



Department of Mining Engineering

# BLACK DIAMONDS WV

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## Professor Syd S. Peng Elected into the National Academy of Engineering

### The First Academy Member In 140 Years From WVU

by Gerald Finfinger  
(PhDMine '03)

Professor Syd S. Peng, Charles E. Lawall Chair, was selected by the National Academy of Engineering as an inductee for the class of 2007. This is an honor bestowed to a select few that have obtained the highest distinction of accomplishment in the field of engineering. The National Academy of Engineering (NAE) was founded in 1964 and serves our country by performing studies and developing recommendations on the most critical and pressing national and international issues. Dr. Peng's knowledge and accomplishments, apparent when one reviews his long and distinguished career, will be a welcomed addition to the NAE.

Dr. Peng's journey to the National Academy of Engineering began in Taiwan where he earned an undergraduate degree in mining engineering. He continued his education in the United States, earning a Master's



Dr. Syd S. Peng

Degree at the South Dakota School of Mines and a Ph.D. in mining engineering at Stanford University. After completing his

education, he worked with the U.S. Bureau of Mines before arriving at West Virginia University in 1974. Dr. Peng served as the Mining Engineering Department Chair from 1978 until 2006. During his tenure as a Professor, Syd has served his profession with distinction and honor with close mentoring and guidance of his students (I can personally attest to that!), tackling many of the most challenging problems facing the mining community, and working tirelessly for the betterment of the mining engineering community. His students are widespread through-out the mining community and there are few mining

(See Peng, Page 2)



Alumni and Friends attended CEMR Reception for Dr. Syd Peng's election of NAE member were (left to right): Dr. William Mark Hart (MSEM, '89), Jack Trackemas (Foundation Coal), Samuel Cario (Foundation Coal), Dr. Syd Peng and Dr. Jinsheng Chen (PhDMine, '98).



### (Peng from Page 1)

organizations including coal producers, equipment manufacturers, academic organizations and government agencies that don't have a former student of Professor Peng. Having taught hundreds of undergraduates and directly supervising 40 master's theses and over 30 Ph.D. dissertations, Syd's influence is everywhere.

Having studied under Syd's direction for 5 years, I can personally speak about Syd's dedication and caring for his students. I didn't always recognize the dedication and caring during the 6:30 am calls on weekends to check on my progress on my dissertation, but I do now. Without Syd's prodding (a kinder word after 5 years of early morning weekend calls), I would never have finished my dissertation and completed the requirements for my doctorate. I'm honored to be an alumnus of West Virginia University, a graduate of the Department of Mining Engineering, College of Engineering and Mineral Resources and a student of Professor Syd Peng. I'm glad the National Academy of Engineering recognized what Syd's students have always known – Syd is one of a select few.

A few of Syd's accomplishments that are noteworthy, and no doubt helped pave the way for his election into the Academy, include his contributions to the understanding of subsidence from underground coal mining, longwall operations and ground control in underground mines. Dr. Peng has published extensively in these fields, authoring three text books and more than 500 publications including peer-reviewed articles and research reports. He has traveled widely within the U.S. and abroad, conducting research and lecturing on a range of mining engineering topics. He is the recipient of many awards, both national and international, from such prestigious organizations as SME, AIME, PCMIA, IMM and R&D Magazine. While Dr. Peng's accomplishments and dedication have been recognized in the past by



David Hardesty, President, WVU, Dr. Syd S. Peng, Dr. Gene Cilento, Dean of CEMR, and Dr. Christopher Bise, Chair of Mining Engineering at the Reception of CEMR for Dr. Syd Peng's election as a member of the National Academy of Engineering.

many organizations, his election into the National Academy of Engineering is the ultimate recognition. I can think of no one more deserving the honor bestowed upon him by his peers in the NAE.



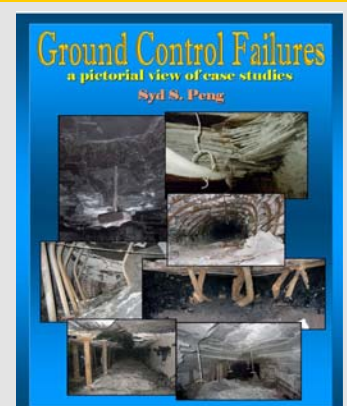
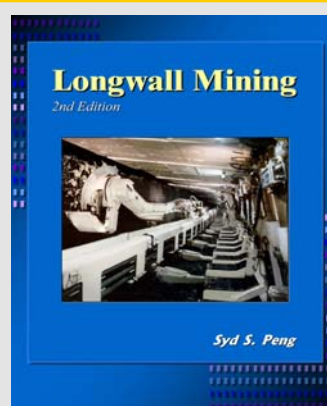
Drs. Syd and Felicia Peng.



(left to right): Bill Reid, Managing Editor of Coal News and Dr. Peng.



Dr. Syd Peng at Ligan Colliery, Nova Scotia, Canada.



Dr. Syd Peng's new books: "Longwall Mining (2nd ed)" and "Ground Control Failures—a pictorial view of case studies (1st ed)".  
<http://www2.cemr.wvu.edu/~speng/>

## Dr. Syd Peng Inducted into the Class of 2007 WV Coal Hall of Fame



Dr. Syd S. Peng of Morgantown, WV.

Dr. Syd S. Peng, Charles E. Lawall Chair of Mining Engineering, was inducted into the Class of 2007 West Virginia Coal Hall of Fame, in a joint meeting of the West Virginia Coal Association and the West Virginia Coal Mining Institute, at the Glade Springs Resort, Daniels, WV on May 4, 2007. Dr. Peng is a well-known figure in the state, who was recently elected to the National Academy of Engineering, an organization of the most elite engineers in the nation. Peng was elected for his leadership in the development of longwall mining, ground-control, and subsidence control technologies.

"I am humbled and grateful for this honor,"

said Peng. "It brings a great deal of pride to me, my Department and College, and to West Virginia University". More about Dr. Peng's accomplishments are detailed elsewhere in this issue of *Black Diamonds*.

Syd and his wife Dr. Felicia Peng, also a faculty member of the WVU Mining Engineering Department, are the proud grandparents of three. They enjoy visiting their sons in California and Ohio. Their eldest, Stanford, his wife, Andrea and their children, Avery, Charlotte and Clara live in Palo Alto, California. Their youngest son, Wildon, lives in Columbus, Ohio.

## Elmo Hurst Inducted into the Class of 2006 WV Coal Hall of Fame

Elmo J. Hurst was President and Chief Operating Officer (retired) of Elgin National Industries, Beckley, WV. Mr. Hurst received his BS in Engineering of Mines from WVU in 1953. He was inducted into the Class of 2006 West Virginia Coal Hall of Fame on May 14, 2006. Mr. Hurst was also inducted into the West Virginia Business Hall of Fame in 2004. WVU inducted him into the Order of Vandavia and the Woodburn Circle Irving Steward Society.

After serving in the United States Navy and Winding Gulf Coal Co., Elmo joined the J. O. Lively Co., which designed and built coal preparation plants. When J. O. Lively Co. was merged with Elgin National Industries, he became President of both.

Hurst also formed ENI Engineering Co. and Mining Control Co. Since then, Mr. Elmo Hurst has acquired and purchased a variety of the companies. Hurst has been active and held many offices in many social, industrial and professional organizations.

Mr. Hurst was instrumental in the establishment of the Spindler and Holland Professorships in the College of Mineral and Energy Resources. Elmo and his wife Betty established a trust to benefit mining engineering students. In gratitude for their support, the University named the atrium at the COMER Building in honor of Elmo and Betty.



Mr. Elmo J. Hurst of Beckley, WV.

## ALUMNI NEWS

- **Elizabeth S. Chamberlin (BSEM '78)** newly appointed vice-president of Safety and Training, Massey Energy, Charleston, WV.
- **Jinshen Chen (PhDMinE '98)** has been appointed as vice-president of West Hawk Development, a mining company in China for development and exploration.
- **Timothy W. Coleman (BSEM '79)**, Vice President of Mining Engineering at L. A. Gates Co., an engineering and consulting company, Beckley, WV. He is developing mining projects for the company.
- **Ronald K. Hite (BSEM '81)** has been promoted to chief operating officer, Asian American Coal, Inc. in Beijing, China.
- **William Mark Hart (MSEM '95)** has been appointed president of West Hawk Development, an exploration and mining company located in Vancouver, Canada.
- **Joel Helbig (BSMinE '07)** is working as a production mining engineer, Cumberland Mine, Foundation Coal, PA.

- **Jay W. Honse (BSEM, '80)**, newly appointed vice-president of Engineering at Peabody Energy, St. Louis, MO.
- **Gary W. Jarrell (BSEM '80)** stopped by a couple of times to visit his former advisor Dr. Syd Peng, and MinE faculty. His son, Jason, graduated with a BSAE in May 2006.
- **Frank Kirby, PE (BSEM '78)** was appointed as an Executive Director of E3 Consulting, Denver, CO.
- **Richard L. Lewis II (BSEM '82)** is an attorney. He currently works for Steptoe & Johnson Attorneys at Law in Charleston, WV.
- **Lucas O'Neal (BSMinE '06)** works for Magnum Coal as a production mining engineer.
- **Morgan Sears (BSMinE '07)** is pursuing an MS degree in the WVU Mining Engineering program.
- **Brandon Williamson (BSMinE, '07)** works as a mining engineer in the Engineering Division, Consol Energy, PA.

(Alumni News, Page 7)



## Michael R. Peelish, Esq., Presented the William Poundstone Lecture, “Careers in Coal: What Does the Future Hold?”



**Michael Peelish presented the Poundstone Lecture.**

On April 20th, Michael R. Peelish, Esq., presented the William Poundstone Lecture entitled: “Careers in Coal: What Does the Future Hold?”

Mike was raised in Beckley, WV and graduated cum laude from WVU with a degree in mining engineering in 1983. Then, in 1986, he went on to earn his law degree from WVU and is presently a member of the bars of West Virginia, Pennsylvania and Colorado. He has been employed by Foundation Coal Corporation and its predecessors since 1989. Currently, Mr. Peelish is the senior vice president of safety and human resources at the Foundation Coal Corporation. In this position, he is responsible for safety, health, and loss prevention as well as benefits, labor relations, payroll, compensation policy and administration, workers compensation, black lung, training and management development and general human resources matters.

Mr. Peelish has been active in the mining industry since 1979, including working with CONSOL for six years in its engineering work study program and legal department. Since arriving at what is now Foundation Coal, he has held various positions, including general attorney, senior attorney and manager of regulatory affairs and loss control. He is actively involved in SME, the National Min-

ing Association and numerous state mining trade associations. He also is a member of the WVU Department of Mining Engineering Visiting Committee.

Mike Peelish started his presentation by stating that the coal industry has lost a generation of mining engineers due to the down turn in coal prices during the last 20 years of the last century. These reduced coal prices and associated coal companies’ earnings caused a sharp reduction in hiring of mining engineers during that time period. Many of the mining engineers that are still in the industry are in senior positions and are quickly moving towards retirement. For instance, at Foundation Coal, 5 out of 9 of the senior executives have mining engineering degrees (and 9 out of 9 have advanced degrees). So, mining engineers are holding critical executive positions and these personnel will need to be replaced by a new generation of mining engineers in the near future.

But, for new graduates, a mining engineering degree only gets you in the door. In order to succeed in today’s mining industry, a mining engineer will need to keep learning and developing a number of core competencies/attributes, such as: **Success Oriented; Good Communicator; Sound Decision Making; Continuous Improvement; Team Work; Problem Solving; Open to Changes; Avid Learner (never stop learning); Customer Focus; Conflict Manage-**



**Mr. Michael Peelish received the Crystal Award from Dr. Christopher Bise, Chair of the WVU Mining Engineering Department.**

**ment; Leadership; Thick Skin; and Integrity.**

The future for coal mining looks bright and the demand for coal is up and will grow. The costs of competing fuels are high and are expected to stay high. The Future Gen project will allow coal to be burned with minimal environmental impacts. Coal-To-Liquids (CTL) conversion will help increase the demand for coal. But coal still has many challenges to overcome such as: clean air regulations, global warming concerns, water quality concerns and mountain top removal concerns. “As a mining engineer, you need to be knowledgeable about these topics and quote accurate facts when you can,” said Mr. Peelish. “You will also need to be prepared to meet these challenges in your

(See Peelish, Page 13)



**The Management members from Foundation Coal, who attended Poundstone Lecture are: (left to right) Scott Pack, Doug Conklin, Rod Lawrence, James Brija, Michael Peelish, Jack Trackemas, Bill Schloemer, and Klaus Beck.**

## WHY NOT A CAREER IN MINING MACHINERY?

by Joseph J. Larry (BSEM, 52)

(Note from the editor: Joseph J. Larry's article will be published in two parts. This issue has the first part of the article.)

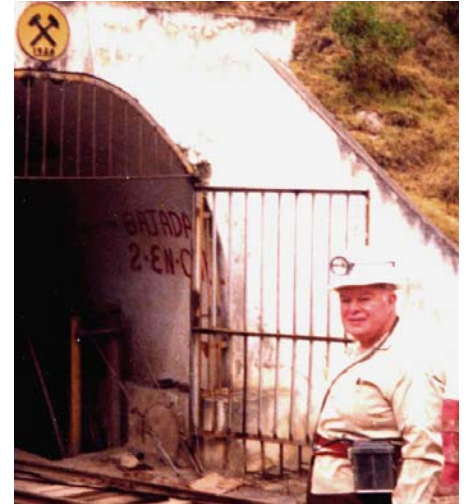
The mining machinery manufacturing industry is remiss for its lack of initiative to recruit mining engineering graduates. The graduate working as a design engineer, in the sales organization or in the marketing group can bring creativity to the installation of equipment in the mineral and/or coal mining industry. The mining engineer can evaluate the geological conditions surrounding the proposed application and determine the type of equipment, require the installation of the equipment, and observe its operation in the early stages to recommend operational changes to make the equipment more productive and efficient. At the same time, during the senior year, the potential graduate should review the career possibilities with a mining machinery manufacturer. Given that the salary is competitive, the opportunities to fulfill your goals of a rewarding lifestyle are within your grasp. Whether its sales or engineering, you will be required to rely upon your technical expertise and engineering curricula to solve the problems that you will face.

Are you befuddled? "You're kidding! Selling is a general discussion of the features of my equipment while on the golf course." Not true. Producing companies do not spend millions of dollars on a mining system without having confidence that it will attain the production and financial goals, i.e., a satisfactory return on its investment. In most cases, the

producing company will use its own personnel and/or engineers to evaluate and determine the specifications of the specific equipment that will provide the best financial goal. Yet, to be a successful **professional**, the salesman should initiate a similar report evaluating the application of the manufacturer's equipment to the mining company's particular application. That means research using engineering and financial principles to arrive at a satisfactory return on investment in the equipment and/or project.

In the mid-60s, this writer wrote a handbook on how to sell capital equipment to the coal industry. I used the text of the handbook in preparing reports to bring out the features of my equipment that would be suitable to the applications. It included the cost savings expected and the return on investment (ROI). Oftentimes, a justification report was presented to a coal company which had not solicited a bid for new equipment. This was done in instances when I had been underground to observe and study the present equipment and mining conditions. The report showed that new equipment would meet production and ROI goals. Although my sales force was relatively successful, it could not grasp the significance of the contents of the handbook. "That's too much work!". Thus, the handbook was relegated to a select few.

The mining graduate who accepts a career with a mining machinery manufacturer will attain a wealth of education. The graduate will visit numerous underground mines regularly in various coal regions, study mining first hand under different geological conditions and the equipment used under these conditions. The engineer will be exposed to different management styles, strategies, and maintenance procedures. He/she should spend as much time as possible observing various equipment in differing geological conditions. To enhance and accelerate the educational process, the graduate should spend numerous hours time-studying the equipment under these conditions and documenting the results. The graduate will have interviews with a continuous stream of managers and engineers with a wide range of experience on mining subjects that, if

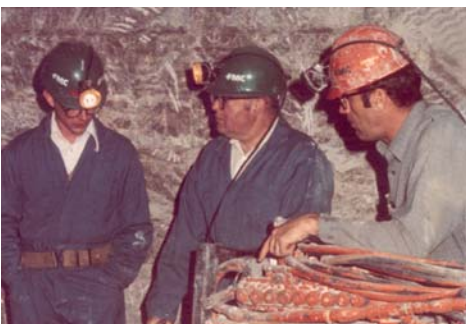


Joseph Larry prepared to enter a Brazilian underground coal mine .

absorbed and retained, will further improve the education of the young or old engineer. I recommend that the graduate pursue the registered professional engineer registration. I passed my EIT (Engineer in Training, former name given to the F.E.) Award while a senior mining student. I took the second phase of the Professional Engineer fifteen years later. Thus, I became a Licensed Professional Engineer. The license came in good stead when I certified our canopies and TRS systems. Passing the tests and obtaining the professional standing boosted my own feeling of accomplishment. The managers of the industry, sublimely, accepted my mining views more readily.

Let us not overlook the contribution of the mining machinery manufacturers who revolutionized the industry and enhanced the technology. Research the contribution of Joe Jeffrey, Joe Joy, and Chief Arentsen who introduced the short-wall cutting machine, the mobile loading machine and the Lee-Norse continuous miner, respectively. Each of these machines introduced new techniques to mining coal. You could include, also, Jack Long and Alex Galis with the pan chain conveyor and hydraulically driven roof bolter, respectively, near that group.

(See Mining Machinery, Page 14)



Joseph Larry (center) was inspecting underground mine equipment with mine officers at a WY Trona Mine.



## 2007 Spring MRAC Awards

James W. Boyd, President of J. T. Boyd Company, was the recipient of 2007 Mineral Resources Alumni Chapter (MRAC) Outstanding Alumni Award, for exemplifying the highest ideals of leadership, integrity, and dedication to the mineral industries.

The Mining Engineering Students and faculty also received awards for their various achievements at the 2007 Spring Awards Banquet at Lakeview Resort, Morgantown, WV. Industrial representatives including: Kelvin Kidds, Ronald Stovash, Joshua Rockwell, Boyd Weese and



Patrick Pelley received the Career in Coal Award from Calvin Kidd.

Morgan Sears received the Old Timers Award from Ronald Stovash.

Frank Dulin presented the awards to the students and faculty. The award recipients are shown in the accompanying photos.



Dr. Dan Alexander received Calvin Kidd Award.



Robin Oldham received Mineral Resources Alumni Chapter



Adam Petterson received Joy



Matthew Vance received WVCMI Award and SMESC



Dr. Keith Heasley received SME Student Chapter Officers'



Dr. Yi Luo received SMESC SME Award.



Left to right) The recipients of Mining Engineering Faculty Awards were Anil Ray, John Cvechko, and Matthew Bonnell.



Lily Zhou received Mining Engineering Faculty Award from Dr. Christopher Bise.

## Northern West Virginia Coal Preparation Society Scholarship Established

The Department of Mining Engineering is the recipient of a new undergraduate scholarship named, The Northern West Virginia Coal Preparation Society Scholarship. The scholarship was established by the Northern West Virginia Coal Preparation Society (NWVCPS) members. NWVCPS members consists of coal preparation plant operators, vendors, educators and students. The undergraduate scholarship will give preference to qualified residents graduating from the high schools within 100 miles radius of Morgantown, WV, enrolled in the Mining Engineering Program at WVU, and interested in a career in coal/mineral processing

and material handling. Coal and mineral processing plants are looking for mining engineering students who will be devoted to surface facilities including processing plant operations and materials handling, quality control, and marketing. The NWVCPS also contributes funds to the Joseph W. Leonard, IV, Memorial Scholarship in the WVU Mining Engineering program. NWVCPS meets once a month from September to April.

The Department thanks NWVCPS for its contribution of the Scholarship. We would also like to thank the manufactures supporting the activities of the NWVCPS.



From left to right: Steve Leonard (son of Joseph W. Leonard III), Paul Bradley and Darrel Smith (President and Treasure of NWVCPS) present scholarship funds to Timothy Runyan and Matthew Vance (Juniors from WVU).

## Promoting Economic Development in WV - Shanxi, China

Shanxi is the largest coal-producing province in People Republic of China (PRC), with an annual production of more than 600 million metric tons of coal. The China International Coal and Energy New Industry (CICEN) Expo, was to be held from Sept. 16 to 17, 2007 in Beijing, China. CICEN Expo was in West Virginia to raise awareness for the Expo, investment opportunities in Shanxi, and to bring advanced downstream technology to Shanxi.

The downstream technology consists of the methods used in liquefaction and gasification of coal that makes it a usable energy source.



The photo at left shows Mr. Song Bei Shan the vice governor of Shanxi Province, addressing U.S. Promotion Meeting at

Morgantown, WV, on June 23, 2007. (From Left) Dr. Syd S. Peng, WVU Charles E. La-wall Chair of Mining Engineering, Ling Zhengce, director general of development Commission, Qiao Liang Sheng, director general of Shanxi board of Investment, and Dr. Jinsheng Chen, president of China Operations at West Hawk Development Corp were also in the meeting.

## ALUMNI NEWS

(Alumni News from Page 3)



- **Christopher N. Moravec (BSEM, '79)** has been appointed as senior vice-president of Business Development at Rhino Energy LLC, Lexington, KY.



- **David Zatezalo (BSEM, '77)** has been promoted to senior VP and COO of Rhino Energy as well as president and COO of CAM Mining LLC, Hopedale Mining LLC, and McClane Canyon Mining LLC, all subsidiaries of Rhino Energy.

## A Visiting Scholar from Henan Polytech University

**Xinxian Zhai, Ph.D,**  
**Chair and Professor of Mining Engineering HPU**

I am chairman of the Department of Mining Engineering, Henan Polytechnic University (HPU), China, and a visiting scholar for a period of six months under the supervision of Dr. Syd S. Peng.

HPU is located in Jiaozuo, a top tourist city of Henan Province, China. It was founded in 1909, and is the first and oldest mining institute in China. At present, HPU is a comprehensive teaching-research university. The Department of Mining Engineering at HPU consists of two divisions: Mining Engineering and Traffic Civil Engineering. It has 25 faculty and staff. Mining Engineering is a key subject in Henan Province, the 2nd largest coal producer in China, and is authorized to confer master and doctoral degrees. There are 600 undergraduate and 100 graduate students including engineering - masters. Mining Engineering has been one of the unique-featured specialties at HPU. It actively contributes to the science and

technology development for the coal industry in Henan Province and China. Major research includes: (1) strata control and surface protection; (2) rock mechanics; and (3) modernization of resources mining technology.

I am a happy family man. My wife is a surgeon and my only son is studying at a middle school. I was appointed department chair in 2006. I am an expert on national safety production and national coal mine safety production in China. I am a reviewer for 863 projects on China high and new technology. My major interest is rock stress theory and coal mine ground control.

I am glad that I have the opportunity to study at WVU under Dr. Peng's supervision and have been involved in some projects, such as pillar stability analysis, rock burst behavior and its control, etc. Dr. Peng has set a good example for me with his profound knowledge, precise learning style and study meth-



From left: Dr. Syd S. Peng, Dr. Christopher Bise (Chair of Mining Engineering, WVU) and Dr. Xinxian Zhai.

odology. I have broadened myself and insight in the process of cooperating and exchanging with graduates and faculty, participating in academic activities including, the Spring Joint Meeting of WV Coal Mining Institute and WV Coal Association, Glade Spring, Daniel, WV; 2007 Annual Meeting at Denver, CO for Society of Mining, Metallurgy and Exploration, Inc.; and 2007 International Ground Control Conference, Morgantown, WV. Therefore, I want to sincerely thank Dr. Peng for providing this studying opportunity that I will benefit from in my future research.



## Dr. Christopher Mark Received SME S. S. Peng Ground Control in Mining Award

*by Stephen C. Tadolini (PhDMinE, 03), Chair, Selection Committee for SME S. S. Peng Ground Control in Mining Award*

The SME Syd S. Peng Ground Control in Mining Award is presented annually to recognize outstanding professionals who have demonstrated insight and understanding of ground control issues by developing concepts, theories or technologies that have been adopted by the mining community or the successful implementation of ground control designs or practices.

The recipient this year was Dr. Christopher Mark, Team Leader of the Rock Mechanics Section in the Rock Safety Engineering Branch at the NIOSH Pittsburgh Research Laboratory (PRL). Dr. Mark received the award at the 2007 Annual SME Meeting in Denver, CO. The Syd S. Peng Award was presented to Dr. Christopher Mark in recognition of his record of integrating theoretical and technical solutions to solve real-world operational ground control problems.

Dr. Mark has spent 20 years at PRL doing research on coal mine ground control.

Through his research, he has made numerous important contributions to mine safety that have been widely adopted into mining practice. Dr. Mark serves as co-chairman of the International Ground Control Conference in Mining (IGCCM) and has presented over 25 technical papers at that venue that highlighted his expertise on complex ground control issues, such as longwall geomechanics, pillar design, entry and floor stability, roof and rib support, horizontal stress, and coal mine pillar recovery. Dr. Mark's work has found a large international audience and has been associated with advancing ground control technologies in Australia, Canada, South Africa, and Europe. Dr. Mark emphasizes education and technology transfer and has taught short-courses and conducted workshops throughout the U.S. coal fields and abroad.



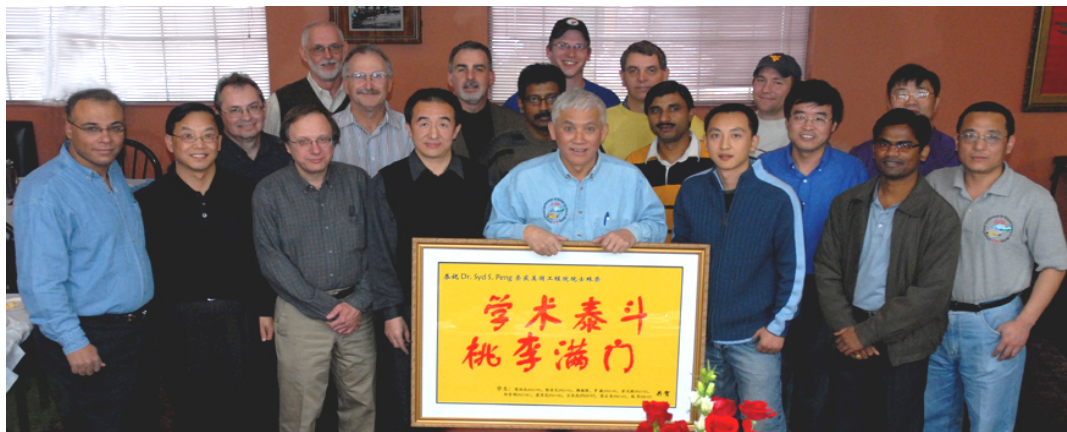
**Dr. Christopher Mark received the 2007 SME Syd S. Peng Ground Control Award from Dr. Syd S. Peng,**

Dr. Mark has received several awards for his innovative work in mine safety and health. Examples of his developed technologies include the Analysis of Longwall Pillar Stability (ALPS), Analysis of Retreat Mining Pillar Stability (ARMPS) and the Coal Mine Roof Rating (CMRR). Dr. Mark's impact can be clearly seen in ground control research currently being conducted throughout the global mining community.

## Former Students and Families Celebrated Dr. Syd Peng's Induction into the National Academy of Engineering at Morgantown, WV



**Dr. Syd Peng was cutting the celebration cake while Gerry Finfinger and Stephen Tadolini looked on. The beautiful Celebration Cake with Gold and Blue Decoration was the creation of Diane Finfinger.**



**Nineteen former graduate students (front row, left to right) Dr. Khaled Mohamed, Dr. Victor Sun, Dr. Thomas Barczak, Dennis Dolinar, Dr. Hanjie Chen, Dr. Syd Peng, Anil Ray, Jun Lu, Dr. Yunqing Zhang, Rajagopala Kallu, Xinzhi Du, (Back row, left to right) Dr. Gerald Finfinger, Dr. Stephene Tadolini, Dr. Rudy J. Matetic, Dr. Kousick Biswas, Joseph Zirkle, Dr. Andrew Zingano, Ted Klemetti, Dr. Yi Luo, celebrated National Academy of Engineering membership of Dr. Syd Peng at Morgantown, WV on April 17, 2007. Chinese characters in the plaque: A Crown and Distinguished Scholar; A Professor With Many Students World Wide.**



## Trip to Brazil Coal Mines

by André Zingano, Ph.D.

Research Professor of UFRGS, Brazil

From the 22nd to 30th of April, Drs. Syd and Felicia Peng made their first trip to Brazil. I was with them as a tour guide, showing them some of my projects about ground control in coal mines. Coal production in Brazil is very small, but the coal mining industry is very important for the economy and energy production in southern Brazil. Most coal mines are underground using the room-and-pillar method. The most important issue for those mines is ground control, including pillar design and roof support. For this reason, the Santa Catarina Mining Engineers Association and the Mining Companies Union invited Dr. Peng to give a short course about these issues.

First of all, we visited five coal mines in the southern states of Brazil, Rio Grande do Sul (RS) and Santa Catarina (SC) States, to gain basic information about the coal mining operation in Brazil. We also visited the Mining Engineering Department of Federal University of Rio

Grande do Sul (UFRGS), Porto Alegre, RS, where I am a lecturer and researcher. The second part was the short course about coal pillar design in Criciúma, SC.

Dr. Syd Peng lectured on pillar design for 40 mining engineers and geologists from coal mining companies. My role during the course was to translate some of the lectures and questions from the audience, because the native language in Brazil is Portuguese. The participants were very interested and had a lot of questions about pillar design and pillar failure mechanisms. Dr. Peng demonstrated all his experience that he acquired during 40 years of research and work on ground control. The short course was held at the SATC School which is supported by the Coal Mining Companies Association (CMCA). It covers from kindergarten to college with a total enrollment of about 5,000 students. It also has a course for mining technicians. The Association contributes U.S. \$2 million per year to maintain the school.

While the Mining Engineers were touring underground mines and attending the lectures, Dr. Felicia Peng headed to visit coal preparation plants and water treatment facilities. The coal in RS and SC states is sub-bituminous coal with high sulfur content, as high as 5-6%, with lower heating value of 5,000 calories/Kg. The acid mine drainage problems from fine coal tailings settling ponds, and the runoff from refuse disposable dump sites are very serious, which affects the large water sheds surrounding the coal mine areas. This threatens the drinking water of Criciúma and nearby cities. In 2001, five cities around the coal mine areas have jointly constructed a reservoir to solve the drinking water and irrigation problems. Additionally, the R&D efforts of the Laboratory of Mineral and Environmental Technologies (LTM) in the Department of Engineering of Mines, joined by other disciplines in UFRGS, supported by CMCA, have attempted to remedy the mine drainages and other water problems. After a



Dr. Syd Peng (left) and André Zingano (both in white hard hats) visited Carbonifera Metropolitana mine, Brazil.



From Left: Dr. Zingano was interpreting in Portuguese to the audience, while Dr. Peng was giving a lecture on the subject of mine pillar design.



From left: Mark Anthony, Mining Engineer, Dr. Jorge Rubio, Professor and Coordinator of LMT, UFRGS, and Dr. Felicia Peng, WVU.

very hard work week, we visited the very famous and beautiful beaches of SC State for the weekend before heading back to the U.S. The trip to Brazil provided the opportunity to understand the differences between coal mining in Brazil, and coal mining in the USA, and also share experiences on ground control with the mining engineers and geologists of the coal mining companies in Brazil.

### Making A Gift to the MinE Department

Thinking of making a gift to benefit our Department in your will, living trust, IRA, or other manner? If so, the proper wording is very important to ensure that your gift works out the way you intended.

Have your attorney include a provision directed "to the West Virginia University Foundation, Inc. (i.d. #55-6017181) to benefit the Department of Mining Engineering in the College of Engineering and Mineral Resources." Your gift provision can provide for the **creation of an opportunity fund, a faculty development fund, or a scholarship** — whatever you choose. It will help us in an important way to further our educational, research and service mission.

If you would like further assistance with your gift plans, call Bob Bragg, CEMR at (304) 293-4821 Ext 2240, or Dr. Christopher Bise, MinE Department Chair at (304) 293-7680 Ext 3302.

## Gary Dubois on the Subjects of Degassing and Longhole Drilling

Gary Dubois (BSEM, '76) spoke on the subject of longhole drilling, degassing, and their effect on longwall dimensions. Gary was the guest speaker of the SME Student Chapter Seminar on November 28, 2006. He has nearly 30 years of experiences in longhole drilling, degassing, and marketing, and is Engineering Manager of Target Drilling Inc., PA. He was Chief Engineer of Cumberland Mine, RAG America prior to joining Target Drilling.



James J. Bryja, Senior Vice President, Eastern Operations, Foundation Coal presented, "Outlook for U.S. Coal" at SMESC Meeting on March 7, 2007.



Dr. Warren Merritt from CONSOL presented, "Changes in Mining Engineers and Technologies" at SMESC Meeting on April 18, 2007.



Dr. Tony Iannacchione presented, "Mine Safety: Reflections on the Past, Hope for the Future", on February 15, 2007.



## Bob Moorhead Speaking of Dense-Medium Cyclones at SME Student Seminar on April 9, 2007



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## James Turner Presented — "Budget" for Mine Costing Procedures

James Turner (BSMinE '99) (right), Director of Finance, Murray Energy, presented "Budget" of mine costing procedures to the SMESCSC on March 21, 2007. He clearly outlined the complex budget consideration and mine costing procedures, which provide another important aspect of managing a mine.



## Touring Foidel Creek Mine, Twentymile Coal Co., CO

On March 2, 2007, a group of twenty three students, research associates, and faculty from the West Virginia University (WVU) Mining Engineering Department visited Foidel Creek Mine, Twentymile Coal Co., located in Routt County, 30 km SW of Steamboat Springs, CO. When the group arrived at the mine, they were cordially greeted by Michael Berdine, Manager of Engineering, Rocky Thompson, Geologist, and Larry Hull, Regional Vice President of Operations. Appropriate safety training was then given, and a brief description of the underground mining layout was discussed. Sixteen members of the group were accompanied by two mining engineers, Chris Van Arsdale and Will Dennis, and traveled down the slope and into the underground mine workings via diesel powered trucks. The two main underground attractions were a 12 mile long conveyance system carrying 5,000 tph ROM at 4 mps speed, and two continuous miner (CM) sections. The longwall section was not in operation at the time of the visit.

The mine has the third highest production for an underground coal mine in the US. In 2005, the mine produced 8.6M tpy. It has set the record annual production of a single longwall mine. 85% of production comes from the longwall and 15% from the CM sections. For many of the students, it was the first trip to an underground coal mine in the West and proved to be a great experi-

ence. After returning to the surface, everyone was ecstatic to find a steak lunch awaiting us, courtesy of Twentymile Coal Co.

The remaining members of the WVU group stayed on the surface and toured the coal preparation facilities. After the plant tour, a question and answer session was held about mining methods, ground control, and quality of coal. The operation mines the 2.6-2.9 m thick Wadge Seam. The seam is high volatile C bituminous coal from the Cretaceous age. They are mining in a number of synclines and anticlines. The mine has had problems in the past with bumps, when they were directly aligned with the cleat/joint direction. They have only had 8 reportable falls in 20 years.

The coal preparation plant is rated at 250 tph. The clean coal product has 10% moisture, 9.8% ash, 35.5% VM, 0.5% sulfur, and 26.3MJ/kg heating value, and 70% yield. A new coal prep plant with a 1,100 tph capacity is coming in a year. The plant has an on-line ash analyzer that can divert the raw coal to the plant, or direct it to the loadout. The plant consists of coarse and fine dense-media coal cleaning circuits. The coarse refuse is disposed on the surface, and the tailings are pumped underground where the water is recovered for re-use. The partial cleaning plant processes only 2M tpy. At the rail loadout, it takes a little more than 2 hours to load a 110,000 ton, 105-car unit train.



(Standing, from left to right): Charles "Rocky" Thompson, Mining Engineer, Larry Hull, VP Operation, Michael Berdine, Mine Engineering Manager, provided us the mine safety training prior to the mine tour.



A distance view of Foidel Creek Mine, Twentymile Coal Co., from county route #27, CO.

The Mining Engineering Department sincerely thanks Twentymile Coal Co., Peabody Energy, for their time and efforts to accommodate our students and faculty.

### Foidel Creek Mine, Twentymile Coal Co. Tour, Steamboat Springs, CO.



(Left to right): Dr. André Zingano, Michael Berdine (Manager Engineer), Dr. Syd Peng, Dr. Felicia Peng, Joel Helbig, Gabriel Boggs, Khaled Mohamed, Ryan Richman, Morgan Sears, Tim Runyan, Dr. Keith Heasley, Matthew Bonnell, Richard Asebes, Perry Longacre, Robin Oldham, Dr. Wahab Khair, Joshua Pigza, Rebecca Hardy, Kevin Brockett, Gaetano Iannacchione, Patrick Pelley, Charlie Strobe, and Jeremy Holt.



### 2007 SME Annual Meeting and Exhibit, Denver, CO

The SME Annual Meeting was held at the Denver Convention Hall, Denver, CO from February 24-28, 2007. Thirty-two students and faculty participated in three days of technical sessions and exhibits. The Exhibit had a large number of mineral processing, mining equipment and application software, geological and environmental related areas.

Alumni and friends came to join us at the MRAC reception to renew old acquaintances. The students and faculty also participated at

the mining companies hospitality receptions.

In technical sessions, Dr. Felicia Peng was the session chair for Coal Preparation. She also presented two papers regarding multiplex dry coal cleaning, and three-product separation for very difficult to clean coal. Dr. Keith Heasley served as panel member for numerical modeling in geomechanics. He also presented a technical



Royce Watts (right), Associate Dean, CEMR, WVU received the Erskine Ramsay Medal from the America Institute of Mining, Metallurgy, and Petroleum Engineers (AIME).



Bob Murray (right), Murray Energy, received AIME Honorary Member Award.

paper about mine stability mapping. Drs. Luo and Syd Peng presented two papers on final surface subsidence prediction in an inclined coal seam, and predicting the longwall subsidence effect on hydrologic systems.

WVU faculty, administrators and friends also received several awards from SME and AIME. Mr. Royce Watts received the AIME Erskine Ramsay Medal. The announcement read: The Erskine Ramsay Medal is presented to Royce J. Watts "for his dedication to the best interests of the coal-mining industry, the university and its students and a champion of our mining heritage." Mr. Watts currently serves as the Associate Dean of Administration for the College of Engineering and Mineral Resources at WVU. The SME WVU Student Chapter received the 2007 SME Student Chapter GEM and Membership Recruiting Awards. Additionally, Marshall Miller received the SME Howard Eavenson Award. John Murphy received the SME President's Citation. Dr. Keith Heasley received the Coal and Energy Division Chair Award.



## SME Coal & Energy Scholarship Recipient: Brandon Williamson



The recipient of the 2007 SME Coal & Energy Scholarship is Brandon Williamson, Mining Engineering, WVU. Brandon Williamson receiving his check from Dr. Christopher Bise.



CEMR Engineering Week Basketball Tournament at the Recreation Center on February 18, 2007. (Left to right): Referee, Christopher Bise, Matthew Bonnell, Matthew Vance, Gaetano Iannacchione, Robin Oldham, Jacob Kerch, (front row): Tim Runyan and Patrick Pelley.

## WVU Receives 2006 SME Student Chapter GEM Award and First Prize for Membership Recruiting



SME WVU Student Chapter members (in blue shirts) participated in the SME Students' Forum, one of the student activities at the SME Annual Meeting.



From Left: Dr. Christopher Bise, Joel Helbig, Morgan Sears, and Dr. A. Wahab Khair at the 137th Commencement, May 14, 2007.

## New Officers for SMESC 2007-2008



President — Mathew Vance  
Vice President — Adam Peterson  
Secretary — Robin Oldham  
Treasure — Matthew Bonnell  
Program Chair—Patrick Pelley  
Media Coordinator—Joshua Pigza  
GEM Coordinator—John Cvechko

(Peelish, from Page 4)

career by taking a number of steps: 1) continue learning, 2) broaden your business skills, 3) embrace and develop new mining technologies, and 4) hard work ('pay your dues')."

In closing, Micheal Peelish presented a number of words of advice to the new mining engineers: 1) Listen to those who are where you

want to be, 2) Participate in industry and civic organizations, 3) Be passionate, 4) Network, 5) Spend off-time gaining experience (yes, at a mine), 6) Take advantage of career opportunities, 7) Complete the Fundamentals of Engineering exam, (8) Understand business processes, and (9) **ENJOY WHAT YOU DO.**

## A Brief Farewell

About the time I was first asked to write this farewell article the fact that I was about only weeks from graduation had only begun to settle in my mind. Eventually, after forcing myself to sit down and think about this concept of graduation, I realized the full extent of what I have experienced as an undergraduate student.

Reflecting on the last four years of my life, I have come to the conclusion that there are many things I could have done differently, but I do not regret any of the decisions I have made pertaining to my future career in the mining industry nor the friends and acquaintances I have met along the way. With that being said, I must admit this is only going to be a short farewell to the Mining Department at WVU,

considering the fact that I will begin my studies as a Masters student here at WVU in the Fall. From a beyond the classroom perspective, the Mining Engineering program has introduced to me lifelong friends among my peers and faculty. As the president of the Student Chapter of SME, I would like to thank my fellow officers for all their hard work and dedication throughout 2006-2007 school year.

As a student, I would like to thank all of the faculty and staff for my engineering education, advising, and help throughout my career as a WVU student. Finally, as a friend, I would like to thank the students in the mining department for supporting me as their student president, helping me as an underclassman, and for being a group of friends and colleagues.



Morgan Sears



### (Mining Machinery, from page 5)

This writer spent his entire professional career with mining machinery manufacturers—ten years with Jeffrey Mining Machinery Co., ten years with the Lee-Norse Com-

## Calendar of Events Spring 2008

**Feb 24-27** 2008 Annual SME Meeting and Exhibit, Salt Lake City, UT.

**April 13** Mineral Resources Alumni Award Banquet, Lakeview Resort, Morgantown, WV.

**April 24** Distinguished Alumni and Poundstone Lecture, Mineral Resources Building, Morgantown, WV.

**April 25** Mining Engineering Visiting Committee Meeting, Mineral Resources Bldg, Morgantown, WV.

**May 1-3** Joint Meeting of WV Coal Mining Institute, SME-CAS, and WV Coal Association, Embassy Suites, Charleston, WV.

**May 10** WVU Commencement, Morgantown, WV.

pany (subsequently bought out by Ingersoll-Rand Co.) and twenty years with the Galis-FMC-Eimco group of companies. After high school, I attended West Virginia Tech and Milligan College, TN on football scholarships. I dropped out after the second year. I spent the next three years working at my local McDowell County, WV coal mining company. I had a desire to do better. So I quit the job and enrolled at WVU School of Mines (Department of Mining Engineering and Petroleum Engineering). During the summers of my junior and senior years, I worked underground at another McDowell County coal company as a shot fireman and general laborer. During my senior year, I made the decision to pursue a mining machinery career. Jeffrey Manufacture Co. offered, and I accepted, the opportunity to enter its newly formed management training course. Twenty engineers from various disciplines and universities made up the first class. At the end of a 12-month classroom and factory course, each of us was assigned to a specific department. I went into mining machinery sales.

While in the department, I became enamored with Penn State's concept of machinery time studies. I used that system to analyze mining machinery performance. In the late '50s, India, through an Export-Import loan program, geared up to modernize its coal mining production. Through its export department, Jeffrey, and its subsidiary, British Jeffrey Dia-

mond of Leeds, England, submitted proposals on a number of different machines. I became the technical liaison for the project. There were a number of trips to confer with the India Embassy in Washington, D.C. When the proposals finally went to India for further review, the president of Jeffrey and I spent two months in India. We were successful in winning some of those contracts. (Note: when I went back to India 25 years later, I saw some of the locomotives that Jeffrey had manufactured).

Several years later, I was assigned to the Beckley, WV territory as a sales representative. I joined the Lee-Norse Company in the early '60s as a sales representative for the southern West Virginia region. Later in the decade I was promoted to Southern Appalachian Regional manager, which included Southern WV, Virginia, Eastern Kentucky and East Tennessee. When I joined the company, the region generated 42% of the company revenue. During the decade, Lee-Norse expanded its marketing coverage to the Midwest, the Far West and Australia, and doubled its revenue. By the end of the decade, the Southern Appalachian region, surprisingly, continued to generate 42% of the total revenue.

**(Editor Note: Continue Part 2 in the next issue of the Black Diamonds)**



## Faculty R&D for Underground Mine Shelters/Chambers, Communication and Tracking/Locating Systems

The faculty in the WVU MinE Department, including Drs. Keith A. Heasley, A. Wahab Khair, Felicia F. Peng, and Syd S. Peng are actively involved in evaluating underground mine chambers, and communication and tracking/locating systems, funded by the WV Coal Research Bureau. Three papers were presented at the Joint Meeting of the WV Coal Mining Institute and the WV Coal Association

at Daniels, WV, on May 3-5, 2007. They were: "Developing Procedures for Evaluating the Performance of Emergency Refuge Chambers in Underground Coal Mines" by Dr. F. Peng, "Evaluation of Mine Tracking and Emergency Communication Systems" by Dr. Khair, and "Development and Field Testing of a Seismic Locating System for Trapped Coal Miners" by Yi Luo.

## WV State Underground Emergency Shelters/Chambers Approval

*PI: Dr. Felicia Peng, Associate Professor*

Seven providers submitted their underground coal mine emergency shelters/chambers to the State of WV for approval. The technical review/approval team were Dr. Felicia Peng, Dr. Keith Heasley and Randal Harris, the State consulting engineer from WVOMHST, Andy Yanik and Walt Slomski, two observers from MSHA, and Dr. Eric Bauer, an observer from NIOSH. The products submitted from five providers were approved. They are ChemBio Shelters/A. L. Lee, Strata Products, Draeger Safety, and Modern Mine Products. The

approved units provide 96 hours of life support and meet all emergency shelters/chambers requirements outlined in the WV State Legislative Rules of 56-4-8. Mine operators have until April 15, 2007, to submit their shelter plans to the WVOMHST. Criteria for their plans must demonstrate that each active mine will have shelters in place within 1,000 feet of working faces in a crosscut against the inby rib.

## Update On Seismic Location System Research

*PIs: Drs. Keith Heasley, Professor; Yi Luo, Associate Professor; and Syd S. Peng, Charles E. Lawall Chair in Mining Engineering*

The research team made two field tests for developing a seismic system to locate trapped miners after the event. At MEPCO 4-West Mine with the overburden depth of about 420 ft, the sound waves generated by knocking the roof rock or roof bolt heads using wood crib block and sledge hammer, were well received by the surface geophones located within a horizontal distance of 200 ft or less from the sound source. Such sound waves, though not very strong, are in the **Extremely Low Frequency (ELF)** range of 50-70 Hz, and can penetrate through the overburden strata (**through the earth**). At Peabody Federal No. 2 Mine with the

overburden depth ranging from 800 ft to 1,000 ft, wood crib block and sledge hammer were used to generate sounds underground. However, the geophones were unable to receive useful signals at this site. The research team is looking into the possible reasons for the inability to receive recognizable signals when the background is noisy. They are also studying the process needed to filter background noises and limiting angles.



Geophone used in receiving signals



From Left: Dr. Syd Peng, Monte Hieb, Dr. Keith Heasley, Jun Lu, Adeniyi Adebisi, and Ihsan Berk Tulu, were testing the geophones of seismic system at Peabody Federal No. 2 Mine, WV.



## Evaluation of Tracking and Communication Systems

*Dr. Wahab Khair, Professor*

Dr. Wahab Khair's research group in conjunction with NIOSH has carried out some basic communication system tests at Lake Lynn Laboratory, to understand the capability and limitation of commonly used mine communication systems. His group also worked with Mine Site Technologies, Australia for conducting "**Through-the-earth (TTE)**" communication test at Four West Mine

of Dana Mining Co, WV. Two-way communication was achieved by applying **Extremely Low Frequency (ELF)** radio waves from the surface to the underground mine in the form of text messages. Though the mine was only at a depth of 200 feet, nevertheless it was a big achievement as it is a true form of wireless communication from surface to underground.



"Line of sight" test at Lake Lynn Experimental Mine.

# BLACK DIAMONDS WV

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# BLACK DIAMONDS WV

## Chair's Message

### Dear Alumni and Friends:

This has been a very exciting year at WVU and, even though we will have to wait until next year to see our football team play for the National Championship, there have been many things that have happened at the University for which we can be justifiably proud. For example, University enrollment exceeded 28,000 students, an all-time high, for the 2007-2008 academic year. Enrollment growth has also occurred in our College and Department.

When I joined the Department in September, 2006, our undergraduate enrollment (including 1st year students intending to declare mining engineering) stood at 70. This Fall Semester, 2007, that number exceeded 90, and initial projections for next year, resulting from Departmental Declaration Forms submitted in ENGR 199, are very promising. Obviously, the recruiting efforts of the faculty, staff, student, alumni, and friends have been very effective.

As the number of quality students who choose to major in

mining engineering continues to increase, our desire to provide scholarship support also continues to grow. To the alumni, friends, and corporations who contribute to our scholarship program, all I can say is that I am so grateful for your continued support.

As you will note in the pages of this newsletter, our faculty, students, and alumni have received numerous awards during 2007. We are very fortunate to have such active and dedicated individuals in our family.

Take care, and I hope you have a happy and productive 2008.



*Christopher Bise*

***If it can't be Grown, it must be Mined!***