

SOUTH DAKOTA SCHOOL OF MINES AND TECHNOLOGY

# QUARTERLY

WINTER 1998

**SOUTH DAKOTA  
CASHES IN ON  
SDSM&T ALUMNI  
FOR ECONOMIC  
LEADERSHIP**



*Story on Page 6*

# Perspectives



Dear Friends,

Welcome to the second issue of *SDSM&T Quarterly*! Thank you for the very positive responses to the magazine's inaugural issue this fall. We hope you enjoy this publication featuring some of the many academic and research accomplishments of our South Dakota Tech family.

The School of Mines was founded in 1885 to prepare graduates for the developing mining industries of the Dakota Territories. Over a century later we continue the

proud traditions of preparing graduates to lead the development of the business and industries that use the technological advances of today.

We are pleased that the reputation of the South Dakota School of Mines and Technology attracts outstanding students from South Dakota, other states and the international community. The continuing growth of business and industry in our state provides increasing opportunities for the two-thirds of our graduates who are South Dakotans to use their talents to build our future. In this issue of the *SDSM&T Quarterly* we focus on the contributions of these graduates to strengthen the economic growth of South Dakota.

A significant number of our graduates from South Dakota are able to practice their professions in our state's industries. Those who must leave for employment elsewhere also are a great resource for economic development. A recent survey indicated that two-thirds of our alumni who currently live out-of-state would return to South Dakota to work for a company in a comparable position. As the need for engineers and scientists continues to grow more critical, these experienced leaders and managers are ready to return to South Dakota and have the potential to encourage more business and industry to locate in our state.

We value our close working relationships with industry in forming innovative curricular developments and cutting-edge research projects. The Center for Excellence in Advanced Manufacturing and Production takes our technical assistance efforts to a new level by helping companies solve design and production problems through our enterprise teams. These technical assistance activities continue the traditions of tapping the resources of the university to increase the economic development opportunities of our industrial partners.

With the new millennium fast approaching, we are building on SDSM&T's traditions of excellence to strengthen our educational programs, our industrial technical assistance, our research programs and our many economic development activities. We look forward to hearing your advice and recommendations as we prepare for the future.

Best wishes for good health and happiness in 1998!

Sincerely,

Richard J. Gowen  
President

# QUARTERLY

SOUTH DAKOTA SCHOOL OF MINES AND TECHNOLOGY  
Winter 1998

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*SDSM&T Quarterly* is published by the  
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# Features

## 2 Tech Incubator Grows Into Industry Leader

*Dakota Scientific Software major supplier to Silicon Valley.*



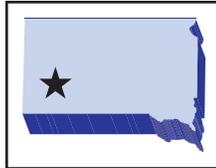
## 4 Surbeck Remembered as a Man of Faith and Principle

*Distinguished career and generosity touched the lives of countless youth.*



## 6 South Dakota Cashes in on SDSM&T Alumni for Economic Leadership

*From the gold rush of the Black Hills to the computer age of the 90's and into the new millennium.*



## 8 Dilbert Character Inspired by SDSM&T Alum

*Anita Freeman (EE '76), a.k.a. "Alice," provides character inspiration for corporate comic relief.*



## 10 3-D Mines

*Tech first to use Vulcan Virtual Reality Mining Software.*



## 12 From Crocs to Calculus

*Students apply ABC's of reptile wrestling to university success.*



## 13 Alexander Recognized as One of the Best

*Non-Traditional student selected for prestigious NSF project.*



## 14 SDSM&T Reaching Out

## 16 Dunn Exemplifies Generosity and Dedication

## 16 Campus Briefings

## 18 Granite Award

## 18 Leveraging for Excellence

## 19 Personnel Changes

## 20 Center Court Focus

## 22 Heading for the Hills

## 24 Research Awards

# CAMPUS

## Profile

The South Dakota School of Mines and Technology, founded in 1885, has been a national leader in preparing world-class engineers and scientists. Our graduates design, construct, and operate modern technology to meet complex challenges such as global warming, health care delivery, energy resource development, mineral extraction and processing, environment quality, futuristic transportation, and national defense. Our alumni are held in the highest regard by their fellow leaders in industry, consulting, government, health and education.

Tech has diversified to meet the needs of engineering and science throughout the world. South Dakota Tech's intellectual environment was shaped a century ago by the ingenuity and rugged individualism of pioneers in science and technology. Tech's present day pioneers provide inspiration and remain on the cutting edge in the fields of engineering and the sciences.

**ACADEMIC PROGRAM:** SDSM&T is a state-assisted university providing graduate and undergraduate degrees in science, engineering, and interdisciplinary studies.

### BACHELOR OF SCIENCE DEGREES

Chemical Engineering	Industrial Engineering
Chemistry	Interdisciplinary Science
Civil Engineering	Mathematics
Computer Engineering	Mechanical Engineering
Computer Science	Metallurgical Engineering
Electrical Engineering	Mining Engineering
Geological Engineering	Physics
Geology	

### MASTER OF SCIENCE DEGREES

Atmospheric Sciences	Materials Engineering and Sciences
Chemical Engineering	Mechanical Engineering
Civil Engineering	Paleontology
Computer Science	Technology Management
Electrical Engineering	
Geology and Geological Engineering	

### DOCTORATE OF PHILOSOPHY DEGREES

Atmospheric, Environmental and Water Resources  
Geology and Geological Engineering  
Materials Engineering and Sciences

**ENROLLMENT:** The University has a diverse enrollment of approximately 2,200 students from nearly 30 states and 20 countries. Our 13 departments offer 30 degree programs in engineering and science disciplines at the baccalaureate, masters, and doctoral levels. Students enter the university with the highest ACT composite in the state and more than half graduated within the top 25 % of their high school.

**COSTS AND FEES:** Annual undergraduate costs for tuition, fees, room and board total less than \$8,000 per year for residents of South Dakota, Alaska, Colorado, Hawaii, Idaho, Minnesota, Montana, Nevada, New Mexico, North Dakota, Oregon, Utah, and Wyoming. Annual total costs for all other undergraduates is less than \$10,000 per year.

**RESEARCH:** High quality research is conducted in departments and in our research institutes.

**FACULTY:** There are approximately 100 faculty with degrees from more than 150 institutions, eighty five percent of which have earned doctoral degrees.

# TECH INCUBATOR *Grows Into* INDUSTRY LEADER

*Dakota Scientific Software major supplier to Silicon Valley*

Connected to the Silicon Valley from the South Dakota Tech campus, Dakota Scientific Software, Inc. (DSS) has created high-wage, high-tech jobs in South Dakota. DSS proves that a small, high-tech company can succeed in the highly competitive computer industry while being based in South Dakota.

Diane (M.S. CompSci '91) and Mike Boucher (M.S. CompSci '91), both Tech alumni, started the software company seven years ago. Now the business supplies high-speed math libraries for Sun Microsystems and several other high-performance computer companies.

Diane and Mike, president and vice president respectively, founded the company in December 1990 on a shoestring budget with \$10,000 of their own money and \$16,000 from the Governor's Office of Economic Development (GOED). Dakota Scientific focused on applying advanced supercomputer technology to develop the fastest math software available for desktop computers.

The Bouchers attribute some of their company's growth and success to the assistance received from SDSM&T officials and GOED. The company's start-up funds were used to hire Tech faculty members and four students to further develop their software product featuring an

optimized math library.

DSS succeeded in developing the fastest math library available for Sun's UNIX workstations. However, despite having an excellent product, the new company's first couple of years were lean. Initial marketing efforts did not produce the anticipated software sales. A Bush Foundation grant helped finance company brochures and staffing a booth at the International Conference on Industrial and Applied Mathematics Conference (ICIAM). Selling absolutely nothing at the ICIAM conference, Dakota Scientific then tried advertising its software on the Internet. That too proved unproductive.

The company's first break came when Australia's America Cup team approached the Bouchers about using their software as the exclusive linear algebra supplier for *One Australia*. The exposure of DSS's product during the America Cup prompted Fujitsu to send two officials from Japan to Rapid City to visit the Bouchers about licensing their software.

Having no experience in dealing with Japanese businesses, the Bouchers again turned to SDSM&T officials for assistance.

"President Gowen was a wealth of advice. His knowledge of Japanese business was extremely helpful," said Mike Boucher.

Based on advice received from various business and economic development officials, DSS officials decided against turning over their technology to Fujitsu. At this point the Bouchers realized the need to either go full time or do nothing more with their company. They decided to go full time and seek outside financing.

The Bouchers state the real value of the technical assistance provided by SDSM&T and other officials was not so much the actual dollars received, but the contacts and referrals within the local business community. They emphasize that a good business plan is critical to a company's success.

"The problems in business are not lack of money or access to capital," says Mike Boucher. "If a company has a good business plan, it will have access to the capital it needs."

He also said that Dakota Scientific changed its "perfectly miserable" business plan into something good with help from local banking officials. After putting a solid business plan in place, the Bouchers successfully pursued and obtained funding from the Rapid City Economic Development Revolving Loan program and an SBA-guaranteed loan from Pioneer Bank and Trust.

Even with financing in place, immediate challenges faced the company. After spending \$60,000 of its newly obtained funding, the

Bouchers discovered that same weekend on the Internet that another company, Cray Research, had developed software



Story Photos by Mike Wolforth

that did the same work for the same computer as DSS's product. Because Cray Research had been a well known and respected computer company for fifteen years, this discovery was unsettling and intimidating news. After making the decision to spend an additional \$2,000 to buy Cray Research's software, the Bouchers learned that their software was faster!

After taking two accounts away from its main competitor, Dakota Scientific started to grow. Sun Microsystems, which had 90% of the market and was still growing, was seeking a high performance math library and a FORTRAN compiler. In 1994 Sun bought the rights to license Dakota Scientific's software.

Technical assistance officials at SDSM&T provided advice and referrals for assistance in negotiating and writing the contracts. Because of Sun's market dominance, the Bouchers were advised to request minimum royalties to guard against DSS's product being bought and put on the shelf. Mike Boucher describes the help DSS received as akin to a "high tech barn raising" by the local business community network.

After licensing some additional compiler vendors operating in the UNIX market, DSS expanded its products and services available to the high-performance computing market. Dakota Scientific's growth resulted in additional jobs being created. The company currently has twelve, all of whom are Tech alumni.

In addition to its products for Sun's UNIX systems, DSS's math libraries have proven to be the fastest for the Windows 95, Windows NT, Solaris and Solaris/x86 markets. Customers of Apogee Software, Quadrics Supercomputers, and Edinburgh Portable Compilers are just a few of the many people to whom DSS supplies high-speed math libraries.

DSS also does consulting work for vendors who contract with the company to work with key suppliers. This contracting work includes optimizing large-scale scientific and engineering codes such as structural analysis applications for major CAD vendors whose products simulate car crashes for Chrysler and airplane stresses during flight for Boeing.

Dakota Scientific also is just completing a three-year research contract with Los Alamos National Laboratory to support work in simulated nuclear bomb testing under the provisions of the comprehensive test ban treaty. DSS and Los Alamos Laboratory are co-developers of the Parallel Object-Oriented



*Mike Boucher (MS CompSci '91), Vice President of Dakota Scientific Software, updates the Web page.*

Methods and Applications (POOMA) Framework. The Department of Energy's Accelerated Supercomputing Initiative program at Los Alamos, Sandia, and Lawrence Livermore National Laboratories will use the POOMA framework to run computer applications that support stewardship of the nuclear stockpile,

in addition to helping teach some classes, the Bouchers also provide Tech faculty and staff with access to their high-performance computer equipment.

SDSM&T and DSS are a good match. Dakota Scientific provides good, high-wage jobs for the local economy. Tech produces

high-quality computer science graduates that DSS needs.

Mike Boucher calls Rapid City a good place for high-tech companies like DSS to be based. Local governments and economic development officials are cooperative. Recruiting qualified and talented people is relatively easy. A good infrastructure, coupled with Internet access and overnight shipping services like Federal Express, allows DSS to conduct

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business anywhere in the nation. Many Tech alumni want to return to South Dakota and are available if a company is interested. Taxes, real estate and other business expenses are relatively low compared to other regions of the country.

One DSS employee who relocated from San Jose reports that he has more spending power in Rapid City even though he is earning 3/4 of his former salary in California—and he is much happier!

Persevering through the challenges, risks and uncertainties of owning their own business, the Bouchers have steered DSS to an impressive growth these past seven years. When first started, Dakota Scientific leased space on the Tech campus as part of SDSM&T's efforts to serve as a small business incubator and foster economic development opportunities. DSS continues to lease space on the Tech campus today in addition to space of its own off-campus. The cooperative arrangement with SDSM&T works quite well. In

business anywhere in the nation. Many Tech alumni want to return to South Dakota and are available if a company is interested. Taxes, real estate and other business expenses are relatively low compared to other regions of the country. One DSS employee who relocated from San Jose reports that he has more spending power in Rapid City even though he is earning 3/4 of his former salary in California—and he is much happier!

Dakota Scientific's success brings the high-tech, entrepreneurial spirit of Silicon Valley home to South Dakota. ✂

# Surbeck Remembered As a

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*Distinguished career and generosity touched the lives of countless youth*

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In an age when good role models seem in short supply, Homer Surbeck provides an inspiring example of moral fiber, faith and success. During his life, Surbeck touched the lives of countless young people through his generosity. The seeds he planted through his philanthropy and good works will continue to multiply and bear fruit in the years ahead.

The *Success Formula That Really Works*, authored by Surbeck, describes the principles to which he faithfully adhered throughout his life. The book provides a personal and moral compass to guide persons in their life journeys. Urging young people to set their own values and priorities in life, Surbeck encouraged faith, positive thinking, enthusiasm and hard work.

When Leighton (Homer) Surbeck (MetE '24) passed away this fall at the age of 94, the South Dakota Tech family lost one of its most cherished friends and dedicated supporters.

"Homer Surbeck has left an everlasting mark on the South Dakota School of Mines and Technology. It was an honor to work with him and call him friend," said Dr. Richard J. Gowen, SDSM&T President.

His life spanning nearly the entire 20th century, Surbeck acquired a strong work ethic and deep religious faith at an early age.

One of his first jobs was weeding onions for ten hours a day at ten cents an hour. Despite a first grade teacher who labeled him "the class dunce," Homer went on to achieve tremendous academic and professional success.

He graduated with honors in 1924 in Metallurgical Engineering from the South Dakota School of Mines, as it was then known. Homer received a scholarship to Yale Law School, where he graduated first in his class in 1927. He was appointed to the prestigious position of law secretary to Chief Justice William Howard Taft of the U.S. Supreme Court.

Surbeck later joined a prominent Wall Street firm and became a senior partner in the Hughes, Hubbard and Reed law firm. He was considered one of the country's leading experts on anti-trust law.

Leaving his successful Wall Street practice to serve his country during World War II, Surbeck received a War Department Citation for Service as Colonel and Chief Justice of Economic Branch, Military Intelligence Service. Returning to private practice after

World War II, Surbeck built a reputation as one of the finest lawyers on Wall Street. Throughout his career and success in his profession, Surbeck adhered faithfully to the principles of honesty, hard work and humility.

In the late 1940's, Surbeck began a long tradition of providing educational scholarships to young people. The scholarships he funded throughout the years total several hundred thousand dollars. He gave over 1,000 scholarships to young people seeking higher education at various institutions, including SDSM&T and Brigham Young University. He also sponsored a prize in geology at Princeton University and an award for Outstanding Technical Writing at SDSM&T.

In 1949 Homer Surbeck began giving Rapid City High School, and later both Rapid City Central and Stevens High Schools, \$3,000 each year for senior scholarships. He also made substantial

contributions to furnish Guy March-Math Scholarships at SDSM&T.

In addition to his philanthropic scholarship support, Surbeck contributed generously to many SDSM&T campus building projects over the years, including the Student Center and the Physical Education Building. In 1963

the South Dakota Board of Regents dedicated the Surbeck Student Center on the Tech campus in his honor.

His distinguished career earned him several honorary degrees and awards, including the Guy March Silver Medal, given by SDSM&T to honor alumni for outstanding achievement. He also received the prestigious Yale Medal, the highest honor given by the Association of Yale Alumni.

In October 1976, after 75 years of bachelorhood, Homer met and married Margaret Packard, widow of Gordon Packard. Retiring from active practice, he focused his dedication toward a loving partnership with Margaret Packard, who held his same set of core values. Together they shared a quest for greater understanding of science and support of education and religious organizations.

In 1977 Surbeck received the "Horatio Alger Award" for his spectacular rise to success from a humble beginning. Other recipients of this distinguished award include Dr. Norman Vincent

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*"Homer Surbeck has left an everlasting mark on the South Dakota School of Mines and Technology. It was an honor to work with him and call him friend."*

*- Dr. Richard J. Gowen, SDSM&T President*

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# Man of Faith and Principle

Peale, Bernard Baruch, Lowell Thomas, Eddy Rickenbacker, and Johnny Cash.

In the foreword to *The Success Formula that Really Works*, Dr. Norman Vincent Peale stated, "I've met a lot of people that I've come to admire. Some have been great achievers, others are great inspires. But there is one man to whom I would ascribe the title 'the greatest Christian gentleman I've ever known.' That man is Homer Surbeck."

Margaret Surbeck exemplifies each principle of the success formula described in Homer's book. Generations of students have been the beneficiaries of the Surbecks' tremendous generosity through innumerable scholarships. They encouraged thousands of young people to reach life's highest goals and also provided substantial support for United Campus Ministries.

SDSM&T has been but one of the many institutions blessed by the Surbecks. Homer was instrumental in the establishment of the Yale Law School Endowment Program as well as the SDSM&T Endowment. The Surbecks' leadership and belief in planning for the future have contributed to the financial strength of many educational and religious organizations.

The values and faith that Surbeck exemplified are timeless. They will be just as important in the 21st century and the new millennium as the 20th century in which he lived. Homer's work ethic, values, and generosity serve as a beacon of inspiration to future generations.

Surbeck never sought glory for himself. Instead, he worked behind the scenes to foster the ideals of scholarship and character among youth.

Homer Surbeck is an unsung hero who left a lasting mark on SDSM&T and society. ✂



Photo Courtesy of Alumni Services

Margaret and Homer (MetE '24) Surbeck

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*"I've met a lot of people that I've come to admire. Some have been great achievers, others are great inspires. But there is one man to whom I would ascribe the title 'the greatest Christian gentleman I've ever known.' That man is Homer Surbeck."*

*- Dr. Norman Vincent Peale*

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# SOUTH DAKOTA CASHES IN ON SDSM&T ALUMNI FOR ECONOMIC LEADERSHIP

From North Sioux City to Lemmon, from Sisseton to Edgemont and communities throughout the state, SDSM&T alumni are helping to power the economy of South Dakota. Who are the Tech alumni in your community? They are business owners, manufacturers, engineers, CEOs of major companies, doctors, dentists, computer programmers, attorneys, teachers, farmers, ranchers...the list goes on and on.

The alumni shown here are just a small sample of the nearly 2,000 Tech graduates who currently reside in South Dakota. Additional alumni names will be featured in future publications.

For more than 100 years, SDSM&T has provided South Dakota

students with a quality science and engineering education, as well as the job skills necessary to succeed in an ever-changing economy. From the gold mines of the 19th century to the information superhighway of today, many SDSM&T students have put their education to good use in South Dakota after they graduate. Two-thirds of SDSM&T graduates are South Dakotans. Over the years Tech alumni have created thousands of jobs and have helped the state's economy grow. They continue to do so today.

A recent survey of Tech graduates living in South Dakota showed that their current positions and professions cut across all major segments of the state's economy--business, manufacturing, agriculture, and the medical and legal

professions—to name just a few. Many SDSM&T alumni are presidents or CEOs of companies that employ thousands of fellow South Dakotans. The creation of these jobs, many of which require various technical skills and expertise, provide an opportunity for Tech graduates to stay in South Dakota, pay taxes, raise families, and be actively involved in their communities. Many additional jobs in the state are also directly or indirectly tied to the primary jobs created by these businesses. Other Tech alumni work in key positions in the private sector or numerous public agencies at all governmental levels.

Whether managing the local utility company, operating an electronics manufacturing business,

*(continued on page 23)*

**Aberdeen** - Donald B. Bad Moccasin, Area Director, *Indian Health Services* •



Francis E. Brink, Consulting Engineer, *Brink Engineering* • Justina M. Gross,

Processing Engineer, *3M Company* • Steven L. Warren, President/Owner, *Hospitality Builders, Inc.* • **Alpena** - Robbie J. Baruth, Branch Manager, *American State Bank* •

**Belle Fourche**



Max S. Main, Attorney, *Bennett, Main & Bailey, P.C.* • **Black Hawk** - Harold W. Grace III, Major, *U.S. Air Force* •

**Britton** - Mark C. Wismer, Owner, *ProTech Engineer and Manufacturer* • **Brookings** - Aelred J. Kurtenbach, President, *Daktronics, Inc.* • **Buffalo** - Kenneth Nelson,

Rancher • **Clear Lake** - Terry A. Krause, Math Department Head, *South Shore High School* • **Deadwood** - Dr. Wayne J. Anderson, Physician/Owner, *Black Hills Medical*

*Center P.C.* • **Dell Rapids** - Keri J. Karst, President, *Buskerud Construction* • **Fort Pierre** - Mark J. Hollenbeck, Director of Public Works, *City of Fort Pierre* •

**Gregory** - Emmet W. Kotrba, Mortician/Owner, *Kotrba Funeral Home* • **Hermosa** - John T. Colgan, Rancher • **Huron** - Arthur R. Donnell, Vice President of Energy

Operations, *Northwestern Public Services* • **Interior** - Rachel C. Benton, Paleontologist, *Badlands National Park* • **Kadoka** - Myron Lindquist, States Attorney, *Jackson & Jones*

County • **Lead**



**Victoria L. Franzen**, Chief Engineer, *Wharf Resources* • **Larry L. Trautman**, Chief Metallurgist, *Homestake Mining Company* •

**Lemmon** - **Bradford J. Wheeler**, President, *Wheeler Manufacturing Company, Inc.* •



**Rob L. Wheeler**, Vice President, *Wheeler Manufacturing Company Inc.* •

**Milbank** - **William E. Coester**, Attorney • **Mitchell** - **Steven M. Rice**, Engineer Manager, *Toshiba Toner Products* • **Raymond L. Roby**, President, *Roby Quintal & Everson* •

**Robert C. Tilton**, Chief Engineer, *Trail King Industries Inc.* • **New Underwood** - **Paul F. Gnirk**, Principal, *Table Top Consultants* • **Pierre**



**Ronald A. Bengs**,

Project Engineer, *State of South Dakota* •



**Daniel L. Painter**, Sales Engineer, *South Dakota Concrete Products* • **Steven M. Pirner**, Environmental Regulations

Director, *South Dakota Department of Environment and Natural Resources* • **Rapid City** - **Mark W. Benson**, Vice President, *U.S. Bancorp* • **David L. Berg**, Owner, *West Plains*

*Engineering* • **Jay A. Brink**, Chairman, *Brink Electric Construction Company* • **Matthew J. Bunkers**, Meteorologist, *National Weather Service* • **Dr. Patrick J. Coyne**, Dentist •



**George F. Dunham**, Senior Partner, *Dunham Associates* •



**Nancy W. Dunham**, Director Of Electrical Engineering, *Dunham Associates* •

**Randy J. Guliuzza**, Flight Surgeon, *U.S. Air Force* • **Michael R. Gustafson**, President, *First Gold Inc.* • **Edwin L. Hubbeling**, Senior Vice President, *Pete Lien & Sons, Inc.* •

**David Johnson**, Owner, *Johnson Tree Service* • **Gary N. Johnson**, Owner, *Northern Power Technologies* •



**Kathryn O. Johnson**, Environmental Consultant, *Johnson*

*Environmental Concepts* • **Robert E. Kelley**, President, *Dakota Business Center* • **Daniel P. Landguth**, President and CEO, *Black Hills Corporation* • **Donald K. Lefevre**, President,

*Cynetics Corporation* • **Dr. Timothy P. Minton**, Ophthalmologist, *Black Hills Regional Eye Institute* • **Richard M. Rangel**, Owner/President, *RM Rangel Inc.* • **Shannon L. Thornburg**,

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**Randall C. Newcomb**, Senior Systems Analyst, *Gateway 2000* • **Jon D. Smith**, City Engineer, *City of Sioux Falls* • **Michael J. VerMulm**, Systems Programmer, *Citibank* •

**Watertown** - **Stephanie A. Warner**, Manufacturing Engineer, *Midcom* • **Waubay** - **Robert G. Erdman**, Area Road Maintenance Engineer, *Bureau of Indian Affairs* •

**Witten** - **William L. Ferguson**, President & Wheat Grower, *Dakota Research Corporation* • **Wood** - **John M. Koskan**, Rancher & State Legislator • **Yale** - **Timothy H. Walter**,

President, *Dakota Farms International* • **Yankton** - **Dr. Hartley C. Alsgaard**, Psychiatrist •



**Wayne G. Anderson**, President, *Wayne Anderson Construction, Inc. & Anderson*

*Superior Products, Inc.* • **Christopher J. Bauer**, Owner, *Bauer Electric* • **Daniel D. Eisenbraun**, President, *Eisenbraun & Associates* • **Harvard Schulz**, Owner, *WELFL Construction* 

# Dilbert Character Inspired by SDSM&T Alum



DOGBERT: © United Feature Syndicate, Inc.



*Photo Courtesy of Anita Freeman*

*Anita Freeman (EE '76), a.k.a. "Alice," provides character inspiration for corporate comic relief.*

When Anita Freeman (EE '76) graduated from SDSM&T, the South Dakota native never dreamed she would someday be the inspiration for a character in one of the world's most popular comic strips—Dilbert. Alice, the Dilbert character with the bright pink suit and the fluffy, triangle-shaped hair, is modeled after Anita.

The electrical engineering degree Freeman received from SDSM&T has led her on a successful career path from the Tech campus to Kodak, Pacific Bell and now Cisco Systems. Her journey into the comic strip world began when she took a position as an applications engineer with Pacific Bell in California, where she first met Dilbert creator Scott Adams in January 1991. Adams and Freeman were team members in the same lab at Pacific Bell.

During her first week on the job, Anita made a lasting impression on Adams when she helped him fix a problem that he found very frustrating. Her Midwestern propensity to help others in need, coupled with her engineering capabilities based on her education at SDSM&T, were likely factors in Freeman's willingness to take a chance and offer to help her new coworker. Grateful and impressed by her technical proficiency, Adams was soon telling his coworkers that "Anita knows everything."

Becoming good friends, Freeman and Adams maintained that friendship after he was reassigned and she took over his Pacific Bell projects. "You never know whether everything would have been different if I had opted not to try and be helpful to Adams that first week of working with him," muses Freeman.

Adams started drawing caricature composites of his coworkers and bosses to relieve his boredom during office meetings at Pacific Bell. His office doodles evolved into the Dilbert character and



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DILBERT © Reprinted by permission of United Feature Syndicate, Inc.



10-20



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eventually into some comic strips.

Despite finally receiving a cartoon contract in 1989 and seeing Dilbert launched in 50 newspapers, Scott Adams continued working at Pacific Bell. He would rise early each morning to draw Dilbert at 5 a.m. before going to his Pacific Bell job. After losing his job due to "downsizing" in 1995, he started devoting full time to his Dilbert endeavors.

With a daily readership of 150 million, Dilbert provides corporate comic relief for people who identify with cubicle office life and who think they are surrounded by idiots. "Dilbert is the most photocopied, pinned-up, downloaded, faxed and e-mailed comic strip in the world," according to United Media, the company that develops and markets 150 comic strips and editorial features worldwide.

In addition to the comic strip's own web page, The Dilbert Zone™ at [www.unitedmedia.com](http://www.unitedmedia.com), Dilbert is published in more than 1,550 newspapers in 17 languages in 39 countries and has over two million books in print.

Dilbert's popularity can be attributed in part to the 52 million white-collar workers in America who can identify with many of the corporate work experiences



DILBERT Characters: © United Feature Syndicate, Inc.

skewered by Dilbert and his cartoon coworkers like Alice.

Even though they no longer work



DILBERT Characters: © United Feature Syndicate, Inc.

together, Freeman has stayed in close touch with Adams. During her frequent business travels in her current position as product manager for Cisco Systems, Anita is always on the lookout for good ideas for Dilbert characters. Freeman didn't see the early cartoon strips in which Alice appeared as a Dilbert character and didn't know that she was the inspiration for Alice. A friend showed her a Dilbert cartoon featuring Alice and told her "that is just like you."

After her coworkers began commenting "I saw you in the Sunday funnies," Anita had an inkling of her association with Alice. However, Dilbert's creator still had not said anything to her about Alice.

When a comic strip showed Alice doing something that Anita would never have done, Freeman finally asked Adams directly if the character was modeled after her. Adams sheepishly confessed that it was.

In his chapter on Alice in *The Seven*

*Habits of Highly Defective People*, Adams admits that "Alice's real-world counterpart (Anita) was the model for Alice's pink suit, her fluffy hair, her long work hours, her coffee obsession, her technical proficiency and her take-no-crap attitude." Dilbert fans recognize Alice as someone who works hard, cuts to the chase, and has little tolerance for fools or idiots.

One cartoon showed Alice tossing a coworker through the ceiling for an insensitive remark about women breaking through the glass ceiling. Dilbert's creator admits that Anita wouldn't do some of the things that Alice does.

"As far as I know, the human version of Alice has never kicked a man into his hat, stuffed an intern into his shirt sleeve, or slapped a man so hard he traveled back in time. But if I ever hear about it happening, it wouldn't surprise me," states Adams (*The Seven Habits of Highly Defective People*, p. 209).

Adams often took fragments of conversations or comments by Anita and turned them into a cartoon. For example, Anita often made comments that she doesn't like "dress-down Fridays" because she thinks she looks better in dresses than slacks. Subsequent Dilbert cartoons skewered casual dress days in the corporate workplace.



DILBERT Characters: © United Feature Syndicate, Inc.

(continued on page 21)

# 3-D Mines

Tech first to use Vulcan Virtual Reality Mining Software

SDSM&T's mining engineering curriculum has changed dramatically since the first mining engineers graduated from the School of Mines over a century ago. The mining engineers graduating today from SDSM&T are at the vanguard of using 3-D virtual mining computer software to design safer and more efficient mines for the future.

SDSM&T is recognized as a worldwide leader in utilizing cutting-edge technology to prepare its mining engineers for the 21st century. The South Dakota School of Mines & Technology was the first mining department in the world to implement the innovative Vulcan integrated mine design software into its curriculum.

Dr. Zbigniew Hladysz, SDSM&T Chair and Professor of Mining Engineering, is one of the very few mining professors in the world to use the Vulcan integrated mine design software in an undergraduate curriculum for mining engineering students.

"Ziggy", as Dr. Hladysz is affectionately known around campus, uses the powerful, three-dimensional Vulcan software to teach his students

computerized mining design by creating underground and surface mining sites in virtual reality.

According to Dr. Hladysz, SDSM&T may be the only university whose mining department requires undergraduate students to actually use integrated mine design software in their senior design projects. Assisted by a generous donation from Maptek, Inc., Hladysz developed a 'virtual mine' -- a mine skeletal model that can be used to design a mine and to teach mining design in an integrated way with virtual reality tools.

Thanks to Dr. Hladysz's innovative efforts, South Dakota Tech students learn how to actually use this cutting-edge

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*"This is as hands-on as you can get. It gives mining students like me a competitive edge in getting a job."*

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*- Jay Johnson, Senior Mining Engineering student*

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technology and apply it to their senior design projects. Through the use of virtual mining software, undergraduate students design a computerized mine that provides a three-dimensional view of all aspects of the mine.

On-screen visitors can enter the mine, go down the main intake shaft and travel through all the tunnels and other passageways of the mine. In addition, the infrastructure, utilities, vehicles and other components necessary to operate the underground mine are included in the integrated mine design and are shown on the screen.

"Learning to use the mine design software is the next best thing to actual job

experience," says Jay Johnson, a senior mining engineering student. "This is as hands-on as you can get. It gives mining students like me a competitive edge in getting a job."

Johnson estimates he spent 350-400 hours on the computer this past semester designing an underground mine complete with tunnels, mine shafts and the necessary utilities infrastructure. To accompany his virtual mine design, Johnson prepared a 150-200 page report justifying every decision and showing the calculations of the drill hole data that the students are given as a starting basis for their individually designed mines. Next semester Johnson and his fellow senior mining engineering students will use the powerful Vulcan software to design a surface mine.

"We are the only university in the world that requires two mining design projects from our seniors," said Dr. Hladysz. "A student designs an entire mine in three months using very sophisticated graphics. The design includes a feasibility study,

economics, reclamation, and environmental issues."

The Vulcan System used in SDSM&T's computerized mine design laboratory is a state-of-the-art, integrated geoscience modeling system

developed by Maptek, Inc. Officials of Maptek donated the powerful, cutting-edge Vulcan software and hardware components with a total value of \$150,000 to SDSM&T's Mining Department. The relationship between Maptek and SDSM&T has been beneficial to both partners, the students and the mining industry. A publication of Silicon Graphics, Inc. recognized this productive relationship as a 'success story.'

Learning how to operate the computer program and incorporate it into classroom instruction is a complex process. To assist his students in learning the system, Hladysz wrote his own Vulcan software textbooks to help students learn how to operate the

software and how to navigate the complex world of virtual reality mine design.

Prospective employers are very impressed when they see the SDSM&T students' mine design projects. Some student projects need a two-inch thick binder to contain all of the supporting documentation and calculations. The starting salaries of some recent SDSM&T mining engineering graduates have reached \$42,000. In addition some graduates have become managers within three years.

"What Ziggy did five years ago, the industry is starting to use today," says senior student Jay Johnson. "Ziggy is innovative. He is always trying to find a better way to do things."

Dr. Hladysz recently demonstrated virtual mine design software on The Learning Channel program, *Extreme Machines: Earth Breakers*. The program features a journey down into the Homestake Mine, the deepest mine in the United States. Staff members of Pioneer Productions from London, England, visited the South Dakota Tech campus last spring to film Hladysz's demonstration of virtual reality mining.

Virtual mine design offers tremendous potential for helping the mining industry meet the future material needs of society while still balancing the important environmental considerations. By first designing mines on the computer, the industry can utilize cutting-edge technology to ensure that its mining operations in the 21st century are as safe, economical, and environmentally sound as possible.

Dr. Hladysz's international reputation is illustrated by his recent participation in

---

*"We are the only university in the world that requires two mining design projects from our seniors,"*

*- Dr. Zbigniew J. Hladysz,  
Chair and Professor of Mining Engineering*

---

Mine IT'97, the first International Internet Conference on Information Technologies in the Minerals Industries. In addition to presenting a technical paper on computerized mine design, Hladysz also served as a member of the organizing committee for the Internet conference. Participants included experts from Brazil, Canada, Greece, Yugoslavia, Ukraine, and Germany. The conference ran via a Web

site ([www.metal.ntua.gr/msslab/MineIT97](http://www.metal.ntua.gr/msslab/MineIT97)) at the National Technical University of Athens, Greece.

With new computer technology producing significant changes in the mining industry, SDSM&T is responding to those changes and modernizing its curriculum to meet the industry's needs. Through the innovative efforts of Dr. Hladysz and other faculty members, SDSM&T's mining engineering students leave the institution with the necessary technological skills and expertise sought by private industry.

With a competency in computerized mining design under their belts, mining engineers from South Dakota Tech are ready to ride the mining

industry's wave of the future and succeed in the 21st century. The miners who came to the Black Hills during the gold rush days of the late 1870's never envisioned that 120 years later mining engineering students in Rapid City would be designing 3-dimensional, virtual mines on a computer screen before the first shovel of dirt is ever turned.

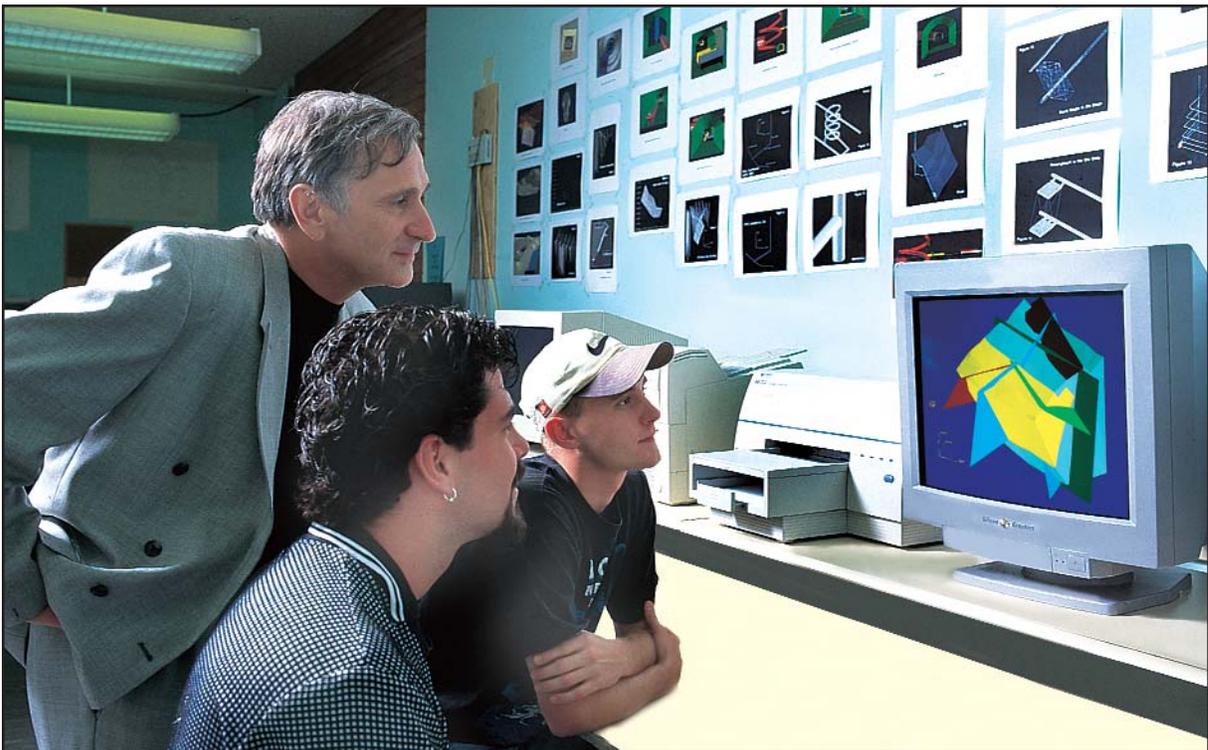


Photo by Mike Wolfarth

*Dr. Zbigniew J. Hladysz, Chair and Professor of Mining Engineering, instructs Tech students, Daryl Sorenson (Mining Engineering senior) and Mike Berglund (Mining Engineering senior), on Virtual Mine Design using Maptek's Vulcan Software.*

# FROM Crocs TO Calculus

*Students apply ABC's of reptile wrestling to university success*

Two SDSM&T students are mastering more than the traditional 3R's of education. They've acquired proficiency in a fourth R--reptile wrestling! From crocodiles to calculus, these students have developed skills that help them in both the classroom and the workplace.

Kent Jacobs (Mechanical Engineering senior, Rapid City) and Craig DeSmet (Chemical Engineering freshman, Rapid City) spent last summer performing alligator wrestling and snake shows at Reptile Gardens. Both students relate their reptile wrestling experiences to benefiting them in their academic and extracurricular activities at South Dakota Tech.

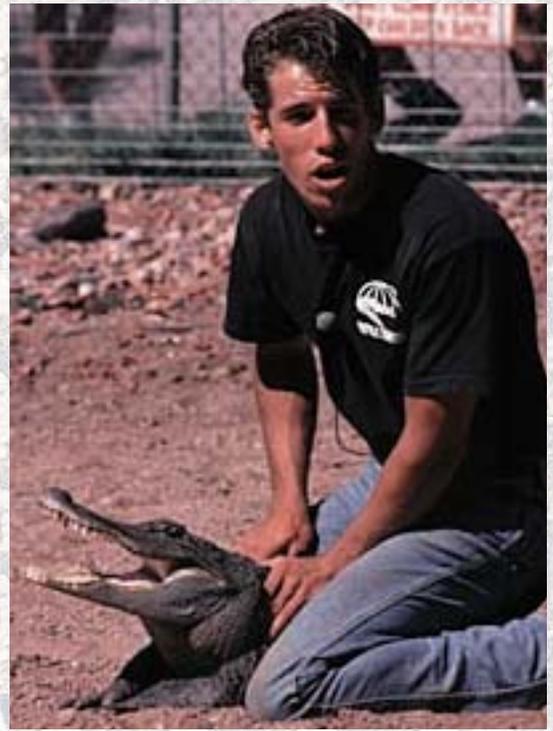
Kent Jacobs is a gator-wrestling veteran. For the past five summers, he has conducted alligator and snake tours at Reptile Gardens, one of the oldest and most popular tourist attractions in the Black Hills. To date he has wrestled nearly 1,500 alligators and has never been bitten by one!

So how does one learn how to wrestle alligators? Reptile Gardens conducts its own "Alligator U" for a budding reptile wrestler by first taping the alligator's mouth shut. Dragging the reptile around by the tail, the trainee practices aligning the alligator's head straight with its tail, sitting on its back, and rolling it over. After a month of training, the wrestler advances to untaping the alligator's mouth and soon is ready for conducting his first show before a public audience.

The show's highlight occurs when the wrestler taps an alligator like "One-Eyed Willie" on the nose, opens its mouth, reaches inside and then quickly removes his hand before the gator's mouth snaps shut with a powerful force! The alligators are very strong for their size and extremely quick. Usually 4-5 years old, they weigh approximately 100 pounds and are about six feet long.

Because an alligator has only peripheral vision, the wrestler must be straightly aligned behind the alligator's head before getting on its back and working his way up to pull back on the head. If its head is not pulled back, the alligator can roll underneath and bite the wrestler in the chest or face. Another danger is the risk of being hit with the alligator's powerful tail.

"When you first start out, you're nervous because the alligator's mouth is no longer taped shut and you also have to remember a 25-minute script," says Jacobs. "But once you get used to it, it's pretty easy."



*Photo Courtesy of Reptile Gardens*

*Kent Jacobs (Mechanical Engineering senior, Rapid City) sits astride the alligator's back during his reptile wrestling show.*

Kent credits his reptile experiences with sharpening his public speaking and presentation skills, which has helped him at Tech. He currently is team leader of SDSM&T's Mini-Baja vehicle project, an intercollegiate competition where student teams design, build and race an off-road vehicle.

In addition to alligator wrestling, Jacobs and DeSmet performed snake shows for tourists four times daily for six days a week throughout the summer. Over the past five summers, Jacobs has handled thousands of snakes during his 1500 snake shows.

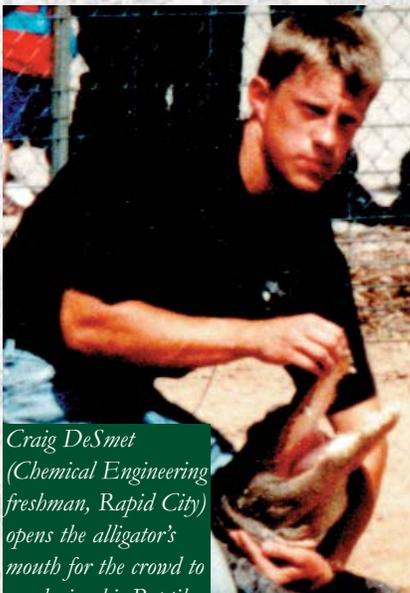
Although "the new kid on the block" last summer, Craig DeSmet wrestled more than 250 alligators and still kept all his fingers! During one of his first shows, he had an alligator encounter that was much too close for comfort—for both him and his mother who was in the audience. While preparing to sit on the alligator's back, Craig hesitated just long enough that the alligator quickly flipped around and snapped at him. Although fortunately not injured, he gained a healthy respect for the speed and agility of his reptile opponent.

Another memorable incident reinforced the importance of staying focused and keeping his concentration, useful traits that Craig applies to his SDSM&T classes. While holding the alligator's mouth open near the end of a show, Craig relaxed his concentration for a brief instant, and the alligator's powerful jaws snapped shut on his hand! Popping the alligator's head with his other hand to get its mouth open, Craig withdrew his bleeding finger that quickly swelled to twice its normal size. With diehard perseverance, Craig finished the show and wrestled two more alligators that day.

Craig also handled hundreds of both poisonous and non-venomous snakes during the snake shows and the daily transporting of snakes into Reptile Gardens Sky Dome's tropical rain forest setting. That's quite an achievement for a guy who was so scared of snakes as a child that he wouldn't even touch an earthworm!

*(continued on page 21)*

*Photo Courtesy of Craig DeSmet*



*Craig DeSmet (Chemical Engineering freshman, Rapid City) opens the alligator's mouth for the crowd to see during his Reptile Gardens show.*

# Alexander Recognized as One of the Best

*Non-Traditional  
student selected  
for prestigious  
NSF project*

*"It is gratifying  
to know that  
the great faculty  
at Tech provided  
me with the top-  
quality education  
to compete with  
the nation's  
best."*

*- Linda Alexander  
Senior Mathematics  
Student*

**N**on-traditional student Linda Alexander somehow manages to juggle the many demands of being both a single mother and a successful student at SDSM&T. For this senior mathematics major, 1997 was a special summer. Linda was one of only eight students in the country selected to participate in a National Science Foundation (NSF) undergraduate research project.

Alexander spent eight weeks last summer at the University of Missouri-Rolla conducting research for the NSF on "Parallel Numerical Linear Algebra." She was the only non-traditional student and one of two women who participated in this project. She received room and board, a small stipend for travel, and a \$2,000 fellowship grant to be awarded on the completion of the project.

Dr. Edward Corwin, SDSM&T Professor of Mathematics and Computer Science and Professor of Computer Engineering, encouraged Linda to apply for the prestigious NSF project. "It is gratifying to know that the great faculty at Tech provided me with the top-quality education to compete with the nation's best," said Alexander. "I'm proud to be a part of Tech's continuing tradition of outstanding education."

The first few weeks of the eight-week project focused on math numerical methods and parallel processing, which is used to make supercomputers run faster. The students formed three teams to work on project subtopics. Linda's assigned subtopic was "Parallel Cholesky Factorizations of Large, Sparse, Symmetric Matrices."

Linda teamed up with a University of California-Berkeley student to research large matrices for modeling the physical properties of a given system. The other students selected for this highly competitive NSF project were from Swarthmore, Boston, Kansas City University, the University of Missouri and the University of Arkansas.

To facilitate a non-math major's understanding of her research, Linda

describes the parallel processing work as modeling the widget rather than actually building it in order to study the heat, air flow, sound and other physical properties of the widget. For example, parallel Cholesky factorizations can be used to model the sound around an airplane engine or the air flow over the fuselage.

After researching her topic, Linda began writing a computer program, first for one computer and then for several processors. To solve very large systems of equations, parallel programming is used to divide the data among several processors and then running the program in parallel to speed up the computer processing time. When she finished writing her program, Linda wrote a research paper on her findings and presented it to the NSF group. In November Alexander was invited to an undergraduate research symposium at the Argonne National Laboratories in Chicago to present her team's findings.

The hardest part of her NSF project this summer was not the challenging and essentially graduate level research work. Instead, the most difficult part for Linda was being away from her nine-year-old son, Derek, for eight weeks. This single mother and her son are very close. They regularly go out to dinner together once a week, an ironclad commitment that Linda keeps regardless of tests or studies pending the next day.

Growing up in California, Linda moved to South Dakota in 1990 to raise her son in a slower-paced environment and because of her family's South Dakota roots. After living in South Dakota for three

years, she decided to start college at SDSM&T. She was familiar with the university because Dr. Darrell Dickey, her late father and a physics professor at UCLA, was an alumnus (Physics '56) of Tech.

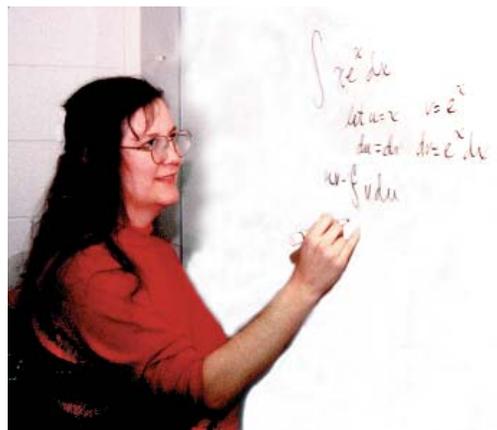
Scheduled to graduate in May, Linda plans to do actual science work for an insurance company or else pursue a graduate degree to become a mathematics professor. She has been a tutor on campus for the past three years and works ten hours a week at the Tech Learning Center. She receives very high marks from the faculty and students familiar with her tutoring activities. Many students request to be assigned to Alexander when seeking tutorial assistance in mathematics.

She also has been actively involved in the Alpha Sigma Lambda honorary society for non-traditional students and served as president of the SDSM&T chapter last year.

When asked what advice she would give non-traditional students to help them succeed in balancing the many competing demands on their time, Linda recommends getting to know other students right away and forming a study group.

"As soon as you walk in the door, get to know the people around you," says Alexander. "Do not isolate yourself. You are not alone."

With non-traditional students comprising approximately 40% of SDSM&T's student population, Linda Alexander provides an inspiring example of success and achievement as a non-traditional student. Most importantly, she is a mother devoted to her son. ✂



*Photo by Darrell Sawyer*

*Linda Alexander (Mathematics senior, Rapid City) demonstrates some of the mathematical equations used in her NSF research.*



Norwegian students at Tech were guests of Sons of Norway Borgund Lodge 532 at a Christmas dinner and program. SDSM&T is the largest Norwegian engineering school outside Norway.

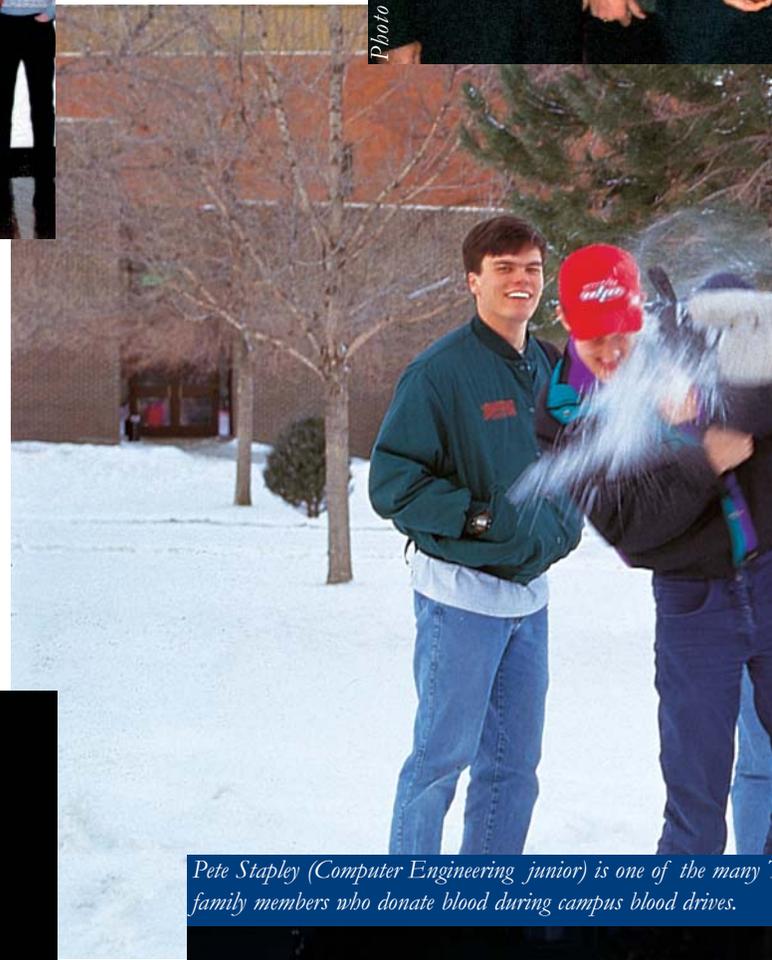
Photo by Darrell Sawyer



Photo Courtesy of Dr. M.R. Hansen

## SDSM&T REACHING OUT

Continuing its active outreach agenda, SDSM&T connects the university to many off-campus audiences and communities. Through their many projects and programs, Tech students, faculty and staff provide valuable community service and contribute to the region's cultural environment.



Pete Stapley (Computer Engineering junior) is one of the many family members who donate blood during campus blood drives.

Circle K members Brook Burckhartzmeyer (Chemical Engineering senior) and Dawn Recker (Chemistry senior) prepare holiday gifts and food baskets for needy families. Circle K International is a service organization that involves college students in campus and community service projects.

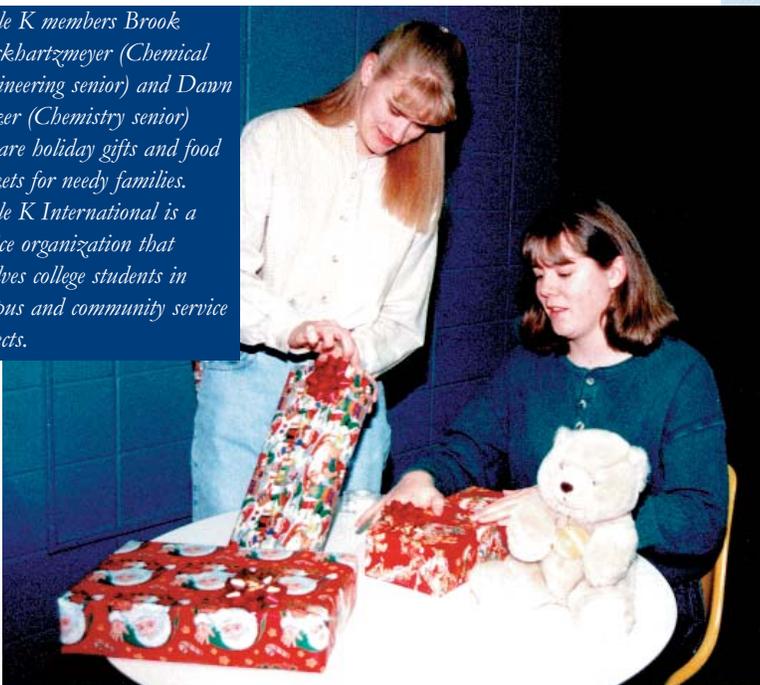


Photo by Darrell Sawyer



Photo by Darrell Sawyer



*SDSM&T's American Society of Civil Engineers (ASCE) Student Chapter is the recipient of the prestigious 1997 Robert Ridgway Student Chapter Award, which is given to the top student chapter in the nation. Pictured here receiving the award are (l-r): Dr. M.R. Hansen, Associate Professor of Civil Engineering (faculty advisor); Charlie Baker, Civil Engineering (CE) senior, Sturgis; Brenda Flottmeyer, CE M.S. graduate student, Black Hawk; Michelle Nielsen, CE M.S. graduate student, Custer; and Kent Reimann, CE senior, Rapid City.*



*Photo by Dan Smith*

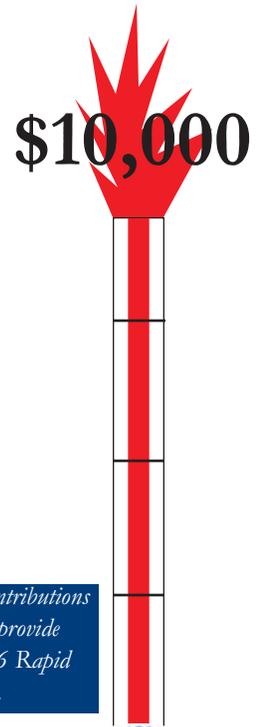
*Tech*



*Photo by Darrell Sawyer*



*SDSM&T Concert Choir and Master Chorale perform their 15th annual Christmas Concert, "Birth, Joy, and Celebration of Christmas." This concert is just one of the many annual music events performed by vocal and instrumental campus groups that draw thousands of community arts patrons.*



*SDSM&T individual contributions and Jeans Day donations provide \$10,000 to support the 26 Rapid City United Way agencies.*



# Professor John Dunn Exemplifies SDSM&T Faculty Generosity and Dedication to Students

Dr. John Dunn, SDSM&T Professor Emeritus of English, is well known on campus for his love of teaching and his students. For 32 years, this quintessential professor dedicated his life to his career and to helping students in whatever way he could.

Dunn exemplifies the dedicated and generous faculty members who play an integral role in continuing SDSM&T's traditions of excellence. In addition to his time and talents, John Dunn's benevolence resulted in three endowments being established over the past few years. With the principal of these endowed funds protected from ever being spent, the earnings will be used for the purposes set forth by Dr. Dunn. In this manner, his generous intentions will be carried out for perpetuity.

Dr. Dunn established the Frances M. Dunn Memorial Scholarship to honor his mother upon her death in 1994. This annual scholarship is awarded to a single mother working towards a degree in Interdisciplinary Studies, among other criteria.

The Delta Sigma Phi Fraternity Memorial Scholarship was established in 1995 to honor active members and alumni of the SDSM&T Delta Sigma Phi chapter who have passed away. Dr. Dunn has served as Advisor, Supervisor and Chair of the Alumni Central Board of Delta Sigma Phi at various times since 1964.

Later in 1995, Dr. Dunn established the John Dunn Endowment with a generous stock gift to the SDSM&T Foundation. The earnings are made available to the Tech Learning Center for hiring student tutors and to the College of Interdisciplinary Studies for hiring work-study students or other necessary student employment.

Recently Dr. Dunn agreed to serve as a National Co-Chair of SDSM&T's VISION 2000: Leadership for the Next Century capital campaign. His endorsement and leadership abilities will prove invaluable to that campaign.

Throughout his distinguished career, Dr. Dunn has received numerous awards. His honors include the Standard Oil Outstanding Teacher Award, the Presidential Award as Outstanding Professor, and the Charles Bartel Award as Outstanding Delta Sigma Phi Advisor in the U.S.

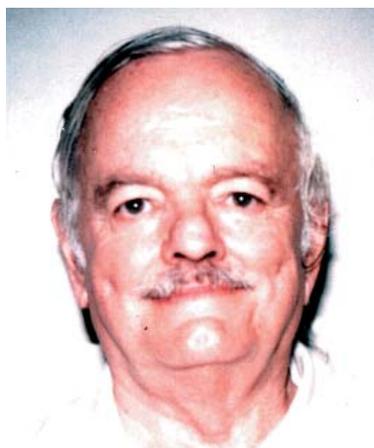
"Teaching has become the very essence of my life, and—other than immediate family and a few close friends—my students have been the most important people in my life," said Dr. Dunn. "What I give now is only a small token of affection for them

*"What I give now is only a small token of affection for them and my appreciation of what they have given me over the past 35 plus years."*

- Dr. John Dunn

and my appreciation of what they have given me over the past 35 plus years." SDSM&T students will be the recipients of Professor

Dunn's generosity long after his classroom teaching was completed. The SDSM&T family is blessed to be associated with Dr. John Dunn. He is truly one-of-a-kind. ✍️



Dr. John Dunn, Professor Emeritus of English

Photo Courtesy of Dr. Dunn

The **Scientific Knowledge for Indian Learning and Leadership (SKILL)** program received the 1997 Presidential Award for Excellence in Science, Mathematics & Engineering Mentoring Programs, which included a \$10,000 National Science Foundation grant. Phillip Huebner, SKILL Director, attended the White House awards ceremony. SKILL also received a \$6,672 grant from the **South Dakota Community Foundation** to support its NASA Honors Program.

SDSM&T won the **Association for Computing Machinery (ACM) North Central Regional Programming Contest** and earned a berth in the ACM International Collegiate Programming Championship this February. SDSM&T's two teams won 1st and 6th in the regional competition hosted by Tech, in which 54 university teams competed. The winning Tech team members are Ed Mandy (CompSci senior); Ben Sutter (CompSci MS graduate student); and Rune Torgersen (CEng senior). The Tech team that won 6th place included Dan Janni (CompSci senior); Richard Jackson (CompSci senior); and Ben "Sonny" Andrick (CompSci, MS graduate student). Team coaches are Drs. Edwin Corwin and Antonette Logar, Professors of Math and CompSci and Comp. Engineering.

The **Center of Excellence in Advanced Manufacturing and Production (CAMP)** was officially kicked off during the South Dakota Board of Regents recent meeting at Tech. CAMP will help companies solve design and manufacturing problems through enterprise teams and also help provide the best manufacturing education to Tech students. Four SDSM&T labs— Electrical & Computer Engineering, Advanced Composites, Advanced Manufacturing, and Injection Molding— are active components. CAMP lab equipment includes a Compression Test Frame, (50,000 and 100,000 lb.), MTS Dynamic Test Frames, Filament Winder, Computer Numerical Control Lathe, Coordinate Measurement Machine, Vertical Machining Center, Printed Circuit Prototyping Machine, Sun Workstations/Mentor Graphics Software, and Injection Molding Machine.

The **Dow Chemical Company** recently donated \$71,000 to the Chem/ChemE Dept. for improving the ChemE curriculum by integrating chemical engineering design through process simulation. Dow officials Deanna Bounds (ChemE '95) and Trudy Wells (ChemE '84) recently presented the check to President Gowen and Dr. James Munro, Chair of Chem/ChemE Dept. Nearly 50 Tech alumni are employed by Dow Chemical Co., including Gary Veurink (ChemE '72), Gen. Mgr. of Asset Utilization Resources, who also serves on the SDSM&T Foundation Trustees and Board of Directors.

The **E.R. Stensaas Mechanical Engineering Laboratory** in the Civil/ME Building was recently dedicated. Professor Stensaas served SDSM&T for 36 years and was primarily responsible for creating the Mechanical Engineering program. His son, Mike Stensaas (ME '63), spoke on behalf of the family and his sister, Jane Fick, and her husband, Gary, who also were present during the dedication. Brad Johnson, SDSM&T Foundation, described the tremendous support provided through the Classmate to Classmate Effort by Dr. Stensaas's former students who established an endowment in his honor in conjunction with a generous gift from the Stensaas family.

**Dr. Jon Kellar**, Assoc. Prof. of Metallurgical Engineering, received the South Dakota Board of Regents Award for Excellence in Research. Kellar's research involves bonding between fibers and matrix material in composite materials with a specialty in the development of new materials. Dr. Kellar, who has received the prestigious designation as a National Science Foundation Presidential Faculty Fellow, is a Rapid City native and a Tech alumnus (BS MetE '84, MS MetE '86).

**Barrick Goldstrike** donated \$25,000 to the Mining Engineering Dept. for scholarships, improvement of SDSM&T's computerized mine design laboratory, and program development of the Mining Engineering Dept. Several SDSM&T alumni are currently employed by Barrick Goldstrike.

**BHP Minerals**, a group of The Broken Hill Proprietary Company, Ltd., donated \$20,000 to SDSM&T's Mining Engineering Dept. for student scholarships, enhancement of education and improvement of instruction. This is the second year that BHP has provided substantial support to Tech.

**Dr. Bruce Berdanier**, Asst. Prof. of Civil/Envir. Engineering, was elected vice president of the South Dakota Water Environment Association at the annual conference held recently in Rapid City.

**Tech Graduates in High Demand:** Nearly fifty companies recruited Tech students for placement, summer internships and cooperative education during the 1997 Career Fair, the largest recruiting event in Tech history. Undergraduate cooperative education and summer internships reached an all-time high last year, with 80% of Tech's engineering and science graduates having relevant work experience upon graduation. Tech students with full time job offers at graduation last year increased by 10%.

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## *SDSM&T Receives Chamber of Commerce Granite Award*

The Rapid City Area Chamber of Commerce honored SDSM&T with the 1997 Granite Award during the Chamber's recent annual meeting. The award is given annually to a business or organization that is an asset to the Rapid City area and a pillar of the community—one that is stable and "solid as granite"...hence the name "Granite Award."

In presenting the award to SDSM&T President Dr. Richard J. Gowen, Dewey Smith, Chairman of the Chamber Diplomats, cited Tech's significant economic, educational and cultural roles in the Rapid City community. Smith noted that SDSM&T is recognized as a national leader in science and engineering education. Starting salaries for Tech graduates range from \$33,500 for science to \$37,000 for engineering majors.

"It is a tremendous honor for the university to be recognized as a partner in providing economic development opportunities for our region," said Dr. Gowen. "We look forward to developing additional partnerships to further strengthen the Rapid City area and to bringing students, visitors and conference attendees to the Black Hills area. Together we can continue the traditions that have

made South Dakota a great place to live, learn, raise a family and do business."

Many exciting developments and innovative curricular programs have taken place and continue to occur at Tech as a result of implementing Reinvestments Through Efficiencies in the budget process.

"We are building on our traditions of excellence to ensure that South Dakota Tech graduates are prepared for the 21st century and the new millennium," stated Dr. Gowen.

SDSM&T also plays a significant role in the tourism industry. The Museum of Geology attracts 70,000 visitors annually. The university has hosted or helped secure events that will bring over 3,200 conference attendees to the Black Hills during the current fiscal year alone.

The Devereaux Library film series and the New Gallery provide cultural enrichment. Tech also serves as the State's Patent and Trademark Depository. The campus also has served as an incubator to multi-million dollar companies including Magnum Diamond.

Previous recipients of the Granite Award include Rapid City Regional Hospital, Rapid City Journal, the State Cement Plant and SCI. The piece of granite for this year's award was generously donated by Ruth Ziolkowski from the Crazy Horse Memorial. ✂

*Dewey Smith, Chairman of the Rapid City Area Chamber of Commerce Diplomats, presents SDSM&T President Dr. Richard J. Gowen with the Rapid City Area Chamber of Commerce 1997 Granite Award.*



*Photo by Darrell Sanyer*

## **LEVERAGING FO**

Five innovative SDSM&T projects were selected for funds totaling \$70,000 from the Agenda for Excellence program. The projects will take SDSM&T's academic and research programs to a new level of excellence.

"We are leveraging for excellence through these awards," said Dr. Richard J. Gowen, SDSM&T President. "They increase the amount available by matching funds from our corporate partners and other external funding sources."

The following projects received funding:

### **Atomic Force/Scanning Tunneling/Interfacial Force**

**Microscopes:** This project leverages the National Science Foundation grant to acquire this state-of-the-art equipment that will be integrated into SDSM&T's multi-disciplinary curriculum and research activities. Faculty members include Drs. Jon Kellar, Associate Professor of Metallurgical Engineering; Robb Winter, Professor of Chemical Engineering; Kenneth Han, Dean, College of Materials Science & Engineering and Distinguished Professor of Metallurgical Engineering; David Dixon, Assistant Professor of Chemical Engineering; Andrew Rogerson, Associate Professor of Biology; Robert Corey, Assistant Professor of Physics; Edward Duke, Research Associate Professor of Geology; Christopher Jenkins, Associate Professor of Mechanical Engineering; and Lidvin Kjerengtroen, Associate Professor of Mechanical Engineering.

### **Integration of Chemical Engineering Design Through**

**Process Simulation:** This project, spearheaded by Dr. James Munro, Chair of Chemistry & Chemical Engineering and Professor of Chemical Engineering, matches Dow Chemical Company's grant to expand the concepts of design and the use of a powerful process simulation system throughout the undergraduate curriculum.

### Acquisition of Enhanced Instrumentation for Dynamic Systems Analysis:

This award provides National Science Foundation matching funds to acquire a VPI 4000 laser vibrometer, a world-class system available at only a few institutions in the world. This system will support the Compliant Structures Laboratory, Artificial Neural Systems Laboratory, Civil Engineering Research, Industrial Outreach, and student learning. Project leaders are Drs. Christopher Jenkins, Associate Professor of Mechanical Engineering, Abul Hasan, Associate Professor of Electrical Engineering, Vojislav Kalanovic, Associate Professor of Mechanical Engineering and Venkataswamy Ramakrishnan, Distinguished Professor of Civil & Environmental Engineering.

### Human Factors/Ergonomics Laboratory Development :

This project by Dr. Carter Kerk, Assistant Professor of Industrial Engineering, provides the NSF matching monies to purchase equipment and software for the Industrial Engineering Department's Human Factors and Ergonomics Laboratory.

### Enhancement of University's Computing Resources and Quality of Instruction:

Under the direction of Dr. Zbigniew Hladysz, Chair and Professor of Mining Engineering, this project matches the external funding provided by Barrick Gold Strike and Maptek, Inc. to enhance the computing resources of the Mining Engineering Department and improve the quality of instruction and equipment for SDSM&T's Mine Design Laboratory.

The Agenda for Excellence program, supported by a component of the student support fee and SDSM&T Foundation funds, provides a funding mechanism for meritorious projects that propel SDSM&T into new frontiers of excellence and learning. 

### WELCOME:

Joseph Dreps, Custodial Worker, Surbeck Center  
 Deborah Eagle Elk, Minority Student Center  
 Larry Horn, Custodial Worker, Surbeck Center  
 Michelle Howell, Director of Surbeck Student Center  
 Marsha King, Custodial Worker, Residence Life  
 David (Russ) Lingenfelter, Engineering and Mining Experiment Station  
 Ione M. McCloskey, Residence Life  
 Barbara Ogaard, University Scheduling & Conferences  
 Rachel Schofield, Publications Manager, University Relations  
 Gary A. Swanson, Custodial Worker, Physical Plant  
 Dr. Linfa Yan, Research Scientist III, Mechanical Engineering

### RETIREMENT:

Dr. James R. Miller, Jr., Research Assoc. Prof. of Meteorology, and Asst. Dir., Institute of Atmospheric Sciences (26 yrs).

### CLASSIFICATION CHANGES:

Marvin Lorenz accepted a new position as Network Manager for Instructional Technology Services

# Scribbles

*\* Awards*

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# Center Court

## Focus

### *Student athletes continue the spirit of competition*

*Photo Courtesy of Alumni Services*



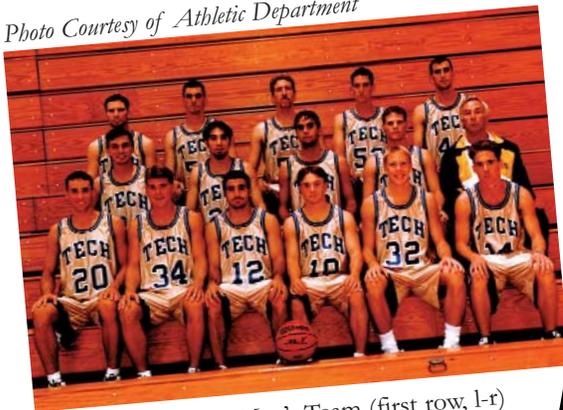
*Jane Barnes (ChemE '79) was a pioneer in women's athletics at Tech.*

*Photo Courtesy of Athletic Department*



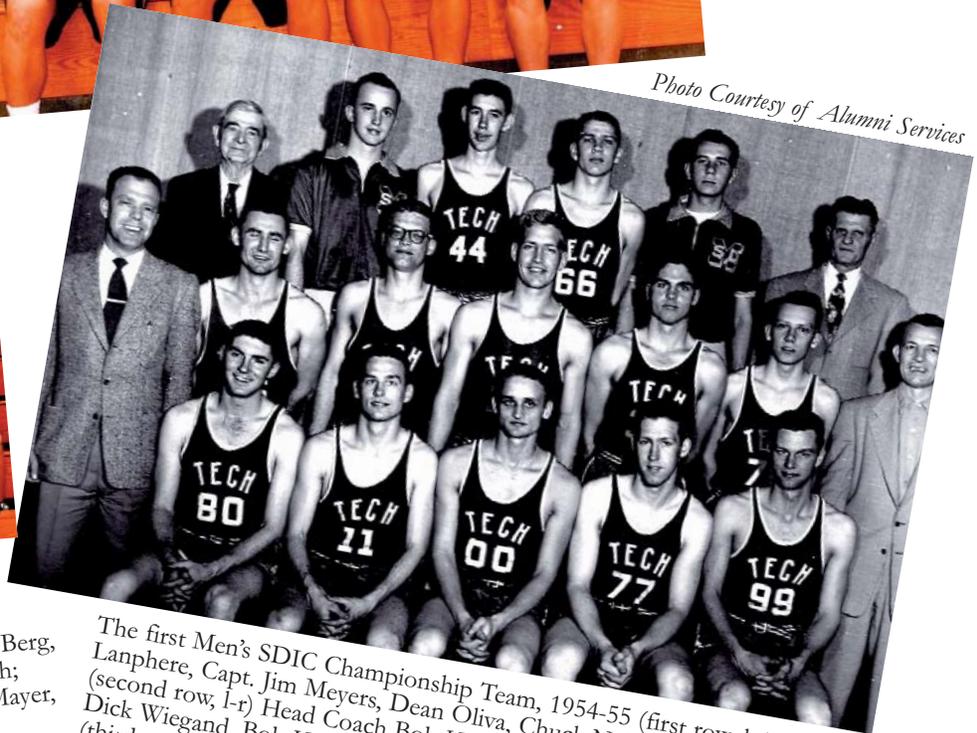
1997-98 Lady Hardrockers (first row, l-r) Brenda Andreasen, Amy Wilson, Erin Caikowski, Elaine Foy; (second row, l-r) Head Coach Barb Felderman, Michelle Lammers, Julie Sampson, Randee Harmdierks, Kori Hoff, Assistant Coach Lori Coble; (third row, l-r) Marissa Richards, Kelli McCabe, Jami Barraclough, Ann Konechne

*Photo Courtesy of Athletic Department*



1997-98 Hardrockers Men's Team (first row, l-r) Shannon Peterson, Chris Ford, Nate Lohmeyer, Trevor Ball, Brent Peterson, Rob McCarthy; (second row, l-r) Brandon Johnson, Paulo van den Berg, Tate Bouman, Brad Voss, Head Coach Hugh Welsh; (third row, l-r) Travis Smith, Nick Cheever, Colin Mayer, Charles Asp, Fernando Rodrigues

*Photo Courtesy of Alumni Services*



The first Men's SDIC Championship Team, 1954-55 (first row, l-r) Jim Lanphere, Capt. Jim Meyers, Dean Oliva, Chuck Neller, Jay Brink; (second row, l-r) Head Coach Bob Hunt, Chuck Gukeisen, Mike Connor, Dick Wiegand, Bob Kelley, Les Larson, Assistant Coach Clare Ekeland; (third row, l-r) Equipment Manager Harry Haggerman, Roger Keil, Don Stork, Don Almen, John Wooley, Athletic Director Dr. H.B. Goodell

# Dilbert

(continued from page 9)

Dr. Larry Simonson, SDSM&T Professor of Electrical Engineering, knew Anita when she was a student at Tech. They also both worked at Texas Instruments one summer. He remembers Anita as a friendly, outgoing student who earned good grades and was an honor student.

In the mid-70's Tech's student population was mostly male. Many of Anita's classes had only two or three female students. "She was one of the barrier breakers for women," says Dr. Simonson. "She was very outgoing and always chatty," he adds.

An Ethan High School graduate who attended a one-room country school in Hanson County, Anita stays in touch with her South Dakota roots. Her mother, Jessie, lives in Ethan and her brother, Orrin, farms near the small eastern South Dakota community. Another brother, Lynn, lives in Tea. Her family usually reads Dilbert because of her connections to it. However, she says they really don't relate to urban cubicle life.

The Alice attention hasn't changed Anita's relationships with her family and friends. However, persons at work who are aware of her Dilbert connection often go out of their way to approach her.

Her Dilbert connection hasn't changed her financial status. She doesn't receive royalties from the Alice character.

"I haven't made one penny from Alice," jokes Freeman, "but it has opened doors for me." She has heard that an Alice doll will be on the market soon, but she hasn't seen one yet.

"A person dreams about many things happening in a lifetime, but this was never something you dream about," says Freeman.

From the SDSM&T campus to the Sunday comics, Anita Freeman bridges the connection between Dilbert and Tech. On top of her successful corporate career, Anita leads a second life-- as Alice, the Dilbert coworker. ✂



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## Crocs

(continued from page 12)

Not realizing alligator wrestlers also did snake shows, Craig worked hard to overcome his fear of snakes. Though nervous and shaking inwardly at first, Craig managed to stay calm and poised while talking to the crowd with a 50-pound snake writhing around his neck.

Both students credit their reptile experiences as improving their communication skills and confidence. Each has demonstrated an ability to be comfortable in challenging situations—whether sticking his hand in a hungry alligator's mouth or wrapping a boa constrictor around his neck—while continuing to talk to the public in an

enthusiastic and poised manner.

"It has improved my social skills," says DeSmet. "During freshman orientation this fall, I had the confidence to go up and talk to people."

Few people can list alligator wrestling on their resumes. However, everyone should strive in their personal lives and careers to apply some reptile wrestling attributes--public speaking and presentation skills, organizational qualities, taking risks and facing challenges. The skills and work habits these two students have developed at Reptile Gardens and SDSM&T are vitally important in today's workplace. ✂



# HEADING FOR THE HILLS

*Tech-related events pump \$1.5 million into Black Hills economy*

Through the wide range of conferences and activities hosted each year, SDSM&T brings thousands of visitors to the Black Hills annually. By the time Fiscal Year 1998 ends on June 30, 1998, SDSM&T will have hosted or have actively helped to host major conferences totaling over 3,200 attendees.

These visitors have a total economic impact of over \$1.5 million on the economy of the Black Hills region. Most of these conferences are at least two or three days in length, some even longer.

Continuing the university's tradition of bringing visitors to the Black Hills, SDSM&T recently won the bid to host the 1998 National Concrete Canoe Competition this summer. This three-day event, which is sponsored by Master Builders, Inc. and the American Society of Civil Engineers (ASCE), will be held June 18-20, 1998. The competition is expected to draw 650 people from across the nation to the Black Hills.

Members of Tech's ASCE Student Chapter, as well as several SDSM&T faculty and staff, worked diligently for several months on preparing the bid that succeeded in bringing the National Concrete Competition to the Black Hills. During a site visit to Rapid City a few months ago, representatives of Master Builders and ASCE were very impressed with the local support, hospitality, facilities, and scenic beauty offered by Rapid City and the Black Hills.

In addition to the National Concrete Canoe Competition, SDSM&T will be hosting the American Indian Science and Engineering Society (AISES) National Science Fair this April. Between 800 and 1,000 students and educators are expected to attend this national science

competition featuring the top science and engineering projects of American Indian students throughout the nation.

Last September SDSM&T hosted the 25th Annual Midwestern Mechanics Conference (MWMC), which has been held every two years since 1949 and hosted by some of the most prestigious universities in the nation. Approximately 150 members representing the diverse disciplines of mechanics attended this conference, including international visitors from Belgium, Canada, China, France, Hungary, Korea and Kuwait. Conference co-chairs were Drs. Christopher H.M. Jenkins and Dr. Lidvin Kjerengtroen, SDSM&T Associate Professors of Mechanical Engineering. Seven keynote presentations and over seventy technical papers were presented during the three-day conference, as well as a symposium by the Institute for Mechanics and Materials.

Last October the National Council of Space Grant Directors Annual Conference was hosted by the South Dakota Space Grant Consortium (SDSGC) in Rapid City and coordinated by the SDSGC office on the Tech campus. According to SDSGC Outreach Coordinator Linda Allen, approximately 100 people attended the event. Conference participants included space grant directors and their education program officers from all 52 consortia, NASA Space Grant Fellows, and representatives of NASA's Education Division and various NASA Centers, as well as state and federal officials.

In early December SDSM&T hosted the 3rd Biennial Land Surveying Conference in which approximately 75 surveying professionals from across the state participated. Dr. M.R. Hansen,

SDSM&T Associate Professor of Civil Engineering, served as moderator for the conference.

On March 6, 1998, SDSM&T will host the 34th Annual Concrete Conference. This annual event features presentations by national and local speakers focusing on the latest research and technologies applicable to the concrete industry. Last year 140 people participated in the Concrete Conference, and a similar number of attendees are expected at this year's event.

Last July the National Society of Professional Engineers (NSPE) Annual Convention was held in Rapid City. This six-day meeting brought 1200 people to the Black Hills. SDSM&T worked closely with the South Dakota Engineering Society in organizing or hosting various NSPE convention activities during the week.

Officials of the Rapid City Convention and Visitors Bureau (CVB) estimate that each visitor to the Black Hills spends an average of \$120 per day on lodging, food, entertainment, shopping and other expenses. The above events represent a combined total of 3,215 attendees and 12,715 visitor days. Using the CVB's spending estimates, these visitor days result in an economic impact of over \$1.5 million to the Rapid City and Black Hills area economy—and that is just within the current fiscal year!

Through its active outreach efforts, South Dakota Tech is an effective ambassador for the Black Hills and South Dakota. Over the years SDSM&T-related events not only bring thousands of visitors to the region, but also pump millions of dollars into the local economy! 

*July 97*  
National Society of Professional Engineers  
Annual Convention, 1200 Attended,  
Economic Impact: \$864,000

*October 97*  
National Council of Space Grant  
Directors Annual Conference, 100  
Attended, Economic Impact: \$24,000

*March 98*  
Concrete Conference, 140 Expected,  
Economic Impact: \$16,800

*June 98*  
National Concrete Canoe  
Conference, 650 Expected,  
Economic Impact: \$234,000



*September 97*  
Midwest Mechanics Conference, 150  
Attended, Economic Impact: \$54,000

*December 97*  
Biennial Land Surveying Conference, 75  
Attended, Economic Impact: \$9,000

*April 98*  
AISES National Science Fair, 900  
Expected, Economic Impact: \$324,000

*Grand Total for Attendees is 3,215 with an economic impact totaling \$1,525,800.*

# Alumni

(continued from page 6)

or utilizing telecommunications technology to create jobs in South Dakota, SDSM&T graduates are making a difference in the lives of South Dakotans. Coupled with their important role in economic development, Tech alumni also contribute in countless ways to the quality of life in South Dakota through their community service and leadership in our schools, churches and civic organizations.

In addition to alumni fortunate enough to secure employment in South Dakota, the Tech graduates who are recruited by Fortune 500 and high-tech companies throughout the nation also are an important economic development asset to South Dakota. During a recent survey, two-thirds of the alumni currently living outside South Dakota indicated they would move back to the state to work in a comparable position. These experienced, well-educated engineers and scientists provide a valuable resource for economic development officials in recruiting businesses and industries to South Dakota.

Continuing a century-long tradition of excellence, SDSM&T delivers a quality education and training in cutting-edge technology that its graduates can apply to the state's business and industry needs. In cooperation with local and state economic development officials, SDSM&T is working with private industry to create new jobs in South Dakota and provide additional employment opportunities for Tech graduates.

As indicated previously, this article includes only a small sampling of the many SDSM&T graduates who live and work in South Dakota. Future issues will feature additional alumni at the heart of South Dakota's economic strength. The leadership and entrepreneurial spirit of Tech alumni help to make South Dakota a great place to receive an education, work, raise a family, and successfully compete in the global marketplace of the 21st century. 



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# RESEARCH AWARDS

**Dr. Andrew Detwiler**, Research Prof. of Meteorology, and **Dr. Paul Smith**, Research Prof. Emeritus of Meteorology, received \$90,000 in additional funds from the National Science Foundation (NSF) for "Investigation of Microphysical, Kinematic and Electrical Characteristics of CaPE Thunderstorms" and \$38,200 from NSF for "T-28 Deployment to New Mexico." Smith also received \$19,385 from NSF for "T-28 Deployment - MOLAS Project."

**Dr. Harold Orville**, Distinguished Prof. Emeritus of Meteorology, and **Dr. Richard Farley**, Research Assoc. Prof. of Meteorology, received \$142,500 in additional NSF funds for their research project, "The Numerical Simulation of Weather Modification by Cloud Seeding."

**Drs. Jon Kellar**, Assoc. Prof. of Met. Engineering (Eng.); **Robb Winter**, Prof. of Chem. Eng.; **Kenneth Han**, Dean, College of Materials Science & Eng. and Distinguished Prof. of Met. Eng.; **David Dixon**, Asst. Prof. of Chem. Eng.; **Andrew Rogerson**, Assoc. Prof. of Biology; **Robert Corey**, Asst. Prof. of Physics; **Edward Duke**, Research Assoc. Prof. of Geology; **Christopher Jenkins**, Assoc. Prof. of Mech. Eng.; and **Lidvin Kjerengtroen**, Assoc. Prof. of Mech. Eng., were awarded a \$182,000 NSF grant for "Acquisition of Atomic Force/Scanning Tunneling and Interfacial Force Microscopes."

**Dr. Tom Fontaine**, Asst. Prof. of Civil & Envir. Eng., was awarded \$51,000 by the University of Nebraska-Lincoln (prime sponsor-U.S. Dept. of Energy) for his research project, "Water Resources and Climate Change: Regionally Integrated Assessment of Consequences."

**Dr. Sookie Bang**, Assoc. Prof. of Biology, was awarded \$60,000 from the U.S. Environmental Protection Agency for a project entitled "Pit Waste Investigation."

**Dr. Jan Puszynski**, Prof. of Chem. Eng., received \$77,700 from Cliffs Mining Services Company for "Corrosion Inhibition Studies of Furnace."

SDSM&T faculty members who received additional funding from the **NSF Systemic Improvement Cooperative Program** (NSF funds-\$455,070/South Dakota Future Funds -\$132,930) are as follows: **Dr. Kenneth Han**, Dean, College of Materials Science & Eng. and Distinguished Prof. of Met. Eng. (Admin- \$113,545/ \$80,000); **Dr. Robb Winter**, Prof. of Chem. Eng., and **Dr. Jon Kellar**, Assoc. Prof. of Met. Eng. (\$112,222/ \$5,000); **Dr. David Dixon**, Asst. Prof. of Chem. Eng. (\$ 40,853/ \$3,500); and **Dr. Mark Hjelmfelt**, Chair and Prof. of Atmos. Sciences (\$188,450/\$44,430).

**Drs. Christopher Jenkins**, Assoc. Prof. of Mech. Eng., **Abul Hasan**, Assoc. Prof. of Elec. Eng., **Vojislav Kalanovic**, Assoc. Prof. of Mech. Eng., and **Venkataswamy Ramakrishnan**, Distinguished Prof. of Civil & Envir. Eng., were awarded \$100,361 from NSF for "Acquisition of Enhanced Instrumentation for Dynamic Systems Analysis."

**Dr. Antonette Logar**, Assoc. Prof. of Math & Comp. Sci. and Comp. Eng., was awarded \$50,000 from NSF for "POWRE: Integration of Artificial Intelligence Techniques into a Global Cloud Mask Generation System."

**Drs. Edward Duke**, Research Assoc. Prof. of Geology, and **Scott Kenner**, Assoc. Prof. of Civil & Envir. Eng., received \$25,000 from the Universities Space Research Association (prime sponsor-NASA) for "Cooperative University-Based Program in Earth System Science Education."

**Dr. Gorden Bell**, Haslem Post-doctoral Fellow in Paleontology, was awarded \$18,000 from the U.S. Department of Interior-Bureau of Reclamation for the "Mni Wiconi Water Project-Reliance Sector."

**Dr. Srinivasa Iyer**, Prof. of Civil & Envir. Eng., received \$2,139 from Triple K Industries for his "Technical Assistance to Triple K Industries to Test the Bogie Buggy." He also received \$1,467 in additional funds for his project, "Technical Assistance to Luverne Fire Apparatus Co., Ltd. to Design, Testing & Proto-Typing the Sub-Frame."

**Dr. Sangchul Bang**, Dean, College of Earth Systems, and Prof. of Civil & Envir. Eng., received \$112,000 in additional funds from the Office of Naval Research for "Use of Suction Piles for Mooring of Mobile Offshore Bases."

NSF has awarded **Dr. Mark Hjelmfelt**, Chair and Prof. of Atmos. Sci., an additional \$80,000 for his project entitled, "Convective Rolls and Cells in Lake-Effects Snowstorms: Structures, Mechanisms and Effects."

**Donna Kliche**, Research Assoc., Inst. of Atmos. Sci., and **Dr. Edward Corwin**, Prof. of Math & Comp. Sci. and Prof. of Comp. Eng., have been awarded \$24,500 through the University of Alabama-Huntsville (prime sponsor: NASA) to provide "Assistance to EOSDIS Project."

*Special thanks to: Dakota Angler and Outfitter, Elks Country Estates, Ketel Thorstenson, LLP, Latte' da, Norwest Bank, Margaret Puszynski - Raben Real Estate, Scribbles, and White House Inn. The financial support of these businesses helped to make this issue possible.*

*For more information on providing financial support for future issues of SDSM&T Quarterly, please call (605) 394-2554.*

*2,500 copies of this publication were printed @ a cost of \$1.89 each.*

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# You Are Invited . . . Calendar of Events

For information on these events contact University and Public Relations at (605) 394-2554.

## JANUARY

**THURSDAY, JANUARY 1**  
New Year's Day Holiday

**THURSDAY, JANUARY 8**  
Second Semester Begins

**TUESDAY, JANUARY 13**  
Noon United Campus Ministry FORUM  
"Promise Keepers!?"  
TONITE - Comedian, Eric Oshay

**FRIDAY-SUNDAY, JANUARY 16-18**  
South Dakota Future Fair

**SATURDAY, JANUARY 17**  
2pm SD American Choral Directors  
Association Convention

**MONDAY, JANUARY 19**  
Martin Luther King, Jr. Holiday

**TUESDAY, JANUARY 20**  
Noon United Campus Ministry FORUM  
"Drug Detectives"

**SATURDAY, JANUARY 24**  
9am Rapid City Chamber Crackerbarrel

**MONDAY, JANUARY 26**  
TONITE - Jobsmarts for the 20 Somethings

**TUESDAY, JANUARY 27**  
Noon United Campus Ministry FORUM  
Prayer "Stuff"

**SATURDAY, JANUARY 31**  
9am Rapid City Chamber Crackerbarrel

## FEBRUARY

**TUESDAY, FEBRUARY 3**  
Noon United Campus Ministry FORUM  
"The Moral Role of the Media in Society"

**THURSDAY, FEBRUARY 5**  
TONITE - Comedian, John Johnstone

**SATURDAY, FEBRUARY 7**  
9am Rapid City Chamber Crackerbarrel  
ACT Exam

**TUESDAY, FEBRUARY 10**  
Noon United Campus Ministry FORUM  
"Boredom As a Social Dynamic"

**SATURDAY, FEBRUARY 14**  
7:30pm Dakota Choral Union Divas and  
Members Valentine's Day Showcase  
Valentine's Day

**MONDAY, FEBRUARY 16**  
President's Day Holiday

**TUESDAY, FEBRUARY 17**  
Noon United Campus Ministry FORUM  
"From the Globe to 8th & St. Joe"

**SATURDAY, FEBRUARY 21**  
9am Rapid City Chamber Crackerbarrel

**SUNDAY-SATURDAY, FEBRUARY 22-28**  
National Engineers Week

**TUESDAY, FEBRUARY 24**  
Noon United Campus Ministry FORUM  
"Engineering Week - Pros and Cons of  
Design & Build"

3pm Rube Goldberg Contest

**WEDNESDAY, FEBRUARY 25**  
Ash Wednesday

**THURSDAY, FEBRUARY 26**  
11am Order of the Engineer Initiation &  
Outstanding Recent Graduate Presentation

**FRIDAY, FEBRUARY 27**  
National Engineers Week speaker

## MARCH

**TUESDAY, MARCH 3**  
Noon United Campus Ministry FORUM  
"Mentoring Magic"

**FRIDAY, MARCH 6**  
7:30am-5pm 34th Annual Concrete Conference  
"Concrete Rehabilitation - Inspection,  
Design and Repair"

**SUNDAY-SATURDAY, MARCH 7-15**  
Spring Break

**MONDAY, MARCH 16**  
Classes Resume

**SATURDAY, MARCH 14**  
Regional Odyssey of the Mind  
Tournament

**MONDAY-FRIDAY, MARCH 16-27**  
Spring Proficiency Exams

**TUESDAY, MARCH 17**  
Noon United Campus Ministry FORUM  
"Frontiers: Forging Our Future - An  
Update"

St. Patrick's Day

**THURSDAY, MARCH 19**  
11am Honors Convocation

**FRIDAY, MARCH 20**  
7am-5pm High Plains Regional Science and  
Engineering Fair

**SATURDAY, MARCH 21**  
8am City Spelling Bee

**TUESDAY, MARCH 24**  
Noon United Campus Ministry FORUM  
"Is History the Propaganda of the  
Victors?"

6pm Career Service Banquet

**THURSDAY-FRIDAY, MARCH 26-27**  
SD Board of Regents meeting at  
Northern State

**FRIDAY-SATURDAY, MARCH 27-28**  
Multicultural Expo

**TUESDAY, MARCH 31**  
Noon United Campus Ministry FORUM  
"The Bahai Faith"

## APRIL

**THURSDAY-SATURDAY, APRIL 2-4**  
AISES 11th Annual National Science Fair

**FRIDAY, APRIL 3**  
State Geography Bee

**SUNDAY, APRIL 5**  
Palm Sunday  
Daylight Savings Time Begins

**TUESDAY, APRIL 7**  
Noon United Campus Ministry FORUM  
"To Zap or not to Zap? Food Irradiation"

**FRIDAY, APRIL 10**  
Good Friday

**FRIDAY, APRIL 10-MONDAY, APRIL 13**  
Easter Break

**SUNDAY, APRIL 12**  
Easter

**TUESDAY, APRIL 14**  
Classes Resume

Noon United Campus Ministry FORUM  
"Schools Must be Places of Teaching  
and Learning"

**WEDNESDAY-FRIDAY, APRIL 15-17**  
TONITE - Spring Fling

**SATURDAY, APRIL 18**  
9:30am West River Math Contest

**TUESDAY, APRIL 21**  
Noon United Campus Ministry FORUM  
"Is Freud Passe?"

**WEDNESDAY, APRIL 22**  
Secretaries Day

**FRIDAY, APRIL 24**  
SD Space Day

**TUESDAY, APRIL 28**  
Noon United Campus Ministry FORUM  
"A Party With Barb and Her Favorite  
Hymns"

# HARDROCKER athletics



## BASKETBALL

### MEN'S SCHEDULE

**FRIDAY, JANUARY 2**  
7:30pm Dakota Wesleyan

**SATURDAY, JANUARY 3**  
7:30pm Huron University

**FRIDAY, JANUARY 9**  
At Mount Marty College

**FRIDAY, JANUARY 16**  
7:30pm Dordt College

**SATURDAY, JANUARY 17**  
7:30pm Sioux Falls College

**TUESDAY, JANUARY 20**  
At Black Hills State

**FRIDAY, JANUARY 23**  
At Dakota State

**FRIDAY, JANUARY 30**  
At Dakota Wesleyan

**SATURDAY, JANUARY 31**  
At Huron University

**FRIDAY, FEBRUARY 6**  
7:30pm Mount Marty College

**FRIDAY, FEBRUARY 13**  
At Dordt College

**SATURDAY, FEBRUARY 14**  
At Sioux Falls College

**FRIDAY, FEBRUARY 20**  
7:30pm Dakota State

**TUESDAY, FEBRUARY 24**  
7:30pm Black Hills State

**SATURDAY, FEBRUARY 28**  
SDIC Semi-Finals, TBA

**TUESDAY, MARCH 3**  
SDIC Finals, TBA

### WOMEN'S SCHEDULE

**FRIDAY, JANUARY 2**  
5:30pm Dakota Wesleyan

**SATURDAY, JANUARY 3**  
5:30pm Huron University

**FRIDAY, JANUARY 9**  
At Mount Marty College

**FRIDAY, JANUARY 16**  
5:30pm Dordt College

**SATURDAY, JANUARY 17**  
5:30pm Sioux Falls College

**TUESDAY, JANUARY 20**  
At Black Hills State

**FRIDAY, JANUARY 23**  
At Dakota State University

**FRIDAY, JANUARY 30**  
At Dakota Wesleyan

**SATURDAY, JANUARY 31**  
At Huron University

**FRIDAY, FEBRUARY 6**  
5:30pm Mount Marty College

**FRIDAY, FEBRUARY 13**  
At Dordt College

**SATURDAY, FEBRUARY 14**  
At Sioux Falls College

**FRIDAY, FEBRUARY 20**  
5:30pm Dakota State University

**TUESDAY, FEBRUARY 24**  
5:30pm Black Hills State

**THURSDAY-SATURDAY, FEBRUARY 26-28**  
NAIA Indoor Championship  
At Lincoln, NE

### OUTDOOR SCHEDULE

**SATURDAY, MARCH 21**  
UNC Quadrangular At  
Greeley, CO

**SATURDAY, MARCH 28**  
BHSU Early Bird At  
Spearfish

**SATURDAY, APRIL 4**  
SDSM&T Invitational

**FRIDAY, APRIL 10**  
Corn Palace Invitational  
At Mitchell, SD  
(Make up for weather cancellations)

**FRIDAY, APRIL 17**  
BlueHawk Invitational At  
Dickinson, ND

**SATURDAY, APRIL 25**  
CSU Invitational At  
Ft. Collins, CO  
(Limited entries)



## TRACK

### INDOOR SCHEDULE

**SATURDAY, JANUARY 24**  
BHSU Invitational At  
Spearfish

**TUESDAY, JANUARY 27**  
Chadron Triangular At  
Chadron, NE

**FRIDAY, FEBRUARY 6**  
BHSU Triangular At  
Spearfish

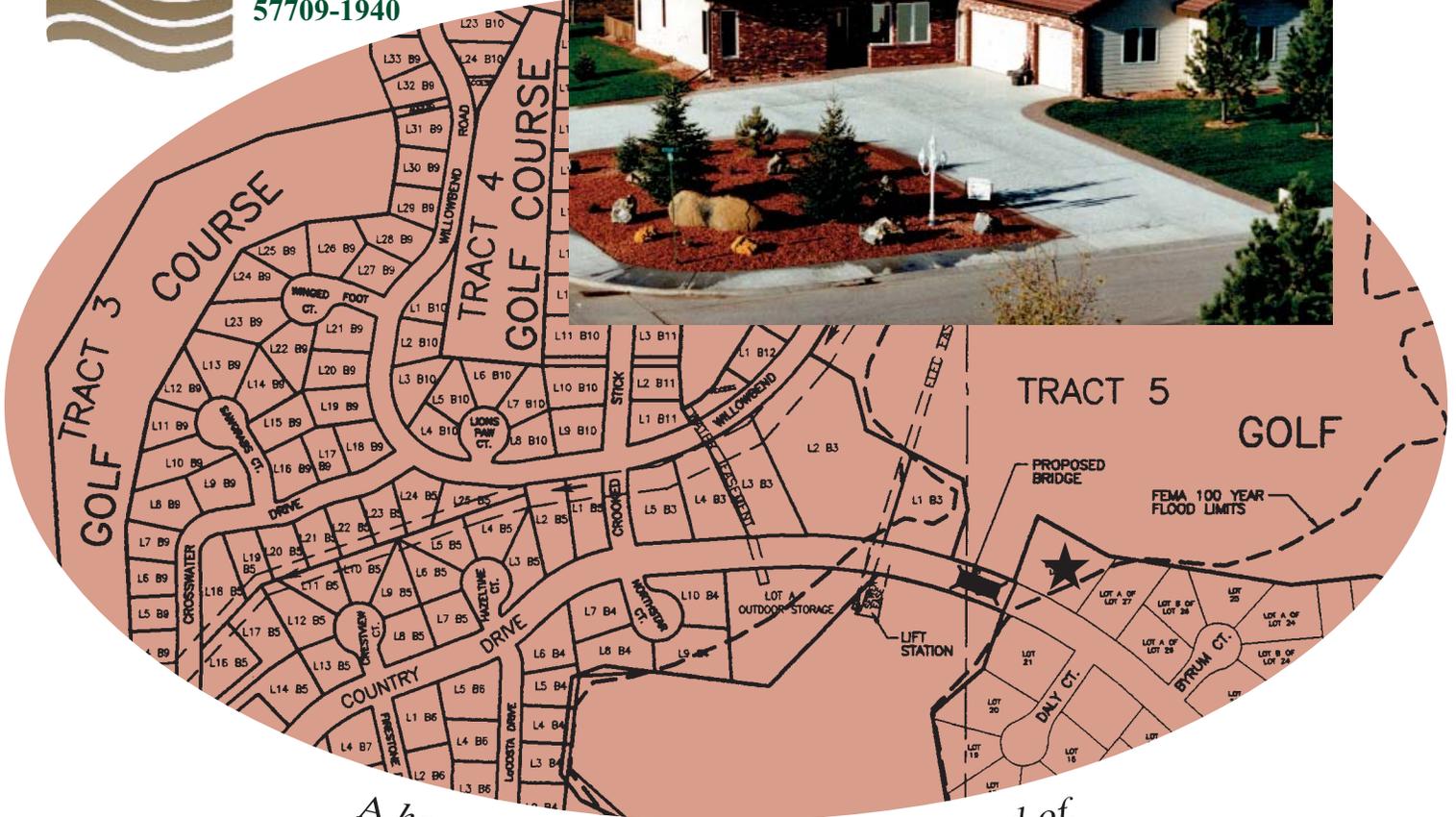
**SATURDAY, FEBRUARY 21**  
SDIC Indoor Championship  
At Sioux Center, IA



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