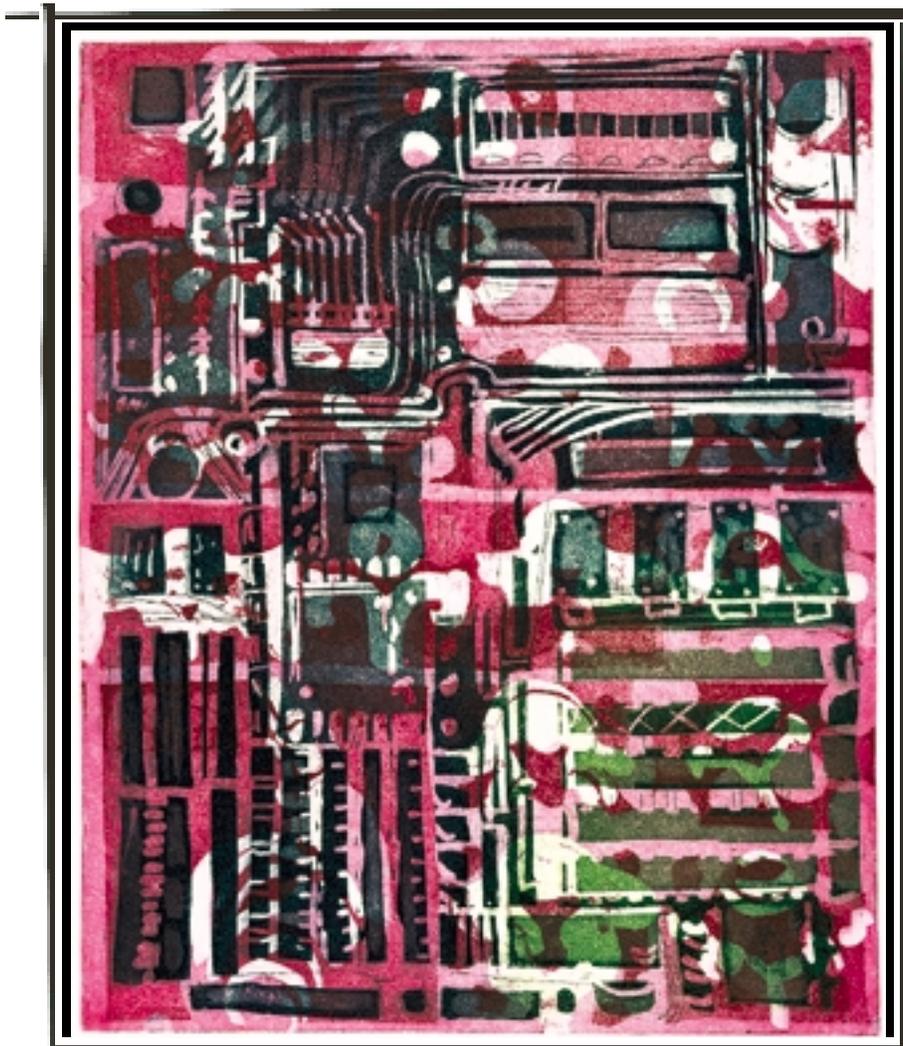
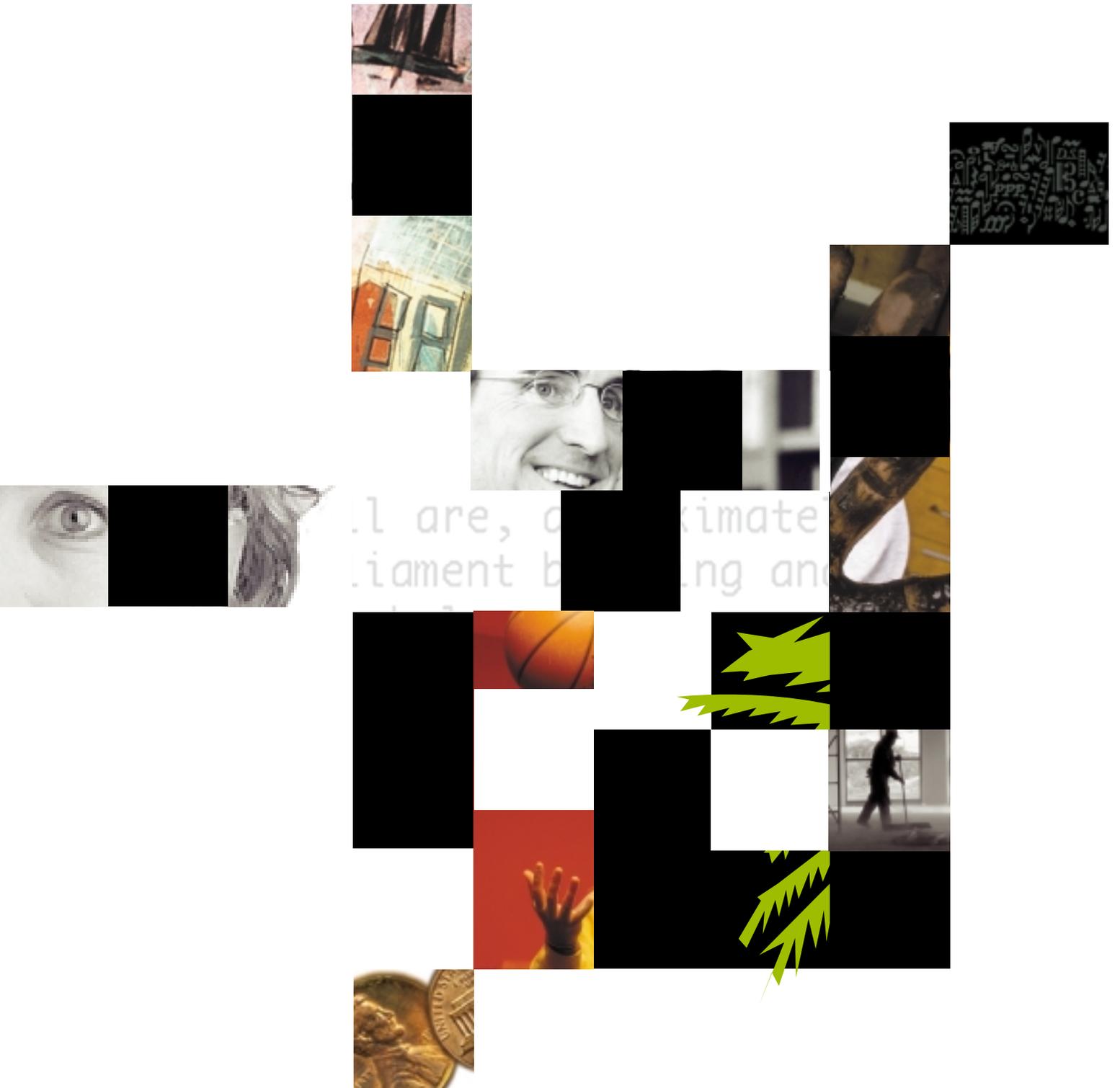


NDSU NORTH DAKOTA STATE UNIVERSITY SPRING 2001 magazine



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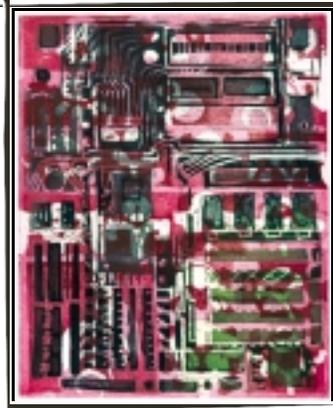
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ON THE COVER

The cover art is an etching by Inge Helsper-Christiansen, Frankfurt, Germany. Inge and her husband, Lowell, are featured on pages 10-15.

"I have been working on your theme, 'discovery,'" Inge wrote. "Using the idea of an X-ray (medicine) and a printed circuit layout (computers), I created an etching with two colors to combine both worlds. It also represents our personalities, as my father was a doctor and Lowell is a computer engineer."



The cover of the Fall 2000 issue was by North Dakota native Jonathan Twingley, now working in New York as an illustrator. His work has appeared in *The New York Times*, *Washington Post*, and the *Utne Reader*.



Editor's note



A television chef of some renown often tells his audience he wants someone to invent "smell-a-vision." In the same way he wishes his viewers could smell the food, I very much want to send you more than paper. On pages 24-25, for example, is a photograph of the Concert Choir under the direction of Jo Ann Miller. The photograph is well done, technically and compositionally impressive, a very good display in two dimensions. But, oh, if you could hear them sing. The choir is a lovely example of the pleasant frustration of working in print. It's like showing people your vacation pictures. The Eiffel Tower is a lot taller than this, you say of your tiny snapshot. Please know that behind every photo and article and layout, the complexity and beauty are greater than we can show.

Thank you for reading.

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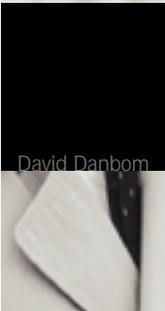
Situ who?



Letters



David Danbom



Congratulations on your inaugural issue.

I enjoyed it thoroughly and wish you continued success with this venture. I especially enjoyed the photo and quotes from Catherine, my mentor and teacher.

Mike Morrissey

Great job on the inaugural issue of *NDSU magazine*. Good articles, cool layout.

I look forward to the next issue. I really like what I see happening at NDSU.

**Sarah Kaspari Baker
Class of '84**

Just finished perusing the inaugural issue of *NDSU magazine*. Looks great, and was an interesting read. The content was lighter in tone than I had imagined (I liked that). Plus, on the cover, the bison looks like it's on fire. Combusting Bison. Or, it was suggested, "Buffalo Flambeau." But, as we both know, buffalo and bison are different creatures.

Buffalo, the horns come out of the top of the head. Bison, the horns come out of the sides of the head. An important distinction to make. Helps avoid needless species issues.

Eric Carlson

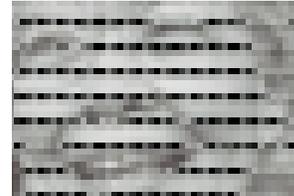
I found an interesting piece of mail in my box this afternoon — the new *NDSU magazine*. Very nice! I especially liked the article David Danbom wrote. He was one of my favorite professors.

I just wanted to add something to your Editor's Note. I am a proud graduate of the first official winter commencement that was held in December 1998. Besides the Saturday mornings in May, there are those memory filled days in December. I just wanted to share that.

Thanks. I am looking forward to the next issue.

Melanie Rosencrans

I just wanted to drop you a note to tell you how much I enjoyed the



inaugural issue of *NDSU magazine*. I especially appreciated the article about the pioneering women of chemistry.

I am a 1980 graduate from NDSU with a B.S. in civil engineering. I work in the natural gas utility industry and fully understand being a pioneer in gas field operations.

Maureen Williams

Congratulations on a stunning magazine — I read it and was proud of having been a part of NDSU when it was “The Agricultural College.”

I was there in 1935 and 1936 and graduated from the U of Minn, but have always considered NDSU my college.

I was “Peter Pan” for Mr. Arvold before Mary Martin even thought of flying—and my Kappa friends are still my best friends.

I was at a Kappa convention in Palm Desert in June—1,000 from around the country—and was delighted to note that the

foundation president who deals in millions of dollars was a graduate of NDSU and member of my Gamma Tau chapter, so there is no limitation to how far these graduates go.

I am 83 years old and am grateful for the good memories of my college days in Fargo.

Frances Cooper Thompson

p.s. I audited Catherine Cater’s classes wherever she was—the most brilliant teacher it has been my privilege to know.

I enjoyed reviewing the inaugural issue of *NDSU magazine*. I graduated from NDSU in 1989 with a B.A. in history and political science. I certainly identified with several of the articles. I guess I must be in the target group of alumni.

I lived down the hall from Dennis Smith my freshman year at Johnson Hall. I haven’t heard “Stu Who?” for years. I do recall that the phrase was written in some unauthorized areas such as

classroom desks and bathroom stalls. Dennis was a pretty funny guy—and the oldest person I knew with an interest in BMX biking. He also ate raw potatoes.

David Danbom was one of my history professors.

Mama Bison served the food at the RDC when I lived in the dorms.

I enjoyed the story of the tiles in the Alumni Center. My father, C. James Raaum, has a tile dedicated to him by the Bank of Casselton, where he worked. Unfortunately, he is not with us to view it. He died of a brain aneurysm in Fargo in December 1997.

My three brothers all graduated from NDSU. Bryan (’87), Brad (’91) and Jason (’98) all received B.S. degrees in electrical engineering. Our Dad was an avid supporter of NDSU and really enjoyed the university. I really appreciate the information on NDSU and the Alumni Center and believe the Tiles in the Center were a wonderful

addition and probably all have personal stories.

Bruce R. Raaum

The excerpts from Catherine Cater brought me right back to freshman English. The first time Dr. Cater physically showed “quotes,” I thought she was trying to fly ... I quickly realized she was doing something else, because her mind did fly and she challenged us lowly freshmen to come along for the ride.

Two other faculty members — Verne Nees and Russell Snyder — also come quickly to mind as mentors who influenced my life.

Dr. Snyder was my academic adviser and on reviewing my entrance scores (fresh week), he said, “You’ll only have trouble with the war of 1812.” He continued to be supportive during my time at SU.

Verne Nees is extra special. He was an adviser (*The Spectrum*), mentor (skill development) and

friend. I caught many bass and pike at his retirement place in Minnesota.

I recently retired (June 30) from Douglas College (New Westminster).

Tonight is the retirement dinner honoring those of us who have completed their time ... if they allow me to say a few words, I will likely quote from “Teaching is a Privilege.”

Lynn R. Leavens

p.s. Please ask your softball coach to send me information on recruitment (course calendar too), as we play the game in British Columbia. My youngest — Robyn — hits well and is a smart pitcher.

To go full circle and have a daughter attend NDSU would be really neat.

I loved the inaugural issue. I was one of Dr. Cater’s students years ago and regard her as one of my finest professors. The rest of the magazine was great too.

Beth Anderson
Class of ’83



OPINION
by ELLEN K. VOSS

perspective

The last time I wrote about my native North Dakota, it was buried under feet of glacier-like snow and ice.

It was 1997, the winter after the Olympic Games here in Atlanta, and the comparison was stark. Winding and slithering through oceans of people in the humisery that Georgia wraps around us in late July, I was thankful for the occasional bursts of cooling mist from roadside kiosks (intended to keep us from dropping from the heat).

A few short months later, I was driving down a strip of old Highway 10 between Valley City and Jamestown, flanked by swelling waves in vast oceans of white, begging the car heater to kick in. Sitting on the rock-hard carseat, breathing between gritted teeth: Please God, I'll never delight in my sister's weight gain again if only this thing will eke out a breath of heat.

And, yet. Somehow the slap of the north wind on my face was a welcome home.

On either side of the Mason-Dixon Line, I've found weather is one of the ties that binds. "How hot is it there?" "How much rain have you had?" (Never

enough. Too much. I know. I remember.)

"The Weather Channel says it's as cold down there as it is up here. How are those Southerners handling it all?"

Well, all the bread and milk are sold out and, at the sighting of the first few gentle flakes floating down, Storm Watch, 2001 is screaming across the evening news.

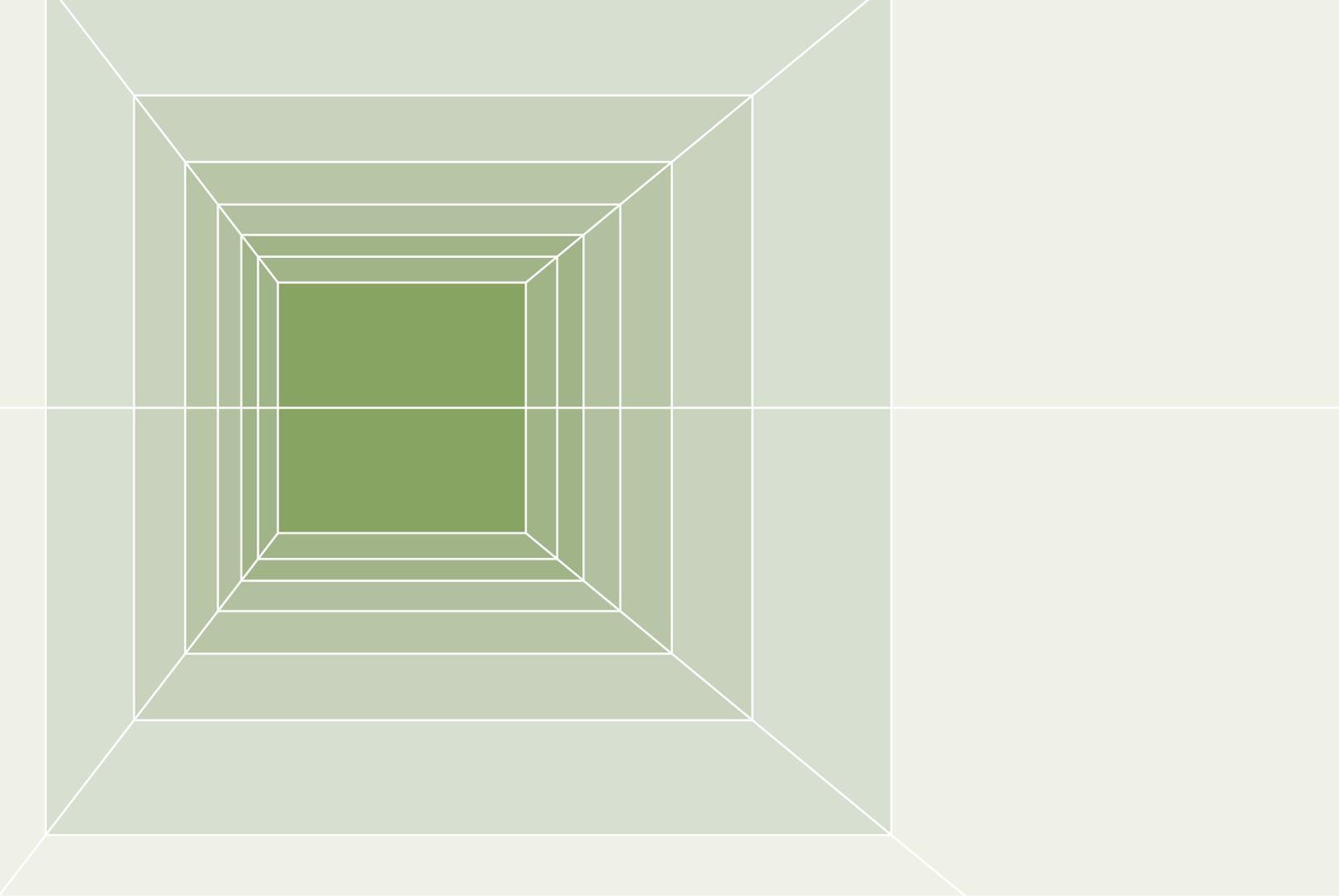
Yep. It's the talk of the rain, the snow, the cold, the wind, that offers us conversational entree, and further, perhaps, weaves something of the fabric of our character.

To echo something Jerry Richardson referred to in the last edition of this magazine, North Dakotans possess distinctive qualities.

I would take that a step further, and say the weather has something to do with that.

Forty below doesn't just keep the riff-raff out.

It may also give us a benchmark to compare the difficulties of our life struggles against. Yes, it's 6 below, as Monsignor Al Bitz e-mailed me from his parish in



Casselton some weeks back. But the coffee is still hot in the cafe and friends have come to call. A lot of folks have it a lot worse.

Perspective.

I ran into a colleague from Grand Forks a few months after the spring floods of that awful year. “So how did you and Suzette fare?”

I remember well the pang of familiarity as he replied, “Oh well. A lot of folks had it a lot worse ...”

Folks in North Dakota don’t like to complain about their own tragedies. A lot of folks have it a lot worse.

I guess when you routinely drive through weather that can kill you, everything kinda pales in comparison.

Perspective.

Politicians there aren’t cartoon characters, as Conan O’Brien recently painted former President Bill Clinton in a *Time* magazine essay, but real people. When I was working at *The Forum* some years ago, then Managing Editor Terry DeVine was placing a call to Sen. Quentin Burdick. “Well,” Jocelyn said, “he’s up on the roof, putting some shingles on.”

Only in North Dakota. (Of course, Minnesota is a different story ...)

Perspective.

Delsie Holmquist rapping with her pencil on the edge of her cup to capture our (always deficit) attention. Opening our eyes to the difference between regurgitating information and thinking.

Pat Beatty. Courage and compassion.

David Danbom. A sharp slice of wit and no excuses.

Lou and Jerry Richardson. Energy, grace and passion.

Catherine Cater. I wouldn’t even presume to attach words.

There are so many more. Their voices have come into my head often during the 23 years that have passed since my feet last left the campus. Many thanks, NDSU. For putting people like that in my head. I’ve needed to hear their voices and feel their kicks in my behind now and again.

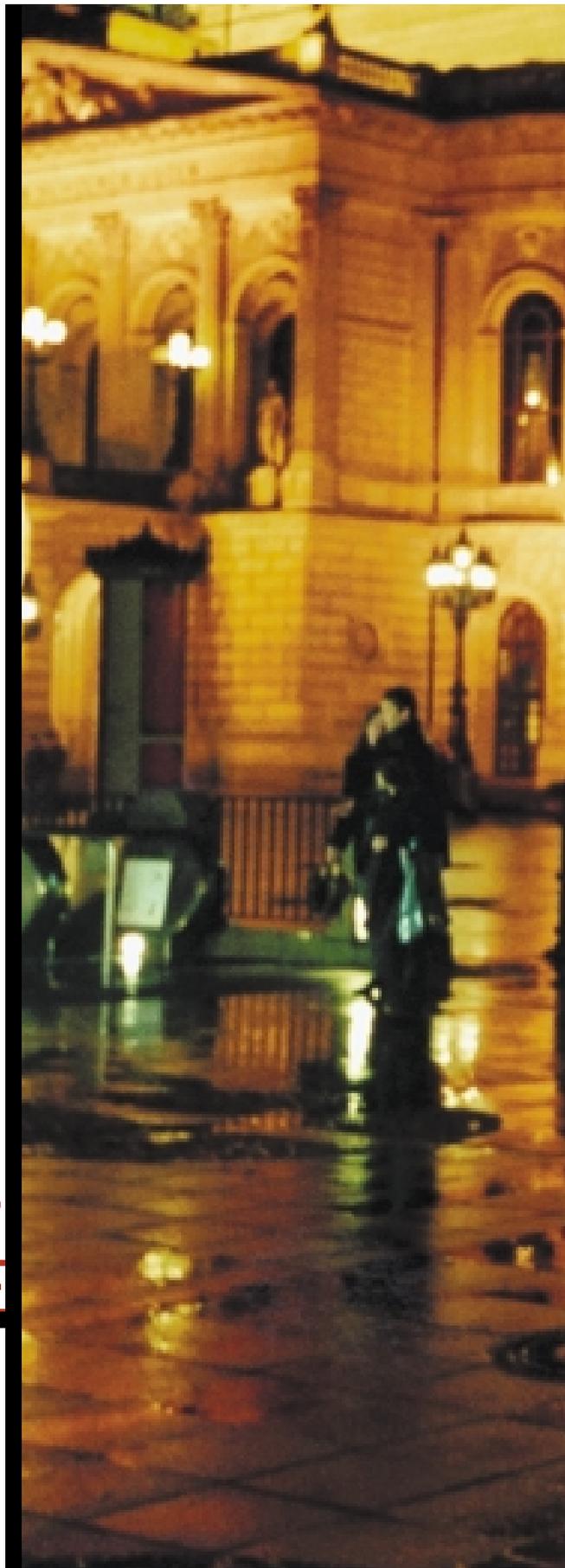
A lot of folks had it a lot worse.

Ellen K. Voss, has been on the editorial staff of the Atlanta Journal-Constitution since 1992, and before that worked for 14 years at The Forum in Fargo. She graduated with honor from NDSU in 1978.

**IN FRANKFURT,
GERMANY,
LOWELL
CHRISTIANSEN
ISN'T MISSING
IN ACTION,
HE JUST HASN'T
COME HOME**

—Text and photos by Jerry and Lou Richardson

Frankfurt's classic Opera House was reduced to a blackened shell during the bombing of Frankfurt during World War II, but has been fully renovated and restored to its pre-war glory through the contribution of private funds. An American production of "Porgy and Bess" was being staged early in November.







LOWELL CHRISTIANSEN'S 89-YEAR-OLD MOTHER STILL ASKS HIM ON OCCASION, 'WHEN ARE THEY GOING TO LET YOU COME HOME?'

The 1963 North Dakota State University electrical engineering grad left home for an eight-month assignment in Europe 37 years ago.

He's still there.

In an era of globalization and lightning-paced changes in technology, Christiansen's vita reads like a capsulized recounting of that brief period of history:

- A promising career that began in the world of supercomputers.
- The advent of personal computers that threw a monkey wrench into the supercomps' long-range plans.
- Formation of his own U.S corporation, chartered in Germany, designed to take advantage of that situation.

Now married to a successful German-born artist and comfortably ensconced in the historic Main River city of Frankfurt, Christiansen is contemplating the prospect of working himself out of a job, selling the company he created, buying a sailboat, and with his wife Inge by his side, spending their retirement years sailing and windsurfing, mostly down in the Canary Islands off the coast of Africa.

The intervening 37 years between Christiansen's graduation and the present have clearly been good ones.

Take a look at a bit more background:

Christiansen enrolled at then-North Dakota Agricultural College in the fall of 1959. He had come down to Fargo from the family farm near Flaxton

to visit a sister who was attending business school, stayed overnight in a dorm and apparently liked what he saw.

As was probably true among right-thinking Scandinavian farm boys at the time, he joined the Lutheran Students Association, rising over the course of four years to its presidency and that of its regional organization. He had developed a close friendship with the LSA's young pastor and even considered the possibility of a career in the ministry. He also joined Sigma Phi Delta Fraternity and was chosen for membership in Blue Key.

Because two years of ROTC were mandated at all land-grant universities at the time, Lowell also considered the military as a possible calling, but a diagnosed upper respiratory condition vetoed that plan.

Spring 1963 was a seller's market for electrical engineering graduates with knowledge of how computers worked.

"NDSU had no computer science program in 1963," Christiansen recalls, "but engineering students were able to learn about them from hands-on experience ... NDSU had an excellent reputation with computer companies. We were in demand. A tremendous number of NDSU graduates went to work for Control Data."

Control Data offered the young engineer two possibilities for employment: production or field service. Field service carried with it both the prospect of overseas travel and a 10 percent higher salary to compensate for the dislocation. Lowell chose the latter, and after eight months of training, was ready for an overseas assignment. "It could have been anywhere," he recalls, "Bombay or Australia ... But they sent me to Paris." That was 37 years ago.

Two things happened during the 3 1/2 years Christiansen spent in Paris that would profoundly affect him for the rest of his life:

Two of his colleagues at CDC/Paris were young Frenchmen who had studied engineering at CalTech in the United States. Because married engineers tended to prefer the dayshift, bachelors were usually assigned to work at night. The three became close friends and frequently shared convivial midnight dinners. One of them had his own airplane, the other a family estate on France's Atlantic coast. The trio spent time together flying and sailing off the coast of France.

And one Sunday at an after-service gathering of young Protestant expatriates, he met a 22-year-old blond art student from Germany. Inge Helsper was at the time, and still is, a Catholic, but in the tradition of starving Parisian artists, was attracted by the group's offer of free coffee and cookies. Back in Frankfurt, Inge's parents had urged her to follow in her father's footsteps and study medicine. But she had her heart set on being an artist, a pursuit her parents grudgingly allowed, but declined to bless with financial support — which may explain the appeal of free coffee and cookies.

It was a bit like one of those popular French movies of the 1960s. Lowell had bought a red sports car and managed to collide with someone on his first time out with Inge. It was a belief among young Americans in Paris that you had to destroy at least one car before learning to cope successfully with your fellow Parisian drivers.

On a double date with Lowell and his sailboat-owning French compatriot, Inge fell overboard and, even though he didn't know how to swim, Lowell jumped in to save her. Somehow, both managed to survive.

"What I learned from them (his European friends)," Lowell wistfully recalls, "was that Americans live to work and Europeans work to live." It's clearly a philosophy he's adopted over the years.

LOWELL:

In terms of employment history, the years between Lowell Christiansen's arrival in Paris and the present day are a complicated recitation of rapid technological change.

"The relationship between the United States and France was strained at the time (early 1960s)," he recalls. "The French wanted supercomputers and kept ordering them, but the U.S. refused to grant American



To mark one of their wedding anniversaries, Inge surprised Lowell with an "Our Founder"-type portrait she had painted without his knowledge and hung behind his desk when he was out.

companies an export license. Finally, just about the time I was assigned to Control Data in Paris, that policy was changed."

Because supercomputers were custom-made for their customers and each company created its own software, there were the inevitable "bugs." As a consequence, bright young American engineers who knew how to de-bug them were much in demand in Europe.

Control Data had quickly become one of the world's great business corporations, and was building the giant computers as fast as its facilities would allow. Prospects for the future seemed bright.

Then came the advent of the personal computer. The mighty mainframes, which had heralded the arrival of a whole new era, were on their way to the scrap yard.

Initially, companies like Control Data were somewhat able to roll with the punch. CDC had been making tape-based information storage units at the time Lowell joined the company, but it successfully adapted to switching to disk-type storage units when that technology arrived. In collaboration with its Minneapolis-based neighbor, Honeywell, CDC developed and manufactured removable storage disk drives.

"They (CDC's European customers) were buying their disk drives from us," Lowell recalls, "and when they failed, we offered service."

LOWELL & INGE:

Inge, in the meantime, (“playing hard to get”) had finished her studies in Paris and gone back home to Frankfurt.

Luckily for the couple’s future plans, Frankfurt had become the focal point of Control Data’s Original Equipment Manufacture servicing operations, which prompted Lowell’s transfer to the German city, and his reunion with Inge. The two were married there in 1968, and chose to honeymoon in the Canary Islands.

Predictably, in the fiercely competitive world of computer technology that evolved worldwide, there would be winners and losers. Companies such as Wang and Digital Equipment thrived on the strength of the burgeoning market for “minis.” But the by-then old guard companies — CDC, Honeywell and Sperry UNIVAC — were headed for technological extinction. Back in Minneapolis, mighty Control Data began to be parceled off and sold. Initially, Lowell transferred to Seagate, which had bought CDC’s disk-drive division. But handwriting on the wall told him perhaps it was time to launch his own company. That was just nine years ago.

Starting his own company, Lowell believes, gave him courage. “I love it,” he exclaims with enthusiasm. “I’m glad I got pushed. I love running my own company.” But he also harbors an abiding sense of appreciation for the no-longer-in-existence organization that sent him to Paris in the first place. “Control Data was very good to me,” he muses. “It gave me the chance to come to Europe.”

CCC Computer Commodities GMBH, the company Lowell created, is headquartered in a quiet Frankfurt neighborhood that miraculously escaped the Allied carpet bombing of World War II, that virtually obliterated the historic city’s heart.

According to Inge, one of the mansions in that neighborhood was appropriated as Dwight Eisenhower’s Headquarters as Supreme Commander of the Allied Forces in Europe. Because of a facility with languages, Inge’s father, after escaping from a Soviet prison camp in Siberia at the end of the war, became Eisenhower’s personal translator. (Inge’s theory is that the Americans deliberately avoided bombing the great old neighborhood so that Ike could have one of the fine old houses for his headquarters.)

Initially, because many of Lowell’s fellow engineers had found themselves in similar predicaments, there was a lot of competition in the computer support business. “... but when they found they weren’t making millions,” he recalls, “most of them retired or moved on to other jobs.” Today his full-time job and

that of two part-time technicians is providing support, repair services and spare parts for former Control Data customers, of which there are still quite a few throughout Europe.

It may be stretching things a bit, but contemplating the history of Lowell Christiansen’s North Dakota family over the course of a just-completed century gives one a renewed appreciation of world history:

More than a century ago his Danish ancestors set sail for America, ultimately settling on a hard-scrabble piece of North Dakota land up by the Canadian border near the present-day hamlet of Flaxton. At the time the most modern piece of agricultural technology available to them was a deep-cutting plow pulled by a team of horses.

Roughly three quarters of a century later, a descendent of those North Dakota pioneers is back on the continent of Europe, dealing with high-tech computers. In a sense the Christiansens have come full circle over the course of three generations — Europe to America, America back to Europe.

INGE:

Inge Helsper was born in Frankfurt in 1942, virtually at the height of World War II. Her father, who spoke excellent English, operated a pharmaceutical business in England. But when he returned to Germany when the war broke out, he was conscripted into the German army and put to work as an interpreter, interrogating prisoners of war.

Less than one-year-old Inge and her mother were evacuated from Frankfurt to the countryside during the bombing, where her mother dug wild mushrooms for food.

Captured by Russian troops, her father was sent to Siberia, where he escaped back to Germany as the war ended using his facility with languages and following railroad lines at night. That was when the occupying Americans put him to work as Eisenhower’s translator.

Although she is still a German citizen, Inge, (pronounced with a soft g and soft e), now Inge Helsper-Christiansen, also has Midwestern connections. A few years ago, someone in Minnesota, researching family genealogy, got in touch with Inge regarding the family name Helsper. One of her German ancestors, it turns out, had emigrated to Minnesota. Because of his military background, he became involved in Minnesota’s Indian uprisings, later being elected the first territorial governor. In honor of his memory, Sept. 17 has been designated Helsper Day in Minnesota.



— I. Helsper-Christiansen

On a rainy November night in Frankfurt, the city's staid, formal Museum of Natural History was host to an art opening, featuring 20 of Frankfurt's most prominent artists. The group is long-established. Many of the 20 are clearly into their seventh and eighth decades of life. Only in recent years have women artists been invited to membership in the exclusive group. So far, there are only two. Inge is one of the two. The night of the opening, an appreciative audience of several hundred well-appointed Frankfurters filled to overflowing the old Museum's sizable auditorium, to hear detailed (in German of course) biographies of the 20 artists. Afterward, the crowd dispersed to its exhibition halls for a glass of wine, hors d'oeuvres, personal examinations of the art on display and visits with the artists. Inge Helsper-Christiansen is an accepted and well-regarded member of the historic German city's community of artists.

During her early years in Paris, Inge was primarily a "representational" artist, drawing and painting quite literal (and skillfully executed) depictions of real people and real things, most of them in nature. In more recent times, she has gravitated toward a more abstract style, but still, in her judgment, rooted in primarily natural forms.

"Abstract is not abstract to me," she notes, "It always grows out of reality." The volcanic landforms, shapes and colors of the island of Lanzarote in the Canaries provide the basis for much of her contemporary art.

"I paint for my times," she says, "not for 10, 20 or 50 years ago. I'm glad I can sell, but if I couldn't, I would still have to do what I have to do."

Inge Helsper-Christiansen is clearly a busy and popular artist. In addition to the show at the Frankfurt Museum of History, she was working on prints for an upcoming artist's Christmas show, and has contracted with the builders of a luxury hotel on the Canary Island of Lanzarote, to provide artwork for each of its numerous rooms.

THE CANARY ISLANDS:

The rather stark, moonscape beauty of volcanic Lanzarote has become the subject of much of Inge's art in recent years. She and Lowell bought property on the island back when it was thinly populated and primarily agricultural — plowing was, and still is, done with camels.

Now much more popular with European vacationers, Lanzarote has its own commercial airport and major luxury hotels. Still, there is hope that it will not become totally commercial in nature. It has been designated a "biosphere" by the United Nations because of its unique geology, flora and fauna and is protected by the government as a natural reserve.

Since he made that pilgrimage to Europe 37 years ago, Lowell Christiansen hasn't made it back to the family farm (still operated by his older brother) near Flaxton very often. If you were to meet him on that tiny North Dakota hamlet's Main Street today, it's doubtful that you would mistake him for a native. A close-cropped beard, lean and wiry, he doesn't much resemble your typical North Dakota farmer of Scandinavian extraction. He looks, well "continental." He and Inge are very much a stylish European couple, who look and feel right at home.

And in answer to his mother's oft-asked question, except for occasional visits, he's probably not planning to come home anytime very soon.



themudman

A framed 8-by-10 photograph in Jimmie Richardson's Walster Hall office on the North Dakota State University campus tells it all.

In the 1992 snapshot, Richardson and two colleagues mug for the camera from the bottom of a two-foot trench in a northern Illinois wetland test plot, mud plastered to their thighs above their rubber boots, ear-to-ear grins on their faces.

It captures one of those near-perfect moments in the career of a field scientist who can't contain his excitement when discussing landscapes; who quite seriously applies words such as beauty and elegance to soils; and whose work led to what has been called "the most significant advance in soil science" in decades.

Richardson started examining wetland soils, water movement in landscapes and the dynamics of salinization when he arrived at NDSU in 1978. By the mid-'80s he had demonstrated how hydrology affects soils and how soil morphology can be used to interpret water movement through soils and landscapes. His methods have been adopted around the world and set the standard in the United States for determining hydric soils and delineating wetlands.

The self-described hillbilly with a Northern accent — "Hence the name Jimmie," he says with a grin — has been developing what he calls his "land ethic" since he was a scamp backpacking and hunting in the Rocky Mountain ranges of northern Idaho. His father, a lumberman, taught him to observe mountain landscapes to learn what kinds of trees grew where and why.

His love of natural forms took him to the University of Idaho to study geology. While pursuing his master's degree at the University of Oklahoma, Richardson ran into an ideology that was more concerned with petroleum discovery than land and water conservation. He switched to a subfield of geology called geomorphology and went on to earn his doctorate in soil genesis and morphology at Iowa State University.

"I believe there should be a tomorrow," he says, "so I've spent my life trying to develop methods and systems that preserve the quality of our water, our earth and its soils for future generations."

He's pursued those goals with seemingly boundless energy and what can only be described as an infectious glee. People who know him most often use words like dynamic, intense and passionate.

Richardson carries those qualities from the field into the classroom, where his enthusiasm for the material enthralls and motivates students. They, in turn,

regularly rate him as the best, most knowledgeable and enjoyable instructor they've had. And he expects as much from them as he does from himself.

"I'm not going to fool around with anybody I don't think is motivated to work, who doesn't believe in conservation and that water and soils are important," he says. "I tell them they have a future, that they're important and that they'll be even more important when they have this done and go about their business."

Richardson works so hard that at times his department chair has to rein him in. "He can get pretty wound up about his projects," says Lynn Brun, professor of soil science. "He is one of the department faculty I have to remind to slow down for fear of burn out or physically doing damage to himself."

His idea of slowing down is to head back to the Selkirk and Purcell ranges in the northern Rockies of Idaho a couple of times each year for four- to five-day solo backpacking trips.

"I can really get it together when I'm back hiking by myself," Richardson says. "I love the feel of the wind in the mountains, looking at the scenery and discovering what's around the next corner. I need those solo times, but there's always a time when I need to come back and talk to people again."

Then it's back to his daily routine. Each day begins at 4 a.m. with a five- to six-mile run, perhaps a weight workout at the YMCA, breakfast and then on to his students and research.

"He has the perfect appointment because he loves to teach and he's super interested in what he's doing in terms of research and outreach," says his wife, Kathie, the agricultural sciences librarian in the NDSU Libraries. "He just has the perfect job, and I think he knows that."

Finding happiness in his career is something he has encouraged in his two children, Kimberly, a teacher at Minneapolis North High School, and Erik, a senior studying geography at New Mexico State University.

When the kids aren't home for a visit, and when he's not speaking to agriculture and professional groups, Richardson is out snowshoeing, cross-country skiing or camping, even in cold winter weather. "I like to look at the world every day," he says. In the evenings he shares cooking duties with Kathie and spends his time reading history, especially about the movement of peoples across the landscapes he loves so well.



Former North Dakota State University basketball player Jayne Even might need a truck to take home all her awards. Her most recent honor is the 2001 Woody Hayes National Scholar-Athlete Award, presented to six students who demonstrate leadership in sport, academics, service and character.

With a flair for understatement, Even said, “It’s sure been a fun ride.”

Now a graduate student in mass communication, Even previously won the Honda Broderick Trophy as the NCAA Division II female athlete of the year, the Women’s Basketball Coaches Association Division II Player of the Year Award and North Central Conference Player of the Year. She was named to the GTE/CoSIDA College Division Academic All-America second team, was twice an All-NCC selection and made the NCC All-Academic first team.

Even also is one of 26 NDSU student athletes who have been awarded NCAA post-graduate scholarships.

She is the third Bison player to be Division II female athlete of the year, the fifth to win NCC Player of the Year honors and the second to receive the Hayes Award.

According to Even, there is a simple explanation for the ongoing excellence for Bison Athletics both in the arena and the classroom. “It’s the combination of the programs and the people,” she said. “The programs speak for themselves with their tradition of quality—it doesn’t matter what sport it is. The education opportunities allow us to excel at anything and the community is awesome in its support.”

Even’s stellar athletic career had only one disappointment: her 1999-2000 Bison team lost the national title game. “The only thing I wish I could have gotten is a team championship,” she said. “We came that close, but looking back I have no regrets. I’ve gotten every opportunity I could ever imagine and then some.”

Hoping to earn her master’s degree this summer, Even wants to pursue a career in public relations, perhaps working for a university, a college athletic program or a professional team.

“When I look at what I’m going to do the rest of my life, good grades are going to help more than how many baskets I made,” said the native of Sioux Falls, S.D., who earned a 3.62 grade point average as an undergraduate.

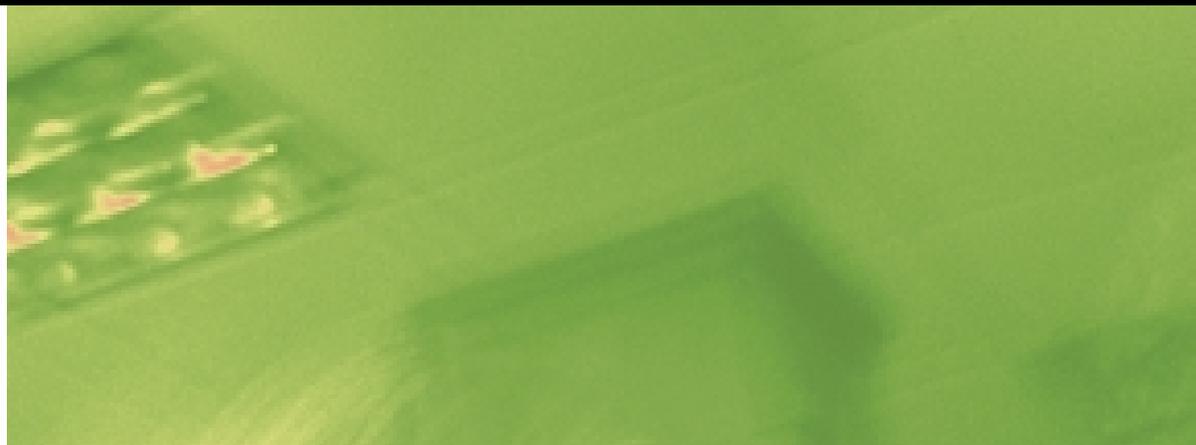
“I’ve loved my experience at NDSU. The people I’ve met have become my best friends and I wouldn’t exchange that for anything.”

— S. Bergeson





"They know what they need to know, but they don't do what they need to do."



Eyes wide open

Campus combats binge and underage drinking

Sometimes it takes a tragedy to wake people up. Sometimes, awareness of the potential beats tragedy to the punch.

At North Dakota State University, George Wallman heard the alarm at a 1990 presentation by Dr. Richard P. Keeling, one of the leading experts in the United States on wellness related issues including alcohol abuse and misuse.

“I’ll never forget what he said, it’s memorized, it was one of those presentations that it was just imprinted, and it went like this: ‘They know what they need to know, but they don’t do what they need to do.’

Meaning, if you gave this generation of students an exam related to risks of alcohol, they’d do pretty well on answering questions. Intellectually, cognitively, they know what they need to know. They’ve been taught. Education programs have registered,” Wallman says.

“But what they do is what they see. And what they see is culturally based, and it’s a tremendous effect of the media, of commercials, of ads that tell people in subtle ways that you can find your mate, or you can have sex by drinking this product, or you can be well-liked.”

NDSU President Joseph A. Chapman charged Wallman, vice president for student affairs, with developing initiatives to combat binge drinking, and leaders on campus are thinking innovatively to battle excessive use of alcohol by students on and off campus.

NDSU’s Commission on Alcohol and Other Drugs, comprised of administrators, faculty, staff, students and community members, studied the issue for close to two years, and made a long list of recommendations for increasing and improving leadership, resources, education and research. In short, members of the commission are calling for a change in college students’ culture in which the excessive use of alcohol is considered a norm.

STUDENTS ARE THE LEADERS

The students are paramount in finding solutions to effectively addressing these problems, says Chuck Peterson, dean of the College of Pharmacy and a member of the commission. “It’s really got to come from them.” Peterson quotes Keeling, saying that “we may call things fun, and we call things entertaining, but what kind of a culture would intentionally get

around in a circle and watch somebody, maybe their closest friend, drink him- or herself to death?”

Peterson believes that “risk-taking ends up escalating as a natural, progressive process, and that now it has gotten to the point that truly, in many instances, it is a life-threatening situation.”

Leaders are working to avoid the tragedy of Byung Soo Kim, a University of Michigan engineering student who died after celebrating his 21st birthday with 20 shots of scotch in 10 minutes. According to an Associated Press story on Nov. 14, 2000, he died at a hospital where he had been admitted with a blood-alcohol level of 0.39 percent, nearly four times the legal limit for driving.

Looking back at the story about Kim’s tragic death, Keeling suggests an appropriate question is “What is it about us and this community and this culture that sustains the periodic occurrence of those kinds of events?” The problem is not awareness, information, skills, blood alcohol levels, rules and regulations, he says. The problem is deeply rooted in the community and social norms.

NDSU’s leadership in drawing students into finding solutions starts with Laura Oster-Aaland. As director of orientation and student success, she is overseeing the campus effort to reduce high-risk consumption and underage drinking, and has recently hired a student coordinator for the program. The student community organizer will work with Oster-Aaland to implement interventions such as weekend programs, network student organizations and make strategic recommendations intended to change the culture on campus.

In addition, students from an advanced organizational communication class are conducting a communication audit of the campus to study messages students receive in relation to alcohol. They’re looking at faculty and staff, the administration and students to evaluate the current messages and beliefs about alcohol.

Oster-Aaland sees her role as one spoke in a wheel, and the wheel is the whole university community. “There are people on campus working on many different efforts related to this right now. We have faculty doing great things in wellness classes. We have peer health educators and residence hall staff, and my role is to provide leadership and direction to those people.”

The administration is really putting its money where its mouth is. President Chapman has allocated funding for on-campus student events and programming, to do a media campaign and to fund the student community organizer. And beginning this spring,



“We’re taking more of a culture change approach to it.”





-LAURA OSTER-AALAND IS OVERSEEING CAMPUS EFFORT TO REDUCE HIGH-RISK CONSUMPTION AND UNDERAGE DRINKING.

student organizations will have an opportunity to apply for grants up to \$300 to help fund their own activities, such as dances or movies. It's a way to help students get involved in doing their own programming, said Oster-Aaland.

"We're being very innovative in the way that we're approaching this. Most schools have alcohol education programs, and that's where they stop. And we're taking such a global communication perspective, really, and I think that sets us apart. We're taking more of a culture change approach to it. I think it's fairly innovative," said Oster-Aaland.

"This isn't about prohibition. It isn't about taking away people's fun. This is about drinking in ways that don't put people at risk. The biggest tragedy in the world would be to have a death at NDSU."

Short-term goals for the initiative are to get students talking about the issue, and to help them buy into it. Once all the research is in from a new survey and the organizational communication students, Oster-Aaland will work with students to prioritize strategies for change and implement the recommendation the commission put forth in its April 19, 2000, report. The long-term goal, as Wallman stated it is "to reduce high risk

consumption, underage drinking, save lives and promote academic success."

ALTERNATIVES TO DRINKING

Students are encouraged by the leadership they see from university administrators, faculty and staff. Kyle Tuttle, volunteer coordinator of MU Live, a program at the Memorial Union that is helping to enhance the sense of community by offering students a Friday night alternative to house parties or the bar scene, sees it as a way for the university to demonstrate its commitment to the students. Friday nights from 9 p.m. to 1 a.m., students can find entertainment such as free billiards, bowling, karaoke, poetry slams, comedians, dances and free food. "The university obviously has a concern for the students, which is great," said Tuttle.

NDSU's approach to MU Live is different than some other schools that have opened up their unions all night long, according to Wallman. "What they did was they wanted to create a place for their students who were drunk, who had been out bingeing, a place to come back to and sober up. So that's not the direction we went with ours. Ours was more in the direction of OK, there are students that don't want the other scene, so we provide that. And it's been pretty satisfying. We've had some nice turnouts," said Wallman.

Tuttle uses his three years of experience with Campus Attractions, the student programming board, where he currently is a special events coordinator, to figure out what type of entertainment will be appealing to students. He estimates that a majority of the 100 to 150 students who have enjoyed MU Live on a given Friday night live on campus. "When kids go off to college, they get that sort of sense of freedom that they can kind of do what they want, but dorm life is pretty boring. I think the university is just doing a great job trying to get these programs started. I guess the challenge, as with anything, is just trying to get people interested, and I think that once people are interested and they see the fun stuff that's going on, they'll start showing up even more, and then you'll see a change in the culture," says Tuttle.

Kara Stack, the assistant director for campus programs, sees MU Live as a way to provide opportunities to people who aren't interested in engaging in the risky behavior with a forum to meet others who feel the same way. "I think there are significant pockets of students on the campus who don't drink, or prefer not to go to the house parties, and one of the nice things about MU Live is that it gives them an opportunity to come into a not terribly risky situation at all, and then they can start meeting some of those people who are like-minded."

— R. Knutson



the REHEARSAL

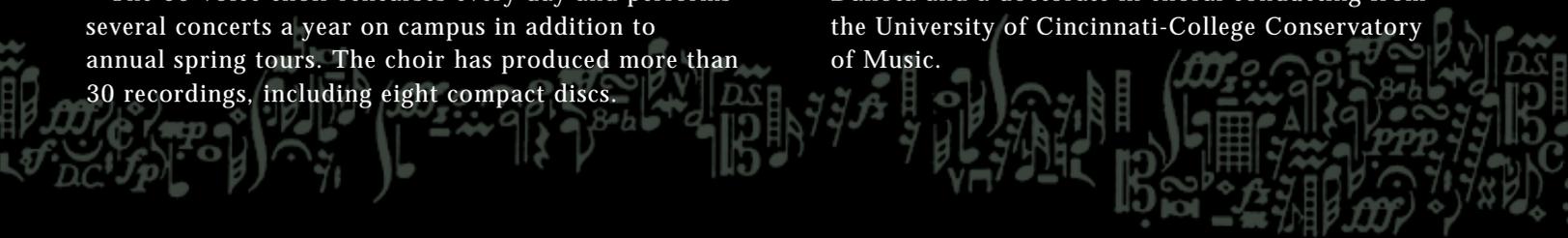


The North Dakota State University Concert Choir has a rich and distinguished tradition of performing the highest quality choral literature at the highest level of artistry.

Under Jo Ann Miller's direction, the choir has performed at several state and regional music conventions. In March 2001 they performed at the national choral directors convention in San Antonio, following a highly-competitive blind audition process.

The 60-voice choir rehearses every day and performs several concerts a year on campus in addition to annual spring tours. The choir has produced more than 30 recordings, including eight compact discs.

Miller has been director of choral activities since 1989. Miller received her undergraduate musical training at NDSU, where she studied with noted choral composer and arranger, Edwin Fissinger. She holds a master's degree from the University of North Dakota and a doctorate in choral conducting from the University of Cincinnati-College Conservatory of Music.





more
heads



make
more
cents

In science, there is no such thing as an overnight success. You write proposals, seek funding, experiment, publish findings, interact with other scientists. It is a thing of hard work and a little luck, of intellect and determination. The pressure is on to publish your findings so that other researchers may capitalize and the stream of research goes on. The body of knowledge expands.

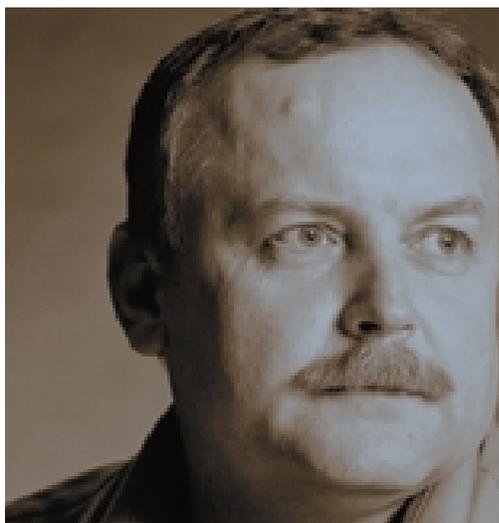
It's what chemist Mukund Sibi calls "putting in your 2 cents worth."

Surely it's an understatement to say that all this astoundingly complex research becomes a mere drop in a huge bucket of knowledge, but it certainly is a cumulative, collaborative process. Serendipity, if you will.

Plans meet with reality

Sibi is a professor at North Dakota State University. The story of his career, in many ways, is typical. He came to the campus in 1987 with a solid idea for a research program, and made adjustments as opportunities arose. "Science never works the way you plan," Sibi says.

Having come to NDSU from a postdoc position with the scientist who developed Taxol — one of the most important cancer drugs in the past 20 years — Sibi's plan was to work on validation of a mechanism in chemotherapy.



Opposite page: *clockwise*, Mukund Sibi, Kenton Rodgers
Sanku Mallik and Inder Sehgal

This page: Stefan Balaz, top and Gregory Cook

“No matter how good you are individually, you are dependent on people to participate, everyone has to put their 2 cents in for the program to work.”

Mukund Sibi

As AIDS became a bigger problem in America, he adapted his work to include synthesizing compounds that might be helpful in treating the disease.

He adjusted again after a couple of years, when a chemistry colleague and the dean of agriculture asked him to help with some research in crambe. You get the picture. “One thing led to the other,” involving new colleagues in the chemistry department, new graduate students, more opportunities. “We had the right combination of interests and people,” Sibi says, “so we made some spectacular discoveries.”

The stream of research

Scientists compete fiercely for funding, argue about findings and

challenge one another’s assertions. But collaborating is a necessity. “No matter how good you are individually, you are dependent on people to participate,” Sibi says. “Everyone has to put their 2 cents in for the program to work.”

This is true both in a particular lab, as well as throughout the discipline. A spectacular example involves James D. Watson and Francis Crick, working together in the 1950s. They generated no original data in identifying the structure of DNA. They simply put together the pieces.

The explosion of Internet technology has changed the scope and pace of scientific interaction. What began as a way for physicists to communicate with greater ease has evolved rapidly to become a powerful tool for scientists in all fields, not to mention the explosion in commercial and personal activity.

Phil Boudjouk, NDSU’s vice president for research, creative activities and technology transfer, is a chemist who has seen the Internet grow and the capabilities completely change how he does business. “Many of the journals publish on the Internet before coming out in print. Many of us have gotten an e-mail in the morning from halfway around the globe, and the journal had just come out at midnight,” he says. “Ten years ago it would have been five months before they got the journal, if they could get it at all.”

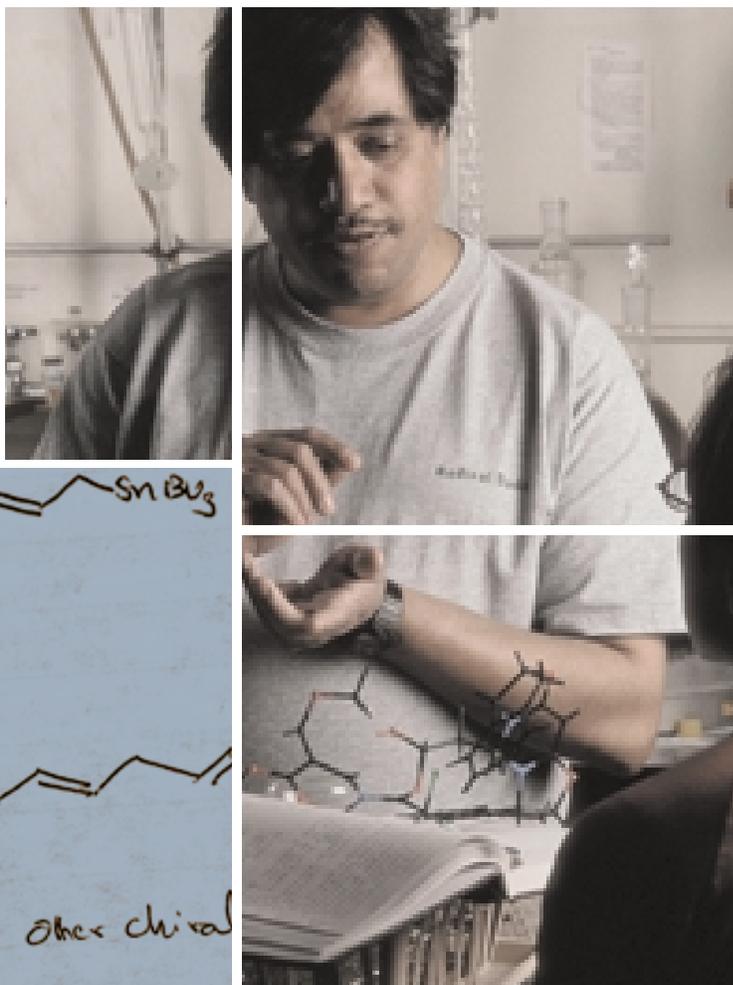
In the sense that science is a problem-solving enterprise, it has succeeded in many areas. “There are

diseases nobody knows much about any more. Polio and others have disappeared,” Boudjouk says. On the other hand, “in muscular dystrophy we’re not making the kind of progress we’d like” and much work needs to be done on cancer research.

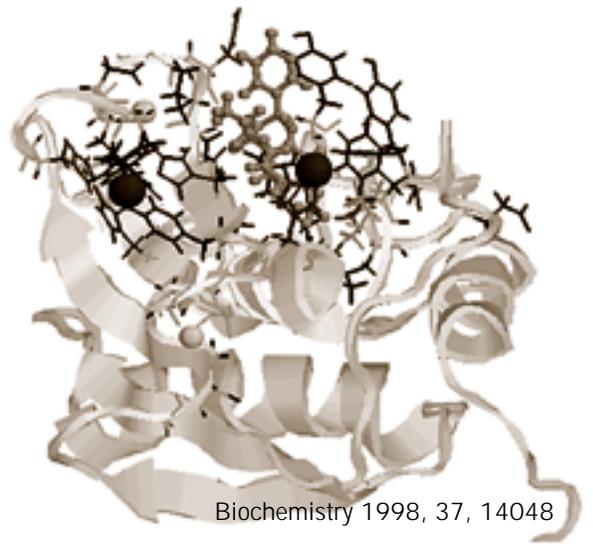
“People show tremendous trust that we are going to do our best to help meet their needs. We have hungry people and we have sick people. There are many things we need to take care of,” Boudjouk says. “The public trusts us to do this.”

‘Credibility is the coin of the realm’

Sibi and several NDSU chemists and pharmaceutical scientists can now collaborate in a more deliberate fashion, having landed a five-year \$8.2 million grant from the National Institutes of Health. Competition for this funding came from universities across the country. They don’t give that kind of money to people who just might like to give it a whirl, Boudjouk says. “Credibility is the coin of the realm.”



A. Lennox



Biochemistry 1998, 37, 14048

STROMOLYSIN-1 (MMP-3)

The grant is funding a Center for Biomedical Research Excellence, to be known as COBRE, at NDSU. The center will focus on a class of enzymes called matrix metalloproteinases, or MMPs, which play vital roles in biological processes. In humans, for example, hundreds of enzymes mediate many physiological functions and each has a specific responsibility.

The MMPs belong to a class of enzymes called “proteases” (pronounced pro-tea-ase) that degrade proteins by cutting them into small pieces. Too much or too little MMP activity can contribute to diseases such as arthritis, cancer, multiple sclerosis and diabetes. Controlling enzyme activity by using pharmaceuticals is seen as a potential strategy for treating the disease.

“What sets this center apart is that it is a combination of chemists and pharmacists attacking these diseases at the most fundamental level,” Boudjouk says.

The project will have three components: designing new drugs through theoretical computer models; using the theoretical designs to create the drugs in the laboratory; and testing the new drugs in biological systems to determine their actual effects or actions on live human tissues and cells.

Inder Sehgal, an assistant professor, and Stefan Balaz, associate professor, both in pharmaceutical science, are among the COBRE leaders. “My part of our project allows me to do what I do best — growing human cells in culture — and then expand my research program by developing assays to test new approaches to treat protease-associated diseases,” says Sehgal.

Balaz says the cooperative, multidisciplinary approach is crucial. “For years I have been developing the methods of subcellular pharmacokinetics for modeling of drug distribution in cells, tissues and organisms, as well as the molecular modeling approaches for description of drug-receptor interactions,” he says. “This project is a tremendous chance to apply the theoretical methods to an important real-world problem.”

Other scientists in COBRE are chemists Gregory Cook, Sanku Mallik and Kenton Rodgers. They know how much impact \$8.2 million can have, especially a high-profile grant from the National Institutes of Health. “First, the work to be carried out by the investigators will contribute to our understanding

of several important diseases,” Rodgers says.

“Second, in addition to its contribution to the improvement of public health, the center will be uniquely poised to improve the biomedical aspect of graduate and undergraduate education at NDSU. Finally, the fiscal magnitude of this grant will impact the Fargo-Moorhead community in a very positive way.”

Keeping the balls in the air

Post-docs, graduate students, undergraduate students are integral to the success of a research program. They’re also hard to find. But, as in many disciplines, successes build upon themselves. So if you’ve been able to get enough funding to do the work and write an article that gets accepted in a well-known journal, you may get invited to a national or international meeting where, in addition to sharing your work and hearing ideas from other scientists, you may recruit new students.

Sibi is putting his recruiting skills to the test as director of COBRE, which will require new faculty, students, postdocs and technicians. The search for a new faculty member is promising.

Getting and maintaining funding once you have a program in place isn’t easy. “You have to write a lot of proposals,” Sibi says. This NIH grant — the largest in the institution’s history — may well have opened the doors for NDSU to become a more research-oriented institution. President Joseph Chapman has said since he took the job two years ago that North Dakota State University should seek a higher level of research activity. According to recently-revised Carnegie Foundation standards, NDSU is a “Doctoral and Research University-Intensive.” Chapman is making way for the next level. “Our goal of moving to Doctoral/Research-Extensive is about finding ways for North Dakota State University to best serve this state,” Chapman says.

That classification requires the graduation of 50 or more doctorates in at least 15 academic disciplines per year. To that end, with the help of a donor group called The President’s Circle, some 20 new doctoral fellowships have been established. New doctoral programs have been added in communication and psychology. Others are in the works.

In the sense that the role of researchers at a university is to develop future researchers, these changes are significant. “As we bring new discovery, new ideas and outstanding research to this institution, our students will be interacting directly with top-notch investigators exploring innovative ways of making things better,” says Chuck Peterson, dean of pharmacy.

— L. McDaniel



Phil Boudjouk





DOUG BURGUM

Doug Burgum is a senior vice president at Microsoft and president of the Microsoft Great Plains division in Fargo. He joined Great Plains in March 1983 and was named president in 1984. Microsoft Great Plains Business Solutions was created through Microsoft's April 2001 acquisition of Great Plains.

Among many honors, Burgum has been named to *Accounting Today* magazine's "The Top 100 Most Influential People in Accounting" list for the past five years.

A native of Arthur, N.D., he earned his bachelor of university studies degree from North Dakota State University and an MBA from the Stanford University Graduate School of Business. He is the recipient of an honorary doctorate from NDSU.



EXCERPTS

I'm from a family of great cooks.

I am a very eclectic reader. I got stuck in the airport on Monday and read an entire book on Feng Shui. I've read a lot about explorers and great adventurers because I've been on a journey theme for quite a few years. Life's a journey and business is a journey and we need to think about the journey.

We need to have a purpose far beyond making money. There's intrinsic value in building great products. In software it's a combination of art and engineering.

I got some good lessons growing up from my dad out there in farm country. You learn early on you can't control the weather, you can't control commodity prices, and those are the two major determinants of your family's income.

You can spend, as a leader, 15 hours a day and 7 days a week trying to control people or you can spend a few hours a day trying to inspire people.

I probably have a running head start on most people my age because of my mom, understanding the challenge of being a working mother from having a working mother.

It's easy to get up and come to work every day if you really see yourself as helping to make other people's dreams come true.

I think there are a lot of great examples in history where ordinary people come together and do extraordinary things.

I truly believe that we're at the beginning of a very transformational time for the planet. We're at the beginning of a transformational time in terms of our industry because of these underlying foundational changes that keep happening with computers and communication.

Ideas are not limited by geography. Great ideas can come from anywhere.

If you have an ability to dream of stuff that's never happened before, that's a really good skill to have.

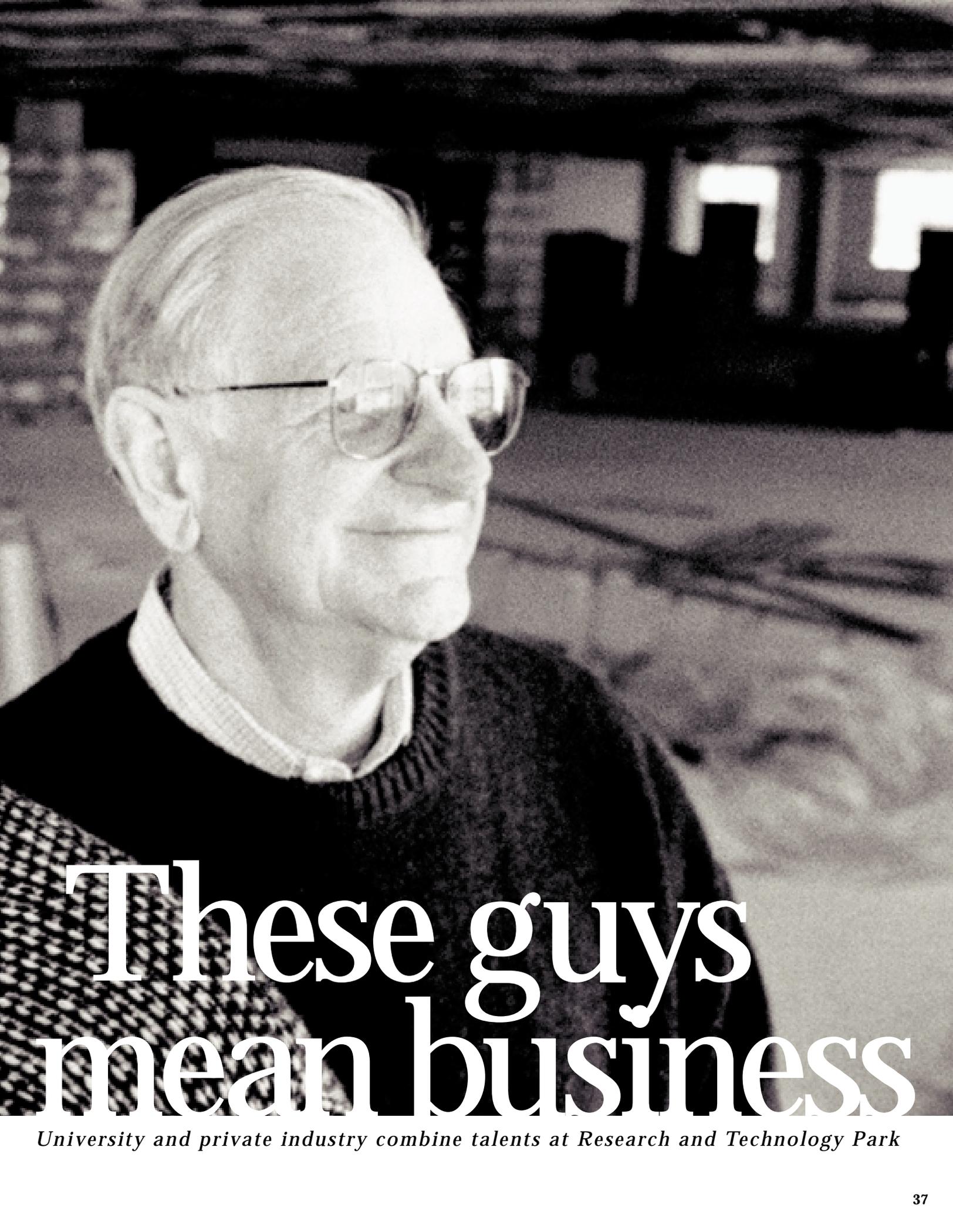
There's a lot of capacity in the economic system for people to create new and interesting things that can improve the lives of lots of people and improve life on this planet. I think the next century's going to be a very interesting time. There are times when I wish I was younger because I think it's going to be fascinating.

People have a chance to reshape even some of the basic assumptions that have guided the planet for all of its history, or really have a chance for the first time ever to be questioned in a different way.

All of economic theory didn't count on the fact that you can just make more chips.



Barry Batcheller, president of Phoenix International, left, and Joseph A. Chapman, president of North Dakota State University.



These guys mean business

University and private industry combine talents at Research and Technology Park

In the world according to Barry Batcheller, as you get a little “longer in the tooth,” the desire to create something broad and enduring becomes more important.

This maxim is delivered by a man still pretty young to be using such phrases, who lives to create, has set in motion three successful businesses, and knows opportunity when he sees it.

In his current role, president of Phoenix International, he is joining a partnership with North Dakota State University and its energetic president, Joseph A. Chapman. The two men are similar in fearing no obstacles, and routinely put their money where their mouths are, high stakes being the fodder for great rewards.

Their collaboration is resulting in the first phases of the NDSU Research and Technology Park, a venture in which the university and private industry can combine talents to develop new technologies. Phoenix is the cornerstone tenant. Both men see this as the proverbial “win-win” for the university’s faculty and students, the state and the region.

“It’s not a mystery to me why you have Silicon Valley. It’s not a mystery to me why you’ve had the

tremendous economic boom in the Boston area,” Batcheller says. It’s a cumulative thing, starting with top students who are attracted by the best faculty, working in an area conducive to the entrepreneurial sparks those two groups provide. “We can help to bring a similar process here to Fargo.”

Chapman is ready to step up on the university’s side. “University research parks have proven to be real assets in economic development efforts,” he says. “There is a natural synergy when you bring together leading edge faculty researchers with private business research efforts. The opportunity to work side-by-side with potential employers is a real advantage for our students, as well.”

For Phoenix, an electronic hardware and software design and manufacturing company, this synergy provides what they need: raw material in the form of well-prepared professionals, a vibrant and growing community to attract and retain these pros, and a healthy tax base in North Dakota. “We absorb, we need, we consume the product that is produced by NDSU,” Batcheller says. “It’s one of our raw materials we use for building our business and therefore we have a vested interest.”



Dedication of the NDSU Research and Technology Park is scheduled for May 12.

“It’s not a mystery to me why you have Silicon Valley. It’s not a mystery to me why you’ve had the tremendous economic boom in the Boston area. We can help to bring a similar process here to Fargo.”

Barry Batcheller

Batcheller is serious about this collaboration. “I think it’s important that we make it real,” he says. “We’re putting the building there for a very specific reason and this is to weave the fabric more tightly together between industry and the university.”

According to Philip Boudjouk, vice president for research, creative activities and technology transfer, a number of companies are negotiating for space in the park. Boudjouk describes the park as “a whole new enterprise for NDSU to fulfill its mission for this century in economic development.”



The park’s second building will be for NDSU researchers and includes “wet lab” facilities and Net-wired, technology-related areas. Also planned is a 5,000 square foot business incubator, where emerging companies will lease space in the facility as faculty and students work with them to prepare new products or methods. “In this information age, there is no more powerful resource for economic development than a university research team of faculty, staff and students,” Chapman says.

Batcheller is a transplant to the Midwest, born in California, graduated from high school on Long Island. He came to North Dakota State to study engineering, having learned of the program via a high school counselor who’d read in a NASA newsletter about an NDSU professor working on Skylab. He then “met a farmer’s daughter from Ada (Minn).”

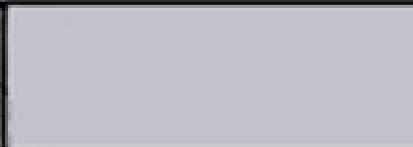
He’s made an impact on the area. Phoenix is the area’s 11th largest private employer and Batcheller’s third new company. Started in 1987 as a small consulting firm located above a Chinese restaurant in downtown Fargo, Batcheller and his partners pursued and achieved aggressive growth. Phoenix is now a \$100 million company with 850 people in Fargo and Springfield, Ill. John Deere bought the company in 1999.

When the Phoenix building opens on the NDSU Research and Technology Park grounds, located on 40 acres west of the Fargodome, 250 to 300 employees will move in to collaborate with faculty, students and staff of NDSU.

“I got into engineering because I like to create things,” Batcheller says. The progression has been creating first products, then a technology working group, followed by Phoenix, and now, the NDSU Research and Technology Park. “It seems you just get a bigger and bigger chess board on which to play the game.”

— L. McDaniel

ing! . It's total chaos
not sure how to go h



[the right combination

On a momentous Thursday in early October, Ana Simonovic watched from her window as more than half a million fellow Yugoslavians demonstrated in downtown Belgrade. Earlier, she had been in the crowd that was demanding the ouster of Slobodan Milosevic, the iron-fisted autocrat who Serbians voted out less than two weeks before, but who refused to concede power to opposition leader Vojislav Kostunica.

From her office at ANOXSoft, an international software company where she worked as a Web developer, Simonovic described the scene in an e-mail.

“There were, and still are, approximately 500,000 - 700,000 people in front of the parliament building and all around downtown,” she wrote. “I think the whole grown-up population in Belgrade is there, similar to all towns in Serbia. The opposition demonstrators have occupied both parliament and state TV buildings and some other TV and radio stations. Some buildings are burning! It’s total chaos. I’m still in the office downtown, and I’m not sure how to go home. Please pray for us.”

The following month Simonovic left the upheaval in her country behind to begin anew, working as a graduate assistant with Marc Anderson, an assistant professor of botany/biology at North Dakota State University, in what she called her “life opportunity.” It was a long road from Belgrade to Fargo, one paved with Anderson’s exceptional assistance and a trust that developed between the assistant professor and his future student.

At the beginning of 2000 Simonovic was a research assistant in a laboratory for seed germination and photomorphogenesis at the Institute for Biological Research Sinisa Stankovic in Belgrade. Although she had completed her master’s degree in biological sciences and plant physiology at the University of Belgrade two years earlier, the economic situation in Yugoslavia severely limited funds for research, making it nearly impossible to pursue a doctorate.

During her four years in the lab, Simonovic watched as first one, then another of her colleagues left the country; a laboratory of 30 dwindled to only a handful of people. The researchers who remained coined a phrase for the exodus: “decantation of brains.”

“It’s terribly sad, and this is what’s been happening for years in Yugoslavia, not only in biology but in all technological fields,” she said. “The misfortune of my generation is that we live in a really poor country with a 10-year prolonged civil war, economic crisis and instability, with miserable funds for science. I wasn’t able to start for my Ph.D. because there simply weren’t the chemicals or equipment for any serious research.”

She searched the Internet for graduate assistantships abroad, but with each opportunity she ran into barriers such as the need for Graduate Record Exam and Test of English as a Foreign Language scores. The American cultural center in Belgrade that had administered those exams was closed, and she would need to travel to Budapest, Hungary, to take them. As a



Marc Anderson



single mother on a severely limited budget, she could barely afford a train ticket, let alone exam fees. Some professors initially showed interest, but not one was willing to help with those details.

Simonovic kept looking. “When you live in a pretty poor country and your dream is to be a scientist — I don’t say that I am, but that is my dream — I always wanted to work in a well-equipped lab and get the things I need for research and to one day get my Ph.D.”

In January she saw Anderson’s advertisement for a graduate assistant on the American Society of Plant Physiologists Web site.

Anderson, who joined the NDSU Department of Botany/Biology in 1999, was searching for the first graduate student to help get his laboratory off the ground. He needed someone with the right combination of education and research interests to complement his research involving changes in plant metabolism in response to low temperature stress. Twenty-one students, primarily from overseas, applied for the position. Simonovic, who also holds a bachelor’s degree in molecular biology and physiology from the University of Belgrade, was Anderson’s first choice. Alan White, current dean of science and mathematics, and Marvin Fawley, professor of botany, independently selected Simonovic as the top candidate.

“Her background and career goals are closely aligned with what I am working on,” said Anderson. “She is primarily interested in signal transduction mechanisms in plants, a broad interest area that can easily be studied within the context of my projects.”

In early March 2000 Anderson e-mailed Simonovic an informal invitation to apply for graduate study at NDSU. Like the other professors, he requested exam scores before formalizing the invitation. Her response provided a glimpse of the challenges to come.

“Unfortunately, I can’t send you GRE and TOEFL scores yet, simply because I haven’t had enough money for traveling abroad for the tests,” she wrote. “Believe it or not, but as a research associate I have, converted, about \$70 per month, so I have to work two months for just the application fee and transcript evaluation.”

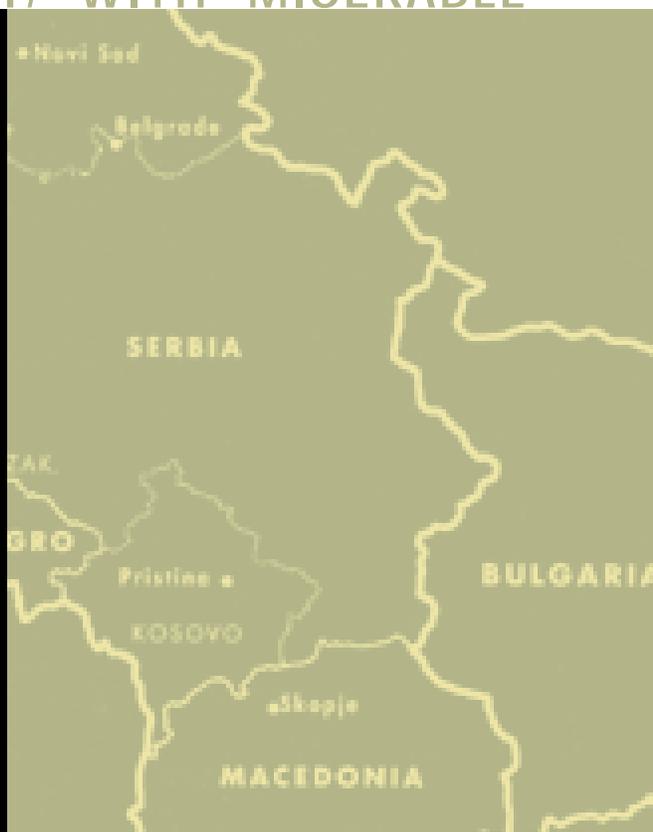
Anderson had made up his mind to do whatever it took to get Simonovic into his lab. He responded the next day, saying that, although foreign students are usually responsible for all expenses, he would be willing to cover some of them with start-up funds for his research program, including travel to the United States.

“One of the keys to developing a good program is good people,” he said. “Once I saw her information and I had a chance to talk to her, I knew she was an excellent scientist and a good fit for my lab. There were a couple of other decent candidates, but once I committed to Ana, I just dealt with the different issues as they came up.”

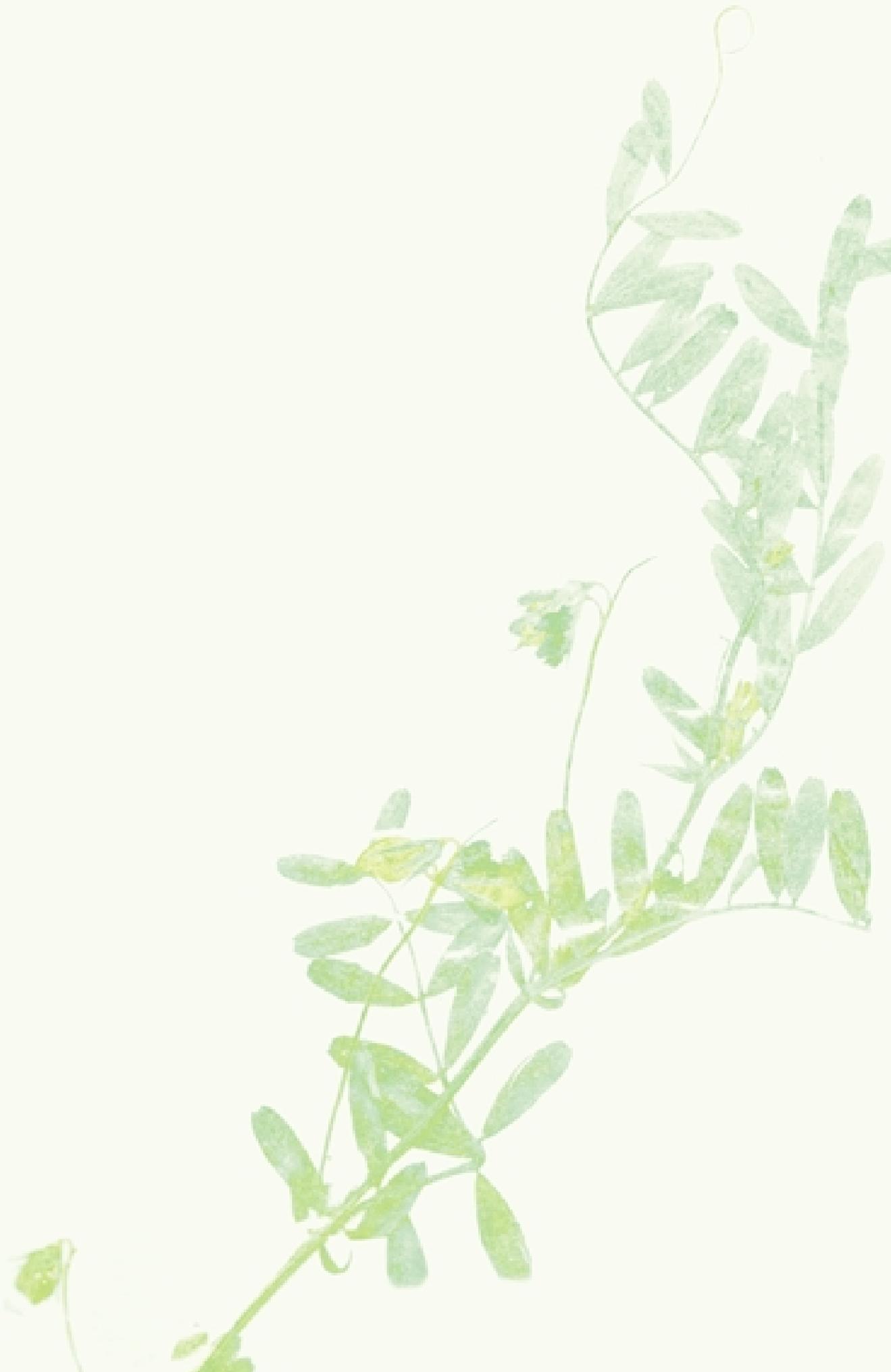
“THE MISFORTUNE OF MY GENERATION IS THAT WE LIVE IN A REALLY POOR COUNTRY WITH A 10-YEAR PROLONGED CIVIL WAR, ECONOMIC CRISIS AND INSTABILITY, WITH MISERABLE FUNDS FOR SCIENCE.



I wasn't able to start for my Ph.D. because there simply weren't the chemicals or equipment for any serious research.”



Ana Simonovic and her daughter.



There were plenty to overcome. Anderson had to make certain he could use a portion of his start-up funds to pay for Simonovic's expenses. He then arranged to pay for her exams in Budapest and coordinated with her and the testing center on a test date. He also arranged to pay for her NDSU application fee and transcript evaluation, for her to submit her graduate application without the necessary test scores and to supply them later.

Anderson and Simonovic also learned to trust one another. One test came early in the process when Simonovic was offered the job at ANOXSoft, a position that would mean a tenfold increase in her monthly salary. With all the uncertainty with the NDSU position, she felt she had to take it. She informed Anderson of the opportunity, saying that if attending NDSU could not be worked out in 2000, the job would provide the financial means for her to apply in 2001. The assistant professor replied with some trepidation; he didn't want to pay for Simonovic's exams only to have her take a position elsewhere.

She took the job on a short-term basis but

assured Anderson of her intentions. "When — if — we solve the financial problems about the application, TOEFL and traveling, and when — if — NDSU accepts my application, I'll quit with ANOX and come to the United States," she wrote. "Your project is my life opportunity, and I'll do my best to get it, but if I fail I have to have some option."

In the ensuing weeks they traded dozens of e-mails. "I imagine that you spend way too much time on organizing everything for me. I'd die of embarrassment if I fail on the exams or if I disappoint you in any way," she wrote in late March. "It seems that you believe in me more than I believe in myself. As you evaluate my personality from our correspondence, I do the same, and I'm simply astonished with your kindness and generosity."

She needn't have worried about passing the exams; her scores were higher than required. In fact, her TOEFL score surpassed the high language standards required for teaching assistants at NDSU.

Throughout the summer and early fall, they continued to work through the details of applying to NDSU, obtaining a visa, travel plans and purchasing airline tickets. Anderson reserved an on-campus apartment for Simonovic and her four-year-old daughter, Milica, and arranged for childcare. In early October, about the same time Milosevic was stepping aside, Simonovic was admitted to NDSU. She received her visa a few weeks later.

In November Simonovic was selected for one of the first Presidential Doctoral Graduate Fellowships awarded on campus. The fellowships are for \$16,000 per year plus waiver of tuition for up to four years. President Joseph A. Chapman announced the creation of the fellowships in his 2000 State of the University Address. The fellowships help attract exceptional

doctoral students like Simonovic and provide NDSU a boost in achieving Doctoral and Research University-Extensive designation. The Carnegie Foundation for the Advancement of Teaching defines that as an institution that grants 50 or more doctoral degrees per year in at least 15 disciplines.

Within a week of her arrival Simonovic had decided on a specific line of inquiry, research that is building on what Anderson did while completing his doctorate. "We're about to make a library of genes that are differentially expressed upon acclimation to low temperature stress and to see what the products of those genes are," she explained. "Some of them are known to be antioxidant enzymes, but many of those products are yet unknown. We will try to elucidate those products."

Her immediate focus provided Anderson some assurance that his extra efforts had been worthwhile. "It was great that, within days of getting here, she already knew what she wanted to do," he said. "But I already had a good idea of her aptitude and excitement for my projects from our previous correspondence. I really don't think I've done anything above and beyond what a good adviser should do."

In February Simonovic returned to Belgrade to retrieve her daughter, who was living with family. She plans to return to Yugoslavia once she has completed her doctorate and perhaps a year of post-doctoral work. But that's for the future, she said, and four years is a long time. For now, she's realizing her dream under the guidance of her new mentor.

"Everything the best about Dr. Marc," Simonovic said. "Like all university professors he's an authority, but he's also a friend."

— M. Fredricks

"ONE OF THE KEYS TO DEVELOPING A GOOD PROGRAM IS GOOD PEOPLE...I KNEW SHE WAS AN EXCELLENT SCIENTIST AND A GOOD FIT FOR MY LAB...I JUST DEALT WITH THE DIFFERENT ISSUES AS THEY CAME UP." -MARC ANDERSON

Round^{not} flat



Mark Sheridan^{professor of} zoology

Research and creative activity are responsible for the cultural development of humankind. Innovative thinking can be motivated by necessity in order to solve a problem or by a desire to make an expression of human thought or feeling. Technological advances have marked the course of human history. For example, the wheel revolutionized transportation. Metal tools made food acquisition more efficient. The development of counting systems facilitated trade. Whether the advances were gradual or abrupt, they changed the way things were done.

Technological development and creative thought have gone hand in hand. From the use of naturally-derived pigments on petroglyphs in the caves of France or the ceiling of the Sistine Chapel to the development of fade-resistant acrylics and from the use of papyrus pulp for paper to the development of computer hardware and software, technological innovations have helped provide the media for the expression of human thoughts and feelings. Our view of the world is completely different (round not flat, and not in the center of the universe) because of innovative thinking.

Our culture continues to develop as research and creative activities proceed. New questions arise from previous answers. New ideas spring from old ones. Among the arts, new music is composed and new literature is written. Engineering principles used to build the pyramids in Giza have given way to new ones used in the design of high-speed light rail systems. In science, nothing is proven, hypotheses only are confirmed or refuted. Scientific research is a continuous process that leads to refinement of hypotheses as new findings emerge. Aquaculture, bioengineering, and gene therapy all promise to revolutionize our culture. The nature of these “revolutions” has ethical and political ramifications, the discussion of which also will be healthy for our culture.

Comprehensive universities like NDSU play a critical role in research and creative activities. This is because university faculty have the dual responsibility of the pursuit of scholarly endeavors as well as student instruction. The scholarly pursuits of university faculty take many forms. Some are in the form

“Our view of the world is completely different (round not flat, and not in the center of the universe) because of innovative thinking.”

of developing disease-resistant crop varieties or the design of crop storage facilities. Others take the form of creative writing or evaluating human behaviors. Still others take the form of studying the environment or enumerable other biological processes.

What’s the importance of all this research and creative activity? Simple. It provides faculty with the material to teach. Students entering a university expect and need the most current information so that they are best equipped to become innovators themselves. This steady progression of ideas, from teacher to student, has and will continue to be a driving force in our cultural development.

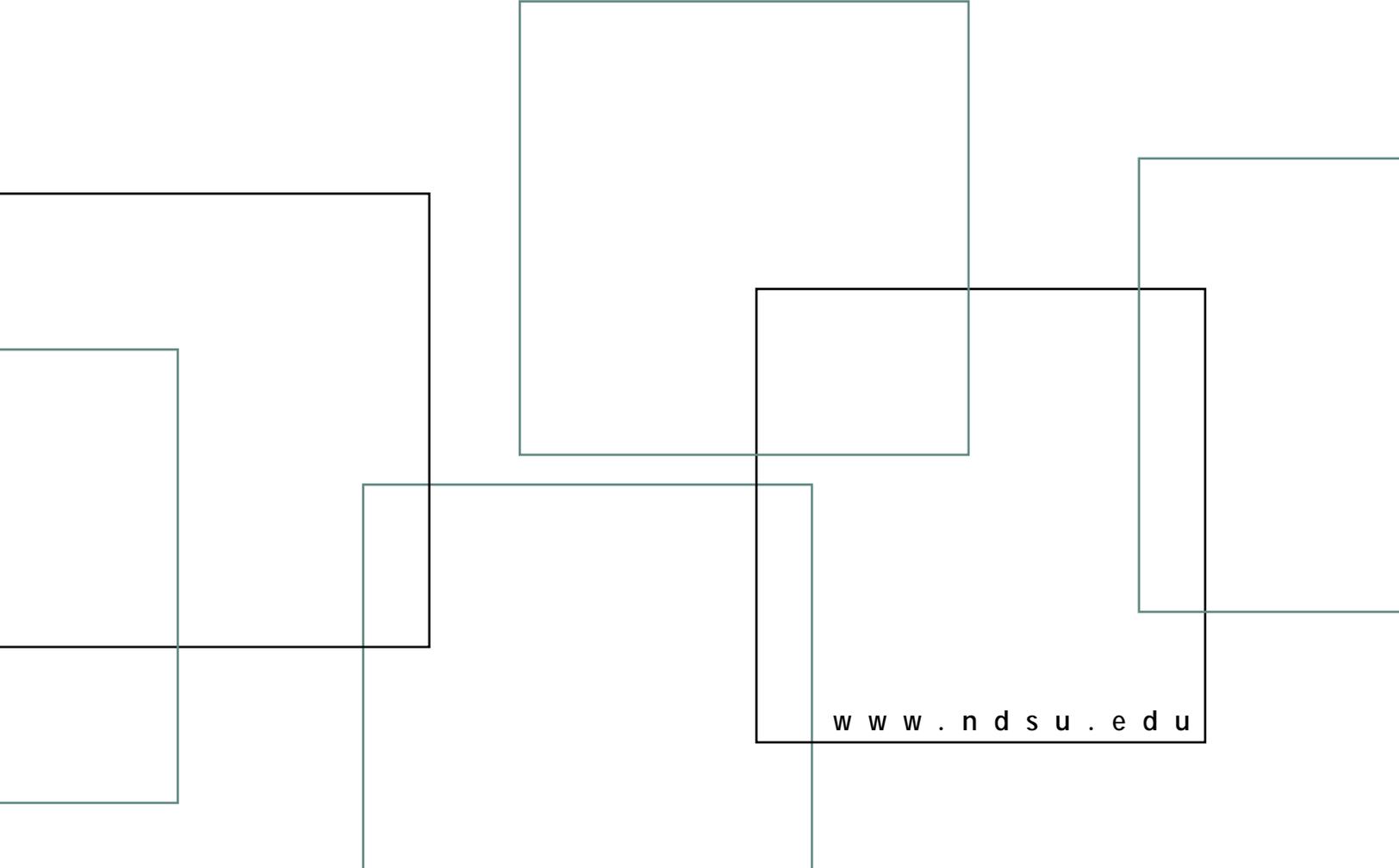
The research and creative activities of university faculty help make them better teachers. Because of their scholarly pursuits, faculty are intimately familiar with the latest literature and techniques in their field. Who best to take a music literature class from and to explain the subtle nature of a fugue than from someone who has composed music? Who best to explain the nature of cell division than someone who conducts research on the regulation of the cell cycle? University faculty members dispel the old myth; in fact, they can best be characterized by “those who can, teach what they do.”

Scholarly endeavors not only improve the classroom experience of students, but they also help provide unique “hands on” opportunities. In the studios and research laboratories of university faculty, students can participate in research and creative projects. These informal settings provide the best environment for mentor-based learning, where students can apply their classroom skills to real creative ventures. What better way to learn how to do science than by working in a lab, forming and testing hypotheses? Such experience improves the skill set of students and enhances their job readiness.

Research and creative activity also help engage universities with their communities. At NDSU, for example, research and extension support help to enhance agricultural production and utilization. Other research and creative activities abound in universities, from the social and behavioral sciences to science, engineering and mathematics, that have direct impact on our lives. Innovations and technologies are often transferred to the private sector. Commercialization of these ideas creates new jobs and contributes to economic development. The creative activities of the arts and humanities, which are among my favorites, take the form of the books you read as well as the art exhibits, plays and musical performances you attend.

Our lives are enriched and made better by research and creative activity. I am proud of the role that universities play in these endeavors, especially because the future of innovation is assured through our students.

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