A visionary leader and accomplished scientist, Robert A. Wharton, Ph.D., is being remembered as the School of Mines' president who quickly embarked on a bold path to increase the university’s stature as a world-class technological university.

Dedicated to the vision of establishing the university as a global center of excellence, President Wharton enjoyed national attention on his final day, following a widely republished Bloomberg news story highlighting the average starting salary of Mines graduates as outranking that of Harvard University's graduates, despite much lower tuition costs.

As a nod to President Wharton’s love for the outdoors – he was an Eagle Scout and Antarctic explorer – a memorial tribute attended by Gov. Dennis Daugaard, South Dakota Board of Regents members and other university leaders throughout the state was held Sept. 24 under the university’s original iconic arches on the campus quad.

Upwards of 1,000 people were expected to attend the service featuring student speakers, musicians and ROTC members.

“Dr. Wharton was one of the best things to have happened to this school. He brought with him a vision of what he wanted the school to be and ideas of how to get there,” said Mines Student Association President Spencer Ferguson, a senior civil and environmental engineering major from Sioux Falls.

“Under his leadership the campus was renewed and expanded, facilities were...
The South Dakota School of Mines and Technology has received a software donation valued at $49 million by Schlumberger. The package includes four types of commercial-grade software that help interpret the geology of petroleum fields and plan for drilling and production. The gift will be incorporated into petroleum-related course work in the Department of Geology & Geological Engineering and will represent a significant step in the development of a stronger energy program at the university. S.D. Mines students will benefit by learning skills through hands-on experience with industry-grade software and through research opportunities made possible by the software. For example, Petrel* software will be used immediately in the South Dakota School of Mines and Technology’s research to evaluate the feasibility of oil and gas development of the Niobrara Formation on the Rosebud Sioux Reservation as part of a Department of Energy grant to Dr. J. Foster Sawyer of SDSM&T. That research, jointly conducted by Sawyer and Sinte Gleska University faculty member Dr. Subodh K. Singh, could potentially improve the quality of life for Native American residents on the Rosebud Reservation in the form of economic development and a stable heat source for homes. Mines geology department faculty members have been working with Schlumberger representatives to receive training, acquire educational datasets, and begin utilizing software in the computer laboratory for student use starting this semester. Dr. Laurie Anderson, department head, said hands-on experiences that the Schlumberger gift offers will improve student job prospects, as many companies have scaled back their in-house training. “There is a greater expectation that students graduate with this training under their belts. We are trying to make sure our students have as many training opportunities as possible.” The donation will serve as an important recruiting tool to attract new students to the energy field, said Sawyer, the assistant professor of geology and geological engineering who authored the Schlumberger request. “Industry loves our students already, and this will give them an added edge as they apply for jobs in the oil and gas industry.”

*Mark of Schlumberger

Geology department receives $49 million Schlumberger gift

Dr. Diana Wall, recognized as one of the world’s foremost experts on biodiversity, and director of the School of Global Environmental Sustainability at Colorado State University, has been named the 2012 Mines Medalist. The South Dakota School of Mines and Technology will honor Dr. Wall for her exceptional leadership and innovation as a scientist during an award dinner Thursday, Sept. 27, at the Rushmore Plaza Civic Center. Gov. Dennis Daugaard will present the national award in partnership with the School of Mines. Dr. Wall is currently researching how habitat diversity contributes to healthy, productive soils and the consequences of human activities on soil. Her expertise and prolific, groundbreaking research has led her from the Antarctic Dry Valleys, where

School of Mines seniors celebrate a new school year with the annual President’s Picnic and rally in the quad during Welcome Week.

School of Mines and Technology graduates enter the job market earning more than Harvard University graduates on average, and a news story touting this fact has been republished nationwide since it first appeared on Bloomberg.com and BloombergBusinessweek on Sept. 17.

Mines graduates earn more than Harvard’s

The impetus of the story is a shortage of mining industry engineers due to a dearth of graduates nationwide. Starting salary figures quoted from PayScale’s most recent data from 2011-2012, however, include a more general figure for all graduates: $56,700 for South Dakota School of Mines and Technology graduates vs. $54,100 for Harvard University.

Joe Richter’s story highlights return on investment with the vast difference in tuition costs: $10,530 for out-of-state tuition costs for the School of Mines compared to Harvard’s approximately $40,000 for undergraduates. A shortage of industry workforce managers is one reason the School of Mines this year has begun offering a master’s degree in mining engineering. Among media outlets that republished the story are the Los Angeles Times; Yahoo! Finance; San Francisco Chronicle.

Continues on page 8

Dr. Wall named 2012 Mines Medalist

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Geoscientists, professionals meet in Rapid City

About 400 geoscientists and related professionals attended two major conferences held jointly Sept. 22-26 in Rapid City and hosted by the South Dakota School of Mines and Technology.

The national annual meeting of the American Institute of Professional Geologists (AIPG) combined with the School of Mines-sponsored New Horizons in Oil and Gas Conference for the event themed “Geology and Natural Resources of the Black Hills and Adjoining Basins.”

The meeting featured technical workshops and field trips showcasing the unique geology of the Black Hills, as well as public seminars led by School of Mines experts and industry professionals. Participants also toured the James E. Martin Paleontology Research Laboratory and Museum of Geology, both located on the School of Mines campus.

The New Horizons conference was the School of Mines’ eighth annual event on petroleum-related activities in the northern Rocky Mountain and Northern Great Plains region. It was the 49th annual AIPG meeting, which attracted experts from throughout the nation.

Rapid City is centrally located relative to the surrounding Williston, Powder River and Denver-Julesburg basins, the scenes of major petroleum exploration efforts resulting from new technologies in drilling and exploration techniques. The Black Hills have excellent exposures of rock units, which are the exploration targets in the adjoining basins, as well as nationally known geologic features such as Devils Tower and Mount Rushmore.

The conferences were hosted jointly in Rapid City this year in large part because of South Dakota School of Mines and Technology’s faculty. Dr. Foster Sawyer serves as AIPG national secretary, Tom Durkin as AIPG South Dakota Section president and Dr. Larry Stetler as AIPG organizing committee conference co-chair. Dr. Alvis Lisenbee serves as coordinator of the New Horizons in Oil and Gas Conference.

Additionally, Mines alumnus Bill Siok is executive director of the AIPG. He said the opportunity to jointly host the conferences will inevitably lead to further opportunities in business and academic endeavors.

“As a graduate of SDSM&T I am especially pleased with this cooperative event and particularly honored to be a participant. Since my feet are planted firmly in both organizations, I feel that the institutions involved in this effort could not be better matched,” Siok said. “For geoscientists in particular, this opportunity to explore the myriad aspects of the Black Hills and South Dakota geology with colleagues from SDSM&T made the event very appealing and professionally and personally rewarding.”

Panel discussions included carbon dioxide sequestration; impact of regional oil and gas development; hydraulic fracturing; Technology-based Resource Plays: Northern Rockies and Northern Great Plains.”

Lisenbee said both the professional and local audience were interested in exploration and development within the northern Rocky Mountains and the northern Great Plains. New technologies, especially horizontal drilling and hydraulic fracturing of the reservoirs, have led to a new oil boom in these areas.

“This year we had an excellent group of participants discussing CO2 sequestration, regional development related to ongoing and potential future petroleum-industry activities in South Dakota, issues related to hydraulic fracturing and new petroleum exploration activities in the region,” Lisenbee said.

“We’re extremely excited to host the AIPG national annual conference in conjunction with our annual oil and gas conference. This opportunity promoted national exposure of the School of Mines and allowed our students to interact with professional geoscientists from across the nation,” Sawyer said.

Students, staff support Day of Caring

Two teams from the South Dakota School of Mines and Technology, armed with paint brushes and yard tools, participated in the Day of Caring on Sept. 6 to support the Black Hills United Way. One team painted the concession stand at the Star of the West softball complex. Fifteen students and three staff members were involved.
A new program to mentor and support female mechanical engineering students at the School of Mines has begun to help retain a record number of women.

The Department of Mechanical Engineering (M.E.) is comprised of mostly male students, but thanks to aggressive recruiting efforts and scholarship availability, the department this semester expected a record number of women.

The pre-census expectation was an undergraduate enrollment of more than 500, with 41 of those female.

“Expanding a diverse student body, in part by increasing enrollment of female students throughout all of our programs, is one of our strategic priorities. We are extremely proud of our Department of Mechanical Engineering’s diligence in actively recruiting female students, and this new program to provide support and mentoring is a natural next step to ensuring their success,” President Robert A. Wharton had said of the new program prior to his death.

While female enrollment has been slowly climbing over the past several years, retention has been a concern, said Lisa Carlson, associate director of recruitment and graduate programs for the department.

“I’ll closely study the trends to see if there have been any changes over the next three or four years. A major reason for women switching out of the mechanical engineering program is that they don’t know any other women M.E.s and feel ‘untethered.’ My hope is that this program alleviates this issue,” Carlson said.

The program kicked off with a Sept. 11 breakfast.

Collaborative research work by South Dakota School of Mines and Technology and the University of South Dakota on the security implications of an invisible Quick Response (QR) code has gone viral.

The research was published Sept. 11 in the British academic journal Nanotechnology, published by IOP Publishing, and quickly caught the attention of national and international media.

Stories highlight how secret codes embedded through use of nanoparticle-based inks may be invisible in ambient lighting but are readable with a near-infrared laser and have been successfully scanned using the common smart phone. Use of this technology could thwart counterfeiting, detect national security breaches and be used in many other applications.

Among the many outlets where the research has appeared include: BBC News, NBCNews.com, Physics.org and Reuters Online.

The School of Mines produced a video that accompanied the research report and was embedded in many of the national and international media stories.
New Newman Center slated to open summer 2013

Construction is under way for a new Newman Center just west of the South Dakota School of Mines and Technology campus. The new center will feature a chapel that will seat 120 people. Currently about 60 students attend weekly mass held in a meeting room of the nearby Surbeck Center on the School of Mines campus. Additionally, the new Newman Center will feature a meeting and social area, two multi-purpose rooms, a kitchen, office space and a small apartment for an on-site manager.

An Aug. 30 ground breaking ceremony kicked off the building process. Completion is expected July 1, 2013.

The new center is being built under the auspices of Cathedral of Our Lady of Perpetual Help, which owns the land, and will serve students from the School of Mines, as well as other area colleges.

G.I. Jobs magazine: Mines is Military Friendly

For the fourth consecutive year, South Dakota School of Mines and Technology has been deemed one of the most military friendly schools nationwide by G.I. Jobs magazine.

The School of Mines is ranked among the top 15 percent for 2013 following research and surveys of more than 12,000 colleges, universities and trade schools.

With more than 6 percent of School of Mines faculty and staff veterans, the university supports veterans and active duty members through its Veterans Resource Center. Faculty and staff are also trained on issues such as Post Traumatic Stress Disorder (PTSD) and effects of traumatic brain injuries.

The School of Mines campus has been home to an Army ROTC since 1918 and offers OEF/OIF support groups, an on-site certified Veteran’s Administration benefits adviser/certifier and a Student Veterans of America-affiliated Veterans Club. All veterans are eligible for in-state tuition and 16 different scholarships. Another 14 scholarships are available to military dependents. The Veterans Resource Center also offers student success workshops and assists with scholarship searches and resume-writing.

In 2011, the university received the highly-coveted Seven Seals Award, which recognized its contributions to the Employer Support of the Guard and Reserve volunteer mission, and was also ranked eighth nationally by the Military Times Edge magazine in the “Best for Vets: Colleges” survey.

Rocker Square offers more options for student housing

The new Rocker Square apartments adjacent to the South Dakota School of Mines and Technology campus opened this fall, housing 121 students.

The six-story, 121-bedroom apartment building, is privately developed by Dream Design International, Inc., whose president is Hani Shafi, a School of Mines alumnus.

Technology Housing, LLC, manages the property, which is comprised of 34 two-, three- or four-bedroom apartments featuring eastern views of the campus and western views of M Hill. The lower level features an Einstein Bro. Bagels. Other amenities include washers and dryers, high-speed communication, common areas for social events, outdoor grill areas and parking.

Ground has been broken for a similar second apartment building just to the west.
President Wharton’s Memorial Service

Continued from page 1

upgraded, and the relationship with the students, faculty, and community strengthened. President Wharton was a champion of the students of the South Dakota School of Mines and Technology, and we are all going to miss his presence,” Ferguson said.

Faculty leaders echoed the sentiment.

“From the moment Dr. Wharton stepped on campus, the faculty knew we had gained a great leader. He quickly developed an understanding of, and appreciation for, the traditions and values that define our university. He articulated a vision for building on those strengths and improving every aspect of what we do, from growing research to improving curriculum, from building new buildings to making our campus a more welcoming environment,” said Dr. Edward Corwin, chair of the Faculty.

“He was a consensus builder, always looking for other options and willing to explain how and why a decision was made. But, he also made the hard decisions when a consensus wasn’t possible. The faculty will deeply miss this brilliant and dedicated leader.”

Meanwhile, tributes continue to pour in from throughout the nation’s scientific community, within which President Wharton was a highly respected figure.

On a blog set up for friends and colleagues to pay tribute by sharing their memories, Ross Virginia of Dartmouth College’s Environmental Studies Program, shared that President Wharton is the one who introduced both himself and Dr. Diana Wall, director of Colorado State University’s School of Global Environmental Sustainability and the 2012 Mines Medal recipient, to research opportunities in Antarctica.

“Bob mailed us some soil from the dry valleys in Nalgene bottles, and with preliminary data generated from these samples we wrote a grant for a one-off trip to Antarctica. As Bob probably secretly predicted we caught polar fever, and since 1989 Diana and I have worked continuously on the soil ecology of the dry valleys,” Virginia wrote.

Dr. Wall expanded on that memory.

“The soils had nematodes, and it was as exciting as life on Mars. Ross and I were hooked and wrote our first grant on that cold desert. Bob’s encouragement and enthusiasm for science changed my career and life, and, I think, in many ways, influenced us all,” wrote Dr. Wall.

Dr. Jack R. Warner, executive director and CEO of the South Dakota Board of Regents, said President Wharton will be remembered for his extraordinary leadership and advancement of the university. “He really has made this a stronger academic place. He has advanced the research agenda. But also, you can see physically the new addition to the science building,” Dr. Warner said, referring to the Chemical and Biological Engineering/Chemistry Building that opened in 2011.

He also pointed to the 33,000-square-foot James E. Martin Paleontology Research Laboratory, renovated residence halls and expansion of the Surbeck Center, all of which occurred under President Wharton’s watch. “These are all physical assets he has been responsible for advancing during his time here. What we know about him is that this is a stronger institution for his leadership here and we are all grateful.”

Committed to cutting-edge research in a number of important areas of science and engineering, Wharton championed the university’s prominence in vital research areas and significantly expanded the School of Mines research enterprise and graduate programs. During his tenure, annual research funding tripled from $10.1 million awarded in fiscal year 2008 to $35 million awarded in 2010, the highest amount of funding in the history of the university.

During Wharton’s tenure, he collaborated with private developers who built new private student apartments to aid recruitment efforts and alleviate the campus student housing shortage. He supported building the new Newman Center to serve students from the School of Mines, as well as other area colleges and the campus community.

President Wharton invested in human resources, moving the institution forward as the School of Mines educates an expanding and increasingly diverse student body. Under his direction, the School of Mines was becoming a national leader in developing best practices for the successful delivery of STEM education at the university level. Having spearheaded the creation of a campus-wide council on diversity, Wharton positioned the institution to successfully recruit female faculty and students and dramatically improve the success of Native American

Continues on page 7
The James E. Martin Paleontology Research Laboratory received international attention in August as researchers from The University of Tokyo examined the School of Mines’ T.rex specimen. Dr. Takanobu Tsuihiji, who is researching the evolution of the neck region of dinosaurs, visited the campus measuring the non-skull parts of the specimen to add data to a larger analysis. His research team gathered similar data from museums and collections in New York, Pittsburgh and other parts of the United States. The specimen is currently held in collection and not on display at the Museum of Geology, allowing researchers a more in-depth study. The Mines’ T.rex is about 40 percent of a complete skeleton, with the neck well represented, and was unearthed in 1981 in the Mud Butte area northeast of Sturgis, in Meade County.
Students battle in inaugural ‘Design Wars’

Sixteen teams from the South Dakota School of Mines and Technology students put their ingenuity to the test tackling an elaborate surprise design challenge from start to finish within a matter of hours.

Teams of four students each competed in the inaugural “Design Wars” Sept. 8 at the Rushmore Plaza Civic Center. Each received the same assignment, materials, technology tools for communication and time to complete the project. They were tasked with designing, constructing and documenting an engineered solution to a complex problem on site within eight hours.

Their ability to communicate and adapt to changing conditions was tested, as the competition was organized through a mobile computing research grant from School of Mines Faculty Development Funds.

Teams were judged on novelty, functionality and engineering efficiency.

“We’re interested in seeing just how creative our students can be when presented with an unusual design challenge,” said Dr. Andrea Surovek, associate professor in the Department of Civil and Environmental Engineering, who created “Design Wars” with Dr. Dean Jensen, associate professor in the Department of Industrial Engineering.

Mobile computing savvy was a key part of their success.

The engineer of 2020 will need to be creative, dynamic, agile, resilient and flexible, according to Surovek and Jensen. “They also need to be able to communicate well, and these days it’s mobile, computer-based communication,” Jensen said.