

News from Holden Hall

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

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The Mill Report

—*Dr. Greg Adel, Professor and Department Head*

Welcome to the first issue of our new semi-annual alumni newsletter, News from Holden Hall. Our intent is to keep you informed about the latest happenings in the Mining and Minerals Engineering Department, to brag about our terrific students and our exceptional faculty, and to describe some of the challenges we face as we move forward into our next century of existence. We are still in the process of creating an accurate alumni address and e-mail list. We hope to make this an electronic newsletter so if you are receiving a hard-copy, please send us your e-mail address. If you received this newsletter electronically, but would prefer to receive it at another e-mail address, please let us know.

Those of you who know me or remember me may recall that I am a Metallurgical Engineer. Thus, the title of my article comes from the daily summary that plant metallurgists prepare to describe the status of the processing plant.

So how are we doing? The 2008-09 academic year saw us celebrate 100 years of our existence as a formal degree-granting program. It was 1908 when Professor Otto C. Burkhart was hired to chair the new department of mining engineering at VPI. We celebrated our centennial with 56 graduates in the Class of 2009, the largest graduating class in our history. With 160 undergraduate students in our sophomore, junior, and senior classes, we remain the largest mining engineering program in the country. In fact, over one-fourth of all the mining engineers produced in the U.S. since 2000 have come from Virginia Tech.

In this first issue of our newsletter, you will read about some of our outstanding students; students such as Alek Duerksen who was selected this past year as the Outstanding Senior in the College of Engineering (only the third VT mining engineer to receive this honor) and who was also selected as the recipient of a National Science Foundation Fellowship for graduate study (only the second VT mining engineer to receive this honor); and students such as the members of our Design Competition Team which won the SME/NSSGA Student Design Competition for the second year in a row. You will also read about some of our outstanding faculty; Dr. Roe-Hoan Yoon who was inducted into the National Academy of Engineering (1 of only 6 VT faculty in the academy); and Dr. Michael Karmis who has been serving this past year as the President of AIME and who was recently named the recipient of the Dean's Award for Service. Finally, you will read about two of our outstanding alumni, Mr. Harry Childress and Dr. Bev Watford, who were recently honored as Distinguished Alumni of the Department of Mining and Minerals Engineering.

In each issue of News from Holden Hall, we hope to highlight one or two programs that the department has deemed so important we are willing to fund them from our own resources (meaning alumni donations, interest on our endowment, and returned research overhead). One such program is the Undergraduate Communications Program headed by Angelo Biviano. Since its modest beginning in 1996, this program has grown into an integral part of our curriculum to help our students improve their writing skills, speaking skills, interviewing skills, presentation skills, etc. We now have tangible evidence from alumni surveys, employer surveys, and our success in national competitions to show that our efforts are having an impact on the



Dr. Greg Adel (left) with Bill Mays and Jack Gembach (right), graduates from the class of 1958.

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graduates we produce. We hope you will agree that this program is worth the resources and will perhaps consider helping us sustain it into the future.

Last but not least, one of the most important goals of this newsletter is to help us reconnect with our alumni. No matter how big we get, we will always maintain our family atmosphere. So if you are coming to Blacksburg for a football game, a business meeting, a vacation, or any other reason, please feel free to stop by the department. I would especially like to learn more about the history of the department. If you look at the department website (<http://www.mining.vt.edu/>) you will notice that we are in the process of putting together a department history, and we could use your help. I would love to receive stories, pictures, or any other information about the department. So, knowing that I could be asking for trouble, my direct phone number is (540) 231-6650 and my e-mail address is adel@vt.edu.

Finally, if you ever have the desire to donate to Virginia Tech, I hope you will earmark your gift for Mining and Minerals Engineering (and also fill out the appropriate paperwork for any corporate match your company may provide). While unrestricted donations give us the most flexibility, we always welcome donations related to activities that may strike a particular chord with you such as our communications program, the scholarship program, the design competition team, the Burkhart Mining Society, or any of the many activities and programs that we hope to feature in future issues of this newsletter.

I look forward to hearing from our alumni and many of my former students from the past 27 years. Please enjoy this first issue of News from Holden Hall.

Dr. Greg Adel

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Department Honors Two Outstanding Alumni

Mining and Minerals Engineering department alumni Bevlee Watford and Harry Childress are the 2009 recipients of the department's Distinguished Alumnus Award. The awards were presented during the department's annual Scholarship and Awards Banquet held in April at the Inn at Virginia Tech.

Bevlee Watford is a Professor of Engineering Education and the Associate Dean for Academic Affairs in Virginia Tech's College of Engineering. She also directs the college's Center for the Enhancement of Engineering Diversity. The award "recognizes Dr. Watford's many accomplishments as an educator and administrator throughout her career, but most importantly, it recognizes her tireless efforts to increase diversity in all of the engineering disciplines," said Department Head Greg Adel. Watford earned all three of her degrees from Virginia Tech including a B.S. in mining engineering in 1981, an M.S. in Industrial Engineering in 1983, and a Ph.D. in Industrial engineering and Operations Research in 1985. Her research interests have focused on the recruitment and retention of engineering students, particularly under-represented students.



*Harry Childress (left) and
Dr. Jerry Luttrell*

Harry Childress earned his B.S. in mining engineering from Virginia Tech in 1974 and is currently a government affairs agent with the Cumberland Resources Corporation. Childress was recognized for his "many contributions to the mining field, his service to the profession, and his dedicated support of his alma mater," said Adel. Childress has had an extensive career in the coal industry, working with companies such as North Fork Coal, Massey Energy, and Clinchfield Coal. From 1982 to 1995 he served as the Chief of the Division of Mines in Virginia's Department of Mines, Minerals and Energy, and he has served on Boards of Directors for numerous coal industry and community-related associations.



*Dr. Bevlee Watford (left) and
Dr. Greg Adel*

Students Win National Design Competition Second Straight Year

A team of students from Virginia Tech's Department of Mining and Minerals Engineering won first place in the Society for Mining, Metallurgy and Exploration (SME)/National Stone, Sand, and Gravel Association (NSSGA) Student Design Competition. A second department team earned fifth place.

The win is significant for Virginia Tech's mining engineers. Not only is this the second year that the department has sent two teams to the finals, it is also the second year in a row that a Virginia Tech team won first place.

"I thought our team did an outstanding job," said Greg Adel, professor and head of the Mining and Minerals Engineering department. "I have been involved in this competition since its inception and it is no easy task to win, let alone win two years in a row. The schools involved are all very competitive and they continue to raise the bar each year."

Virginia Tech's "Old Dominion Mining" won first place and consisted of seniors Aaron Noble, Alek Duerksen, Andrew Storey, Caroline Relyea and juniors Ricky Rose and Bob Stieber. The second team, "Mischief Mining," placed fifth and consisted of seniors John Bowling, Holly Fitz, Bridget Mead, Nick Sprague and juniors Daniel Sadtler and Scott Hutchins.

The academic competition consists of two phases. Phase I requires teams to write and submit a comprehensive mine design report based on real data in the fall semester. Judges made up of aggregate industry professionals choose the six best reports to determine finalists. In Phase II, finalists are given an additional design problem to be solved within 48 hours during the SME's annual exhibit. Teams then present their results as an oral report to the judges and a larger audience.

Since its inception in 2005, the student design competition has grown from four to more than 15 teams, and Virginia Tech's mining students have had strong success. They won second place in each of the event's first three years, and in 2008 two teams made the finals with one taking first and another fourth places.



Mining & Minerals Engineering Department Faculty with students of team "Old Dominion Mining" team. (L-R): Dr. Greg Adel, Richard Rose, Alek Duerksen, Caroline Relyea, Andrew Storey, Bob Stieber, Aaron Noble, and Dr. Erik Westman.

Helping Mining Engineers Become Better Communicators: The Writing & Communications Program

Ask engineers about writing and you'll probably hear the age old myth that it is something engineers don't do. But for students in Virginia Tech's mining and minerals engineering program, writing is something they do often and well. For over ten years the department's Writing and Communications Program (WCP) has prepared its students for the communication challenges of the mining industry and related professions.

Proof of the program's success grows each year. Employer surveys have noted improvement in students' ability to communicate and write, and a recent ABET review suggests communication skills to be a strength of the curriculum. Along with two consecutive first place wins in SME/NSSGA's Student design competition, the last five years saw Virginia Tech mining students placing first or second in design competitions sponsored by the PCMIA/SME and Carlson Software—all of which judge partly on writing and presentation quality.

"Students in the mining department are writing and presenting a lot," says Angelo Biviano, director and instructor of the department's writing and communications program. "Not only are they graded on writing quality in technical assignments, but they must also submit them in multiple drafts." As a result, students learn how writing is a process of revision and improvement rather than just a last-minute final product.

"The writing aspect [in mining courses] can be pretty intense," says Daniel Sadtler, a rising senior in the undergraduate program. "But once you step back and look at your reports over a semester, you do begin to see improvement; writing a lab report actually becomes easier once you've done it 3 or 4 times."

Technical report writing is emphasized in the junior year laboratory courses, while professional communication and oral presentation skills are stressed in the Senior Design Project course. A senior course on leadership also aims to develop students' analytical and argumentation writing skills.

The WCP also assists students with career-related communication skills. The department's active recruiting program requires all students to have a professional resume by their junior years. To support this, the WCP instructor gives workshops on writing resumes and cover letters and interviewing effectively. The instructor acts as a "writing consultant" on many student projects. "I've had students ask for help with non-mining reports or assignments," notes Biviano. "When they begin to consider their writing outside of the department, you know the program is paying off."

Mining Student Named College of Engineering Outstanding Senior

Virginia Tech has named Alek Duerksen, of Waynesboro, Va., the Outstanding Graduating Senior in the College of Engineering for the 2008-09 academic year.

Duerksen will receive his Bachelor's of Science degree in mining and minerals engineering from the College of Engineering in July of this year. He will be receiving an honors baccalaureate diploma with a research-based thesis, as well as minors in geosciences and creative writing. During his time at Virginia Tech, Duerksen has participated in a variety of extracurricular activities and held a wide range of leadership positions.

Recently named a National Science Foundation fellow, Duerksen has conducted his research in the fields of underground hard rock mining methods and the effects of mine safety legislation on mining technology in the United States. In addition to academic excellence in science, Duerksen has also excelled in English. As a junior, he was inducted into the Phi Beta Kappa national honor society, a rare honor for an engineering major.

During the summer of 2008, Duerksen travelled to Chile with P&H MinePro Services, a major mining equipment manufacturer. While there he conducted a comprehensive analysis of the contract sites' maintenance and repair practices and performances. He completed his research and presented his findings to a national-level management team entirely in Spanish.

"The path I have chosen has taken many bends and been ridden with obstacles, yet it has played a dominating role in forging my present character and enabling me to represent Virginia Tech in the highest and best way possible," said Duerksen. "I am honored to have the opportunity to do so once again with this nomination."

The Outstanding Senior Awards are presented at the Student Honors Day Banquet each spring. These awards are co-sponsored by the Virginia Tech Alumni Association and the senior class.

The purpose of the award is to recognize outstanding student performance in each college of the university. Students are selected on the basis of their grade point average (3.4 or higher on a 4.0 scale) and outstanding performance in several or all of the following areas: academic achievement, extracurricular activities, leadership positions, and contributions of service to the university and/or community.



Alek Duerksen

Duerksen Awarded NSF Graduate Fellowship

Each Year the National Science Foundation (NSF) awards fellowships to deserving students to "ensure the vitality of the human resource base of science, technology, engineering and mathematics in the United States." This year, the NSF has awarded one of these fellowships to Mining and Minerals Engineering department graduate Alek Duerksen.

The fellowship provides three years of funding, including a tuition supplement and a stipend of \$30,000 per year. "The NSF Fellowship is as good as it gets for graduate students, and I know how extraordinarily competitive the awards are," said Richard Benson, dean of Virginia Tech's College of Engineering.

Alek Duerksen, will graduate from Virginia Tech in July 2009 with a B.S. Degree in Mining and Minerals Engineering along with minors from two other colleges: Creative Writing, from the College of Liberal Arts and Human Sciences, and Geosciences, from the College of Science. A truly well-rounded student, Alek plans to pursue his master's degree in Mining and Minerals Engineering at Virginia Tech.

Working under the guidance of Mining and Minerals Engineering Associate Professor Dr. Erik Westman, Alex plans to research the optimization of the surface mining process. "Alek is an outstanding student with an excellent background for improving the efficiency of large-scale mining operations," says Westman.

Along with being recently named the College of Engineering's 2009 Outstanding Senior, Duerksen was a member of the Virginia Tech student design team, "Old Dominion Mining," which recently took first place in The SME/NSSGA Student Design Competition, a highly competitive national event for mining engineering students.

Roe-Hoan Yoon Elected into National Academy of Engineering

Dr. Roe-Hoan Yoon, Nicholas T. Camicia Professor in the Department of Mining & Minerals Engineering, was elected in 2008 to the National Academy of Engineering (NAE).

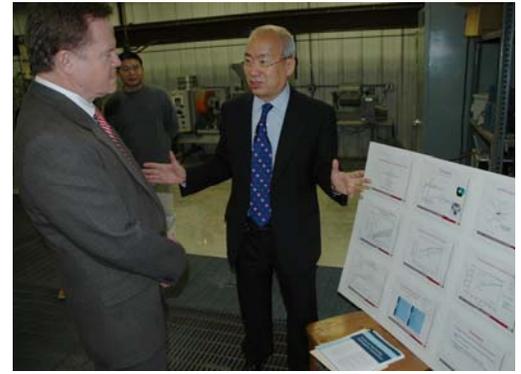
Membership to the Academy is among the highest professional distinctions accorded to an engineer, honoring those who have made outstanding contributions to research, education, and scholarship. Yoon was elected for “advancing the surface chemistry of mineral systems and developing new mineral processing technology and flotation kinetic models.”

“The College has long recognized the technological and scientific achievements of Dr. Yoon,” says Virginia Tech College of Engineering Dean, Richard Benson. “He is a true pioneer in clean coal technology, working for more than 30 years in this field. His outstanding reputation has led to numerous awards, and he is well-known in Washington, D.C., especially by the Department of Energy (DoE) for his work in the mining and minerals arena.”

In 1980 Yoon developed technologies for producing clean coal from coal fines discarded to waste ponds. This research resulted in a commercially successful flotation technology which is currently marketed by Metso Minerals and Eriez Magnetics under the trade name *Microcel*. The concept of using small air bubbles (microbubbles) to separate fine particles has been widely adopted in the flotation industry worldwide. Yoon and his colleagues have continued to develop technologies for removing coal impurities, including sulfur-containing minerals which are the sources of sulfur dioxide and mercury—a critical concern associated with coal use.

Yoon’s efforts in areas of clean coal and environmentally-sound separation technologies have long garnered interest from elected leaders. Virginia Senator Jim Web visited the department’s laboratory facility In October 2008 to take a closer look at Yoon’s work on cleaner and alternative uses of fossil fuels.

Yoon earned his bachelor’s in mining engineering from Seoul National University (1967) and his Ph.D. in metallurgical engineering from McGill University (1977). He directs the Center for Advanced Separation Technologies, a consortium of Virginia Tech and six other universities whose goal is to develop advanced separation technologies that can be used to produce clean solid, liquid, and gaseous fuels from domestic energy resources in an efficient and environmentally acceptable manner.



Dr. Yoon explains microbubble technology to Virginia Senator Jim Webb (left)

Michael Karmis Serves as AIME President

Dr. Michael Karmis, Stonie Barker Professor of Virginia Tech’s Mining and Minerals Engineering and director of the Virginia Center for Coal and Energy Research (VCCER), is currently serving as President of the American Institute of Mining, Metallurgical, and Petroleum Engineers (AIME).

A former trustee of AIME, Karmis began the 4-year officer rotation as “president-elect designate” in 2006/07, after which he served one year as “president-elect.” He will continue to serve as president and trustee until his term ends in 2010.

The achievement is significant, considering the names of those associated with past AIME offices. Andrew Carnegie served as an officer of the organization in 1890, and Herbert Hoover was the AIME president in 1920.

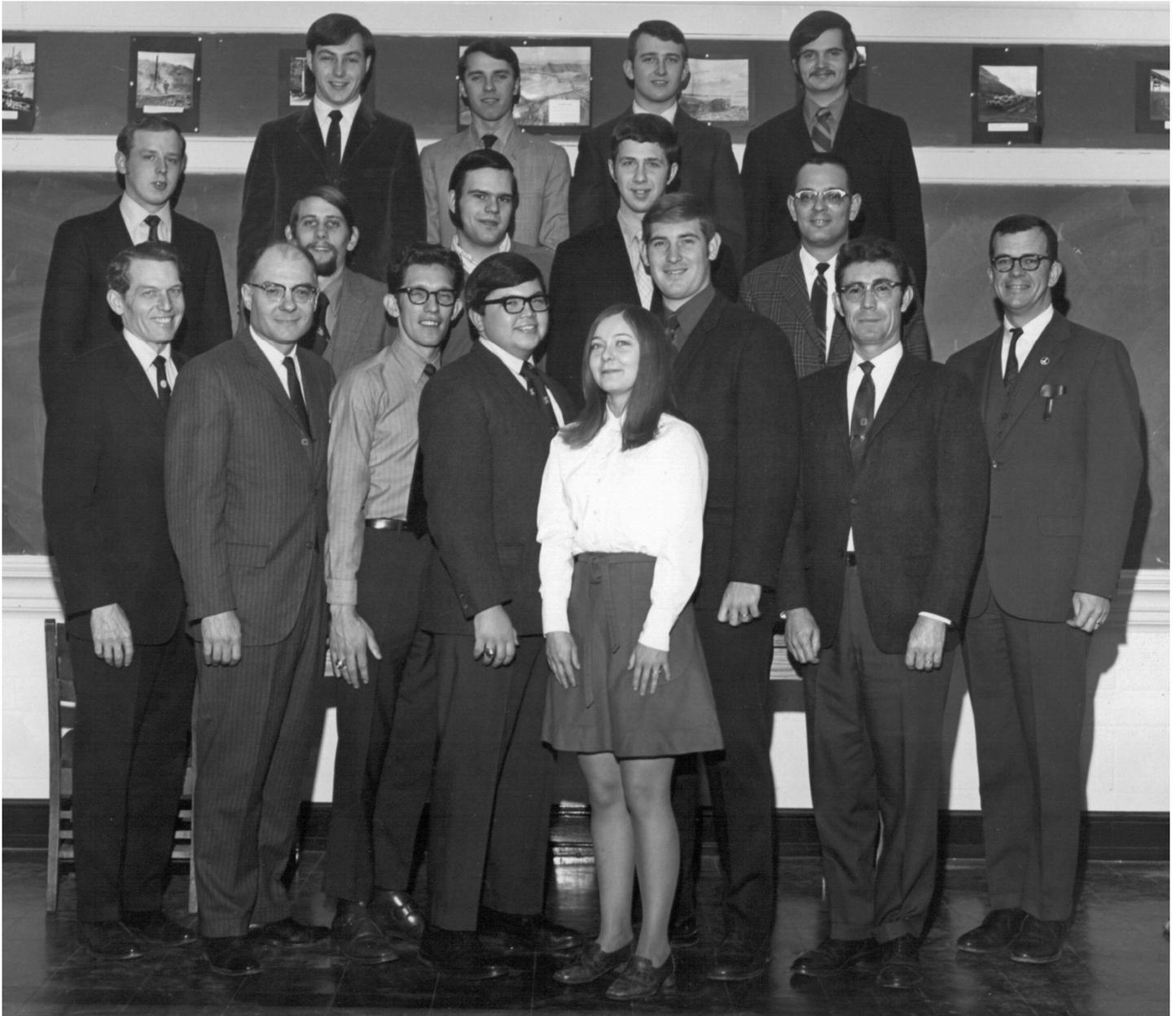
AIME Presidents are elected from past presidents of member societies (SME, TMS, AIST, and SPE), which highlights Karmis’ eligibility. His service to the Society for Mining, Metallurgy and Exploration (SME) is marked by his rising through the ranks to serve on SME’s Board of Directors and ultimately SME President in 2002. Karmis’ outstanding record of professional service, exemplified in his AIME Presidency, prompted Virginia Tech’s College of Engineering Dean, Richard Benson, to award him the 2009 Dean’s Award for Excellence in Service.

Karmis brings a wealth of expertise and educational experience to the AIME position. His research interests include mine planning and design, ground control and the sustainable development of energy and natural resources. He has authored more than 150 scientific papers, reports, proceedings volumes and textbooks and has directed numerous research projects funded by government agencies and the private sector. A Professional Engineer in the U.S.A. and a Licensed Engineer in Europe, Dr. Karmis has consulted with the minerals industry, consulting companies, government organizations and legal firms. He served as the 2002 President of SME and the 2002-03 President of the Society of Mining Professors. He is a Distinguished Member of the SME, a Fellow of the Institute of Quarrying, and a Fellow of the Institute of Mining and Metallurgy. In 2008 AIME awarded him the Mineral Industry Education Award “for his national and international recognition as a teacher, researcher and academic leader and for his commitment in mentoring and advising of students.” He has earned four Certificates of Teaching Excellence from Virginia Tech’s College of Engineering.



Dr. Michael Karmis

“Blast from the Past”



In each issue of News from Holden Hall we hope to include a picture from our archives and enlist the aid of our alumni in identifying the people and the occasion. This illustrious group is clearly dressed for success and, we have been told, may include one or two of our current Advisory Board members.

Who are these people?

Please e-mail your responses to: adel@vt.edu

Or mail your responses to:

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