

NEW FRONTIERS

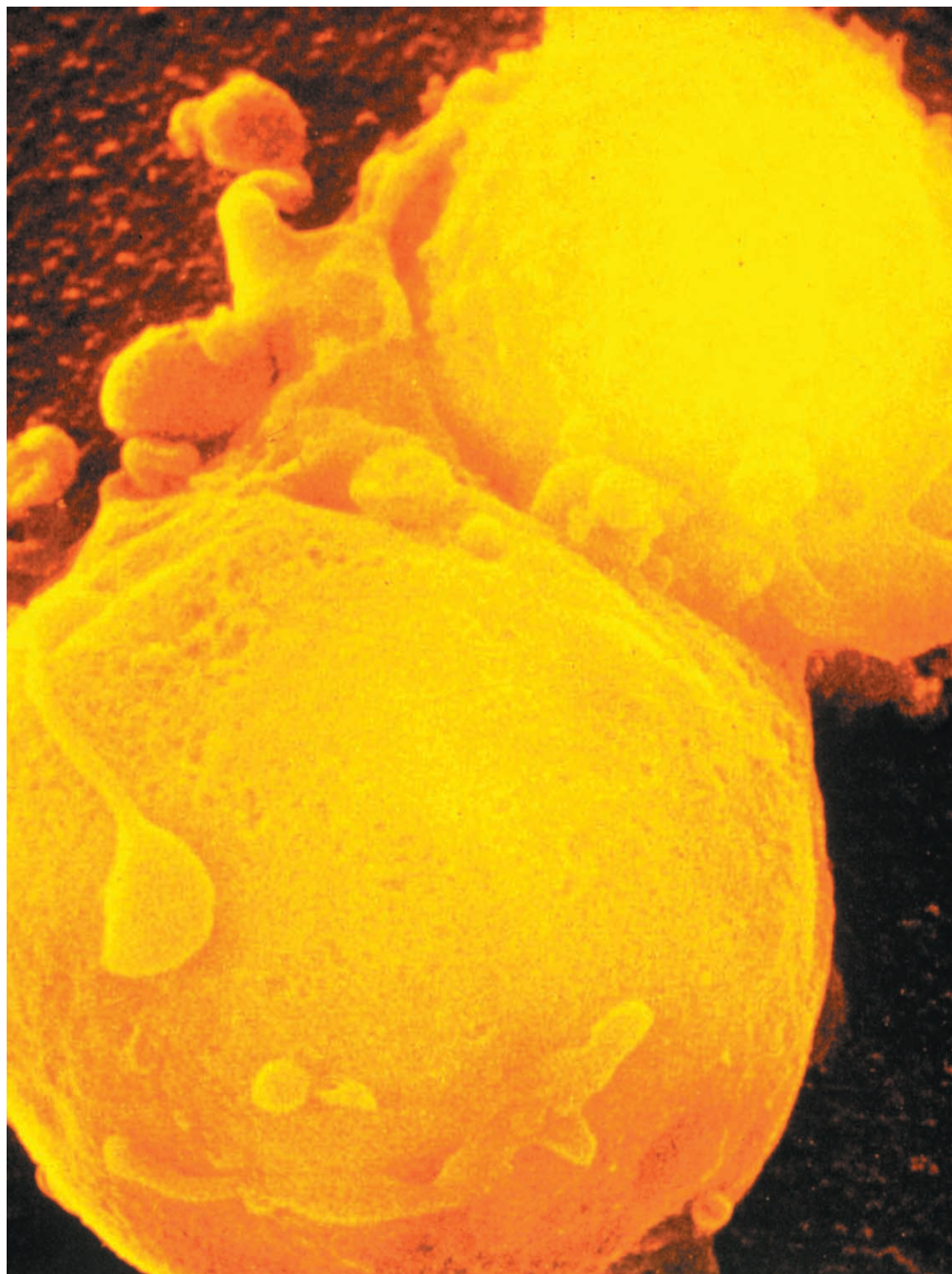
Researchers on Front Lines Against Cancer

One of two Americans living today will get cancer. But talk to Kenneth Cowan, M.D., Ph.D., director of the University of Nebraska Medical Center's Eppley Cancer Center, and you'll soon feel optimistic instead of pessimistic.

The war on cancer began in 1970, and since that time huge strides have been made.

"We see the fruits of the research," Cowan says. "It's led to a decrease in the incidence of cancer and an increase in survival of patients who develop cancer. We believe this is just the beginning."

If there is anything he's more positive about, it's the role UNMC's Eppley Cancer Center will play.



Researchers harvest cancer patients' own cells to develop a vaccine to keep the cancer from recurring.

Cowan cited several examples of promising work at the center, particularly in the area of cancer vaccines. Julie Vose, M.D., is testing a vaccine that would keep patients with lymphoma in remission. James Talmage, Ph.D., is developing vaccines that would keep certain types of cancer in remission; he hopes to start clinical trials soon on breast and lung cancer. Tony Hollingsworth, Ph.D., has been studying a protein associated with pancreatic, lung, colon and breast cancer. His hope is also to determine which proteins would work best in a vaccine and start clinical trials soon.

The Eppley Cancer Center's smaller size is an advantage when it comes to generating ideas.

"Close collaboration allows us to quickly translate laboratory ideas into discoveries that will ultimately benefit patients," Cowan says.

The center's work is known and respected by others fighting the same war. Researchers at UNMC developed the only animal model that exists for pancreatic cancer, which led the National Cancer Institute (NCI) to give it a "special program of research excellence" designation. In the field of pancreatic cancer, only one other institution—Johns Hopkins University—can say the same.

Cowan appreciates that the center has earned the respect of its peers. Nebraskans should be proud as well, he says, because 40 years ago, when the center was founded, it was one of

the first in the nation. Today it's one of only 12 NCI-designated clinical cancer centers in the U.S. In the next decade, he predicts that university researchers will discover ways to help prevent cancer and make cancer treatment highly targeted, less toxic and more successful. Using scientific terms like hybridization, immunotherapy and the expression patterns of cells, he can tell you exactly how he thinks the center will win the battle against cancer.

But he can discuss it with you in personal terms too.

"Both of my parents, my grandparents and several other family members developed cancer," he says.



Vose with cancer patient Margaret Ricketts.

It's personal, it's professional. And in the next decade, the University of Nebraska is going to pioneer new frontiers in cancer research and treatment.



Researchers from UNL made headlines with a report pinpointing what went wrong in the Dale Earnhardt crash.



Each day, more than 1,000 people visit the University of Nebraska's Drought Monitor website, which tracks the nation's drought.



75 percent of the wheat harvested in Nebraska is from varieties developed at UNL.



The University of Nebraska provides services to people in every one of Nebraska's 93 counties.



Three Nobel Prize winners are graduates of the University of Nebraska-Lincoln.

100

The College of Medicine joined the University of Nebraska 100 years ago.

NEW FRONTIERS

President Smith's Goal for NU: Excellence

In the early 1970s, Dennis Smith was at Purdue University researching cell division in frogs. Thirty years later, his work was mentioned as one in a series of earlier discoveries that eventually led to a Nobel Prize in medicine for three researchers who identified the entire cycle of a cell.

Did Smith ever think what he was doing then would lay the groundwork for a later Nobel Prize?

Science doesn't work that way, he



L. Dennis Smith, Ph.D., president of the University of Nebraska.

says. You can't determine at the beginning what the outcome should be.

"The trick is to be a keen observer, integrate all the facts and then realize where you are going," he says.

Smith leaves no doubt where he's going with the University of Nebraska. Now in his ninth year as president, he doesn't mince words: he wants NU to have the recognition it deserves as one of the best public universities in the nation.

Smith is up to the task. Before heading the University of Nebraska, he held prestigious positions in research and management at Argonne National Laboratory, Indiana University and the University of California, Irvine. He bristled when a senior faculty member once urged him to "ease up" on the amount he was publishing. He demanded excellence of himself and others, then and now.

One way he measures it is faculty credentials. He'd like to see the university continue to attract top professors, adding members of the National Academy of Sciences, for example. Another measure is the state's top students. Smith wants more of them to choose NU and programs like the Peter Kiewit Institute and J.D. Edwards Honors Program, over MIT or Stanford. Attracting top faculty and students resembles a cell that continues to divide—they attract more and more just like them.

To be recognized as one of the best universities—that's Smith's goal for NU. He knows it's a challenge, but that's why it interests him.

"If you don't want to succeed, if you don't want to be the best, then you don't have any business in this kind of job," he says.

The University of Nebraska—Pioneering New Frontiers

Imagine a Nebraska company that attracts some of the top scientists in the world to the state. A company that helps the local farmer, rancher, teacher, doctor and business owner succeed. A company that provides employment opportunities, technology and services to each of the state's 93 counties. A company making medical breakthroughs in cancer, AIDS and Alzheimer's disease. What if it wasn't a company, but a university?

The University of Nebraska.

Nebraska's early pioneers knew that the ability to innovate meant

survival and a future—and that education was the foundation for innovation. They created what is now the University of Nebraska, where today's pioneers—faculty, students and staff on our Kearney, Lincoln and Omaha campuses—continue these traditions of self-reliance and innovation.

The 46,000 students who attend the University of Nebraska every year have a variety of choices:

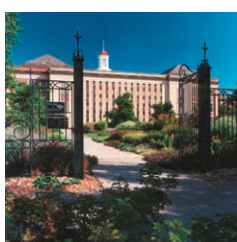
- Lincoln offers the greatest variety of undergraduate degrees and is the primary research and doctoral-degree granting institution in the

state. It is one of only five research universities in the U.S. to be recognized for innovative undergraduate educational programs and is ranked a "best value" in two national rankings.

- The Medical Center offers professional degrees in dentistry, medicine and pharmacy, as well as graduate and undergraduate degrees in nursing, dental hygiene and allied health fields. Research is an academic priority, resulting not only in scientific breakthroughs but in students who learn from experts in the field.

- Omaha's metropolitan campus provides a technologically rich atmosphere, as well as the countless internship and employment opportunities that come with being located in the heart of Nebraska's largest city.
- Kearney offers a residential setting for undergraduate education, with small classes taught by full-time professors in a technology-enhanced environment. UNK students receive individual attention and opportunities for undergraduate research.

The University of Nebraska - Lincoln



The University of Nebraska Medical Center



The University of Nebraska at Omaha



The University of Nebraska at Kearney

Omaha World-Herald, University Serve the State

Former NU President Woody Varner once said the University of Nebraska and the Omaha World-Herald are the two most important institutions in the state.

Both serve residents in every county of the state. Both educate Nebraskans. The university turns out educated minds; *The World-Herald*, as Publisher John Gottschalk puts it, provides "a daily textbook of democracy," the raw material for Nebraskans to exercise their responsibilities as citizens.

Both can claim to be among the oldest, and even largest, in the state. But the most important part of being a pioneer, Gottschalk says, is leadership.

"It's incumbent upon all good newspapers to engage fully in the life of its readers," he says. "And to be advocates, promoters, and in our case, even funders of those things which are good, and improve life for people."

Omaha World-Herald Freedom Center
Photo courtesy of Omaha Public Power District.



To that end, *The World-Herald* pays the tuition for top scholars in the state who attend the university; partners with the university to recognize "master conservationists" for their stewardship of the state's natural resources; and demonstrates its commitment to the state and downtown Omaha in such ways as building a \$125 million, state-of-the-art press facility.

On a daily basis, Gottschalk says,

the university pioneers new discoveries, breakthroughs and research. One of the paper's most important missions is to make that information meaningful and useful to the average person.

Leadership, stewardship, commitment to the state and its issues. The University of Nebraska and the *Omaha World-Herald* share those qualities.

"Both of us provide a service that helps stitch our state together, border to border," Gottschalk says.



NEW FRONTIERS



State-of-the-art classroom at the Peter Kiewit Institute.

Business Plus Education Equals Model Program

In just five years, the University of Nebraska's

Peter Kiewit Institute has become a model program for universities all over the world. But that's not considered unusual at the institute, where the motto is "moving at the speed of business."

The Peter Kiewit Institute (PKI) in Omaha combines UNL's College of Engineering and Technology and UNO's College of Information Science and Technology. The university works in partnership with the business community to run the institute. As a result, new education programs are identified and started within months—not years—attracting the nation's top faculty to the university and keeping the state's best young technology and

engineering minds at home.

PKI opened in 1997 with 1,000 students. Now, about 2,300 students are enrolled. Top students are recognized as Scott Scholars and nearly 90 percent of them have Nebraska roots, says Winnie Callahan, the institute's executive director. "We've been extraordinarily successful at attracting Nebraska's best and brightest and have not only curbed the brain drain, but are now working on brain gain," she says.

One example is architectural engineering. Three years ago, when the program began, it had only four students, far short of meeting the needs of Nebraska's architectural and engineering firms. Now the program has recruited top faculty from other schools, and enrollment is more than 100, with an average ACT score of 30.

Dick Bell, chief executive officer of HDR, one of the nation's leading architectural and engineering companies, sits on PKI's business advisory board and believes the institute is vital to the state's future. "The institute plays a significant role in helping build our future work force," says Bell.

Some of the nation's most highly regarded engineering schools, including MIT and Carnegie Mellon, have visited the institute to emulate the program. And companies like Microsoft and Siemens participate in its programs. But most important, Nebraska's scholars know the best place in the world to develop their skills is right here, at the University of Nebraska.



Taylor takes hearing tests to the field.

Keeping the Farm Alive

Kenya Taylor grew up in Dallas and spent the next 25 years working and studying the science of hearing, earning a Ph.D. in counseling. Susanna Von Essen is an M.D. and a professor of pulmonary and critical care medicine at the University of Nebraska Medical Center.

Here's what the two have in common: Husker Harvest Days.

Both University of Nebraska professors are regulars at the state's largest agriculture gathering, because the 80,000 people who attend provide them with an opportunity to do something they're passionate about: keeping farmers healthy and on the farm.

Von Essen's area of expertise is respiratory problems, particularly those that result from grain bin dust or hog confinements. Her father, Herman Von Essen, was a Thurston County farmer and the inspiration for her life's work.

"He worked with pigs and his symptoms were always worse in that environment. I wondered why that was," Von Essen says.

Taylor's professional focus changed after she joined the University of Nebraska at Kearney's Department of Communication Disorders.

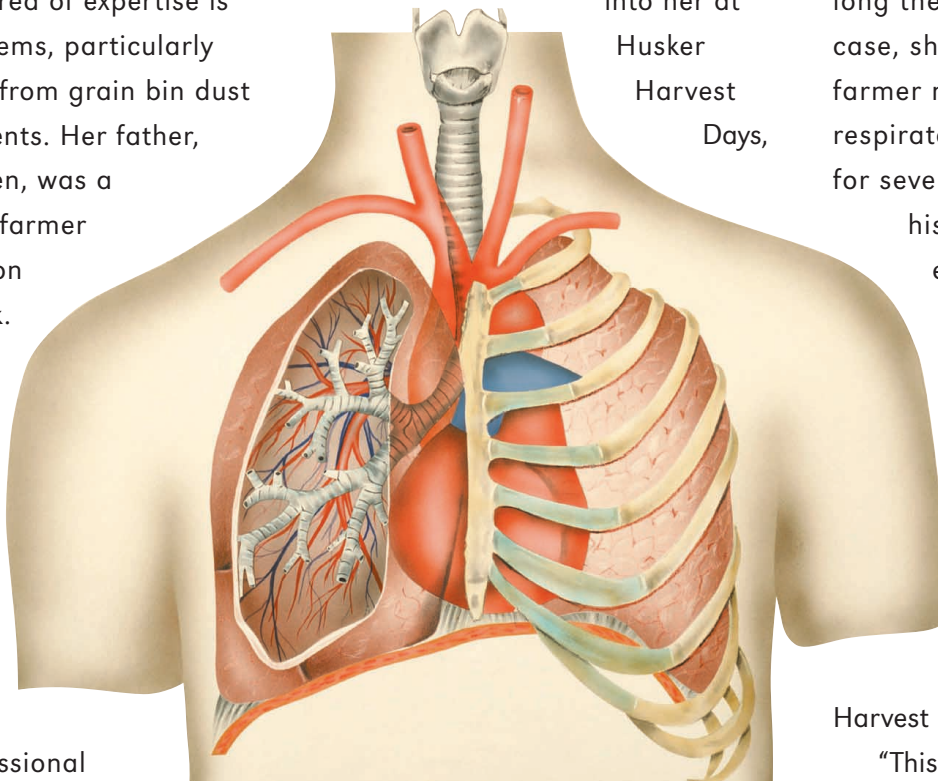
"We started doing hearing tests at places like Husker Harvest Days. We collected data from more than

5,000 people, and what we see is a huge prevalence of hearing loss."

Two things concern Taylor the most. First, there are no noise guidelines for those working on farms. Second, the hearing loss is irreversible.

So the woman who had never been on a farm has become, in her own words, "obsessed" with Nebraska's farmers. If you run

into her at Husker Harvest Days,



be prepared for her quiz. Do you wear ear protection? Why not? She's particularly concerned about the next generation, farm kids now 11 to 19 years old. She already sees a significant hearing loss in this age group.

Von Essen, who is just as likely to be reading *Nebraska Farmer* as she is the *American Journal of Respiratory and Critical Care Medicine*, will be at Husker Harvest Days talking to farmers about respiratory masks—when to wear them, which ones are most effective, how long they last. In one case, she helped a farmer manage his respiratory problems for several years, until his son was old enough to take over the farm.

It's not hard to see why both of these women are drawn to Husker

Harvest Days.

"This work is not just about research," Von Essen says. "It's about taking care of people."

One farm at a time.

NEW FRONTIERS



Computer desktops have replaced workbenches in Kuskie's classroom.

Updated Degree Doubles Enrollment

If you walked through the Industrial Technology Department at the University of Nebraska at Kearney in the 1970s, you wouldn't have gone far without tracking through some sawdust or spotting a welder's arc.

Today, you're more likely to trip on a computer cord, according to Larry Kuskie, Ph.D., chair of the department.

A program that once turned out high school industrial arts or "shop" teachers now offers degrees in construction management, telecommunications management and industrial distribution. The latter is unique in Nebraska and one of less than two dozen in the nation, because it links business courses—marketing, management and accounting—to technical courses such as applied electronics and machine tool products.

Students have responded to the updated degrees by making it the fastest growing department on campus. Enrollment in the program over the last few years has increased from 170 to 450, and full-time faculty has grown to 12 full-time professors.

Kuskie credits the faculty for moving the program to the next frontier.

"They had the vision," he says.

The faculty became determined to transform the degree when the number of industrial arts teachers graduating exceeded the number of teaching jobs available in the state. Kuskie recalls a student moving to Georgia to get a job.

"So the faculty asked, what can we do that would serve the state of Nebraska?" Kuskie says.

Now Nebraska employers including Hamilton Communications, Lozier and Linweld—not to mention



Employees of UNO Printing Press in Peshawar sort books in preparation for the opening of school in Afghanistan. Photo courtesy of Caleb Kenna.

University's Impact: Circling the Globe

The footprint of the University of Nebraska can be seen around the world.

- Thomas Gouttierre, as director of the UNO Center for Afghanistan Studies, is helping rebuild the educational system in Afghanistan with a \$6.5 million federal grant.
- Charles Wood, Ph.D., of UNL is working on how to stop the spread of AIDS from mother to child in Africa and bringing Zambian scientists to Nebraska for education and training.
- UNK Professor of Construction Management Kennard G. Larson, Ph.D., and his students are teaching their German counterparts how to build with timber instead of concrete and masonry.
- Rami Arav, Ph.D., of UNO is one of two professors leading a five-country consortium that excavates artifacts from the shores of Galilee.



Wood, left, and technician Darius Simbeje, at the HIV project laboratory at the University Teaching Hospital of Zambia.

national companies like MCI, Sprint and Ingersoll-Rand—are snapping up graduates. Employers praise the program.

"They often tell me they hire our students because they understand business management *and* they have

It might be a landlocked university, but it's a global world.

"Part of our everyday life as a university ought to be providing opportunities for our students to engage in a global economy," says University President L. Dennis Smith.

Smith says the international impact made by University

of Nebraska faculty and students is in keeping with the mission of a land grant institution, which is to provide extension and outreach to citizens not only in the state but throughout the world.

Larson, who led a team of UNK construction students who built a daycare for 70 children in Germany last year, says programs like his also make students more culturally aware. Some students have never been out of the state, let alone the country.

"Employers want an open-minded student," he says. "There's tremendous benefit, to both sides."

Read more about these NU pioneers at www.uneb.edu.



a solid technical background," he says.

To Kuskie, one of the best parts of the program is its job placement rate: it hovers just below 100 percent.

If graduates are going to Georgia today, it's only because they want to.

For more than 100 years, these columns have stood at the University of Nebraska campus in Lincoln, anchored to our past, reaching for the future. We've always been pioneers. It's the frontiers that have changed.