NORTH DAKOTA STATE UNIVERSITY SPRING 2003 Magazine











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editor's note

A North Dakota tableau

It was a windy spring day when we met cover artist Walter Piehl to take his picture. We'd thought the third floor of the Plains Art Museum would be a good place, but Walter suggested the West Fargo stockyard. We also learned he can keep a straight face for his part of the American Gothic pose.

've not thought myself a particularly lucky person. For starters, I had three older brothers, and in high school, had horrible, wiry hair when the glossy Farrah Fawcett flip was required, which is no doubt why I was denied a place on the echelon cheerleading squad senior year. Formative years full of bad luck, it seemed.

Such sacrifice seems to be paying off all these years later. What but luck put me in the right place when the right president came along to launch a magazine. Aha. The top squad at last.

Little did I know how much the job would come to mean. I surely did not expect to discover a deeper appreciation for North Dakota, but there it is, reflected most clearly through my counterparts from other universities. It began at an editors' conference where a guy saw North Dakota on my nametag and launched into a description of trying to get his wife to join him on a visit here, and wondered what persuasive strategies could I supply in support of his cause. I was unprepared to do tourism promotion that day, but never again.

Back in my twenties, didn't I race along I-94 on trips to Bismarck, my hometown, as fast as I dared (but certainly not exceeding the speed limit, Dad) thinking that this was the dullest stretch of highway ever paved. Now, nearly forty, I bask. I savor the endless horizon line, the blue sky on a sunny day, the space, the photograph I can imagine sending to colleagues in congested, claustrophobic places like Baltimore and Pittsburgh, in long-commute cities like Seattle or Los Angeles.

Serene in the sunbeam shining through the car window, I drive along and wish I could whistle like that dad of mine. *Crystal Chandelier*, maybe, or *Green, Green Grass of Home*. He doesn't perform anymore, but absentmindedly sings a little "bum bump bumm" tune. I can't do that either. So I keep quiet to ponder my urban colleagues' fascination with North Dakota. I can imagine their homes, have visited many of their cities. I hope they can come to North Dakota one day. One look at the view I see every morning on the way to work is all it'd take. An unobstructed sunrise, and then rows of all sorts of trees, green in summer, the evergreens snow-tipped in winter. On especially fine winter days, all the trees are coated in crystal, enchanting.

How is it, I wonder, that North Dakota is thought to have bad weather when upstate New York routinely gets pounded with five, six, eight feet of lake-effect snow in a day? How could it possibly make sense to equate expense and crowds and congestion with superior conditions? I don't know the answers, but enjoy the questions.

In circumstances of perception versus reality, people who read about the work at North Dakota State University write letters and e-mails, sometimes a confession of being surprised. "Heck," one guy wrote, "I've never even been to North Dakota, but now I get a little piece of it in the mail." A writer from a big, private university in the East says "you don't look like you're from North Dakota," in a complimentary tone, and I laugh along, imagining what she must have expected. I'm short and appear to be brunette (still battling the hair but with a skilled stylist who knows her way around a dye job). Are North Dakotans believed to be tall blondes?

On a trip last fall to Boston, I met someone from Montana, and caught myself thinking, "My, he's made quite a trek," as if Missoula were unfathomably remote and Fargo the center of all activity. And another dose of good luck lands in my lap.

Thank you for reading.

laura.mcdaniel@ndsu.nodak.edu

letters

I wanted to express my thanks to you for taking time to publish your visit with an excellent professor, Dr. Boyard, in NDSU magazine. I took two courses from Dr. Boyard with an invitation from him to become a TA and begin my Master's degree program in his department. That invitation was a real confidence builder for me and has contributed to my success in public education both as a Latin teacher and as a school administrator. His interest in his subject matter and his eye for detail taught me serious lessons about loving students and expecting nothing but the best from them. (One evening, I found him in the library checking an obscure reference in one of his student's papers. How impressive!)

As a Latin major at NDSU, Dr. Boyard recognized my interest and tied it to his love of Classics. We had many discussions about the Romans and their influence on Will Shakespeare.

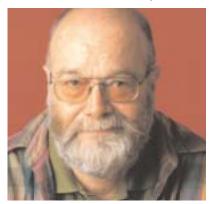
Had my choices put me on another pathway, I might have taken up the offer Dr. Bovard made to me 20 years ago. To stay in Fargo, however, was not an option at the time and seems even less of one now that I have established a family and career in Casper, Wyoming. His lessons have moved

with me, nevertheless. I have loved my role in education and attribute some of that affection to both Dr. Boyard and NDSU.

> Mark Mathern Casper, Wyoming Class of '82

I just finished reading the latest NDSU magazine, and wanted to let you know how much I like it. I had to smile while reading the "excerpts" from Richard Boyard, because Dr. Boyard was my Shakespeare professor back in the early '80s when I attended NDSU. His classes were always challenging, and he had a passion for what he taught. If I could tell him anything today, it would be that I still read and re-read my Shakespeare plays - though now just for fun. Not the biggest deal in the world, I know, but sometimes it's nice to know that your efforts and influence made a difference. I hope he is enjoying his retirement.

Kristi Thorfinnson Wentzel Fisher, Minnesota





The article "The Good War?" by Michael J. Lyons (Fall 2002 issue) cannot go unchallenged. I guess he picked or copied the title from Studs Terkel's book. His question like that of Studs Terkel implies that it is possible for a war to be a good thing, which to my mind because of my participation in it is an absurd proposition. World War II was the most destructive in terms of personal and material losses of any event in the history for the USA and the world.

To suggest that any war is good is an attack on our sensibilities. As an infantry soldier in the Philippine and Okinawa campaigns of that war, I, for one, am offended first by Terkel and now by Lyons for their viewpoint of World War II. Perhaps neither has ever been involved personally, and that would make them unqualified to render judgement.

Harold L. Sletten Class of 1948 Mr. Lyons is obviously trying to rewrite history when he says the Red Army had already assured Germany's defeat long before D-Day. Is he serious?

To deny that D-Day was the defining moment of World War II in Europe is to ignore reality. If Germany had not faced the Anglo-American forces on the western front and in Africa, Hitler would have occupied enough of Russia to subjugate and control the entire nation well before D-Day. The Red Army would have been no match for an undiminished Wehrmacht and Luftwaffe. Artillery moved about by oxen did not compare with German panzers. It's worth noting here that the United States provided \$13 billion to Russia in the form of lend lease, which of course was never repaid. Mr. Lyons is probably aware that following V E Day, General Patton was in favor of pushing on to Moscow. It's well within the realm of speculation that he could have done so, and the Cold War would never have occurred.

Richard Kukowski

I am alumnus of NDSU, CS Dept and graduated in the fall of last year (2001) with a Master's degree. I currently work as a DA engineer at Intel. Dr. Jorgenson was instrumental in guiding me during my master's thesis and was also on my committee.

I am so glad that the very good work being done by Dr. Jorgenson is getting some attention. The work being done is really cutting edge and it gives students the chance to develop VLSI design flows that are the latest in the industry today!

Oh well, I wish I could've been a part of it:-)

Robbie (Rohit) Nadig



contributors



As an NDSU graduate student in English, Kathy Freise (An introduction, p. 12) wrote her master's thesis on memory in the novels of Larry Woiwode, which, along with her myriad talents, is why she was recruited to introduce his essay on

p. 13. She recently completed a doctoral program in American Studies at the University of New Mexico, continues to live in Albuquerque, teaches an honors course, and works at a small Web development company that also sells area rugs. She may be reached at kathy@netchannel.com.

Wayne Gudmundson (An homage, p. 16) teaches courses in beginning and advanced photography. He coordinates the Prairie Documents Photographic Book Series and is acting director of New Rivers Press at Moorhead. His photographs have appeared in seven books, numerous exhibitions and in several permanent collections, including the Museum of Modern Art in New York and the San Francisco Museum of Modern Art. His cat, Bob, weighs 15 pounds, snores and has failing eyesight.



Cindy Nichols (Poetry, pp. 44-47) grew up in southern California (which, she says, "might be a 'credential' for being nuts"), and has an MFA in Poetry from the Iowa Writer's Workshop. Her poems have appeared in a variety of journals, including The Kenyon Review, Mid-American Review, and Cimarron Review, and she's the featured writer in the current Carbon World, NDSU's English Club journal. She's been experimenting intensively with mixed genres and new media, or electronic poetry, but says she still loves "regular old paper writing."



Sally Stevens' (*D'ob! Re Mi, pp. 20-29*) first published photography appears in this magazine. As a member of the "Simpson's" chorus, she took the pictures at the scoring session for the 300th episode of the popular television show. Stevens has an impressive

musical career, doing session work, primarily television, commercials and records during the '70s, more film and television in the '80s through the present. She is a lifelong resident of Los Angeles, and has been to North Dakota to visit her grandparents. Her mother was born in Fargo. She and her brother have always wanted to return and walk down the street.

Larry Woiwode's (letter from an imaginary friend, pp. 13-17) fiction has appeared in The Atlantic, Harpers, Paris Review, Partisan Review, and a variety of other publications, including two dozen stories in The New Yorker. His books include What I'm Going To Do, I Think, Beyond the Bedroom Wall



(finalist for the National Book Award and Book Critics' Circle Award; Association of American Publishers Distinguished Book of Five Years for presentation to White House Library), *Indian Affairs, Silent Passengers*, and the memoir *What I Think I Did*, his sixth book to be named a "notable book of the year" by the *New York Times Book Review*. He is a Guggenheim Fellow, has conducted writing seminars across the

U.S., in England and Europe, and for four years was director of the writing program at the State University of New York, Binghamton. In 1995 he received the Award of Merit Medal from the American Academy of Arts & Letters, presented once every six years, for "distinction in the art of the short story." He has received the Aga Khan Prize, the William Faulkner Foundation Award, the John Dos Passos Prize, the Lanan Foundation Literary Fellowship, among others, and in 1995, by a joint resolution of the state House and Legislature, he was named poet laureate of North Dakota. He lives in rural North Dakota where, with his wife and family, he raises registered quarterhorses.

on the cover



Ice Man

Walter Piehl is an artist, a North Dakotan, a cowboy, a nice guy.

He was raised in Marion, a little town in southeastern North Dakota, and taught at universities in Mayville and Valley City before joining the Minot State University faculty in 1970.

The Plains Art Museum in Fargo, in recognition of his status as one of North Dakota's most important artists, is organizing a career survey for an exhibition that will run from August 7 to October 26.

Two of four Piehl originals in the NDSU collection will be on loan to the Plains: "Crow Hop Annie for the Bison," (1990) from the Roping Fools Series, and "Saddle Bronco #1" (1970).

Piehl is most well known for his "Sweetheart of the Rodeo" series, about which he says: "My aim is to represent these themes in a contemporary painterly manner, while minimizing romance and sentiment that so often dominates Western Americana subjects. I like paradox, contradiction, color, things cowboy, and putting on paint — but not necessarily in that order."



Little Wind's Apple Jack: *Sweetheart Series*The NDSU Gallery has several of Piehl's works available in fine print and poster format. For more information call 701-231-8239.

an introduction

One way to understand Thomas McGrath and Larry Woiwode is to take in the roster of their literary and academic awards: Rhodes Scholar, William Faulkner Foundation Award, National Book Award Finalist, Book Critics Circle Award, Guggenheim Fellowship, American Academy of Arts & Letters Award of Merit, National **Endowment for the Arts** Fellowship, Bush Fellowship, Society for Western Literature Distinguished Achievement Award. And so on.

While most awards and classifications justly have detractors and limits, it's clear that McGrath and Woiwode are writers who share more than their ties to North Dakota. They share a particular status in the literary world that for as many awards as it includes, doesn't reach as far as it should.

Perhaps both have been pigeonholed as regional writers, or perhaps they have been true enough to the ways of the West not to give in to publishing or political world dictates. My point is that Woiwode's piece here, about McGrath not having been named poet laureate of North Dakota, also McGrath and Woiwode are writers who share more than their ties to North Dakota.

illustrates their positions in the larger world.

He's right, of course. McGrath should have been the state's poet laureate, too his Letter to an Imaginary

Friend is the great epic poem of the American heartland. Woiwode uses the occasion to accept another deserved award and to honor McGrath. While the two are miles apart on issues such as religion, they come together again and again around the themes that glide through their work memory, place, community, loss.

Both are revolutionaries — their prose and poetry ranges as broadly as the state's landscape that infuses their writing. When George Sinner, then governor, presented Woiwode with the state's Rough Rider Award in 1992, he said Woiwode was selected because of his "work that shows the broader beauty of the truth prism of life here on the prairie and the broad beauty of the promise of humanity itself."

That statement applies as well to McGrath. Both writers catch life and land in their work with the precision of those who have paid attention for some time. And they transform it.

So here's another, more fundamental way in which to understand McGrath and Woiwode: they move us. Any piece of fine writing patches together fragments from different sources, fragments that carry their own experiences. The writer spins those bits and pieces into a poem or novel something that gives readers new ways to navigate the big, persistent questions of life: honor, beauty, love, duty.

Maybe it's a cosmic gift that both Woiwode and McGrath are linked to the same place, this place of few voices, "out here on the edge," as McGrath once said. Of course, that place is also the larger one. We read and we recognize it as we're moved, at last, outside and beyond.

- Kathy Freise

Mc Grath

letter from an imaginary friend an homage to tom mcgrath

by Larry Woiwode, poet laureate

"You're a fox."

These were the first words I spoke directly to him, after we moved through a smoke-stained joint in Grand Forks, a neutral zone during a Writer's Conference War, as it felt, and sat across a table with our steins. He drew back, as if I'd caught him at something or named a familiar, and said, "Where did you get that?"

From the way he negotiated a variety of setbacks, I suspect, and the wiliness in his writing.

"It came to me."

We talked and corresponded and met when we could, appeared together onstage several times, and now that he's gone, bringing to an end a certain sort of partnership — we worked on separate views of North Dakota but held a similar outlook — my attempts to order the fragments I hold of him, other than his work, have the feel of trying to assemble some vital force, a foxy cyclone or zephyr through a coulee.

I believe I had mentioned to them that this was one of the poets I admired most, and anyway children at their age understand Dad Tiptoeing on Eggshells better than Dad.

He loved the long shot, the tossed pebble accreting a whole world, the excoriating invective, his sentences among the best listened to to meet a page, their rhythms deepening over every reading, reaching beyond his exemplar, Neruda (though I suspect he suspected this), who ended loping and yowling after the Nobel. Tom, well enough satisfied at home, endured all that arrived with one hand supporting his Borglum face,

then flew off above the blue mountains, and kept on going. He continues into the consciousness of all who will dare read him.

The day I heard, before it was official, of a process underway for months — that I would be poet laureate of North Dakota — I thought, "It should have been Tom!" But by then he was gone. And when I learned that the post had been vacant for nearly a decade, I said, "Why wasn't our real laureate, McGrath, ever in the post?"

Politics, my boy, he might have said. Roman politics.



pictured left to right: Woiwode, Kathy Anderson and McGrath

The great poet of our state, the one who should have been its laureate for decades, is Tom McGrath.

So let me reduplicate the speech I gave before Governor Schafer and Nancy, my wife and family, a representative and a senator, and those who sponsored the event:

Governor and Mrs. Schafer; members of the North Dakota State Legislature, the State Historical Society, the State Library; members of the Center for the Book, responsible for the arrangements today; family and friends and readers:

Thank You.

I might refuse this honorary office — indeed I receive it as an honor — if I hadn't hoped to be a poet most of my life. In fact, I often think of myself as a poet who has turned to fiction and biography to support my family in my need to be a poet.

I'm not a special person, no different from the fellow down the road or across the street, which isn't false modesty. I'm a native son of North Dakota farmers on both sides, for as far back as I care to trace; my great-grandfather homesteaded in the state when it was still Dakota Territory, in 1881.

I'm probably as proud as anybody who is a farmer to be a farmer, which I also try to be part time, knowing, as most here have learned, that no real living attends the family farm nowadays. The work of writing, especially poetry, is a lot like tillage — trying to line up a fresh crop in clean neat rows. The gifts or talents I have for that I've been given by God, and I acknowledge that. I won't take the easy way out, either, and blame Him — I mean God — for my failings or lack of focus or discipline.

I have the Dakota Rebel in me, too.

Looking through one of my notebooks from years ago for an encounter I'll mention in a minute, I came across this: "If my work hadn't been written by me, would I pay that much attention to it, considering the person I was as a young writer ...? It's taken me in directions I never would have believed I would go."

Again like farming, writing takes you where you never thought you would go. One of my directions was the path of a Christian — not an exemplary one, let me add. But it was writing itself, specifically the work on *Beyond the Bedroom Wall*, that led me there. The reviews of my books seemed to start to go bad about then, after I moved back to the state (no reflection on the place, of course), and I still find it odd that writing can lead one to misplaced ecology or Eastern religion, or no religion at all — nihilism — but cannot lead you to the faith of your mother or father. Both were Christians, and I'm a common North Dakotan, like them, in that, too.

Preserving the papers of North Dakota literary figures has been a priority of the North Dakota Institute for Regional Studies at NDSU since its founding. It has amassed a unique collection of papers and records relating to the literary heritage of the region. Later it became active in documenting the region's music, musical organizations, and theater. An overview, biography and inventory of Thomas McGrath's (Rhodes Scholar and poet from Sheldon, North Dakota) papers may be found on the Web at: www.lib.ndsu.nodak.edu/ndirs/collections/manuscripts/lit&music/McGrath/index.html

There's a story I've never told, perhaps because of its tang of self-congratulation, and I hope my indiscretion today will be tempered by the occasion. The great poet of our state, the one who should have been its laureate for decades, is Tom McGrath. I admired his work from a distance and then, a dozen years ago, appeared on the same stage with him — in this very building, in fact. We had worked together before, and he was not in good health now; he told me he'd had to have surgery on his spine "of a precarious sort." He was using a cane to walk.

After the event, and a brief visit with my family, I had to fly back East, where I was teaching then, and I was astonished to see that the last passenger to board was Tom McGrath. I had hoped to get together with him in Bismarck on my way back through, but he said he would be home by then, in Fargo, and now here he came, leaning on his cane, looking horrible, as if he'd heard the worst possible news over an awful weekend. I went up and sat beside him and learned that he had slipped from the edge of the bed in his motel room — a result of his injury and couldn't move to reach the phone. He had to lie on the floor until he was discovered. The surgeon who operated on him had warned him this might happen, adding, he said, that one day he might never get up.

Then why the surgery, I wondered, and he said, "The alternative



was waking up some day totally paralyzed."

I had been complaining about the reviews of my recent book and went back to my seat chastened. We landed at Fargo and I unbuckled myself, thinking I would see Tom off, and saw him working his way toward me with the aid of seat backs and his cane. He leaned down, out of breath, and said, "Forget about the critics. Your work — There haven't been such pure prose rhythms in American writing since Faulkner."

The weight of it hit me like a last goodbye; indeed, we talked only once more, and then on the phone.

So I accept the laureateship of this state in the stead of another native son, to honor that moment when our true laureate, in his overly generous statement, placed the mantle of his personal blessing on me.

He didn't view himself as an extraordinary person, either, (except in

those private moments that only a poet of his stature enjoys) but as one given gifts to serve a community, for its public good. I pray I may so serve, over my term as laureate; and, if so, I hope it will be said as it is in one of the widest of communities in the world, in the words Johann Sebastian Bach used to write with solemn glee at the bottom of every sheet of music he composed: Soli Deo Gloria.

In an earlier, happier era, the mid-seventies, at a time when I was living in New York, I picked up the American Poetry Review and found in it a large part of the final section of Letter to an Imaginary Friend, and was astonished to see the editors refer to Tom's consuming project as "the best book-length poem since Whitman."

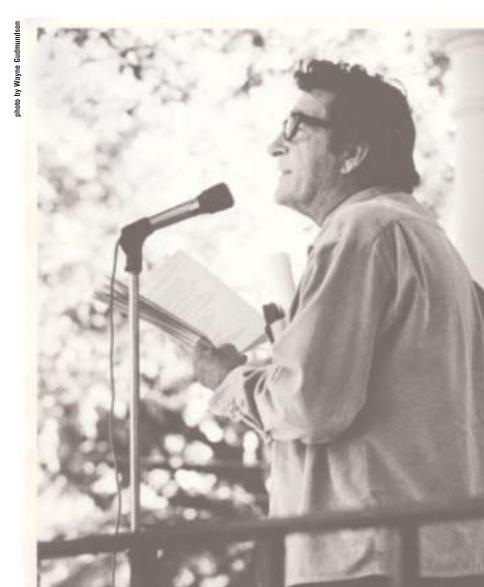
Two years later, when I had moved with my family back to North Dakota, Tom the Fox was smiling at me from the couch in his humble house in Fargo, where my wife and I were visiting with our children. I believe I had mentioned to them that this was one of the poets I admired most, and

He didn't view himself as an extraordinary person, either ... but as one given gifts to serve a community, for its public good.

anyway children at their age understand Dad Tiptoeing on Eggshells better than Dad.

I asked him what he was working on with

the penitential ambition of a combatant — because I often found myself at odds with his interpretation of IT ALL; at some junctures of Letter to an Imaginary Friend, I could barely read on, or didn't, in my disagreement with his too



far-flying constellations of antieverything, or communistic excuses, as I saw it, then at the most pompous age, thirty-five, and he said, "Oh many, too many things. What I'd like to do is fix up a footlocker of poems I've put aside undone."

Perhaps he said Sea Chest, forever flying crossbones above his gentlemanly craft: anyway, Sea Chest is the way I see it, bound with brass bands.

Britain? I asked, as if it were relevant (or maybe it was) to those manuscripts — poems from there is what I meant, I think. He considered a moment, clearly thoughtful, a dark-brown, 100 millimeter lady's cigarette gripped between the fingertips touching his forehead: "Well, buggerall."

He was a Rhodes Scholar at Oxford, and his politics, professorships, movie-making and the rest, others have attended to, though most skip over his moment of murder; He's killed a man, I sometimes thought, feeling a sensation over my face like a resistant hand — his literary and political or political-literary fixes, such as being summoned before HUAC in the fifties, when he said, for starters, "After a dead serious consideration of the effects of this committee's work and of my relation to it, I find that for the following reasons I must refuse to cooperate with this body."

In his later age, he wasn't always resident in the communist hermeneutic bubble; more in love with locals and their plans for themselves on the landscape he loved to walk and write about, settled into a vexed but humorous disgust at humankind, Twainlike; You can go home again, he said, in his actions and his work; the idea that you couldn't was the silly supposition of some meatheaded sap. "Nowhere like it, Larry!" He had a persona but he was also the person he was.

"This writing business is more dangerous than the worst Caesar's Roman politics" — a message from him that arrived on a postcard, and caused me to sit in my office chair as grade school principals had a way of sitting me down, as if to say, "Now, look, Larry ..."

In the early eighties we took part in an evening called "The Land and Literature," or something similar, a forerunner to our final meeting, and in the midst of our agreeable exchange, abetted by an intelligent young woman urging us on, he leaned into his microphone and said to the audience as he stared at me, "If this guy is a Christian, he's the kind of Christian I can live with" — his words preserved on tape by the State Historical Society.

I first felt like laughing, but now believe it's the most complimentary statement that's been made in public, before or after, about the practice of my faith.

Later a typed letter, bristling with corrections, with this note scribbled in longhand in a margin: "God may be able to forgive the errors of this grad assistant I've been assigned, but I can't!"

A further acknowledgment of my faith, and his only admission that he had contemplated a God who forgave — but perhaps could not forgive the blasphemous rhetoric about Him, which could cause one to feel severed from His true community, in its many imperfections, in North Dakota.

His wish to finish more was granted, as his suggestion of a sea captain intimated; he wrote more poems than most critics can tabulate: *Letter to an Imaginary Friend* was bound in a volume, he brought out three books quickly after that, besides chapbooks, broadsides fit for framing, a manuscript-sized book, a collection of short songs, and a sequence for Tomasito, the son who brought him such joy in his last years.

Bareheaded, sometimes wearing a ragged or battered cap, usually a regal scarf, clothes well pressed, mouth set in adjuration of An Other, shaggily-browed eyes with the baleful glare of a hawk, a kestrel, kindled fire aflash, O dear and memorable man, always anyway past us, master who taught us to talk from the inside — this from one who would like to be a friend like you: Thank you for it, for all of it, for every hour and line of it. Thank you, *il miglior fabbro*, dear dead comrade, thanks be to you.

Amid Salutations, Larry



PUT YOUR FINGER ON IT



TRACKING GADGET GIVES PROFESSORS INSIGHT INTO WHAT STUDENTS ARE LEARNING



A bespectacled, slightly rumpled man with a radio-announcer voice, Jeff Gerst is animated, funny and passionate about biology. Even so, he has struggled with teaching in large lecture halls. "In the past, I would ask a question, nobody would know the answer, and so I'd wind up picking on the people in the front row," Gerst says.

A new technology helps Gerst keep track of every person in a large class, including the students nodding off in the back. Gerst is one of many teachers on campus who use the wireless personal response system that packs enormous potential.

The system — palm-sized transmitters, portable receivers and software — requires every member of a class to answer the instructor's questions. Students use the transmitters to register their answers

They say the traditional mode — one person lecturing, students taking tests based on memorized, soon-forgotten facts — does not engage today's young minds, which were reared amid the interactive, non-linear world of cyberspace.

Problem-based learning represents a whole different pedagogical approach. It veers from passive listening and memorization to participation and problem solving. It looks at big pictures and multidisciplinary methods vs. rigidly defined subject areas and the accumulation of isolated bits of data.

At NDSU, the charge for problem-based learning — or "PBL," as acronym-happy academia calls it — is led by Sudhir Mehta. A long-time professor of mechanical engineering, Mehta taught in the traditional vein for years, until a 1991 education conference changed his life.

model, there is very little engagement or problem-solving or challenge," Mehta says. "In real life, your boss is not going to come and tell you, 'OK, this is chapter 1, this is how it works and I'll give you an example from the end of the chapter."

Nationally, NDSU is a rarity for the number of instructors qualified to teach this way. In the Upper Midwest, the university stands alone.

Students report the little gizmos force them to try harder during lectures. More importantly, the interactive tools make students show up in the first place.

Attendance numbers rise 40 to 45 percent when the units are in use.

Not all students like it. Many are used to a traditional classroom setting, and are not thrilled about a strange new world of learning

"In real life, your boss is not going to come and tell you, 'OK, this is chapter 1, this is how it works and I'll give you an example from the end of the chapter."

and, if they're feeling especially bold, their confidence level with the answers.

The system tallies the students' responses, projecting a bar graph on a large screen. The display tells students if they're getting a concept, and teachers if they are conveying it.

By now, it's obvious this technology is about more than gee-whiz gadgetry. It's about something that many educators on campus have committed to: a renewed emphasis on learning.

The commitment seems so obvious as to be laughable. Isn't that automatically the No. 1 goal of any educational institution? Still, many people who study pedagogy, or the science of learning, maintain our old system isn't working.

There, nationally respected educator Patricia Cross spoke about the process of learning. "The real intellectual challenge of teaching lies in the opportunity for individual teachers to observe the impact of their teaching on students' learning," Cross told the audience. "And yet, most of us don't use our classroom as laboratories for the study of learning."

From that point on, Mehta began to turn his attention from the science of robotics and computerized machine vision systems to the less calculable science of learning. Now, as associate vice president of academic affairs at NDSU, Mehta is in a prime position to influence the university's culture of learning. "With the (traditional) type of

beyond the textbook. Mehta tells of a senior-level course he based entirely on PBL. "They said 'it's too late for us to learn now in this different way."

"Hopefully, we will grow that culture so resistance is very minimal," Mehta says. It's a culture that could eventually stretch far beyond college campuses.

"If we can somehow start changing so the curriculum is somehow more engaging, more connected, more real-life," he says, "then I think it will be more fun for students and teachers."





t's a big night at the Warner Brothers'
Studio in Burbank, Calif. The Eastwood
Scoring Stage sound booth is packed with
onlookers, from 20-something interns to
a baby dressed in a tuxedo. The tables are
heaped with enough food to make Homer
Simpson sing: pies and cold cuts and crudités
and even Butterfingers.

Everyone seems to be snapping pictures. A 36-member orchestra runs through musical cues, as a clip from the Fox juggernaut "The Simpsons" frolics on a large screen behind them.

Tonight, they're recording the score for the landmark 300th episode of the show, the most successful TV sitcom in history.

"Simpsons" creator Matt Groening has dropped by, as has Dan Castallaneta, the actor who produces the voice of Homer Simpson, America's favorite buffoon. Castallaneta takes a turn at the microphone to address the crowd.

"Do you guys know 'Funky Town'?" he booms in his Homer-iest voice.

Onlookers and musicians burst into laughter, but one man there may relish the quip more than anyone.

As "The Simpsons" composer, Alf Clausen not only knows "Funky Town," he could arrange it for 21 bagpipes and one kazoo. After all, his duties have ranged from writing a take-off of Iron Butterfly's endless "In-A-Gadda-Da-Vida" for church organ to arranging an Italian tarantella for obscure East Indian instruments. Clausen — whose 13 years with the show has required producing a panoply of music for weekly consumption — has proven to be as creative as he is prolific.

All Homer antics aside, Clausen is the ring-leader tonight. Dressed in a black shirt and gray trousers, he is short and stout, with cherubic cheeks and trademark owl's-eye glasses. He looks like he'd be right at home in a "Simpsons" cartoon.

But he's really just Alf, a North Dakota boy who is living his dream. He's a man who excels at the delicate task of writing music that no one notices. And he's a survivor who has lasted 36 years in a notoriously tough and fickle business.

Take that, Homer.

The musicians clip precisely through "cues," snippets of music that define a key emotion or scene. Tonight's cues range from glossy, glissando-wrapped melodies to a ditty reminiscent of Mary Tyler Moore's theme song.

Clausen listens to comments from the sound engineers through his headphones, then relays them to the players.

Clausen and company miss nothing, even as the music races by in seemingly flawless fragments.

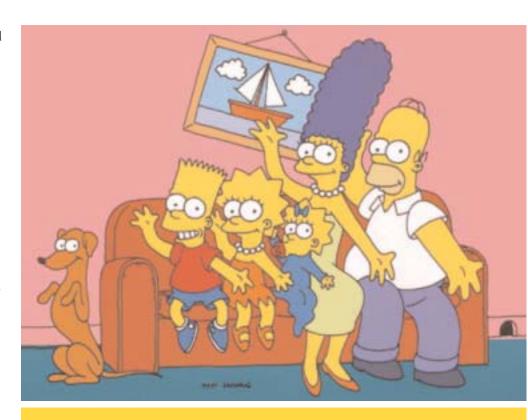
"There's a clam (musician parlance for mistake) in the middle of the trumpet section," they'll tell Clausen, or "Did Gayle hold back a little that time?" The short, fully orchestrated cues require a laserlike precision on everyone's part, and the experienced union musicians, some with Clausen since his showbiz beginnings, are up to task. They rarely need more than two takes to get it right.

Thirty-odd cues must be recorded tonight, but the mood is festive.

Perhaps it's because Clausen and crew have tapped this dance so often. Perhaps it's the chemistry between people who really enjoy being there. Whatever the case, the atmosphere is upbeat.

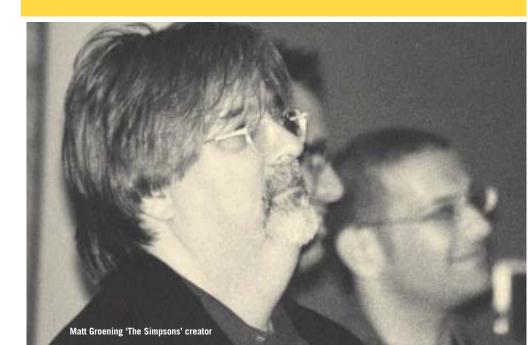
Before the night's first break, Clausen summons Groening to speak to the crowd. He praises the show's creator for using live musicians — a whole orchestra of them, at that — in a day when many producers opt for much cheaper computerized music.

Groening, in turn, pays homage



"the music on 'the simpsons' really helps anchor the crazy animation and the crazy writing and the crazy voices."

-groening



to Clausen and his team. "The music on 'The Simpsons' really helps anchor the crazy animation and the crazy writing and the crazy voices," he says. "Really, that emotional core is what has kept this show alive all these seasons."

Then it's on to the break, where a purple layer cake and champagne await. Cameras flash as Clausen is photographed arm-in-arm with colleagues and friends. Although several more hours of recording await, he looks relaxed and happy.

He seems right at home.

His real home is about 30 minutes from urban commotion, in an affluent community of new houses and horse stables built amid the arid beauty of canyons. The Clausen residence is roomy but not ostentatious: a new gray two-story affair with dark-red brick trim, a backyard pool, a guest-house-turned-music studio and a kitchen equipped with marble countertops and Viking appliances. "They better be good," Clausen quips, referring to their Nordic names.

As the composer relaxes in the living room a day after his recording session, he talks about how he and wife Sally use the kitchen to turn out lefse. Clausen is proud of his heritage. Like any good Lutheran boy, he met Sally in church. A wooden carving that spells "Uff-dah," the Norwegian word for all things beyond words, rests by his studio keyboard.

His Scandinavian roots even intertwine with work. One clip from the 300th-episode scoring

session shows Bart eyeing the mashed-potato bust of Homer he's built and, accompanied by Clausen's jabbing "Pyscho"-style score, flattening the spuds with his fork. The name of the cue:

"Mashed Potatoes Become Lefse."

Seems you can take the boy out

Seems you can take the boy out of lutefisk land, but you can't, well, you know.

Some deeper, more substantial characteristics might be attributed to his background as well.

"Alf is one of the nicest people in the business," says Judy Arndt Johnson, who, as a cellist in Clausen's orchestra from Grand Forks, N.D., actually understood his lefse reference. "He handles the dynamics of the group with humor, diplomacy and a keen awareness of the stresses the individual player faces during a recording session.

"He also makes the sessions fun, with a family feeling to our relationships and the occasional inside joke."

When Johnson's comments are repeated to him later, Clausen smiles.

"It's my North Dakota heritage," he says. "Absolutely. My parents taught me values, and they treated people pretty well. They had nice friends and I had good friends in school, and the work ethic gets taught to you the proper way."

Which brings up another point.

Although the recording session is behind him, Clausen has little time to kick back. He's on a rigorous production schedule, four shows in four weeks, and has just six days to complete the music for next Friday's recording session.

Clausen is used to the pace. He's had a long career in television — at one point, he composed music

for two shows simultaneously — and there's little doubt he'll meet his deadline.

Clausen's energy and drive, combined with an encyclopedic music background and a discipline not surprising in one who studied to be an engineer, have helped him become a rarity, a Hollywood success.

It's a long way from those traumatic early "concerts" in Jamestown, N.D., where a mortified Alf, then 5, was coaxed to wear short outfits and sing Norwegian songs for the good ladies of the local homemakers' clubs.

The performances were the brainchild of his mother, a Stutsman County home extension agent. "I'm surprised it didn't ruin me forever," Clausen says. "Oh, I hated it."

He recovered sufficiently to take up the French horn and choir in junior high and high school. At home, he was influenced by the new, raw power of rock 'n' roll, and listened to Little Richard, Fats Domino, the Everly Brothers and the King.

Although Clausen loved music, he still wasn't sure what he wanted to do after high school. Drawing on the results of his college entrance exams, he majored in mechanical engineering at NDSU. He was good at it, too, making the honor roll and winning scholarships. But then what he jokingly calls "an epiphany" hit, and his life was forever changed.

It was the summer before his junior year when Clausen traveled to New York City to visit his cousin, Harold Heiberg, a professional musician and dialect coach for



opera singers. Heiberg and his wife, Eva, went all out to entertain their country cousin, taking him to great restaurants and the original runs of Broadway hits like "West Side Story" and "The Music Man."

During an outing to the Randall's Island Jazz Festival on Long Island, Clausen was wowed by a trumpet phenom. Clausen turned to the

young man beside him. "Boy this trumpet player is really something," Clausen said. "Who is this?"

"Oh man, you've got to pay attention to this guy," he responded. "It's Miles Davis."

Not only that, it was Miles Davis' Kind of Blue Band, featuring jazz giants like John Coltrane and Bill Evans.

It was love at first sound.

"I came back to North Dakota a changed man forever," Clausen says. "I said to myself: I don't know how to get involved in this, but I just loved what I had experienced and somehow I have to figure this out."



"it's a strange existence to strive for the perfection of not being noticed."

— clausen

After his New York summer, Clausen lasted less than a quarter in engineering. When his adviser informed him he had earned another \$500 scholarship, Clausen had to say, "Well, thank you very much, but I quit."

From that point on, Clausen was driven to do whatever he could musically. He played French horn for the F-M Symphony and NDSU's Gold Star Marching Band. "I had that mouthpiece stuck to my mouth in freezing cold weather during those football games," he says.

When his friends started playing weekend gigs with Paul Hanson's orchestra, Clausen quickly realized the French horn wasn't his rite of entry into a dance band. So, with a crash course from then-NDSU band director Bill Euren, he learned how to play string bass.

His first try-out with the orchestra was at Johnson's Barn, a popular dance hall in Arthur, N.D. "By the end of the night, my fingers were bleeding. They were wrapped in tape. I had no calluses," Clausen says. "But he hired me."

Now an avid jazz fan, Clausen also took up baritone sax to play in the Statesmen, the official North Dakota State stage band.

He graduated from NDSU with a music degree in 1963, again not knowing what to do. A plan to pursue a master's at the University of Wisconsin, Madison, fell flat when his instructor told Clausen he might be better suited to writing than playing French horn professionally.

The statement was infuriating, if prophetic. Back at NDSU, Clausen

had taken a correspondence course in music arrangement and composition from Boston's Berklee College of Music. Clausen found the field so fascinating that, upon completing the course, he asked his Berklee instructor how he could learn more. The answer, naturally, was to come to Berklee.

Clausen packed up his Volkswagen bug, threw his string bass over the seat backs and headed to Boston.

"It was the smartest thing I ever did," Clausen says.

Once he found his niche, nothing could stop him. While shoehorning a four-year course into two and a half years, Clausen played French horn and string bass for school and community groups, taught part time, wrote arrangements for singers and did whatever brought home a little cash.

"I used to copy big-band arrangements for Berklee Press in ink for \$5 a score," Clausen says, laughing.
"Now I think, man, I was nuts."

Ironically, Clausen also wound up teaching the same correspondence course that had hooked him on composing.

After receiving his master's and teaching for a year, Clausen and then-wife, Judy, started looking westward. Boston was expensive and, due to the glut of music students, offered a low wage scale for musicians.

Los Angeles, on the other hand, seemed like a great place to raise a family.

The timing was right. In 1967, many of the big television shows,

like "Carol Burnett" and "The Tonight Show," were moving westward as well.

There was work for everyone, including Clausen.

Clausen may have lived in LA decades before anyone played "Six Degrees to Kevin Bacon," but he discovered early on the power of connections.

After moving to the West Coast, a former student from his Berklee correspondence course gave Clausen a lead on a bass-playing gig with a lounge trio. Clausen devoted nights to working as a musician and days to trying to launch his composing career.

One day, he received a panicky call from a friend who was a rehearsal pianist on a TV variety show. The man needed an arrangement for a solo artist slated to appear on the show, and the music director was occupied with something else. Could Clausen do it?

"How much time do I have?" Clausen asked.

"Well, we're recording it tomorrow at 8 a.m.," the friend said.

Clausen labored over an arrangement all night, sent it via messenger to be copied at 4 a.m. and went to bed.

At 11 a.m., his phone rang. It was Tommy Oliver, the show's music director, and he loved what Clausen had done. Would he be interested in joining "The Donny & Marie Show"?

You bet he would. He worked as an arranger for one season. Then Oliver left the show, and Clausen became the music director for its third season. The ABC series was at its peak, featuring lavish production numbers, bejeweled costumes and flavor-ofthe-day guest stars like Andy Gibb.

Clausen wrote or supervised all arrangements, worked with the show's choreographer and conducted a 13-member orchestra some of whom are still with him.

He found the wholesome brother-sister duo to be "fabulous, real quick studies, and the best people at lip synch I've ever seen."

Eventually, however, the Osmonds moved the show to Provo, Utah, closer to the family's Mormon roots. For a while, Clausen endured a grueling plane commute to Utah each week. But when the family decided to keep the production there for good, he had to move on.

Clausen didn't stay idle long. Through one of "Donny & Marie's" producers, he became music director for a new CBS variety show starring Mary Tyler Moore.

The series was short-lived, although it featured future showbiz names like David Letterman, Michael Keaton and Swoosie Kurtz. "I have tapes of Michael Keaton and David Letterman prancing around in bunny costumes," he says, chuckling. "Great blackmail material."

By now, TV variety shows were fizzling, and Clausen had tired of the grind of working on them.

He set his sights on the next

logical step: feature films. It wasn't an easy transition. "LA being the funny town that it is, you get really, really typecast," he says. "They wouldn't hire me to work in the film business, because I came from the tape television business. According to that, you don't know your craft."

Clausen found himself starting over, orchestrating for established film composers. The experience proved fortuitous. As Clausen polished his skills, he met important composers like Elmer Bernstein, Lalo Schifrin and Lee Holdridge. He and Holdridge became friends. In fact, it was Holdridge who made sure Clausen orchestrated the pilot for a witty new ABC vehicle called "Moonlighting."

With Holdridge's help, Clausen soon became the composer for one of the most popular shows on television.

Never one to shirk hard work, Clausen took on another project titled, oddly enough, "Alf" — while composing for "Moonlighting."

The work was intense, sometimes exhausting, but Clausen embraced it. "The curse of this industry is the idea that you're never going to work again," he says. "When you're self-employed and you don't know where your next check is coming from, you get this thing like, 'Well, if I get an offer, I'd better take it, because I may not get an offer next week."

Unfortunately, Clausen's fears almost became fact. When both shows ended, he found his career at an unprecedented standstill.

For four years, he had been busy and productive, working on two highly successful shows. Now, for seven months straight, he couldn't get work. He feared he was washed up.

Connections would again save the day. In desperation, Clausen called his long-time friend Jules Greenberg, a percussionist with plenty of industry contacts, and asked him to pass along any job leads.

A couple of weeks later, Greenberg called to say his nephew was working on an animated TV show called "The Simpsons." The creators were starting their second season, and they wanted to change composers.

Clausen walked into his first interview with Simpsons creator Groening without having seen an episode. But Groening gave him the perfect direction. He said he wanted a composer who would score the show not as a cartoon, but as a drama in which the characters were drawn.

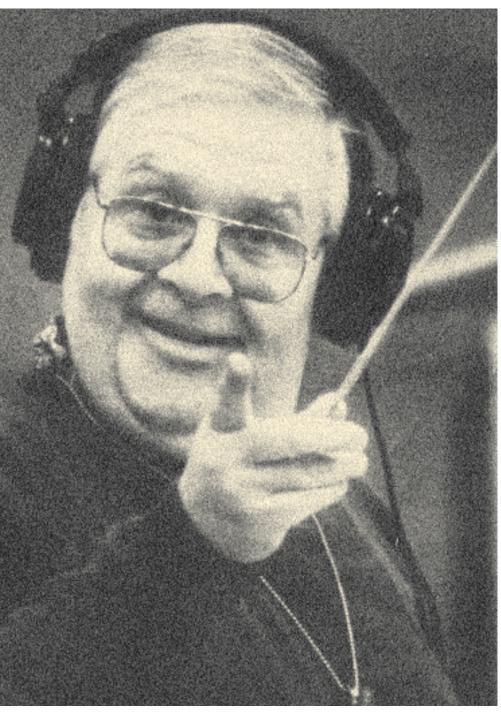
"That has stuck with me the whole time," Clausen says. "It has been the driving force for doing the score."

His try-out involved composing 42 cues for the show's first "Treehouse of Horror" Halloween special.

Clausen asked if the cues could be split into two scoring sessions, figuring that special request alone would destroy his chances. But the producers consented, and he got the job.

He initially wrote just the underscore, until the producer who composed the show's songs left the





TM7
"You Don't Know Jack, Son!"

Composed by ALF CLAUSEN (ASCAP)

St. Mute

28 NDSUmagana 4

2 3

show. Suddenly, Clausen found "songwriter" added to his job description.

It turned out to be the perfect fit. The breadth of Clausen's musical knowledge formed an ideal backdrop for the show's sly pop-culture references, eccentric characters and screwball situations. On any given week, he might be called on to create a rousing "Music-Man"-style number to sell a monorail scam to Springfield's citizens, or an anthem for the Stonecutters, the town's bizarre secret society.

He occasionally was asked to create music for instruments he scarcely recognized. One episode involved the wedding of perennial Kwik-E-Mart employee Apu and his new wife, Manjula. The animators drew an East Indian wedding band, complete with sitars, Indian drums and shenais, a high-pitched instrument used by snake-charmers.

Not exactly something he could pick up at Guitarland.

To complicate matters further, the writers had Homer approach the East Indian players and request they play Italian celebration music.

Clausen not only had to round up several shenais, he had to find musicians to play them. In the end, the music was recorded using a mixture of real instruments and recorded samples. When the tarantella-by-way-of-Bombay was complete, one of the musicians walked up to him and said, "You know Alf, we want to thank you. You've taken us places we've never been tonight."

The show's penchant for guest stars means Clausen has written music for everyone from Mick Jagger to Bono. He remembers the session with U2's frontman particularly well. The soundbooth was filled with at least 50 people, many from Bono's sizeable entourage.

As the Irish singer crooned his way through a Clausen ditty called "The Garbage Man," the composer found himself telling one of pop's most revered vocalists, "That was pretty good, but it could be better."

Bono — accustomed to doing what was required to get the best take — took it all in stride. But the gasp from his minions was audible. "People were going nuts," Clausen says. "They couldn't believe I was telling Bono what to do."

And so lies the dichotomy of Clausen's duties. On one hand, he writes the songs, often flashy showstoppers using A-list stars. On the other, he's creating the background music, which intertwines so closely with the scene that it's virtually imperceptible.

In such cases, if the music's emotional heart is felt, that very thing Groening wanted from the show's inception, then the music has done its job. Sometimes, if a scene's animation or writing isn't quite up to the show's usual standards, the producers actually call on Clausen's music to save it.

"It's a strange existence to strive for the perfection of not being noticed," Clausen says, laughing.

In fact, he has been noticed, many times. A display case in the "people were going nuts. they couldn't believe i was telling bono what to do."

— clausen

Clausens' foyer showcases two
Emmy awards, three Annies (the
Oscars of the International
Animation Society), three
International Monitor Awards and
numerous trophies from the
American Society of Composers,
Authors and Publishers. His music
has garnered a total of 22 Emmy
nominations.

His work also has been show-cased in two popular CDs — "Songs in the Key of Springfield" and "Go Simpsonic With the Simpsons" — plus the recently released "Simpsons Songbook," which Clausen produced and personally proofread from cover to cover.

All this, while following a grinding schedule that includes 24 to 28 episodes per year.

Miraculously, Clausen has avoided burnout. He attributes his productivity to the desperation of creativity by deadline.

"I don't have the luxury of walking in the park and waiting for my muse," Clausen says. "There's no time to second-guess anything. You just have to slam it."

So what on earth will he do when there are no longer deadlines

to meet? After all, it's inevitable "The Simpsons" will someday leave town.

He admits he's thought about it. A lot. One can't be involved in a long-lived, hugely successful series without wondering when the gravy train will derail. Especially in a strange land like LA — where today's hot new discovery is tomorrow's has-been, where the culture is so youth-obsessed that Clausen won't share his age in interviews.

Clausen actually would enjoy having more down time to spend with his kids, some of whom are following in his footsteps. He has three children from his first marriage — Karen, an editorial assistant and mom of granddaughter, Charley; Scott, a composer for Nickelodeon's "All That" and the WB's "What I Like About You;" and Kyle, a second-generation Berklee graduate who works as a tech support representative and recordist. He also is close to his stepchildren — Josh, a San Francisco architect, and Emily, a public relations assistant in Beverly Hills.

"We're really proud of them all," he says.

Professionally, Clausen would probably take a break from the demands of television and try his hand at feature films. With the credibility of creating beloved music for a beloved show, he surely should find it easier this time around.

"Maybe this job will end, but my career will not end," Clausen says.

—Tammy Swift



Kevin McCaul

Professor of psychology, gardener, aspiring song writer, Kevin McCaul has been at North Dakota State University since 1978. He has held an array of administrative positions, including department chair and interim dean of two colleges. Among other achievements, he was awarded the prestigious Faculty Lectureship in 1990. He holds one of only a few Senior Investigator Awards in the behavioral sciences from the National Cancer Institute. He makes lists.



Until you care about what you're doing you're not going to do very well.

I also believe that chance plays such a big role in what we end up doing in life because we all can point to instances where just by chance this happened and it threw us in this direction.

I got into one of the three schools by chance — partly by chance — and what if I hadn't? I have no clue what I'd be doing but I wouldn't have gone to graduate school, I wouldn't have gotten a Ph.D., I wouldn't be teaching. Something else. I wasn't driven.

I think kindergarten and first grade teachers have a huge responsibility and also a much harder job than what we have.

My best teaching isn't done in the classroom at all, it's done with the students who do research with me and that's what I enjoy the most because that's where you really get to know the students.

I get nervous at every single class before I start. And I've been doing this forever.

I want students to come out thinking differently about the world.

In part what you do in at least some psychology classes is you have to combat common sense or naive psychology or even well-learned stereotypes about the way people interact with each other. There's data that show that men, if they're talking to an attractive woman and if she's pleasant to them, most men will go away with the assumption that she's interested in him. There's good data to show that's true. But it's not true. So disabusing them of that stereotype and teaching them a different way of looking at those interactions would be a fun example.

Research does tell us things sometimes that don't fit with common sense.

Our assumptions about the way the world works and the way people work aren't always right and it's really cool either when you find out that you're wrong about the way the world works or when you have a little bit better explanation.

My big research interest these days is in worry. I study worry as it relates to health.

I don't think it's necessary to worry but I don't think it's such a bad thing to worry either.

I am a psychologist. I can't treat patients, nor would I want to. I actually tried that in graduate school. I treated one of my friends who had claustrophobia. It was entertaining to try and treat her. I have seen her recently and she still has claustrophobia, so I wasn't very good at it. I've always liked the applied end of psychology.

Social psychologists are testing the idea that much of our motivation to maintain self esteem is driven by fear of death. That's an interesting one. It's very Freudian. In fact, Freud's made a big comeback in social psychology in the last decade.

Being able to hang on to the idea that you're a good person, that you're valued, somehow staves off what otherwise would be bothering you all the time—the knowledge that you're going to die.

It's stuff like that that makes you like social psychology, even if you don't quite buy it.

Fear of the future is probably not a good thing. A little bit of worry about the future, on the other hand, helps you regulate yourself. It helps you do things to change the future.

I grow all that stuff in my basement from seeds, partly because it makes the winters shorter.

I would like to write a book. Although I find the older I get the less funny I am. To anybody.

I'd like to write one song. It could even be pretty bad.

2000ES Engineering a better bone builder

or Jang has built a crude machine so his mechanical engineering students can experiment with a process called free-form fabrication. The gadget, which looks a bit like a mutant drill press connected to a desktop computer, is a highly maneuverable nozzle. Actually, it's a robot with one or two nozzles, which are capable of moving in three dimensions: height, width and depth. The computer manipulates the nozzles to perform an intricate dance — up and down, in and out, back and forth — until they create a three-dimensional plastic object. A collection of beige plastic vases and oddly shaped sculptures adorn a set of bookshelves in the lab in Dolve Hall at North Dakota State University, simple testaments to free-form fabrication, objects made without a mold.

A much more sophisticated counterpart machine of Jang's design can be found at NASA's Johnson Space Center in Houston. The space agency is interested in the possibility that, someday, computer-assisted-design specifications for replacement parts could be beamed up to a fabricator onboard a spacecraft or space station, a means for machines to regenerate mechanically. But Jang, who has 16 or 17 patents in free-form fabrication, together with a team of colleagues at NDSU, is engaged in research that's much more down to earth, involving an application for people, not machines: tissue engineering bone.

Bone holds many marvels. Its components are living and nonliving, hard and soft, solid and porous. An intricate honeycomb interior enables bone to provide the strength of steel with the weight of aluminum — and, unlike inanimate metal, broken bones perform the trick of healing themselves. But it turns out that, given the chance, our bones really are lazy. This becomes a problem when diseased or broken bones are given artificial substitutes. Take the hip replacement, for example, a common therapy for elderly arthritis sufferers. A surgeon removes the diseased hip and replaces it with one made of plastic or metal, allowing the recipient to keep walking. Gradually, however, the surrounding bone, which no longer carries its customary burden, becomes "lazy" and deteriorates. Then, maybe eight or ten years later, the replacement hip must be replaced — subjecting the patient once again to painful major surgery.

To get around the shortcomings of artificial bone replacements, Jang's team is trying to find a way of building a latticework "scaffold" — a honeycomb structure similar to bone's natural honeycomb interior — inserted surgically to provide support so the bone can better heal itself. In his office,

Iang keeps a beige plastic prototype of a scaffold, with honeycomb chambers to allow room for new bone cells to adhere and grow.

"Then the beauty of this is we can design a material in such a way that it can be absorbed by the body gradually," Jang says, "so you don't need an additional surgery step to remove it." For that to happen, his team is searching for a material that will break down and be absorbed by the body's natural metabolic processes. "Disappearing" medical materials have been used for years, as in the case of surgical stitches that dissolve.

The task becomes much greater, though, when the material must serve as a support structure, or scaffold. Also, each scaffold must be individually tailored for a patient's size and shape. The idea is to take a CT or MRI scan, which can provide 3D pictures of a hip joint or knee bone, and use the image to fabricate a scaffold of exactly correct proportions. Also, in the early stages, the material must be capable of helping new bone cells thrive and multiply, gradually eliminating the need for the scaffold. By altering the structure, engineers can control the rate at which the scaffold dissolves.

The challenges that must be overcome are many and complex, however, in order to devise a suitable "biocompatible" scaffold. To succeed, specialists in many disciplines will work together. Jang's

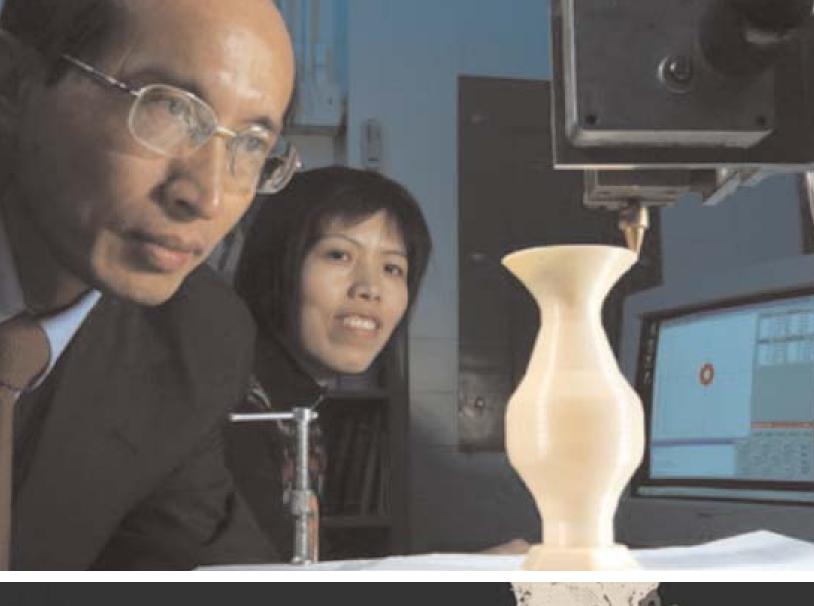
NDSU collaborators include Josh Wong, a fellow mechanical engineer and materials scientist; Qun Huo, a polymer chemist; James Stone, a design and modeling engineer; Kalpana Katti, a bio-physicist and material scientist; Dinesh Katti, a structural analyzer; and D.K. Srivastava, a biochemist. The NDSU team, in turn, is working with five biomedical specialists at the Mayo Clinic, where Stone once worked. "So we have a team of 10 or 11 really topnotch scientists," Jang says. "It's fun to work together. It's a very cooperative team."

Research teams all over are working on tissue-engineering projects, including biocompatible scaffolds. But the NDSU team brings an established track record to the initiative. Besides Jang's success, as measured by the patents he has obtained, other members have received major research funding for their work. Huo, for instance, has approximately \$500,000 in support from the National Science Foundation for her work involving gold nano-particles. Katti has received NSF grants of \$75,000 and \$375,000 to design new composite materials for bone replacement. "We are not just jumping on the bandwagon," Jang says. "We have a very good team. We can make very significant contributions in the future, I believe."

The bone tissue-engineering collaboration, which recently formed, hopes to receive funding support from outside the university. "But in the meantime we are doing it without research support," Jang says. "I have been very successful in the past in securing research funding." Among other things, Jang needs a much more advanced fabricator. "We are trying to build a very sophisticated version," he says. Jang and other members of the team hope to know if their work is on a promising path within a couple of years. If they succeed in developing biologically compatible bone scaffolds, clinical trials would be conducted at Mayo Clinic.

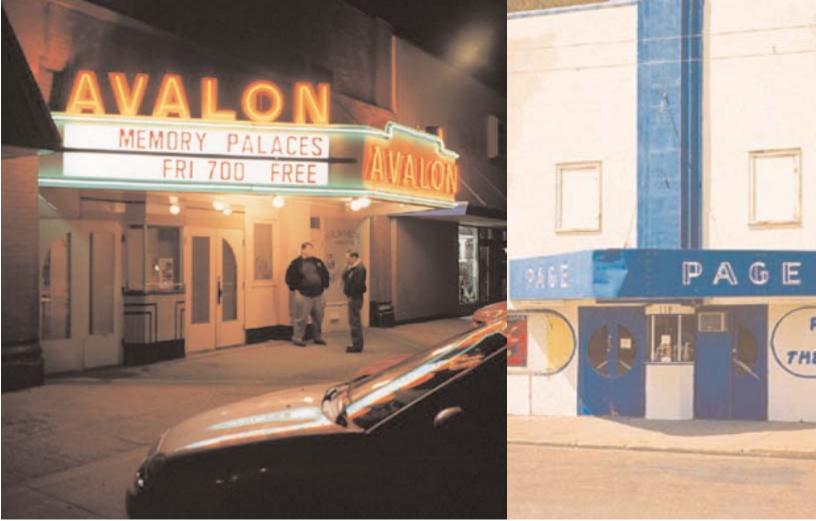
Jang is convinced that the convergence of free-form fabrication and tissue-engineering technologies will revolutionize medicine. Imagine, for example, that a tourist badly injures his knee while climbing the Great Wall outside Beijing. A Chinese clinic could transmit MRI images to a center at Mayo Clinic, which could fabricate a scaffold, then FedEx it to China. Or, if the patient already had an MRI of the injured part, the center at Mayo Clinic could transmit computer-assisted-design specifications for the scaffold to the Beijing medical center, where it could be inserted surgically.

"There are so many different things that can be done by using this technique," Jang says of free-form fabrication. Researchers hope that tissue engineering could provide the solution to the chronic shortage of transplant organs. "In the long term we are hoping to develop artificial organs," Jang says. "That would take hard work from many scientists, not just the group here."









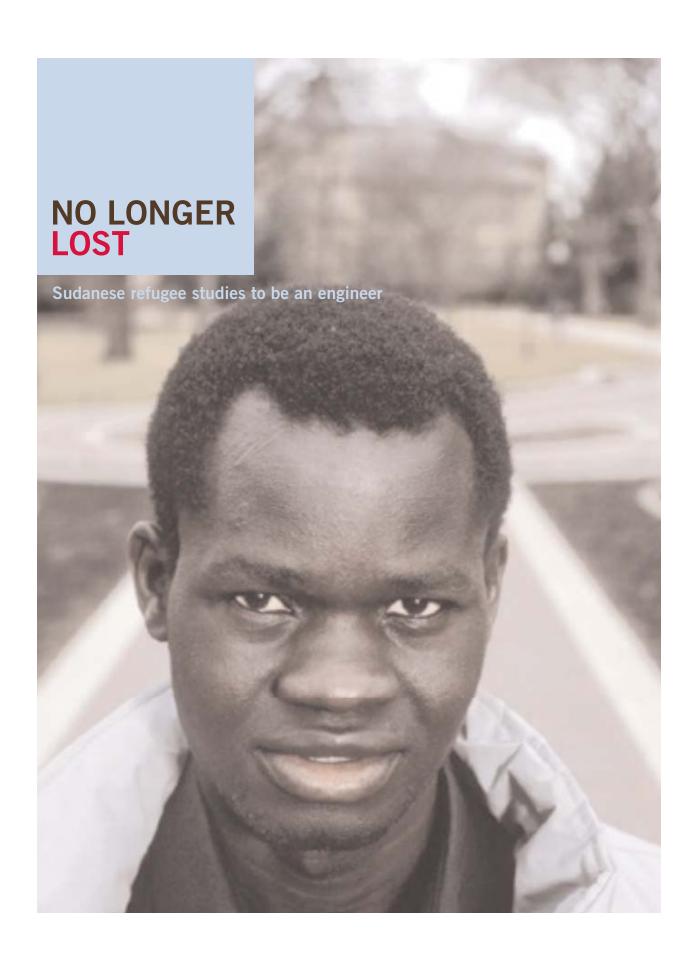
Larimore, N.D. Page, N.D.

little time machines

Tim Kennedy arrived in North Dakota in 1997. A new assistant professor of architecture and landscape architecture at NDSU, he decided to familiarize himself with the area. He wanted to see his students' hometowns. "The landscape tells the story of the people and the people tell the story of the landscape," Kennedy said. "I was going out there to see these small towns and find out what they could tell me about the landscape."

It's not surprising the historic theaters drew Kennedy's attention. "The showiest pieces on Main Street are these movie theaters," he said. And they come with a history. Once the hub of social activity, the local movie theater was the prime spot to be on a Saturday night. In many towns, that hasn't changed.

Kennedy now has a Great Plains Little Theater Project, complete with a Web site, www.ndsu.edu/ndsu/gplt, that includes photographs and basic facts about 29 small town theaters. He's using the site to collect and post movie-going memories from current and past patrons. Eventually the project may become a book. Funding for his work comes from an in-house grant and a fellowship from the North Dakota Humanities Council.



"I WANT TO DESIGN SOME BRIDGES, AND SOME DAMS AND ALSO ROADS. THAT'S WHAT I'M THINKING OF DOING WITH MY LIFE."

A lfred knew the lesson couldn't last much longer. It was about to rain, and while the tree provided protection from the Kenyan sun, it couldn't repel water. As the first drops exploded against hard dirt, the volunteer teacher dismissed the class.

Little boys scattered through the refugee camp in every direction, but without typical schoolyard glee. They would rather learn mathematics and history than sit idle in their tents. Besides, they couldn't play soccer in the rain either.

Today Alfred Ngong confidently strides across the North Dakota State University campus. This is his school now. He's one of several young men, known around the world as the Lost Boys of the Sudan, enrolled at NDSU. Ever since their arrival, the 40-some Lost Boys relocated in Fargo-Moorhead have sought after schooling like water in a desert.

The university counseling center reception area is routinely crowded with tall, thin, young Sudanese men. As they check in with photo IDs and greet each other in native Dinka, the atmosphere is at once nervous and cordial. All have come to take the English language proficiency test known as "The Michigan." A strong high school transcript, a good Michigan score and a satisfactory writing sample can get them accepted. Daniel Kuol

and William Garang — seniors at Moorhead Senior High — are back trying for better scores. The vocabulary section, they say, is difficult; there's not enough time to answer all the questions.

Ngong, who speaks four languages — Dinka, English, Arabic and Kiswahili — scored well on the Michigan. After one semester at NDSU, his GPA is 3.0. He studies six or seven hours a night for his classes in chemistry, trigonometry, psychology and Western civilization. His goal is to become a civil engineer. "I want to design some bridges, and some dams and also roads. That's what I'm thinking of doing with my life," he says, over a cafeteria lunch. That might mean returning to Sudan, but it might not. "Where I see there is a job available," he says, "I can do it anywhere."

Split by the world's longest-running civil war, Sudan offers Ngong little promise as a future homeland. His country has been at war for the past 20 years. Since 1983, nearly 5 million people have been displaced by the warring fundamentalist Muslim government of the north and the Sudanese People's Liberation Movement of the south. Church World Service estimates that at least 20,000 of the displaced

have been children, most of them boys fleeing conscription.

In the old days, before Ngong was born, spear-bearing men on horseback sometimes attacked his village. But the people of Awiel prevailed and kept their homes, cropland and livestock. Ngong and a brother shared their own little house in the family compound. In the summer he and his cousins took turns staying with their grandmother. At the age of 4 or 5, Ngong's job was to tend her sheep, goats, cows and donkeys. Each day he led them to one of many Nile tributaries that creep through the countryside. He loved to splash and play with other boys assigned a similar chore.

Then one day, government soldiers invaded Awiel — with guns. Fearing he would be taken as a slave, Ngong ran. Everyone ran. When he stopped, Ngong couldn't find his parents or his uncles or his brothers and sisters. They had disappeared.

What happened next is now legend. Hundreds of boys like Ngong — some older, some younger — banded together. Guided by a few elders, they began walking to Ethiopia.

It was a death march. The journey took three months. There was no food. No water. Lions, hyenas and other predators killed many along the way. Finally the survivors

reached Ethiopia. It would be their home for three years, until the government was overthrown and they walked back into Sudan. But their native land was inhospitable. Within the year they fled to Kenya, where the United Nations had established Kakuma refugee camp.

More than a decade passed before the story of thousands of Sudanese boys, orphaned by the war, would move the world to action. In 2000, Ngong became one of approximately 4,500 Lost Boys allowed into the United States. They hoped for freedom, for safety, their new "mother and father," but most of all, they hoped for education.

But there was a rub. Many were too old for admission in public high schools. Without birth certificates, ages had been estimated. Some agencies required that boys be accompanied by at least one person who was 21, which automatically kept them out of most schools.

Ngong and his cousins, Simon Leek and Santino Ajith, were fortunate. Despite the boys' official ages, West Fargo High School not only agreed to enroll them as students, but the teachers and staff took on responsibility for their well being. Moorhead Senior High School and Oak Grove Lutheran High School in Fargo also made special efforts to accommodate Lost Boys.

Word spread across the country:

In Fargo-Moorhead, you can go to school. More boys came from Florida, Mississippi, Washington, Oregon and South Dakota, straining resources of sponsors like St. John the Divine Episcopal Church in Moorhead. But somehow they managed. Volunteers emerged to teach living skills, give rides, provide driving lessons, find jobs, furnish computers, help pay utility bills.

Because of the boys' ages and inexperience, this has not been a typical or easy refugee resettlement. All boys who came to Fargo under the guardianship of Lutheran Social Services of North Dakota received at least eight months of support. Those attending school and living in foster homes can remain in the program until age 21. But since many Lost Boys were settled into apartments — in groups of three or four - when Lutheran Social Services' financial support ceased, they had to rely on county social services for food stamps and housing assistance. In some cases — like Ngong and his cousins — private citizens stepped in to pay rent so the boys wouldn't have to quit school and go to work.

As diplomas have been earned and GED tests passed, NDSU stepped up to the plate: It was time to put the university's commitment to diversity to a new test. In the fall of 1999,

NDSU admitted three or four Lost Boys. The fall of 2002, NDSU enrolled more than a dozen. In March of 2003, at least 10 had already applied for fall admission. "NDSU isn't able to provide support and systems specifically for the Lost Boys. We wouldn't want to identify ourselves exclusively as the 'Lost Boys University," says assistant director of admission Rhonda Kitch, "but I think word of mouth is powerful."

NDSU has developed special orientation sessions to benefit students like the Lost Boys. Admission staffers give extra help with financial aid applications and other paperwork. Students who don't score well on the Michigan can enroll in NDSU's Intensive English Language program. When their English is stronger, they can enroll in regular classes. The frosting on the cake is NDSU's five-year Cultural Diversity Tuition Waiver. The university awards 70 of these full-tuition waivers each year to eligible students.

Ngong got one of the waivers, so he's able to live in Stockbridge Hall and eat in the cafeteria. Most of his Sudanese friends live and work off campus. "They think nothing of working at demanding, physical jobs for 30 to 40 hours a week and then being full-time students," says Kitch. "I think some of them are the

"ALL OVER THE WORLD IT'S THE SAME. IN EVERY COMMUNITY THERE ARE GOOD PEOPLE, WHO CAN ACCEPT YOUR PRESENCE, AND THERE ARE PEOPLE WHO LOOK AT YOUR PRESENCE AS A MISTAKE."

best experts in time management I've ever met."

Ngong is like that. On any given day, he can tell you his exact strategy for fitting in classes, his work-study job at the library, meals and homework. "I'm never in my room," he says, and it shows. The only clues to his personal life are an empty Planters peanut jar and a few colorful shirts, packaged in plastic, splayed across a built-in dresser. The peanuts came from someone who knows he likes them. The shirts came from an African student in his campus Bible study who "wants me to sell them for him."

As he visits, Ngong fingers a church song sheet. It came from last Sunday's Sudanese service at Gethsemane Episcopal Cathedral in Fargo. Anywhere from 30 to 60 Sudanese attend the ecumenical services. Ngong is a regular and, if he can get up early enough, also attends morning services at St. John the Divine in Moorhead. There was a time, in Kenya, when Ngong thought about being a pastor. He'd become a church leader, choir leader and teacher. He'd earned a Kenyan Certificate of Secondary Education. But about the time he was being recruited for seminary, the opportunity came to study in the United States and that became his goal.

When Ngong reached North Dakota, he knew there was much to learn, especially if he wanted to go to college. The Rev. Alex Lodu-Kenyi, vicar at St. John's in Moorhead and a native of Sudan, was instrumental in getting many Lost Boys enrolled in Moorhead and West Fargo schools. Lodu-Kenyi is convinced the Lost Boys who graduate from U.S. high schools will do better in college, and in life, than those who do not.

It was Lodu-Kenvi who attended the first parent-teacher conference at West Fargo High School to discuss the progress of Ngong, Ajith and Leek. And it was at that conference that Betty Reverson, director of the school's English as Second Language program, told an over-extended Lodu-Kenyi, "We'll take on these three We'll get them settled." And so the teachers at West Fargo High School, especially Reverson and Spanish teacher Kathy Scott, assumed responsibility for the boys' needs, from academics to lessons in housekeeping. Eventually they enlisted the support of Congressman Earl Pomeroy, who met with Lutheran Social Services to encourage placement of Ajith and Leek in foster care in West Fargo and who also assisted in their

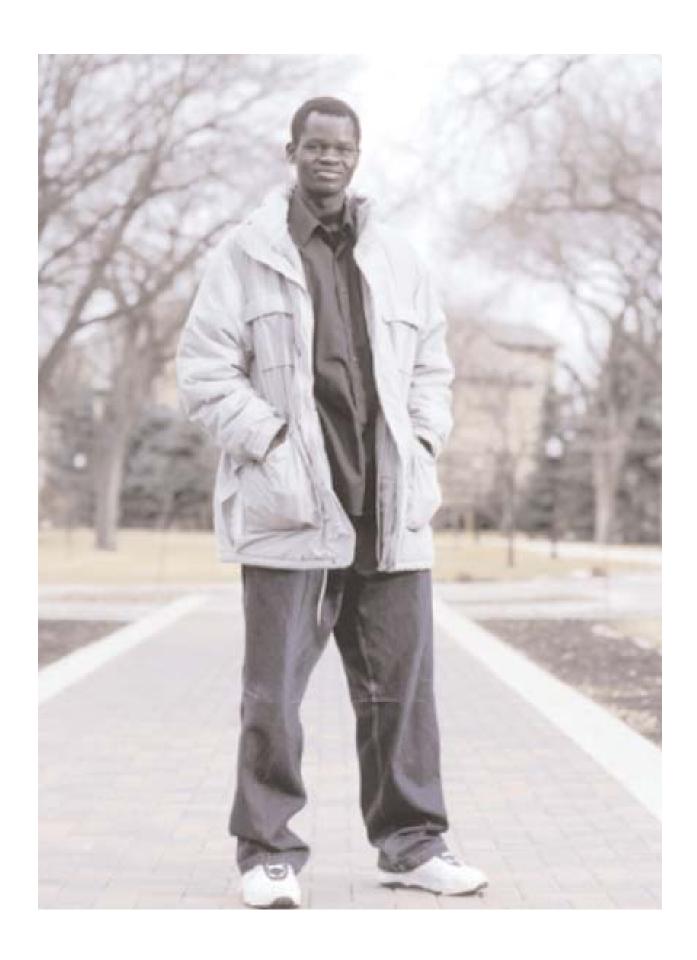
age reclassification. They'll graduate in May.

Ngong spent three semesters at West Fargo High. "From the minute I met him I knew he had his ducks in a row, because he came with a transcript," Reyerson says. For Ngong, it's always about learning. He even enrolled in summer school — after graduation — to strengthen his algebra skills. "He has qualities I don't see in a lot of high school kids," Reyerson says.

Ngong's conviction, determination and focus serve him well as a student. But socially, he knows he's on a learning curve. He worries about what people think when he turns down invitations to social events, yet he feels he must maintain school as a priority. He doesn't have much time to visit off-campus friends. There's no time for soccer. The only television he watches is the news. He doesn't smoke or drink, and he's not interested in dating ("girls are a waste of time").

Nothing in Ngong's new life can replace the thrill and camaraderie of the refugee camp choirs he spent four years conducting. "I was very good in singing Here I don't have anything," he says, sounding sad. "I don't participate (because) I don't see anything interesting like I used to do."

Still, Ngong is no wallflower. Coming out of chemistry class



"IF I HAD THE POWER TO CHANGE ONE THING, I MIGHT GIVE THE WHOLE WORLD TO SPEAK ONLY ONE LANGUAGE AND DO ONLY ONE THING: TO END THE SUFFERING OF PEOPLE ALL OVER THE WORLD, ESPECIALLY IN AFRICAN COUNTRIES. IF I HAD THE POWER, I WOULD BRING THE WORLD INTO A PEACEFUL MANNER."

on a Monday morning he makes plans with a guy from Stockbridge to study for a test. In trigonometry a young man in the next desk leans over and helps him punch the right calculator buttons for an in-class problem (Ngong would rather work problems longhand). And in a campus computer cluster he bumps into Abraham Deng, one of his friends from Kakuma.

Many of Ngong's fledgling NDSU friendships are with international students in his Bible study group. "I've met a lot of people who live in countries I heard of when I was in Africa, but I didn't know what type of people were living there," he says. Getting to know young people from India, Sri Lanka and Nigeria has been good. As for his reception by the greater student body, Ngong gives a philosophical answer: "All over the world it's the same. In every community there are good people, who can accept your presence, and there are people who look at your presence as a mistake. They don't have the sense that we are the same and should be treated equally." People who treat minorities differently, he says, "don't know what they are doing." He avoids them.

Like most college students, Ngong will find a summer job or two. However, unlike most college students, he'll send some of his earnings home. Typical of many Lost Boys, Ngong has a family member in Kenya he's trying to help. He's been told the boy he's spoken to on the phone is his youngest brother, Ngong Ngong. But it's been so long since Alfred Ngong has seen his family, and the distance is so great, he can't be sure they're related. Still, last summer he sent part of his paychecks from Menards and Swanson Health Products to Ngong Ngong "for school, groceries and other needs."

As for his other four siblings, Alfred Ngong believes his eldest sister, Abuk, and her family might be living in Khartoum, Sudan's capital. And he thinks his father might be alive in northern Sudan — but it's been 16 years. In reality, his family has vanished.

Ngong has filed paperwork to bring his brother to Fargo, but says, "The chance of that is zero out of 100." He has good reason to be discouraged. Many Sudanese refugees are trying to get family members out of Africa. But events of 9/11 have made immigration almost impossible. "Many young Sudanese — Lost Boys and Lost Girls — have been OK'd to come to the United States, but security restrictions and a backlog of red tape have put a complete halt to the movement of refugees, particularly this group," says Paul Fuglestad,

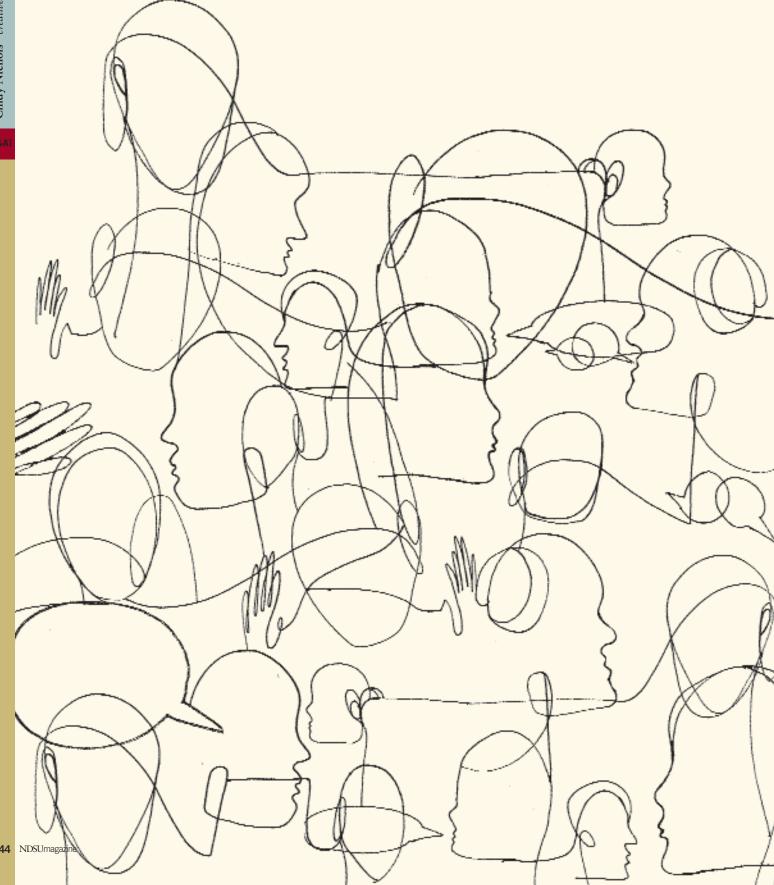
who directs the unaccompanied refugee minor program for Lutheran Social Services at the Center for New Americans in Fargo.

The good news is that the situation is expected to improve when the Immigration and Naturalization Service turns some of its duties over to the federal Office of Refugee Resettlement. In the meantime, Kakuma is bursting with more than 90,000 refugees from nine African nations. Rations have dipped to worse-than-Auschwitz levels. Disease is rampant. Neighboring Turkana tribesmen continue to attack, sparing only those who have something to steal.

Those attacks were once the stuff of Ngong's nightmares.

Remembering, Ngong turns a hypothetical personal question into a homily on world peace: "All of these happenings in the world are brought on by many different things. They are brought on by racism. They are brought on by different religion. They are brought on by lack of education. If I had the power to change one thing, I might give the whole world to speak only one language and do only one thing: to end the suffering of people all over the world, especially in African countries. If I had the power, I would bring the world into a peaceful manner."

– Catherine Jelsing



POETRY

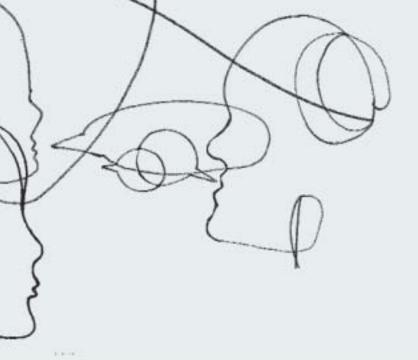
You think, speak and breathe the language of poetry all the time. It's part of the world.

A creative writing teacher and English lecturer for 19 years, Cindy Nichols has long battled the notion that poetry is highbrow and inaccessible. She recently published an article with the weighty title, "Down in the Body in the Undergraduate Poetry Course: Thoughts on Bakhtin, Hypertext and Cheap Wigs." The subject matter is equally weighty: What can teachers do to transform poetry's image from a source of fear and loathing to a meaningful genre that truly engages the soul? In pursuit of the answer, Nichols has encouraged her classes to try techniques less ordinary. Her students have performed poems with props, and scribbled poetry in chalk on the sidewalks outside. "And, sometimes, I even ask students to sit quietly and read," she says.

Here, Nichols shares her written thoughts on the literary form, and why it's worth reassessing.

Q. What are the particular challenges of teaching poetry today? Do you believe fewer people are attempting to understand and enjoy poetry than in the past?

A. I think it's fairly evident that, yeah, poetry is a marginalized genre in mainstream America. Even in its most popular forms, it simply doesn't sell the way that other genres do, the average person on the street doesn't appear to seek it out, and the great mass of my younger students have long reported feeling uneasy, dumb, indifferent, or occasionally even hostile to it. Lyric poems tend to invite a lingering, concentrated attention to the way that words mean and feel, and this of course is not at all the kind of attention invited by most mass media, whose bombardment of disparate and shrill messages prompts something like stupefaction. I mean, we just can't sit there on our couches and watch a car bombing full of body parts and screaming children one second and a Viagra commercial featuring Bob Dole the next without



overwhelming whatever faculty it is in our hearts and psyches that responds to lyric poetry.

On the other hand, it's quite possible that poetry is no more marginalized now than at any other time in this country. (I've recently been researching manuals and school texts from the early 20th century, and it's amazing how closely student attitudes and teacher frustrations resemble those today.) In the late 1980s we saw the revival of Beat-style slam and performed poetry, with a whole surge of anthologies coming out full of "poetry for the people." It's almost like, as the noise of the world gets more dense and caustic, the louder poetry's voice must grow to counter it or absorb it. And who knows - from the perspective of a poet, maybe car bombings and Viagra have a hell of a lot in common.

Likewise, students are clamoring to get into MFA programs in poetry all over the country, and there is absolutely no shortage of small press poetry publications in all styles and schools. I believe that people will always be engaged by aesthetic uses of language. We're hungry for it. If our world changes, if we're all afflicted with TV psychosis, poetry doesn't go away; it simply changes along with everything else.

Q. Why are so many of us intimidated by poetry?

A. One big problem I see is the "academization" of poetry. Kids just love language patterns, textures and rhythms, they dig even how words and letters look. But somewhere along the line that pleasure is converted into distrust. Analyzing individual poems in the New Critical fashion, at least in the earlier grades, I think is extremely counter-productive. They learn that poetry is some sort of maliciously tricky genre imposed on them in the classroom, some kind of secret code they have

to break to please a teacher. There's nothing at all wrong with various kinds of study, but I think it should come after kids have already gained a foundation of pleasure and trust - much as they do with music.

Another problem is maybe the sheer number of poetry types. Really, the word "poetry" is just entirely insufficient for what falls under that rubric. A plain-spoken narrative poem may have a setting, plot and characters just like many prose stories, but a really compressed, elliptical and hermetic lyric poem may be in a disembodied voice in no identifiable landscape using extreme associative or disjunctive logic. Some poems use space on the page for rhythmic or rhetorical effects, some are written to undermine every preconceived idea anyone has about what a poem is supposed to be, some are written with no apparent purpose but to make end rhymes work. I think a lot of us have been bottle-fed by teachers or popular culture on a single kind of "poetry," and then are thrown when we encounter something which doesn't fit that type.

In any case, I try to help my students with this by putting any given work in a literary, cultural and social context. On one hand, I try to demystify poetry help students see that yeah, absolutely, they CAN understand it, it isn't written by Martians or the CIA, and, on the other hand, help them see that no one exactly knows what in the world this stuff really is. It's open and in flux, it's material for play, it's still ultimately mysterious even to the people who write it and write it well.

Q. What are things you've done to help students better understand poetry?

A. Well, I'm very big on having students at any level actually WRITE poems as a form of "study." I think it's one of the best ways for students to gain confidence and to show (and learn) how much they already intuitively know. I think that by writing poems students shake off some of the critical baggage they've accumulated in school and begin to remember poetry's "genre knowledge," its unique way of making meaning.

I'm also fond of distraction and disruption as teaching techniques. Negative attitudes have sometimes already hardened by the time students reach college,

so I like to do something unexpected in the classroom to kind of weasel them out of it. I'll have them go outside and eat snow, or type at a word processor with their monitors off, or write a collaborative poem or a speed poem, and so on. Sometimes those things help, sometimes not. But I hope my students at least leave the classroom thinking more about the creative possibilities of poetry than about how weird it is or how much they don't "get" it.

It's incredibly important to give students poems that matter to them and speak to them. For the most part, at certain points in their education, I think it's harmful to assign work which is centuries old, in an alien form of English (or an alien form of whatever their native language may be). I think this was possibly a problem even back in the first half of the 1900s, based on my reading of teachers' manuals and textbooks. Such a tactic just encourages students' belief that poetry is language that requires, first and foremost, purely rational and sometimes arcane decoding, that it has nothing to do with sensuous and intuitive pleasure.

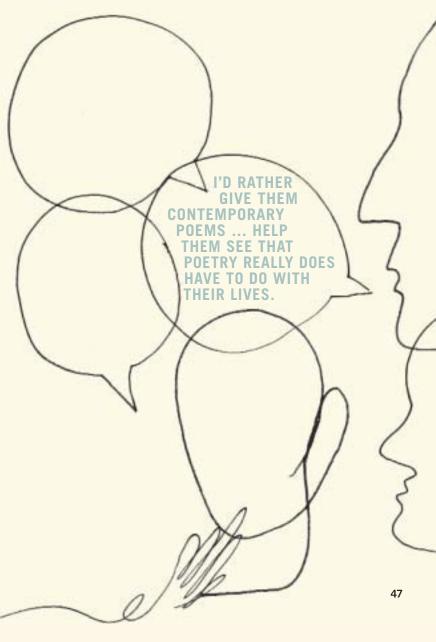
I'd rather give them contemporary poems in the language they use everyday, help them see that poetry really does have to do with their lives. Once that foundation is established, they might be more receptive to classics. Once they're trusting and curious, they'll see that "translating" older material is just a necessary step to accessing the fabulous, screwed-up, weirdly familiar lives and minds of their own whack-job ancestors.

Q. You make many references to helping students write and read poetry "dialogically." What do you mean by that?

A. Maybe the word "conversational" is really enough. What I try to do is bring students into contact with a poem in a way that requires engaged openness. I don't want them *observing* poems, even though that can certainly be interesting. I want them to *respond in kind*; carry on a dialogue with a poem in its own language. I'm advocating, in other words, something like study by creative response rather than study by critical analysis.

My feeling in the classroom is: come on, you know you can do this. You think, speak and breathe the language of poetry all the time. It's part of the world. It's in Burger King commercials. It's in the language of

your favorite sports newscaster, the wry crack of a dopey uncle, the line of a song that rips you to shreds. Write a poem in response to the poem. Talk back to the poet. Speak "poetry." Listen for the lower note, the odd resonance, the oblique meaning. Just don't be a provincial and arrogant tourist (critic, theorist, scholar, student) who reads the guidebook, however long and hard, however 'intelligently,' takes a snapshot, and gets back on the bus.



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