littauer, Jordan (Class of 2010)

Other Donors
Bucklen, Darrell P. (Brother of Jerry and O.B.)
Haycocks, Ian (Son of the late Chris Haycocks)
Haycocks, Ramonda (Wife of the late Chris Haycocks)
Ilog, Rebecca (In memory of Jack Lester, Class of 1957)
Jones, James R.
Lucas, Eric (Son of the late J. Richard Lucas,
Former Dept. Head)

Poling, Francis and Louis
Stephenson, Bill (Former Dean, College of Engineering)
Wiler, Marianne (Mother of Jeff Wiler, Class of 2007)

Corporate Donations

Alpha Natural Resources
Appalachian Technical Services
Arch Coal
ArrMaz Custom Chemicals
Becker Mining America
Boeing
Cargill
Cliffs Natural Resources
Consol Energy
FL Smidth

Freeport-McMoRan
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Jenmar
Jewell Smokeless
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Marshall Miller
Massey Foundation
Mosaic
Nalco Chemical Company
Newmont
Oldcastle Materials
Peabody
Salem Stone Corporation
Southern Coals Conference
Unimin

If you have donated to Virginia Tech during FY 2012 and your name is not listed above, it is possible that your donation did not come to this Department. Please be sure to specify "Mining Engineering" on your check. Donations made to any other entity may go elsewhere. Likewise, if you have 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 online, we have established a link on our website for giving to the Department. You can go to <http://www.mining.vt.edu/sponsors/giving.htm> to donate online via credit card. Please be sure to follow the instructions provided to ensure that your gift goes to the Mining and Minerals Engineering Department.

Virginia Tech to Host 2013 Women in Mining National Meeting

The Virginia Tech chapter of Women in Mining will host the 2013 WIM National Meeting in Roanoke, Virginia, April 25-27. The event will be held at the Hotel Roanoke & Conference Center.

WIM's annual meeting brings together members and representatives from throughout the organization, including its numerous regional chapters as well as student and at-large chapters. The three-day event will focus on education and outreach topics related to the mining industry and of interest to its members and the general public. The conference also consists of WIM's annual business meeting, a banquet and a field trip for attendees.

The 2013 meeting, which is being hosted by the Virginia Tech chapter of Women in Mining, has received generous support from a number of industry sponsors, including Alpha Natural Resources, Arch Coal, Nalco Chemicals and Eriez.

Women in Mining was founded in 1972 with a mission to facilitate education about the mining industry. Its members include engineers, geologists, land men, secretaries, lobbyists, mine workers, educators and concerned citizens. Founded in 2004, the Virginia Tech chapter of Women in Mining was the first student chapter in the nation and currently has over 50 members, both male and female.



The 2013 WIM Meeting will be held at the Hotel Roanoke and Conference Center in downtown Roanoke, Virginia.

Dr. Luttrell Honored as 2012 Arthur Le Page Lecturer

Dr. Gerald H. Luttrell, Massey Professor in the Department of Mining and Minerals Engineering, was recently honored as the Australian Coal Preparation Society's (ACPS) Arthur Le Page Lecturer. In September 2012, Luttrell attended the society's 14th ACPS Conference & Exhibition, held in Canberra, Australia, to give his presentation titled "Preparation Plant Optimization: A Practical Perspective for Operators," which introduced new concepts for plant design, operation and maintenance that can be utilized by plant personnel to improve the efficiency, and ultimately the profitability, of their coal cleaning and blending facilities. Founded in 1989 from a joining of two regional societies, the ACPS seeks to distinguish and consolidate the profession of coal preparation in Australia through education, training and technology transfer, and to assist the Australian industry in maintaining world's best practice. The Arthur Le Page Memorial Lecture is named in honor Arthur Le Page—a prominent leader in the coal industry and founding member of the Coal Preparation Society of Queensland and New South Wales.



Dr. Gerald H. Luttrell

Dr. Luttrell has completed projects worth over \$14 million, obtained 15 process patents and authored more than 150 scholarly publications in journals and proceedings, as well as more than 180 technical reports. His research has contributed to the development of innovative technologies for coal preparation and mineral processing. He holds numerous awards to include the American Institute of Mining, Metallurgical, and Petroleum Engineers' Nicholls and Aplan awards, the Pittsburgh Coal Mining Institute of America's Stephen McCann Educational Excellence Award and is a recipient of the Robert H. Richards award. He has twice served as a Henry Krumb lecturer, and is a five-time recipient of the department's Outstanding Faculty Award, a four-time recipient of Virginia Tech's Academy of Teaching Excellence Award and a recipient of the College of Engineering Dean's Award for Excellence in Public Service.

Karmis Receives First SOMP Gunter Fettweis Award

Michael Karmis, Stonie Barker Chair in the Department of Mining and Minerals Engineering, has received the first Gunter Fettweis Award from the international Society of Mining Professors (SOMP) in recognition of his accomplishments in education, research and professional service and for his vision and contributions to the Society of Mining Professors.

Formed in 1762, the Society of Mining Engineers was the first international scientific society on record and had as its members most of the well-known scientists of the day. In 1990, a group of Mining Engineering Professors, under the leadership of Professor Gunter Fettweis, reconstituted the society. Today, SOMP is a vibrant society representing 72 universities in more than 40 countries and all continents. Its mission is to promote mining engineering as an engineering discipline and to facilitate information exchange, research and teaching collaboration.

Dr. Karmis was presented with the award—which consisted of an engraved antique mining lamp—during the Society's recent annual meeting in Wroclaw, Poland in July 2012. Approximately 100 society members and guests were in attendance at the formal event, held in the Wroclaw City Hall, a former palace.

Karmis, world-renowned for his achievements in areas of mine safety and health, joined Virginia Tech's Department of Mining and Minerals Engineering in 1978 and is a former department head. He currently serves as the director of the Virginia Center for Coal and Energy Research and manages some \$33 million in research projects. Karmis is also the founder of Appalachian Research Initiative for Environmental Science (ARIES), a consortium of major research universities whose goal is to address the environmental impacts surrounding the discovery, development, production and use of energy resources in Appalachia.



Professors Guenter B. Fettweis (right) and Monika Hardygora, 2012 SOMP President, Vice-Rector of Wroclaw University of Technology, and President KGHM CUPRUM, present Michael Karmis with the award.

New Faces in the Department: Dr. Nino Ripepi

Nino Ripepi grew up in Connellsville, Pa., just southeast of Pittsburgh—the son, grandson and nephew of a coal mining family who owned and operated a number of surface coal mines. Yet when he enrolled at Virginia Tech, he had never heard of “mining engineering.” He attended several information sessions, and started leaning towards a degree in mechanical, civil, or even ocean engineering. That is, until he attended one more.

“I went to the mining and minerals engineering information session and remember thinking ‘it just felt like home,’” recalls Nino. But he was unsure how his family would take his decision, especially his mother who experienced the ups and downs of the mining business.

Nino sought further advice from former professor Dr. Chris Haycocks. “I sat in his office. I listened to him. And when he was finished, I knew I was going to become a mining engineer.” Ripepi would go on to graduate from the program with a B.S. in 1999, a Ph.D. in 2009, and, as of this fall, he officially joins the department as its newest faculty member.



Dr. Nino Ripepi

After obtaining his B.S., Nino faced the dilemma of choosing a permanent job with a coal company or pursuing graduate studies. “I met with Dr. Michael Karmis to discuss the possibility of going to Penn State for graduate school, but he said I should stay at Virginia Tech to work on a master’s under his direction, which I did.”

Ripepi draws much of his professional and research experience from his time with Dr. Karmis and the Virginia Center for Coal and Energy Research (VCCER). From 2002 to 2011, Nino served in positions ranging from graduate teaching assistant, project manager and postdoctoral research scientist for the center. This experience, coupled with his teaching several energy and environment-related courses, gave him greater insight into energy development and usage. “My time at the VCCER was invaluable,” says Ripepi. “I learned a great deal about grant writing and running research projects, as well as unconventional natural gas production, including coalbed methane and, more recently, shale gas.”

His dissertation, *Carbon Dioxide Storage in Coal Seams with Enhanced Coalbed Methane Recovery: Geologic Evaluation, Capacity Assessment and Field Validation of the Central Appalachian Basin*, grew out of his work as the Project Manager and lead researcher for a \$5-million-dollar project that conducted the first CO₂ injection into Appalachian coal seams. Prior to this there had been only a handful of similar projects worldwide.

Ripepi’s expertise lies in areas of natural gas and petroleum engineering: specifically, coalbed methane and shale gas production as well as enhanced production from carbon dioxide storage, also known as carbon sequestration. He also has an ongoing interest in mining-related environmental and health and safety issues.

“These are important areas for the department, since they can help move it towards research related to shale gas production and carbon sequestration, which are likely to become more heavily funded,” he explains. Ripepi is already looking to initiate projects associated with energy production, including enhancing recovery and maximizing reserves, environmental stewardship, and health and safety. “The idea of developing energy sustainably covers all three of these areas, and it is somewhere I see my research heading.”

Dr. Ripepi has enjoyed a smooth transition from VCCER to Holden Hall, where he gets to work more closely with fellow faculty. Nino will teach his first course as a full-time faculty member in spring 2013 with *Underground Mine Design*; however, he has had ample experience teaching courses within the department, including the *Health, Safety and Risk Management* and *Mining Engineering Leadership Seminar* courses, which he will continue to teach. He has also taught *Energy, Resources, Development and the Environment*, through the Engineering Education department, and *Engineering Exploration* in the College of Engineering.

In addition to his research and course load, Nino will be serving as the faculty advisor for the Mining Competition team. “I was a member of the competition team as an undergraduate and have fond memories of the friendships, trips, competitions and how much I learned about mining,” says Nino. “I look forward to working with this year’s team; they practice a lot more than we used to!”



Dr. Ripepi working on the CO₂ injection project. As part of the study, one thousand tons of carbon dioxide were successfully injected into a coalbed methane well in Russell County, Virginia.

Samuel E. Shrader Inducted into Academy of Engineering Excellence

Virginia Tech's College of Engineering recently inducted Samuel E. Shrader, a 1963 mining and minerals engineering graduate, into its Academy of Engineering Excellence: an elite group consisting of only 112 people out of its more than 58,000 living alumni.

Coal was in Sam's blood from the start. Born in August 1938 in Tazewell County, Va., he and his 10 younger siblings were the product of a father and grandfather who had worked for the same company coal fields since 1909. He would go on to continue his "family business" by sustaining a 30-year career in Consol.

After graduating high school in 1956, Sam attended Virginia Polytechnic Institute. He hoped to get out of the family business by pursuing metallurgy. But within two academic quarters, Charlie Holland, head of the mining engineering department, persuaded the young man to switch majors. Holland spoke of the Bishop Coal Mines, which hit close to home for Sam. "As I listened, I thought, 'Why am I in metallurgy when coal is the thing I know about.'"

Shrader graduated with a degree in mining engineering in 1963 and went to work for Consol's Pocahontas office as the assistant to the division president, and in 1965 was promoted to superintendent of the Buckeye Mine. Three years later he was again promoted to regional industrial engineer. During this position Shrader incorporated several groundbreaking computer programs developed at Virginia Tech's mining department. He worked closely with then department head J. Richard Lucas and professor Lou Prelaz.

By the early 70s Shrader was named vice president of operations for Bishop Coal Company, and in 1975 was named vice president of Consol's Tazewell County operations. In 1981 he was asked to serve as assistant to Bobby Brown, then executive vice president of operations for all of Consol. In 1984, Shrader became senior vice president of the Eastern Region, overseeing dozens of projects and hundreds of employees. During his 10 years in this position, Shrader saw production nearly triple from 9 million to 25 million tons and profits go from \$1 to over \$10 per ton.

Mr. Shrader became widely known as an industry leader in the use of large-scale long wall mining, and was the first industry manager to use 1,000-foot-wide and 10,000-foot-long panels. He also developed two patents during his lifetime. One improved miners' safety while also speeding up a sometimes gruelingly slow, stop-and-start process of opening narrow-entry mines. The device allowed roof bolting operators and miners to work simultaneously instead of each waiting on the other. At the time, it enabled Mr. Shrader's teams to increase productivity by 40 percent. He also worked to ensure the rights and benefits for his workers, above and beyond those promised by union representation.

Today, Sam enjoys his retirement in Punta Gorda, Fla., with his wife Judy, and fishes on a regular basis. "I like the outdoors, always have," he says. Whenever in Southwest Virginia, he attends as many Hokie football games he can.

Shrader remains active with the Department of Mining and Minerals Engineering, having served as a charter member of its advisory board from 2000-2009. In nominating him for the honor, both Greg Adel and Michael Karmis acknowledged that "throughout his career, Sam became known as one of the most knowledgeable coal-mining engineers and managers in the world, and he was the chief go-to guy for Consol who could make any operation run, and run profitably."



Samuel E. Shrader, '63

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“Blast from the Past”

The Spring 2012 “*Blast from the Past*” featured many members of the Class of 1980 and proved to be very popular with our alumni. After running this picture multiple times, we now have most of the people identified. Therefore, we won’t be running the picture again. However, if anyone wants a listing of the names, please contact us and we will be happy to forward the list.

For the Fall 2012 “*Blast from the Past*,” we are going back to our archive of past Burkhart annual reports. We believe this is a picture of a former group of Burkhart officers. See if anyone can identify the name of each person, the year when this was taken, and the position each person held in the Burkhart Mining Society.



As always, we can continue to go to our archives, but if any of you have photos from your days in the Department (particularly group shots) that you would be willing to share, we would be happy to scan them and return them to you. Any photos that are more than twenty years old would be greatly appreciated.

Please send your photos to:

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