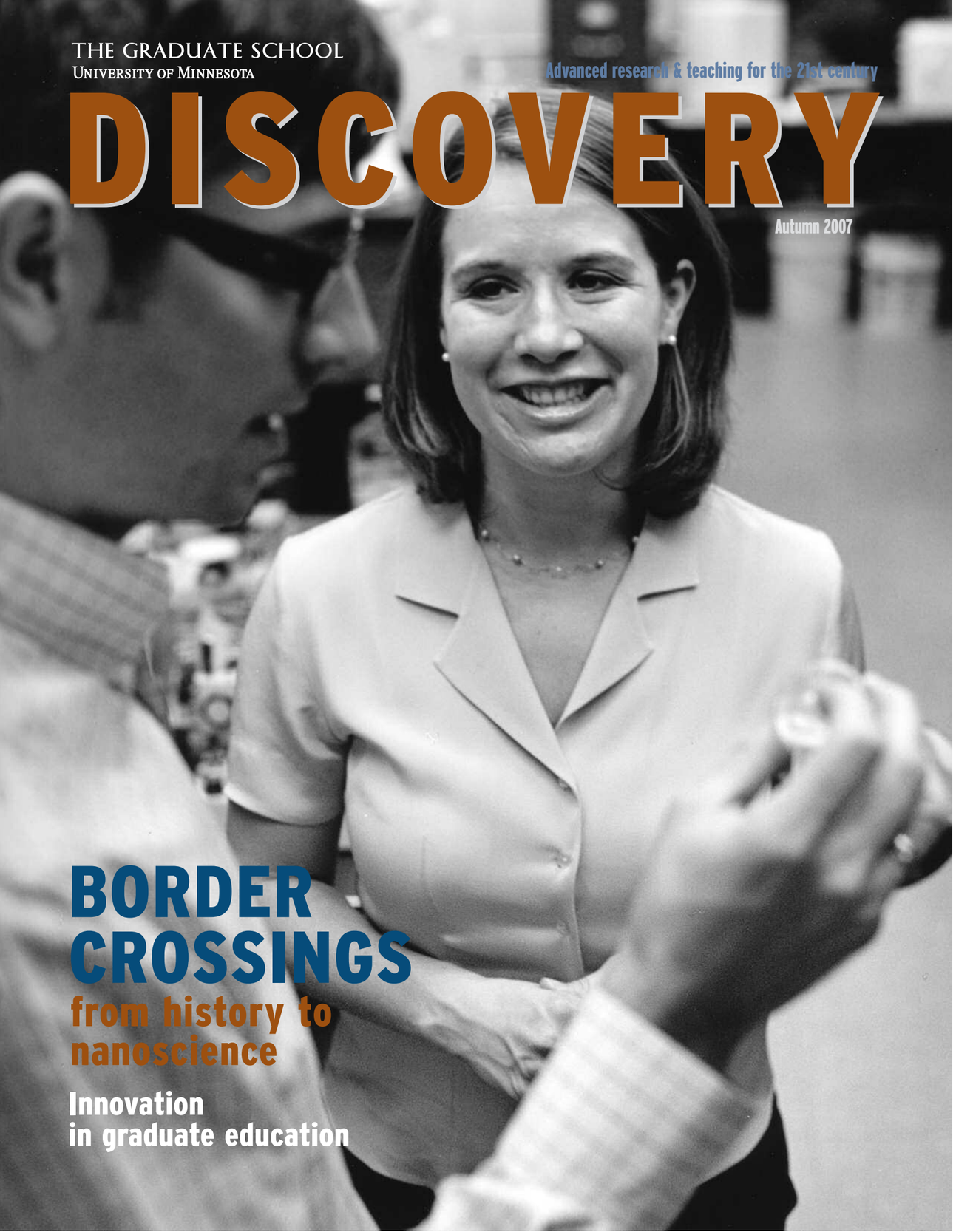
THE GRADUATE SCHOOL
UNIVERSITY OF MINNESOTA

Advanced research & teaching for the 21st century

DISCOVERY

Autumn 2007



BORDER CROSSINGS

from history to nanoscience

Innovation in graduate education

DISCOVERY
Autumn 2007

THE GRADUATE SCHOOL
UNIVERSITY OF MINNESOTA

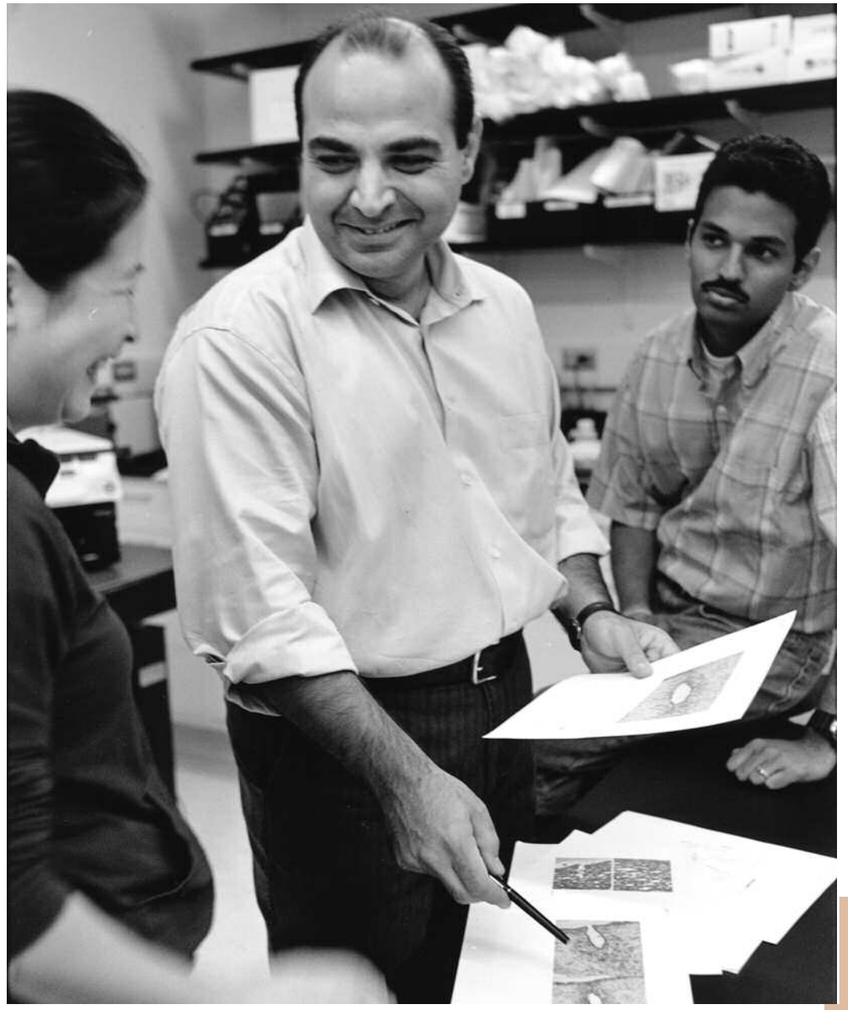
BORDER CROSSINGS & INNOVATION IN GRADUATE EDUCATION

The Graduate School serves the state, region, and nation by sustaining and developing high-quality scholarly work and graduate education programs at the University of Minnesota.

The Graduate School strengthens advanced teaching and research at the University by:

- providing efficient and innovative central services;
- promulgating best practices in graduate education;
- providing competitive support to the best faculty and students;
- fostering the most promising interdisciplinary initiatives; and
- supporting college and intercollegiate programs.

Visit us online: **www.grad.umn.edu**



RIGHT: Professor of Mechanical Engineering Alptekin Aksan, a recent recipient of a Graduate School research grant, with two of his graduate research assistants, Lily Zang and Vishard Ragoonanan (see page 11).

COVER: Christy Haynes, McKnight Land-Grant Professor of Chemistry, and Ph.D. student Bryce Marquis (see page 7).

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Transforming GRADUATE EDUCATION

Dean Gail Dubrow elaborates on these ideas in an interview beginning on page 14.

As you no doubt have heard, the U of M has set an ambitious goal of becoming one of the top three public research universities within a decade. That unparalleled vision of institutional transformation, harnessed to the extraordinary intellectual richness this university possesses, is what attracted me to the position of dean of the Graduate School and vice provost two years ago.

Undergraduate education is, of course, central to the mission of public institutions. But it's an indisputable fact that the true measure of excellence among research universities in a national and international market has everything to do with the twin engines of knowledge creation: scholarly discovery and graduate education.

I spent my first months here just trying to wrap my mind around the scope and depth of the offerings at the University of Minnesota. The U is not only one of the largest doctoral degree-granting institutions on the planet, but also is home to top-ranked graduate programs and acclaimed scholars in a wide variety of fields. Now, as a result of its strategic repositioning process, the University also has become one of the country's most forward-looking institutions—with the Graduate School playing a critical role in the push toward global excellence.

In partnership with academic programs, we're taking a rigorous look at how knowledge is being transformed in the 21st century and how we can provide students with the best possible education and training. Many of our initiatives reflect our active participation in a robust national conversation under way about how to resolve persistent problems affecting the quality of the graduate student experience—about how to maximize the joys and minimize the struggles. How do we ensure needed funding for graduate students? How do we reduce time to degree and improve completion rates, particularly for doctoral students? How do we develop multiple career paths for our graduate students beyond academe, while providing the best possible preparation of future faculty? And how do we open the doors of higher education to those who've previously been excluded?

Some of our initiatives addressing these questions are highlighted in this issue of *Discovery*. They illustrate the Graduate School's leadership role in preparing its students and faculty to tackle the complex intellectual and social problems of the 21st century. Solid disciplinary preparation, nimble interdisciplinary crossings, and effective multidisciplinary collaboration are among the critical competencies required of our leaders, whether in academe, industry, public service, or other venues. Many of our new initiatives provide training not currently available within all departments. Others support disciplinary evolution that incorporates new skills, competencies, and benchmarks into the core teaching and learning activities of the University's academic programs and departments. At the same time, we also continue to support the intellectual and professional development of our faculty and our 10,000 students—and to provide concrete support, too, whether via faculty grants or student fellowships, McKnight professorships or dissertation awards.

The true measure of excellence among research universities has everything to do with the twin engines of knowledge creation: scholarly discovery and graduate education.

Excellence in graduate education is critical to the University's strategic goals, but it's just as pivotal to the vitality of our state and region. As dean, my overarching goal is to widen the circle of discussion about the purpose and structure of graduate education and about what it means to be a top-three public research university. I invite you to join this invigorating conversation.

Warmly,

Gail Dubrow
Vice provost and dean of the Graduate School; professor of architecture & landscape architecture, public affairs & planning, and history

THE GRADUATE SCHOOL BY THE NUMBERS

With **MORE THAN 10,000 STUDENTS,** the Graduate School spans the Twin Cities, Duluth, and Rochester campuses of the University—and is the **U's second-largest college** (after the College of Liberal Arts).

Our programs span some **150 MAJORS**—in **the sciences** (biological, health, engineering, physical, mathematical, and social); in **education and psychology;** and in **language, literature, and the arts.**

In 2006–07, the Graduate School enrolled **2,678 NEW STUDENTS**—and awarded **2,632 GRADUATE DEGREES**—**1,815 master's degrees** (129 at the Duluth campus) and **817 Ph.D.s.**

FOR MORE DETAILS, see **www.grad.umn.edu/data/stats/**

Overall, 54% of the degrees we awarded were to **women,** 24% to **international students,** and 8% to **students of color.**

On average, our students took **2.6 years to complete master's degrees** and **5.7 years to complete Ph.D.s.**

The MCKNIGHT PROFESSORSHIP PROGRAMS build a strong University faculty.

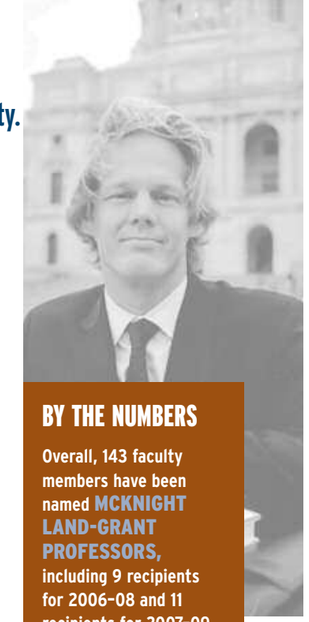
SIMPLY THE BEST

A ROBOT THAT AIDS SOLDIERS IN THE BATTLEFIELD. NEW SOLAR ENEGY TECHNOLOGIES. Biomedical discoveries, wireless communication breakthroughs, and fascinating new insights into felon disenfranchisement, genocide, forest diversity, addiction, and madness. The Graduate School's recent McKnight awards recognize faculty who are pushing the boundaries of knowledge in an astonishing variety of fields.

The McKnight program is one reflection of the Graduate School's central role in developing and keeping a strong faculty at the University. A joint program of the Graduate School and the Office of the Provost, the McKnights were established through a private-public partnership between the McKnight Foundation and the University, as well as a share of the Permanent University Fund dating back to the state's original land grant to the U.

THE MCKNIGHT LAND-GRANT PROFESSORSHIPS honor rising stars—junior faculty who are poised to make significant contributions to their disciplines. The two-year appointment includes a research grant in each year and a bonus grant or research leave during year two.

THE DISTINGUISHED MCKNIGHT UNIVERSITY PROFESSORSHIPS honor the U's finest mid-career faculty—full professors (promoted within the past 10 years) who have brought renown to the U and who are poised for still greater attainments. Recipients are awarded $100,000 over five years for scholarly or artistic work. They hold the title *Distinguished McKnight University Professor* throughout their U careers. ■



BY THE NUMBERS

Overall, 143 faculty members have been named **MCKNIGHT LAND-GRANT PROFESSORS,** including 9 recipients for 2006–08 and 11 recipients for 2007–09.

And 56 faculty members so far have been named **DISTINGUISHED MCKNIGHT UNIVERSITY PROFESSORS,** including 6 in 2006 and 4 in 2007.

For a complete list of recipients: **www.grad.umn.edu**

Above left, McKnight Land Grant Professor of Political Science Kathleen Collins. Right, McKnight Distinguished Professor of Sociology Christopher Uggen.

Our Newest Distinguished McKnight University Professors Named in 2006 and 2007

Gary J. Balas, Aerospace Engineering & Mechanics
Balas is a world leader in advancing control theory from theoretical development to actual aerospace applications. His contributions span multiple fields of engineering (aerospace, civil, electrical, and mechanical) plus computer science and applied mathematics. He led the development of the first widely available collection of computational tools for robust control—software now the gold standard for both industry and academia. He has written over 150 research publications, received many awards, and is a fellow of the Institute of Electrical & Electronics Engineers and an associate fellow of the American Institute of Aeronautics and Astronautics. As an assistant professor, he held a McKnight Land-Grant Professorship.

John C. Bischof, Mechanical Engineering
Bischof is internationally renowned for his research on cryobiology and thermal therapies (focusing on minimally invasive treatments of disease). He has introduced revolutionary methods for measuring sperm and tissue response during freezing—work that will help improve the post-thaw viability and function of sperm and engineered and native tissues. He also has improved the quantification of temperature and injury in thermal therapies (cryosurgery and hyperthermic surgery) and has discovered and patented new classes of adjuvant (molecules) that improve outcomes. His recent work focuses on nanoparticle adjuvant delivery to improve tumor destruction. He is the recipient of many awards and fellowships worldwide and is the author of more than 75 peer-reviewed articles.

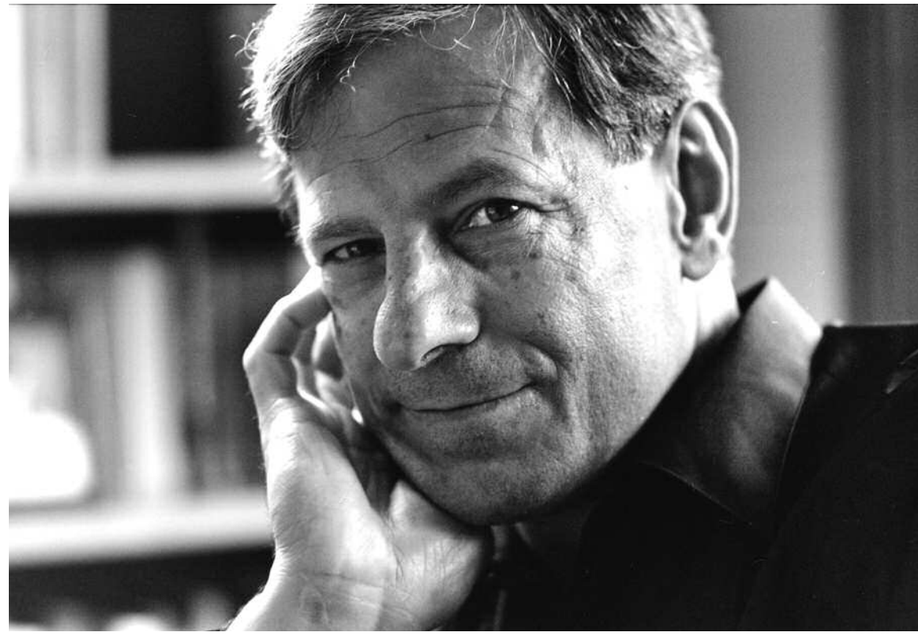
Bernardo Cockburn, Mathematics
Cockburn is a world leader in algorithms for computer simulation of physical phenomena. He is known for his pioneering work (and prolific publications) on the development of highly accurate, flexible, and robust numerical methods for a wide range of practical problems such as weather forecasting, compressible fluid flow, semiconductor device simulation, electromagnetism, heat transfer, and deformation of elastic bodies. His numerical methods are ideal to use with adaptive strategies and can produce simulations of a quality impossible to reach with other methods. His latest research focuses on rendering these methods more accurate and efficient.

Distinguished McKnight U Profs, to page 6

Distinguished McKnight University Professor Eric Weitz

Exploring history's DARKEST SHADOWS

Eric Weitz is an expert on modern European history and especially on mass social and political movements in 20th-century Germany. He brings an interdisciplinary and comparative approach to the study of the Holocaust, among other of the 20th century's most extreme and tragic events.



ERIC WEITZ'S CAREER seems to have begun with his grandmother. Telling stories about her native Latvia, she sparked in her young grandson a keen—and, as it turns out, a persistent—passion for the past.

"I was one of those strange young people who knew early what I wanted to do. I wanted to study history," says Weitz, who today is not only professor and chair of the University's history department, but also a recent recipient of one of the University's most prestigious awards, the Graduate School's Distinguished McKnight University Professorship.

However much credit goes to his grandmother—or to the inspiring college professor who piqued in Weitz a particular interest in German history—Weitz remains passionate about what he calls "the importance of history, in its tragic and enlightening and enjoyable dimensions." That passion has been the University's—and, indeed, the world's—good fortune.

As a scholar of modern German and European history (and recent director of the U's Center for German and European studies), Weitz has explored some of the 20th century's darkest and grimmest chapters as well as its more enlightened and promising periods. In the process, he has earned an international reputation, particularly in Holocaust and genocide studies. He holds the Arsham and Charlotte Ohanessian Chair in the College of Liberal Arts, a position dedicated especially to study of the Armenian genocide that began in 1915 (and that, Weitz notes, along with the Herero genocide in German southwest Africa, helped sow the seeds for the Holocaust).

Genocide in historical perspective

What especially distinguishes Weitz is that his interests are comparative as well as particular, broad as well as deep, and informed by a penchant to see things in ways that challenge the limits of previous thinking.

A prime example is his most recent book, *Weimar Germany: Promise and Tragedy,* just released. In it, he takes issue with the popular but limited image of the fledgling German republic (Weimar Republic) from 1913 to 1933 as an unstable, economically fragile, corrupt prelude to the Third Reich.

"It was so much more than disaster and decadence," Weitz says of the era. "It was also the grand ascent of German literature, philosophy, politics, creative new architecture, commitment to the public realm, and a revolution that sent the Kaiser

Weitz, to page 6

Weitz, from page 5

packing. There were many efforts to create a vibrant political and cultural life"—all of which, he emphasizes, "gave Germany a highly democratic political system in which artists and intellectuals felt empowered to create."

At the same time, Weitz says, the Weimar era ushered in the greatest media revolution since Gutenberg's press. "Film, photography, radio—all new media—brought culture home to people. Germans could listen to the London symphony on their radios."

Ultimately, Weitz says, "the Nazis recognized the power of this new media to manipulate," but his well-researched account of the Weimar Republic debunks the common view that "there was something inevitable about the Nazis." In the end, he says, "a small group of entrenched elites handed power to the Nazis and destroyed the republic."

Beyond Germany

In studying the Nazis' ascent and dominance, Weitz has broadened his understanding by looking beyond Germany's geographical boundaries to the factors that shape genocidal movements in general. In his previous book, *A Century of Genocide: Utopias of Race and Nation* (2003), he compared Germany under Hitler with three other genocidal regimes: the USSR under Josef Stalin; Cambodia under Pol Pot; and Yugoslavia under Slobodan Milosevic.

The common and horrific theme of these genocidal regimes, he says, is their vision of a perfect, utopian society—with populations willing to rally around a charismatic dictator's call for a new union that excludes those judged to be an impediment to this vision.

Each state had laws preceding actual genocide that banned some citizens from jobs or public areas and used language to objectify and devalue those citizens. This elimination of "others" who don't fit in—for reasons of race, class, religion, or gender—leads not only to mass murder and genocide, Weitz observes, but also to state-sanctioned sadism.

"Every genocide has elements of power, of brutalizing while killing," he says. "These only happen in specific political contexts when states decide certain populations should be eliminated."

Weitz calls this book "a distanced, analytical attempt to understand atrocious events, as well as the psychological dimension to human capacity for evil and rank brutality. It's critical to try and understand the perpetrators."

Analytic and distanced though it may be, Weitz admits there can be an emotional cost to this kind of research and says the subsequent Weimar book was probably something of an antidote to research that focused so extensively on brutality and evil.

As for the future, Weitz says he is "profoundly grateful" for the McKnight Professorship and the prospects it offers him to broaden his horizons even more.

"It's a wonderful honor and includes a wonderful research budget," he says. "Historians don't need the kinds of labs scientists do, but we do need the resources to hire research assistants and to get to archives and libraries."

Weitz, to page 10

Distinguished McKnight U Profs, continued

Uwe R. Kortshagen, Mechanical Engineering
Kortshagen is internationally known for his research on partly ionized gases, also known as plasmas. His theoretical and experimental studies of plasmas at low pressures have led to a better understanding of their properties, and to the development of more accurate models for use in microelectronics manufacturing. His more recent work on the plasma synthesis of nanoparticles—small crystals of only a few hundred atoms—aims to develop improved materials for energy-efficient light sources, and the plasma technologies developed by Kortshagen's research group are now being commercialized for the manufacture of solar cells. He has published over 75 articles on his work and has received numerous honors.

Claudia Neuhauser, Ecology, Evolution, & Behavior
Neuhauser (right) is widely known for her research contributions at the interface of mathematics and biology. Her research addresses effects of spatial structure on community dynamics—especially the effects of competition and of pathogens or mutualists on hosts. In addition, she has developed statistical tools to analyze population genetics data. The author of a calculus textbook for biologists, she also is recognized for her leadership in the quantitative training of undergraduates. She is a recipient of the U's Horace T. Morse Alumni Award for Outstanding Contributions to Undergraduate Education and in 2006 was named Howard Hughes Medical Institute Professor. Neuhauser heads her department and recently was a prestigious "Medallion Lecturer" for the Institute of Mathematics and Statistics.

Photo by Tim Tummelhoff

Nikos P. Papanikolopoulos, Computer Science & Engineering
Papanikolopoulos is a leading figure in robotics and automation, with groundbreaking contributions in distributed robotics, computer vision algorithms, and transportation systems. His pioneering work bridging computer vision with control theory has defined new research frontiers.

Distinguished McKnight U Profs, to page 8

Cracking CELLULAR SECRETS

A list of all recent McKnight Land-Grant Professors appears on page 10.

Christy Haynes in her U research lab, in Smith Hall. Haynes is one of few scholars in the world investigating the biological effects of nanoparticles. Research assistant Bryce Marquis, right, analyzes cells using a specialized microscope.

PERHAPS IT'S ONLY WHEN MAKING "elephant toothpaste" with 10-year-olds, notes Christy Haynes wryly, that a University chemistry professor is cheered like a rock star.

For one day each summer, Haynes and her student assistants trade their high-tech research lab on campus for another kind of scientific frontier: a "Summer in the City Program" for 50 elementary- and middle-school kids at St. Paul's West 7th Community Center. It's a day of imaginative, if messy, lessons in basic chemistry, with oozing slime, brightly glowing light sticks, shooting "soda fountains," and squirting foam (the ever-popular elephant toothpaste) among the many hands-on lessons in chemical principles and reactions. With the kids wrapping up by making liquid nitrogen ice cream, the shouts of "Chemistry rules!" that follow Haynes and her team to their van are easy to fathom.

Back on campus after the exuberant day, the low-key workaday hum of Haynes's lab seems oddly incongruous. Haynes's work, which spans nanoscience and neuroscience, is by all accounts innovative and promising—so where are the shooting fountains and bright glow sticks, the *ahas* and triumphs, the whoops and cheers?

The long haul of science

As with all real-life science, Haynes's research pivots less on sizzle than on slogging away—or, as Albert Einstein observed of the scientist's lot, on "curiosity, obsession and dogged endurance." ("Ninety-nine times, the conclusion is false," Einstein also famously said. "The hundredth time I am right.") In Haynes's Smith Hall lab, she and her team (including four graduate students, one postdoctoral fellow, and three undergraduates) spend hours on end studying impossibly tiny neurons and particles using complex meters and scopes. She has five major research projects going simultaneously, every one an audacious (as well as meticulous) interdisciplinary effort to crack open pressing problems in neuroscience, nanoscience, and environmental science.

Well-trained, forward-thinking, and impressively productive (with 25 peer-reviewed articles to her credit even before she wrapped up her graduate training), Haynes is

Haynes, to page 8

Haynes, from page 7

precisely the sort of young "rising star" all universities covet, a scholar poised to make important contributions to multiple fields. And by her own estimation, she "hit the ground running" when she joined the Minnesota faculty in 2005, aided by the U's excellent start-up support for new research labs as well as a highly supportive department.

But she knows that with dazzling breakthroughs still down the road, even the most vaunted junior faculty members face uphill sledding. They must launch strong projects, convince funding agencies to bet on their unproven hypotheses, and, says Haynes, "persuade talented graduate students to hitch their own stars to the research of an as yet-untenured assistant professor."

They must also, of course, keep the buzz going. Haynes has clearly done just that, quickly gaining a reputation as a remarkably creative and engaged faculty member. Besides teaching city kids science via elephant toothpaste, she makes time on campus to teach a popular freshman seminar built around the science novels of Kurt Vonnegut (even on top of a regular teaching load in bioanalytical chemistry). Most of all, Haynes has made her lab one of the U's most auspicious incubators for groundbreaking research, already landing the prestigious Searle Scholar Award and a grant from the National Science Foundation.

A nanoparticle pioneer

All of this—but especially her innovative work on nanoparticle toxicity—helped cinch Haynes's selection this year as a University McKnight Land-Grant Professor, confirming her arrival in the front ranks of the U's up-and-coming faculty. The McKnight is not only a huge honor, Haynes says. It's also "the sort of validation an assistant professor dreams of" in the often inglorious years between the Ph.D. and tenure—perhaps the metaphorical equivalent of rousing cheers and waving glow sticks.

Haynes's nanoparticle work is aimed at figuring out how these microscopic materials affect cell functions. Nanoparticles are chemical materials (metals such as gold or copper, or synthetic polymers) reduced to a size that is bigger than an atom, but ten thousand times smaller than the diameter of a human hair. They are of intense scientific interest, Haynes says, "because if you make certain materials very small, their chemical properties and behaviors change drastically. You can put them to all kinds of interesting uses in the biosciences or in technology."

Gold, for example, reduced to a nanoparticle (through a complex chemical process) turns wine-red. Because red absorbs light, "nanogold" may work as a "sensing device" in medical treatment (perhaps drawing tumor-killing radiation to certain cells). Other nanoparticles may deliver drugs to cells or, as one recent study suggested, block allergic responses. Many optical, electrical, and industrial uses also are likely; 3M (which gave Haynes her first research grant) is banking on the data-storage potential of magnetic nanoparticles.

"My research is an attempt to address what has been a big black question mark in nanoscience."

Although the intriguing nanoparticles are the focus of concerted study worldwide, Haynes is one of very few researchers willing to nail down their biological effects. "It's uncharted territory, with only rudimentary tools right now," Haynes says by way of explaning the research lag. "Most work has focused on developing nanoparticles and studying their basic properties—when do they melt, what happens when you shine a light on them—just the sort of thing I wrote my own Ph.D. dissertation on.

"But really, we're stopped at the stage of postulating that 'someday, nanoparticles will be used for x, y, or z biological application.' Beyond that, it's been mostly just live-dead assays—'after exposure to this many nanoparticles, this many cells are dead.' But there are a lot of states between alive and dead in a biological system. My research is an attempt to address what has been a big black question mark in nanoscience—and really, to understand some of the black boxes of the human body."

Stretching her expertise as a chemist into the realm of the biological sciences does not daunt Haynes. "This is kind of where science is at right now," she notes. She founded her career on such discipline-blending, following a Ph.D. in physical chemistry with a postdoctoral fellowship in biology-based neuroscience. "Usually the postdoc is a shade of grey away from your Ph.D. research," Haynes allows. "But I figured if I had a skill set no one else had, I could study questions no one else had studied.

"This is where it's great to be an assistant professor," Haynes adds with a smile. "You're actually expected to shake things up, see if you can do something new."

Christy Haynes with grad student Bryce Marquis. Marquis, a second-year Ph.D. student in chemistry and a native of St. Paul, works on Haynes's project developing new analytical tools to assess nanoparticle toxicology in biological systems.

Future breakthroughs

Given what is known so far about nanoparticles, Haynes says, "It's not a stretch to think we can do something with them in the body, especially since they're about the same size as a virus." Already, she notes, they're being used in makeup and sunscreen, even with limited knowledge about their safety. "Especially if we're going to put them in the body to treat cancer, we need to know exactly how they affect the function of cells and the immune system."

That knowledge is hard-fought and incredibly time-consuming, Haynes says, in part because there are a zillion potential hypotheses to test and in part because the needed tools and techniques "have to be developed as we go along, almost cell by cell." Yet Haynes—if few other scientists—has pushed on. At the moment, she and her research team are using an amperometer (which measures the strength of an electrical current) to look at how gold or silver nanoparticles added to a cell change its "chemical messengers"—for example, the way the cell communicates with the bloodstream.

Ultimately, says Haynes, "What we need to know is 'what are the properties of nanoparticles that make cells not care the particles are there?' We need baseline knowledge on what makes nanoparticles biologically compatible, or benign. Then we'll have a starting point for safe and effective biomedical applications.

"It's hard work, but I'm very drawn in by the idea that something my students and I discover in my lab could someday help cure cancer. ■ —*Kate Tyler*

THE MCKNIGHT LAND-GRANT AWARD comes with no-strings-attached research funds, a great boon for a young scholar trying to stay ahead of the technological curve. Haynes will indeed invest in some new equipment—but she also plans to use some of the funds to give a leg up to her graduate students.

"Research papers, fame, awards—that's the way success is largely defined in academia," she observes. "But I feel strongly that being a University professor of chemistry also means I have a responsibility to mentor the next generation, whether by turning underprivileged kids onto science or helping Ph.D. students come into their own."

Some of the McKnight funds will cover conference expenses for her Ph.D. students, one way of "making sure they have the kinds of experiences that will enable them to learn what it is to be a successful scientist," Haynes says.

Besides opportunities to work closely with professors on research, "Doctoral students need to get out there as often as possible to present their work," insists Haynes. "A student starts off presenting a poster in a big hall, and a couple people come up to talk about it. Next, an individual presentation about their work, maybe 10–15 minutes, with a small audience. Then longer presentations, each one drawing a slightly bigger audience.

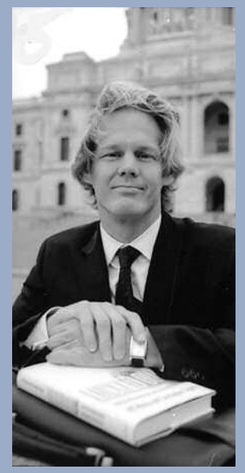
"Students start to know people in the field, including people who may someday employ them," Haynes continues. "They learn to talk about their work, to explain why it's important, and to express why what they do is exciting. It's a tough skill to learn—but finding a way to be passionate about your work is the best way to get hired."

All of this, Haynes stresses, "makes up a really important part of graduate education. This is what it's all about, right? Not just doing great science, but helping the University produce great scientists." ■

Distinguished McKnight U profs, continued

His widely cited "Scout" robot, trumpeted by the National Science Foundation, is one of robotics' most innovative concepts, and his work on vision-based monitoring has greatly benefited transportation safety. He is an Institute of Electrical & Electronics Engineers Fellow. As an assistant professor, he received a McKnight Land-Grant Professorship and a National Science Foundation Career Award.

J. Ilja Siepmann, Chemistry
Siepmann is known worldwide for his pioneering research in molecular simulation of complex chemical systems and processes. His developments of efficient sampling methods and transferable force fields have substantially expanded the frontiers of molecular simulation. His computational research has answered fundamental questions and provided important engineering parameters that are not available by experimental means. He has published more than 100 research articles and received many awards, including the Alfred P. Sloan Research Fellowship and the Camille and Henry Dreyfus New Faculty Award. As an assistant professor, he held a McKnight Land-Grant Professorship.



Christopher Uggen, Sociology
Uggen (left) is one of the most influential scholars in the world on the civic and socioeconomic reintegration of criminals, and he is the preeminent expert on felon disenfranchisement. His research tackles the felon voting issue from its historical (racial) roots to the current political consequences of disenfranchising more than two percent of the electorate. Previous honors include a Soros Foundation Open Society Institute Fellowship and election to the Sociological Research Association; he also was a U.S. Delegate for the U.S.-Japan Leadership Exchange Forum and was a University of Minnesota McKnight Presidential Fellow.

Eric Weitz, History
See profile on page 5. ■

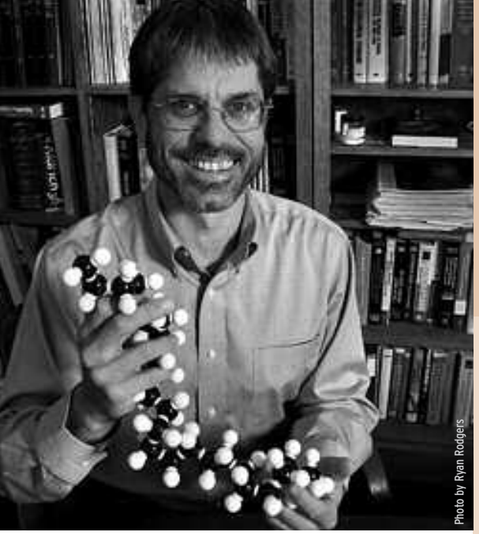


Photo by Ryan Rodgers

WE DISCOVERED THEM FIRST ...

Call it a knack for spotting talent, an investment that pays off, or proof that the best and brightest inevitably rise to the top. Actually, it's all three. With startling frequency, those University faculty members singled out for honors by the Graduate School go on to even bigger successes.

Two of the five faculty members named this year as Regents Professors (the U's highest honor) were previously tapped by the Graduate School as Distinguished McKnight Professors—**Frank Bates** (chemical engineering), above, and **Peter Reich** (forest resources). A third, **Elaine Tyler May** (American studies) was the Graduate School's 2006 Distinguished Women's Scholar for Humanities/Social Sciences.

Previously named Regents Professors who also hold the Distinguished McKnight title: **David Tilman** (ecology, evolution, & behavior), **Patricia Hampl** (English/M.F.A. program in creative writing), **Sara Evans** (history), **Megan Gunnar** (child development), and **Kathryn Sikkink** (political science). Sikkink, a Minnesota native who studies human rights issues, also was named a McKnight Land-Grant Professor at the very start of her career.

OUR NEWEST MCKNIGHT LAND-GRANT PROFESSORS
2006-08 & 2007-09

Daniel R. Bond (Ph.D., Cornell U). Microbiology & BioTechnology Institute. **Electricity & useful products from bacteria.**

Kathleen A. Collins (Ph.D., Stanford U). Political Science. **Islam and Islamism in Central Asia.**


Photo by Cameron Wittig

Demoz Gebre-Egziabher (Ph.D., Stanford U). Aerospace Engineering & Mechanics. **Design of miniature aerospace vehicles.**

Christy L. Haynes (Ph.D., Northwestern U). Chemistry. **Nanoparticles & cellular function** (profile, page 7).

Karen Ho (Ph.D., Princeton U). Anthropology. **Culture of financial markets.**

Nihar Jindal (Ph.D., Stanford U). Electrical & Computer Engineering. **Wireless communication networks.**

Yongdae Kim (Ph.D., U of Southern California). Computer Science & Engineering. **Network security solutions.**

Efie Kokkoli (Ph.D., U of Illinois, Urbana-Champaign). Chemical Engineering & Materials Science. **Tissue engineering & drug delivery.**

Ronald R. Krebs (Ph.D., Columbia U). Political Science. **Consequences of war.**

Marta Lewicka (Ph.D., Scuola Internazionale Superiore di Studi Avanzati, Italy). Mathematics. **Waves in fluid dynamics.**

Angus W. MacDonald, III (Ph.D., U of Pittsburgh). Psychology. **Where does madness happen, and why?**


Photo by Patrick O'Leary

Steven M. Manson (Ph.D., Clark U). Geography. **Decision making & changing landscapes in the United States & Mexico.**

Helene C. Muller-Landau (Ph.D., Princeton U). Ecology, Evolution, & Behavior. **Tropical forest diversity.**

Stergios I. Roumeliotis (Ph.D., University of Southern California). Computer Science & Engineering. **Networks of mobile robots & sensors.**

William Schuler (Ph.D., U of Pennsylvania). Computer Science & Engineering. **Spoken language interfaces.**

Mark J. Thomas (Ph.D., U of California, Los Angeles). Neuroscience. **Neurobiology of drug addiction.**

Kathleen D. Vohs (Ph.D., Dartmouth College). Carlson School of Management. **Why do people fail at self-control?**

Christophe M. Wall-Romana (Ph.D., U of California, Berkeley). French & Italian. **How film culture transforms texts.**

Chun Wang (Ph.D., U of Utah). Biomedical Engineering. **Design & application of biomaterials.**

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And where might those archives be as Weitz looks ahead? The next stops will include places such as South Africa, Geneva, and London, he suggests—new fronts in Weitz's efforts to enlarge our understanding of history.

"I want to look at the phenomenon of globalization," muses Weitz. "You cannot really write national histories by only looking at one country. No nation exists in isolation. In fact, the idea of nation states only came into being in the last two centuries. I want to look at the flow of ideas and products and the transformation of international systems from the 19th and 20th centuries to the 21st."

Adds passionate historian Weitz: "The archival research will itself be a thrilling intellectual exercise. Even reading ambassador reports from the 1890s is exciting to me." ■ *—Mary Shafer*

Graduate School Grant-in-Aid Recipient Alptekin Aksan

Solving a COOL DILEMMA

WORKING TO SOLVE ONE OF BIOENGINEERING'S most vital problems, Alptekin Aksan finds inspiration in a simple desert moss known as the Resurrection Plant. Found throughout the desert of the Southwest, the plant "sits there dried under the sun until it 'comes back to life' with a few drops of rain," Aksan marvels.

Alptekin Aksan in his research lab. Aksan's work on cryopreservation got a major boost from the Graduate School's Grant-in-Aid of Research, Artistry, and Scholarship Program. The program promotes the vitality and impact of faculty work; its seed money for new projects also helps to stimulate external funding. Each year, about 125 grants are awarded averaging $24,000. See related "back story," page 12.

In experimental research that could revolutionize multiple fields, Aksan, an assistant professor of mechanical engineering, is working to apply the basic "technology" of the Resurrection Plant to the storage of mammalian cells, proteins, tissues, and organs used in science and medicine. Supported in part by a Graduate School Grant-in-Aid Award, his biopreservation research is intended to develop means of preserving living cells in a dried state until they are needed for vaccines, cancer therapies, or medical research.

Aksan is one of only a dozen researchers worldwide working in a field that might aptly be called preservation unplugged. To keep cells in a state of suspended animation, scientists now depend on refrigeration, or cryopreservation—an approach fraught with problems. Frozen cells may rupture, Aksan explains, or may require stabilizing chemicals that are tricky to extract later. And keeping bioproducts iced can be vexing, he says—whether it's blood banked in rural Minnesota, a kidney headed across the country for transplant, or a vaccine shipped by plane, truck, and coolers to African villages.

Roughly a third of all the vaccines produced annually in the world, Aksan stresses, are destroyed because of problems related to refrigeration and transport. And, he adds, advances in cell-based therapies, organ transplantation, and other areas are forcing the issue: Twenty-first century medicine and science will demand that "we find ways of making cell-based products widely available, economical, efficient, and safe."

Knack for translation

Aksan's work unfolds at the highly specialized crossroads of

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Aksan, from page 11

engineering and biotechnology, and his research publications are heavy with references to "reversible membrane permeabilization," "dessication kinetics," and, as one recent article has it, "engineering nanoporous biocatalytic coatings to preserve microbial viability." Yet he boils it all down into slangy everyday terms, calling cells "these guys" and likening bio-preservation not only to the seemingly miraculous rejuvenation of a desert moss, but also to "storing oatmeal as a box of powder until you need it for breakfast."

"Baker's yeast is an even better example, because it's a live animal, right?" says Aksan, showing some of the flair for demystifying complexities that his students observe in his popular thermodynamics courses (which aim to instill in students similar skills in "scientific translation"). "Baker's yeast sits there in its box until you're baking a cake. Then you use hot water to rehydrate it and it springs back to life.

"What we want to do with cells is to figure out how to encapsulate these guys in a dried state so they're happy and functional when we need them," Aksan elaborates cheerfully. He and his research team—including three Ph.D. students, a postdoctoral fellow, and several undergraduate students—spend much of their time conducting high-tech experiments to see how the motions of molecules are affected by temperature change, the presence of certain chemicals, or various other environmental factors.

"If you say 'thermodynamics and heat transfer,' everybody says 'Minnesota.' This is the place. There is no other."

"If a cell dies, we probe exactly what goes wrong—whether it's the proteins inside the cell causing a certain kind of damage, or the membrane around the cell," he says. "Ultimately, we want to understand what to do during storage to make sure the organism does not die. What are we damaging in the cell if we dry it? What kinds of chemicals or additives do we need to put in our little guys to make sure they're stable for a long time and yet can be easily revived when needed?"

Burning a path

Aksan's migration from engineering toward the intersection of mechanics and biology began when he was designing industrial fire detection systems in Michigan. At the time, he was completing a doctorate in mechanical engineering. "Lost in the library one day, I found by chance a paper on burn injuries," Aksan recalls. "It described how you model the burn injury on skin. I realized that all the equations I'd been using to model the effects of heat in a building … were also being used in a biological setting. That got me very interested."

His particular interest in biopreservation sprouted from his research on the body's soft tissue responses to heat and load. One of his other major projects at the moment aims to understand the precise thermal effects of lasik eye surgery, skin resurfacing, and other thermal processes.

In forging new links between mechanical engineering (ME) and biology, Aksan's work further cements the U's longstanding reputation as the leading innovator in the thermal sciences. "This is the flagship university for this work," says Aksan, a native of Ankara, Turkey, who joined the University faculty in 2005 after three years of postdoctoral research at Harvard's Center for Engineering in Medicine. "If you say 'thermodynamics and heat transfer,' everybody says 'Minnesota.' This is the place. There is no other."

The heat transfer research that first put the U on the map involved the study of physical systems—from heating a home efficiently to keeping a space shuttle from burning up during reentry. This work, along with strengths in plasma technology and particle technology (and emerging strengths in biomedical engineering and industrial engineering), have kept the ME department among the top 10 such programs in the country.

More recently, faculty have extended the department's thermal dominance into the study of heat transfer in biological systems. John Bischof's studies of cryo-preservation and Allison Hubbell's work on tissue preservation both have obvious links to Aksan's work. And Aksan eagerly collaborates with colleagues doing potentially relevant work in microbiology, in biotechnology, and other fields ("all of them first-rate, another reason I wanted to come here," he says).

Alptekin Aksan, center, with two of his research assistants, Vishard Ragoonanan, left, and Eduardo Reategui. Aksan's work to preserve living cells in a dried state could revolutionize multiple fields of science. A devoted teacher, he also hopes to pass on to young scholars his skill for sharing complex research with nonspecialists. Using digital technology, he has students in his thermodynamics classes present their work to high school science students.

With colleagues in microbiology, Aksan is investigating whether an energy-producing bacteria ("these guys live mainly on the surface of iron deposits, where they create a voltage potential like a battery does") could create a "microbial fuel cell that you can use everywhere you like. If we can devise ways of harvesting the energy these guys are producing, maybe they could be added to cells or blood products to help preserve them in a dried state."

Solving biological problems

The realm of biology, Aksan insists, "is not taboo for the engineer." Yet he concedes that many of the students who come to work in his biopreservation lab "are pretty scared—'I know a little engineering,' they'll say, 'but no biology.' I tell them that what we do is bring a unique engineering approach to a problem, which in this case is how to stabilize and preserve cells without needing a refrigerator.

"Basically," continues Aksan, "we have heat and biology coming together within the framework of an engineering problem. The tools we need could come from biology, or from chemistry … from physics or medicine or pharmacy. It doesn't matter. Our job is simply to identify the tools and figure out how to use them.

"This is what engineering is. We're problem-solvers." ■ *—Kate Tyler*

Grant-in-aid program reflects a long tradition of support for advanced education and research.

AS A RECENT RECIPIENT of the Graduate School's Grant-in-Aid of Research, Artistry and Scholarship Program, faculty member Alptekin Aksan joins many hundreds of scholars—stretching back several generations—whose scholarship and teaching have been fostered by the Graduate School.

The very founding of the school, in 1905, reflected a push to better support the pursuit of knowledge by U faculty and students alike. Research had undergirded graduate education from the time that a department was founded to organize graduate study in 1885. There were 17 graduate students enrolled that first year, 9 men and 8 women in 12 fields. Some 100 students were at work 20 years later when the Graduate School was formally established by the University regents.

The school provided a centralized and controlled structure for graduate study. Early on, it also laid the groundwork for what would be ongoing support for research. Two windfalls helped: a 1905 gift from Thomas H. Shevlin for a U fellowship fund (four annual grants of $500, one each in agriculture, chemistry, medicine, and the liberal arts), and a 1906 legislative grant of $10,000 a year "for research work and publications."

The legislature's funding furthered the development of faculty research as an institutional priority—and set a precedent for state support of the U's contributions to advanced education and research.

OVER THE FOLLOWING DECADES, the Graduate School came to play an increasingly important role in forming the U of M into one of the nation's top research and graduate institutions. The leadership of Guy Stanton Ford, dean from 1913 to 1938, was especially pivotal. Recruited to Minnesota from Illinois by President George Vincent, Ford was charged with building a Graduate School of high quality by encouraging research and hiring the best and most productive faculty available.

For Ford, the quality of the Graduate School and the strength of the larger University went hand in hand. Top faculty members, he maintained, could "neither be attracted nor retained without a strong graduate school." He insisted that graduate faculty members demonstrate their qualifications for educating graduate students through their research and that new hires show promise in developing research careers. He also used his own academic networks and knowledge to lure academic stars, such as B. F. Skinner in psychology, to Minnesota.

To attract and keep top faculty and students, Ford also strengthened the U's library—and bolstered direct support for research. In the early 1920s, long before the era of large federal research grants, the Graduate School still had only the $10,000 annual legislative allocation to divvy into faculty grants. In 1926, Ford successfully lobbied the regents for additional funds by touting various faculty undertakings and their possible contributions to knowledge. Outcomes are uncertain, Ford allowed, while emphasizing that investing in work by smart faculty was a good bet: "All research is gambling on a guess made by a qualified man."

FORD ALSO RUSTLED UP PRIVATE RESEARCH FUNDING, including a large commitment from the Rockefeller Foundation—$225,000 between 1931 and 1938. This grant helped the U support outstanding faculty research even in the midst of the Great Depression.

Ford's success in securing these funds and the Graduate School's control over their distribution made the school a leader in encouraging outstanding research at the U. Today's Grant-in-Aid program continues this tradition. ■ *—Anne Huebel/Kate Tyler*

Engine of INNOVATION

Dean Dubrow talks about the challenges facing graduate education, THE ROLE OF A GRADUATE SCHOOL, and her surprising passion for graphic novels.

Vice provost and dean of the Graduate School since 2005, Gail Dubrow oversees administrative and policy issues related to graduate education, faculty research support, and interdisciplinary initiatives. Previously, she was graduate associate dean for academic programs at the University of Washington, where she also was a professor of architecture and urban design. As a fellow of the American Council on Education, she completed a project on institutional transformation to sustain interdisciplinarity. She holds a Ph.D. in urban planning from UCLA.

Interview conducted & abridged by Kate Tyler

What drew you to the U of Minnesota Graduate School?
Graduate education is a great springboard for the kinds of innovation and reform that I think are important to universities, and it seems to me that a lot of innovation is traceable to interdisciplinarity. Minnesota has for decades been at the forefront of developing interdisciplinary programs. There's also nearly unparalleled richness here, with graduate degrees in virtually every imaginable area of study and a significant number of truly outstanding programs. And with the University's extraordinary leadership, its ambitions for institutional transformation, and its strong support of graduate education—I knew this was absolutely the right move for me.

Given your scholarly background, why administration?
It turned out I had something of a knack for it, and I've had some success in getting people to play well together. And I love it. Most faculty see administration as bureaucratic and dull. I see it as complex problem-solving for change and innovation that is totally as challenging as the best research. I see the possibilities for transforming policy and practice in really imaginative ways.

American Ph.D. education has been touted as a great success story. Is that still the case?
It's the model for graduate education in the world. But the world is gaining on us. Competition is intensifying worldwide for the best students. That and budgetary crises, especially for public universities, have led us to take a hard look at what aspects of graduate education work well and what parts haven't been as successful.

Spurring a bevy of reform initiatives.
That's right. Some are programmatic—one targets completion rates for the doctorate, another aims to implement findings that graduate students benefit from having multiple mentors. The Preparing Future Faculty initiative focuses on broadening the curriculum to develop a wide range of competencies in our students. Even more important, I think, are the transformational initiatives, aimed at fundamentally reexamining doctoral education.

Meaning ...?
How it's organized and how it's delivered. If you think about it, the benchmarks are pretty standard across fields—a couple years of coursework, then exams, then the relatively isolated experience of writing the dissertation. Well, should some research experiences come earlier, to better prepare for the dissertation? Would students benefit from a more complex curriculum incorporating different learning styles? Is disciplinary and subfield mastery what it's all about, or should we find ways to promote learning involving breakthroughs across disciplines? Is individual work the sole peak experience of graduate education, or is it just as important to learn to collaborate on complex problems? Those are the kinds of questions being asked in national reform efforts like the Carnegie Initiative for Improving Ph.D. Education, in which we're a participant.

All of this again suggests a role for an overarching graduate school.
Absolutely.

Yet some view grad schools as just one more layer of bureaucracy.
We've all heard the questions—"Should there even be graduate schools? Or should we just deliver graduate education through departments and in the colleges?" I would say that just as there's a stereotype of librarians as "shushers" rather than as experts who provide access to information, there's a stereotype of graduate schools as regulators and enforcers, measurers of the margins of theses and so forth. But certainly the best—like ours—are engines of innovation. A strong central graduate school does what departments and colleges can't: connect faculty and students across the whole institution, bring a knowledge of best practices to education, and provide the resources and the support for innovation.

In annual polls of graduate deans by the Council of Graduate Schools, funding of graduate education always tops the list of concerns.
Especially because federal agencies used to provide substantial support for graduate students, but this is no longer the case—and we have to fill the gaps.

"A strong central graduate school does what departments and colleges can't."

What about state support?
Well, there's this sense of graduate education as a private good, disregarding the enormous public benefits. Whatever support does come from the legislature is often for undergraduate education. And investments in graduate education are oriented more toward research that fuels economic development—stronger in science and technology than in the core disciplines. The good news is that at this University, funding for graduate education across the board is a key part of the strategic repositioning process intended to make us one of the world's top three public research universities. And we're making innovative use of new funding from the president and provost to improve support for our graduate students.

How so?
We're providing incentives for academic programs to move away from a system that supports only a few top students, or supports just the first year or two. The goal is to provide support for all our graduate students all the way through. That starts with right-sizing our programs. We're asking academic programs to be thoughtful about what they require of their students and to assess the time needed, on average, for completion—and then to admit only as many as they can support. Beginning this year, program funding is linked to this kind of planning. That's a pretty big reform.

What about private funding?
Even with the significant strategic investments made by the University, there's an enormous gap between what we are able to provide and what we need to remain competitive with the best universities internationally. Filling funding gaps through private gifts is critical. With our new development officer, we'll be able to launch an all-out campaign for graduate education.

Traditionally, private gifts tend to go to academic units.
True. Certainly students identify with their departments. But many—especially the many who received Graduate School fellowships—deeply appreciate the role we played in fostering their education. And they can appreciate the value of "paying it forward"—making sure that those following in their footsteps enjoy the kinds of support that they did. We have 10,000 students at any moment in time; that's an extraordinary untapped base of potential support.

Are fellowships the major focus?
Yes, and of course, a fellowship makes permanent the commitment to graduate education. The real beauty of it is that we have the 21st-Century Fund that matches the payout on endowments of $25,000 or more. It's just a phenomenal thing.

As part of strategic repositioning, the U clearly has been investing heavily in interdisciplinary initiatives.
It's a key priority. The Graduate School is part of the Provost's Interdisciplinary Team, a new working group that also includes the vice president for research and the vice provost for undergraduate education. The goal is to make sure that we as an institution seed and support interdisciplinarity broadly.

Why is interdisciplinarity important in graduate education?
Graduate education has conventionally meant mastering the history, theory, and methods of a discipline and within it the minutest subfields. There's no doubt that disciplinary competency matters. But more and more, the breakthroughs—intellectual and practical—are happening at the edges of disciplines, and at the boundaries of knowledge. Faculty and students are finding it fruitful to cross disciplinary lines in subject areas, in methodologies, and in theoretical approaches. Well, that has profound implications for how we prepare students. How do we transform the curriculum, field by field, so that students have options for mastering second disciplines or the methodologies of other fields—plus the skills around collaboration needed in an interdisciplinary environment?

Is interdisciplinarity happening broadly across the University?
Very much so, both because many individuals choose to make these boundary crossings and because many research teams are formed with the express purpose of learning to talk with one another across disciplinary languages. But my observation is that still, interdisciplinarity happens in related disciplinary clusters. Political scientists and sociologists know how to talk with one another, but darned if they know how to talk to a literary critic. And geneticists and public health experts know how to talk with one another, but what about those studying the social implications of genetics? There also are some really powerful breakthroughs when the sciences butt up against cultural studies. So I'm interested in fostering surprising and ambitious cross-college collaborations that go well beyond the usual comfort zones of folks.

The Graduate School now has an Office of Interdisciplinary Initiatives.
Right. On the graduate education and training side, our role is to connect the dots across and between academic units to nurture interdisciplinary initiatives—as well as to look at how we might need to change policies and practices that have been organized around colleges and departments and single disciplines. We've launched a venture called the Network of Interdisciplinary Initiatives to develop collaborative leadership skills among those involved in interdisciplinary enterprises. More than 150 people showed up for our first meeting.

And the Graduate School also is taking a national leadership role?
We're organizing a conference for next fall that will bring together 10 major research Universities, both public and private, to explore how we can remove barriers to interdisciplinarity. Already, we've started working as a consortium to study the practices at our institutions. It's a strategy, really, for cooperating our way to the top. Fundamentally, all graduate schools face the same pressing issues; we need to look to one another for creative solutions even as we emphasize what's distinctive and innovative about our institutions.

What other innovations are in the works in graduate education here?
I'm particularly excited about our new initiative making postdoctoral fellows—talented junior scholars who work in nooks and crannies across the U, especially in the sciences—a sort of feeder pool for promising future faculty in strategically pivotal areas. The McKnight Foundation has generously allowed us to use endowment reserves from the McKnight professorship programs to build this initiative. It's a targeted effort to bring in outstanding postdocs who are aligned with future faculty opportunities in key areas. These are people who will end up as top contenders in any national search. The edge here is that we have a chance to court them.

So you must be working very closely with departments.
Right. They have the faculty, and they're on the ground in delivering education. Our role is pretty much to share best practices, think hard about where the future's going in terms of graduate education, and work cooperatively with departments and colleges to reach common goals.

That would also seem true of the new Ph.D. writing initiative.
It's a way to get at both financial and quality-of-experience dimen-

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Dubrow, from page 15

sions to graduate education. At the dissertation phase, students go from a highly structured experience—classes, exams—more or less off a cliff. So in cooperation with many units involved with writing, we're expanding supports for Ph.D. students—mentors, writing groups, and peer-based connections. I'm very excited about this—there's no one I've talked to who hasn't said this will really transform the landscape of graduate education.

What's the financial dimension of this?
It goes back to the fact that financing graduate education is a bear. Another year of loan debt or teaching assistantships isn't necessarily the outcome we're looking for. If we can shorten time to degree by providing more support at the dissertation phase, we're not just going to improve the student experience and strengthen Ph.D. completion rates—we're going to make doctoral education more affordable. And you know, the best thing is that this idea came from the competition we sponsored last year to gather ideas for improving graduate education.

That competition was your brain-child, yes?
My crazy idea. It occurred to me that everyone from the husband of a suffering doctoral student to front-line staff in academic programs probably had good ideas, whether born of a gripe or of a brainstorm. The writing initiative was a brainstorm by some of our own staff—based on an initiative to provide support to students of color in the dissertation phase. Here, again, is the Graduate School as a catalyst for collaborative leadership, a creative facilitator, an engine of innovation.

What's the impact of globalization on graduate education?
We have dedicated budgets to international recruiting now, because as I said earlier, the world is catching up with us—we're seeing new graduate institutions in India and China and Australia. And certainly our goal of being a top-three research university depends both on our recruiting excellent students worldwide and preparing our students for global citizenship. One hope for the Graduate School is that we'll begin to team with institutions around the globe to bring their expertise to our students. What if in smaller programs, where we might only have three experts in a field, our students could work with the top faculty at other institutions and even spend some time at those institutions? I think globalizing graduate education will involve not only competition, but also cooperation.

"We need experts for our institution and state who are networked globally."

How is that good for Minnesota?
We need experts for our institution and state who are networked globally. We could say that what's good for Minnesota is to recruit the best onto our faculty, and to bring the best students here. But that's not always how it works. Some are elsewhere, and we simply need to be in cooperative connection with them, to bring the best talent to bear on preparing students and on solving our regional problems.

Talk about your own scholarly background.
I'm a social historian of the built environment who works on the preservation of historic places associated with underrepresented groups, especially ethnic communities of color. I'm a good example of interdisciplinarity—I have faculty appointments in history (in the College of Liberal Arts), in the Humphrey Institute, and in architecture in the College of Design.

You've completed two books, including the award-winning *Sento at Sixth and Main.*
Yes, that was about 10 places of significance in Japanese-American heritage on the West Coast, everything from a midwifery to a bowling alley. I've worked for 12 years on preserving Asian American heritage in the West, since working on a statewide study in Washington of Asian-Pacific American heritage. Not unlike American Indian communities, Japanese-American communities have worked to expand the notion of what preservation is—not only about buildings, but also landscapes and cultural practices.

Have you managed to remain a scholar?
I have, amazingly enough. My move to the Midwest made it impossible for me to continue fieldwork on a project I loved—documenting the historic Japan-towns of California. But I'm completing my third book, which is focused on the Chinese driven out of the U.S. at the turn of century—really about how the Chinese on a small island off the Washington coast strategized to resist exclusion. This is part of my broader interest in the ways in which even disadvantaged ethnic communities exercise their power. I'm also coauthoring a book about higher education leadership with Debra Friedman, dean of the College of Public Programs at Arizona State University.

What are your nonscholarly interests?
My leisure-time pursuits are pretty bound up with my scholarly activity. But I've settled in to a social and community life—a neighborhood, a temple, my daughter's school, concerts, plays. The Twin Cities really are absolutely lovely; they just have the kind of richness that I'd hoped to find, and the cultural activities here are just off the charts. And there's a level of community that is just what you might dream of. We moved to St. Paul, near Café Latte—into an 1898 Victorian, appropriate to my interests as a preservationist—and all my neighbors came out to greet us, all the kids swept up my then 11-year-old daughter.

Are all of the books you read related to your scholarly work?
The most surprising thing about my reading taste is my passion for graphic novels.

And this is surprising because...?
Well, I don't think most people would envision a graduate dean as someone with a boundless affection for all sorts of highbrow comic books.

Is this a longstanding interest?
It's a relatively recent passion. I'm sure my interest is rooted in reading classic comics and Superman as a kid. I'm fundamentally both a visual and a textual person, in equal balance, and that is the art of it. I have had some thoughts about turning my book on the Chinese into a graphic novel.

What else are you reading these days?
I just was asked to write a blurb for the *Minnesota Women's Press* on that exact topic. My daughter and I shared a great book recently called *Totally Joe.* It's a young adult book about a boy who has come into his gay identity at 13, and it's in the form of an alphabetography (or alphabetical biography). It was not only great reading, funny and serious both, but it inspired my daughter to draft her own alphabetography. And I just think that books that inspire writing are great. And then I'm reading about the neuroscience of adolescent development, since the level of control one has over one's frontal lobe is so relevant to my family life. And some fiction—most recently *Special Topics in Calamity Physics.* The protagonist is a daughter of an academic, and there are characters who resemble animals in their behavior—along with mock footnotes of animal-lore books. It's just a hoot. ■

Proof that asking what others think is always a smart strategy, a unique GRADUATE SCHOOL COMPETITION yielded a crop of innovative ideas to strengthen graduate education and improve the graduate student experience.

Meeting of MINDS

Seth Langley, Shatia Kerr, and Keith Brooks, who earned graduate degrees this year in educational fields. All participated in the Graduate School's Community of Scholars Program.

MAKING IT EASIER for faculty to work across disciplinary boundaries. Helping Ph.D. students build community and deal with crippling writer's block. Creating bridges for talented postdoctoral fellows to become U of M faculty members. Those are a few of the many Graduate School initiatives to result from a unique competition aimed at ensuring that the U's graduate programs remain at the top of their game.

The Graduate School's "Innovative Ideas Competition" grew out of a symposium marking the school's centennial in 2005. The competition asked for fresh ideas that addressed three pivotal challenges facing U.S. graduate education:

- Diversifying America's intellectual stock by opening access to underrepresented groups.
- Re-envisioning the scope, content, and purposes of the Ph.D., with an eye toward innovation in doctoral education for the 21st century.
- Aligning institutional policies and practices with increasingly interdisciplinary teaching, research, and training.

Asking for "bold ideas and new paradigms" to strengthen graduate education is, says Dean Gail Dubrow, "consistent with the overall strategic repositioning under way at the University. How do we attract the most talented and diverse students to our programs? How do we organize and deliver education to produce excellent experiences and outcomes? How do we promote the best scholarship in all fields, and connect it to the needs of our state and world?"

These are key questions for graduate education, says Dubrow, "and they're also central to the larger process under way to make the University one of the very top public research universities in the world."

The Graduate School already is implenting one of the most promising ideas—which, as it happened, came from two members of the Graduate School's own staff. They proposed that the Graduate School expand a small writing program aimed at scholars of color into a wide-ranging writing support program for Ph.D. students across the University (see sidebar). ■

A 'twofer': NEW WRITING INITIATIVE

The Graduate School will roll out an initiative next year to link dissertation-writing doctoral students with a panoply of writing workshops and support groups. The idea was suggested by Patricia Jones Whyte, director of the Graduate School diversity office, and Noro Andriamanalina, coordinator of the school's Community of Scholars Program.

This initiative also reflects ideas that emerged from the Ph.D. Completion Project (see page 21). In cooperation with other campus units, the Graduate School will offer students concrete opportunities to develop their writing skills as well as to connect with supportive communities of peers. The initiative is intended to keep students focused, confident, connected, and productive when they progress from classes and exams into the more unstructured stage of dissertation writing.

The initiative is, says Whyte, a "twofer": Besides enhancing the quality of graduate students' experiences, the project will improve time to degree and lower attrition rates—which in turn will reduce overall costs for students. ■

In addition to the writing initiative, several other "innovative ideas" from the competition were singled out for recognition by the Graduate School:

A University-wide Interdisciplinary Faculty Fellows Program. Proposed by the College of Food, Agricultural, and Natural Resource Science Graduate Working Group, led by Susan Galatowitsch (horticultural science), with Deborah Allan (soil, water, and climate), Rex Bernardo (horticultural science), Amy Damon (applied economics), Raymond Newman, (fisheries and wildlife), Rebecca Montgomery (forest resources), Carolyn Silflow (plant biology), Arthur Walzer (rhetoric), and Lisa Wiley (natural resources).

An initiative to develop a pedagogy and practice for public engagement. Proposed by a team including Nicholas Jordan and Kathryn Draeger (agronomy and plant genetics), Francis Harvey (geography), Catherine Jordan (Children, Youth and Family Consortium), Naomi Scheman (philosophy and women's studies), and John Wallace (philosophy).

An initiative to increase the matriculation of high-quality graduate students in the basic biological and biomedical sciences. Proposed by Mark Rutherford (veterinary and biomedical sciences). ■

Keys to the future
OUR GRADUATE STUDENTS

Andrew Drenner

Designing real-world robots

BEING IN ANDREW DRENNER'S laboratory is a bit like being a kid on the playground again.

"Robots are just cool!" Drenner says as he demonstrates how his small robots maneuver through the lab. He picks up a small, silver, cylindrical robot and throws it across the room. The little device skids across the floor, hits the wall, and then turns around and starts rolling back across the room—broadcasting video of everything around it.

First impressions to the contrary, Drenner—a 2007 Ph.D. graduate in computer science—isn't just messing around with robots, but testing their survivability. A budding robotics researcher, he works to develop self-recharging robots that can perform varied tasks, especially in life-threatening situations.

"There are so many people who put themselves in danger—firefighters, police, military personnel—and so many things that you can do to reduce their risk," Drenner says. "Robots may save innocent lives by providing more information about dangerous situations. Throw the robot into a building to locate bombs or people who are trapped, or send it into a toxic spill, and it could show you the situation or the damage without jeopardizing human lives."

ANDREW DRENNER, on the steps of Johnston Hall with one of his tiny robots. At the U, Drenner met his spouse, Sarah, a fellow graduate student in computer science. Even their honeymoon in Greece had a scholarly dimension, as Drenner attended a conference while the two were in Cyprus. Both would like eventually to teach at the university level and continue research in their field.

Intriguing puzzles

The son of an engineer, Drenner has been fascinated with both robots and computers since childhood. By high school, the Iowa native was a gifted techie who developed software to help with his homework (programs later used by his teachers). He began work on mobile robots during an undergraduate internship at a Tennessee research arm of the U.S. Department of Energy.

Drenner landed a Graduate School Dissertation Fellowship for his Ph.D. work, which deals with how to coordinate teams of multiple miniature robots to extend their longevity. He hopes to figure out how to minimize the time and energy it takes small robots to find the larger power station for recharging.

Testing his tiny robots in real-world conditions, he's hurled them off rooftops and set them chasing across Northrop Plaza. He's also had the U.S. military conduct tests. All the while, he's probing multiple issues: "Where do you keep the docking station? Do you move it around or keep it in one place? How do you coordinate multiple stations? Are you swapping the robots you're recharging? What happens if one runs out of power? How do you determine the most cost-efficient route for the robot? If the direct route is over gravel or wood chips, is an indirect path better?" Answering these questions, Drenner says, will enable scientists to make small robots more efficient—and thus more usable in tough real-world situations.

Drenner came to the U's top-ranked computer science department because "it had by far the coolest robotics program." His mentor is U Professor Nikolaos Papanikolopoulos, a leading robotics researcher (recently named a Distinguished McKnight Professor by the Graduate School). Drenner credits his mentor with giving him an unprecedented level of exposure to the scientific community over the years—"whether introducing me to top researchers at workshops or having me assist in the planning of an international convention." He won the National Science Foundation Graduate Reserch Fellowship and has published some 20 conference papers.

Drenner shares his lab with professors and students from computer science, mechanical engineering, and electrical engineering—a fertile "mixing up of disciplines" in which the U excels, Drenner says. The innovation of his colleagues "has allowed me to look to new areas that I may not have previously considered." That's critical, he stresses, given the inherently interdisciplinary scope of his work.

Drenner notes that being singled out for a Graduate School Dissertation Fellowship "is an incredible honor. There are so many amazing graduate students at the U working on everything from curing diseases to ensuring we don't destroy our environment," and his own focus on using robots to save and protect human life is "just one of the many noble causes that researchers here participate in every day." ■

—Erica Brumm/Kate Tyler

SUSAN HAWTHORNE, a doctoral student in philosophy, on Northrop Plaza. She received a Graduate School Dissertation Fellowship for her research exploring views and treatment of mental illness from the perspectives of philosophy of biomedical science and ethics, with attention-deficit hyperactivity disorder (ADHD) as the primary example. Her work linking philosophy to current social and scientific issues is, she says, "an effort to make a positive difference in our understanding and treatment of one another."

QUICK TAKES:

Emerging PATHBREAKERS

Even by the time they start outlining their Ph.D. dissertations, many U of M graduate students already are making marks in their fields. Each year, GRADUATE SCHOOL DISSERTATION FELLOWSHIPS provide crucial support to some 100 emerging pathbreakers. As these examples show, they're tackling a wide variety of intriguing topics.

Angela Bos, Political Science
Stereotypes at the Gate? The Influence of Legal and Institutional Rules on Evaluations of Women Candidates in Electoral Nominating Processes
Focus: Women's underrepresentation in political office—and whether party nomination rules promote gender stereotypes. Adviser: John Sullivan, political science.

FACTOID/Bos received the Robert T. Holt Distinguished Doctoral Dissertation Fellowship, named for a former dean of the Graduate School and professor of political science. Each year this award goes to the top fellowship nominee in political science.

FACTOID/Craft has received a graduate fellowship funded by Wayne Pletcher and Carol Pletcher ('79) plus a coveted National Science Foundation award. Her research often finds her working closely with wild animals in Tanzania.

Meggan Craft, Ecology, Evolution, & Behavior
Viral Transmission Dynamics among Serengeti Carnivores
Focus: Dynamics of canine distemper virus and rabies in the Serengeti ecosystem—and how to control these multi-species diseases. Adviser: Craig Packer, ecology, evolution, & behavior.

Andrew Drenner, Computer Science
A Framework for Distributed Robotic Teams
Focus: How to maximize the problem-solving efficiency of robots. *See profile, page 18.*

Susan Hawthorne, Philosophy *(photo above)*
The ADHD Paradigm in Medicine, Science, and Society: Its Legitimization—and Its Critique
Focus: Attention-deficit/hyperactivity disorder and the controversies that surround the diagnosis. Adviser: Helen Longino, philosophy.

Jennifer Illuzzi, History
The 'Gypsy' Problem and the Nation-State in Germany and Italy, 1870–1914
Focus: Treatment of Gypsies by governmental authorities and the public in Germany and Italy, 1870–1914—and especially how marginal groups result from the construction of the nation-state. Advisers: Eric Weitz and M.J. Maynes, history.

Adam Conrad Johnson, Neuroscience
Learning and Memory in the Rodent Hippocampus: Electrophysiology, Modeling, and Behavior
Focus: Integration of experimental neuroscience with theoretical and computational modeling (to improve understanding of cognition). Adviser: A. David Redish, neuroscience.

Luis Morera, History
Royal Ceremonies in Late Medieval Spain, c. 1350–1516
Focus: Social and economic implications of royal reception ceremonies on municipalities in late medieval Spain. Adviser: William Phillips, history.

Petter Woll, Microbiology, Immunology, & Cancer Biology
Lympho-Hematopoietic Development from Human Embryonic Stem Cells
Focus: Development of a specific type of white blood cell (natural killer cells) from human embryonic stem cells. Adviser: Dan Kaufman, microbiology.

FACTOID/ Woll's 2005 article in the *Journal of Immunology* was the first report in the world describing the ability to generate natural killer cells from human stem cells.

GRADUATE SCHOOL DISPATCHES

NEW GRADUATE SCHOOL PORTAL

AN INNOVATIVE NEW WEB PORTAL is providing a wealth of resources and new interactive opportunities for Twin Cities Graduate School students. Unveiled in 2007, the portal—an online "hub" for master's and Ph.D. students in all fields—includes many features to meet students' evolving needs and expectations.

The comprehensive site includes registration and financial alerts, discussion boards, and program-specific tools. It also boasts a multimedia panoply of resources—not just on academics, career, coursework, and the library, but also on finances and daily living, health and wellness, leadership, and involvement. Video interviews with graduate students and graduate faculty are featured, as well as audio and video clips from local media and links to hundreds of Web sites at the U.

Two portal "views" were created, one for newly admitted students (to replace the CD-ROM mailed to new admits for the past eight years), and one for continuing students. The "My Academic Unit" section provides information tailored to individual programs and also creates an enhanced sense of community. Discussion boards allow enrolled and admitted students in a specific program to correspond with one another.

The portal reflects a collaboration by the Graduate School, the Office of the Vice Provost for Distributed Education and Instructional Technology, and the Office of Information Technology.

HONORING DIRECTORS OF GRADUATE STUDIES

With Ph.D. and master's programs in some 150 disciplines, the Graduate School relies on directors of graduate studies and their assistants in each department. They are often prospective students' first point of contact with their graduate programs and work closely with students throughout their academic careers.

"Their importance cannot be overstated. They play crucial roles in the academic and professional lives of our students," says Vice Provost and Graduate School Dean Gail Dubrow.

In 2003, the Graduate School implemented the Best Director of Graduate Studies (DGS) and best DGS Assistant awards, each of which carries a $1,000 honorarium.

The 2006 Best DGS awards were given to **Dan Kelliher,** political science, and **James Reinardy,** social work. The Best DGS Assistant awards went to **John Gardner,** mechanical engineering; and **Louis Shand,** microbiology, immunology, and cancer biology.

Roxanne Ornelas (geography) was one of the 2,632 students who earned graduate degrees at the U this past year.

PH.D. COMPLETION PROJECT UNDER WAY

EARNING A DOCTORATE can be a lengthy and demanding process. Most students who start do have the academic ability to finish, studies say. Yet attrition from Ph.D. programs averages 30–50 percent nationally. What's going on?

Some answers have come from the Ph.D. Completion Project, an in-depth study begun last year by the Graduate School. The University is one of 21 Canadian and U.S. universities taking part in a three-year, grant-funded project launched nationally by the Council of Graduate Schools to provide a comprehensive understanding of attrition and completion in doctoral study. Last year, the U surveyed nearly 300 first-year Ph.D. students in 14 programs, from American studies to mechanical engineering, economics to neuroscience. Over three-fourths responded, offering information about their experiences as new doctoral students.

The results will pinpoint student stumbling blocks and enable the Graduate School to develop "best practices" to help students move smoothly toward their degrees. So far, three priorities have emerged: ensuring a good fit between a student and a graduate program; developing a community of support among students and faculty (and also making graduate education family-friendly), and providing good advising and mentoring as students progress through their coursework and into the less structured dissertation phase. The Graduate School is reviewing data from a second survey to identify additional strategies to ensure student success.

THE U'S NEWEST LEADERS IN GRADUATE EDUCATION

DOUG ERNIE, graduate school associate dean

Photo by Mike Rolletson

Professor Doug Ernie, associate head of the Department of Electrical and Computer Engineering, recently joined the Graduate School's senior leadership team as an associate dean. He will coordinate external reviews of academic programs and interdisciplinary centers for the U, in collaboration with the provost and vice president for research. The reviews help the University ensure the quality and global competitiveness of its programs.

Ernie brings a mix of research, teaching, and leadership experience to his new role. An expert on gaseous electronics and plasma engineering, he maintains an active research agenda and has much experience collaborating on interdisciplinary initiatives, including review teams for the National Science Foundation. He also has chaired policy and fellowship committees for the Graduate School.

LARRY KNOPP, associate dean for UMD

Larry Knopp is the new associate dean for graduate education at the U's campus in Duluth. Knopp, who joined the UMD faculty in 1989, is a McKnight Land Grant Professor of Geography. He is a distinguished scholar of urban, political, and cultural geography, and was a founding member and longtime editor of *Gender, Place and Culture,* a journal of feminist geography. He served six years as head of the geography department and 12 as director of the Center for Community and Regional Research (the Duluth arm of the U's Center for Urban and Regional Affairs).

SHOUTOUTS/GRADUATE SCHOOL PEOPLE

NEH SUMMER STIPEND AWARDS

The Graduate School's two nominees, professor **Timothy Brennan** and assistant professor **Shaden Tageldin** (right), both of cultural studies and comparative literature, were awarded National Endowment for the Humanities Summer Stipends in 2006.

The Graduate School matches the stipends, which support research and writing to expand understanding of the humanities. Brennan examines the colonial imagination in modern European thought, while Tageldin focuses on "European empires, native intellectuals, and translation in Egypt, 1798–1952."

LUCE SCHOLARSHIP IN ASIA

Joseph Hartman Walla, a CLA honors graduate in political science, is one of just 18 scholars nationwide to have received the Luce Scholarship for a professional internship experience in Asia in 2006–07. Walla, who was nominated for this scholarship by the Graduate School, also is a recipient of the prestigious Truman Scholarship. After a year of study in Thailand, he will pursue a graduate degree in public policy.

FULBRIGHT WINNERS

Adam Conrad Johnson and **Todd Riley Olin** are among the U students awarded prestigious Fulbright Scholarships for 2006–07 and 2007–08. Both will study in Norway as part of the Graduate School's Fulbright exchange program with the Norwegian University of Science and Technology. Johnson, a Ph.D. student in neuroscience, will study how pharmacological manipulation affects animal behavior. Olin, a law graduate, will compare U.S. and Norwegian energy policy.

Other recent Fulbright recipients (with majors, destinations, and subjects of study) are:

- **David Aftab Ansari** (B.A., psychology), Senegal: role of Islamic community in the de-stigmatization of HIV/AIDs.
- **Tovah Bender** (Ph.D. student, history), Italy: artisan women in 15th-century Florence.
- **Rachel Maureen Brummel** (Ph.D. student, conservation biology), Australia: decision-making and planning in bushfire management.
- **Catherine Eileen Kirchman** (2005 B.A., German studies), Germany: to teach under a Fulbright teaching assistantship.
- **Luis Xavier Morera** (Ph.D. student, history), Spain: royal ceremonies of late medieval Castile and consolidation of the monarchy.
- **Richard Charles Parks** (Ph.D. student, history of medicine), Tunisia: destruction of a district by French colonial public health officials.
- **Aeleah HeaRan Soine** (Ph.D. student, history), Germany: German nurses' interactions with U.S. and British nurses (1830s to World War I).
- **Elizabeth Margaret Swedo** (Ph.D. student, history), Iceland: Icelandic religious practices 1300–1550 in Scandinavian/ European contexts.
- **Rebecca Trotzky-Sirr** (medical student), Venezuela: successes and challenges of the Barrio Adentro clinics (plus study in a public health program in Caracas).
- **Julie Elizabeth Whitcomb,** (Ph.D. student, mechanical engineering), Germany: how interplay between retinal blood flow and blood vessel elasticity might help prevent blindness.

MULLEN/SPECTOR/TRUAX WOMEN'S LEADERSHIP AWARD

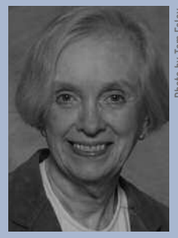
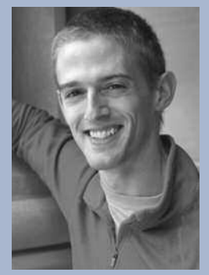


Photo by Tom Foley

Shirley Garner, associate dean of the Graduate School and professor of English, received the University's 2007 Mullen/Spector/Truax Women's Leadership Award. Garner, a Texas native, has been a transformative leader at the U since the 1970s. She helped to launch one of the country's first women's studies programs, to establish the Center for Advanced Feminist Studies, and to cofound the Feminist Studies in Literature group. She served two terms as chair of the English department, among numerous campus leadership roles, and has championed many initiatives to build bridges between the University and the community. Her publications include the first-ever anthology of feminist psychoanalytic criticism as well as a volume linking research with personal narratives (whose royalties supported a graduate fellowship in feminist studies). The award she received is named for Pat Mullen, Janet Spector, and Anne Truax, three of the U's other pioneering leaders on women's issues and diversity.

DISTINGUISHED WOMEN SCHOLARS

An acclaimed gerontologist and a world leader in aerospace engineering both received the 2007 Distinguished Women Scholars Award from the Graduate School and the Office of University Women. **Rosalie Kane,** health policy and management, was the recipient in the humanities, social sciences, and arts. She has been at the forefront of work to improve long-term care and support services for elderly people worldwide. **Ellen Longmire,** aerospace engineering and mechanics, was the science and engineering recipient. She is widely known for her work in multiphase flows and the application of optical measurement techniques to fluid mechanics.



M.A. THESIS AWARD

Nicholas (Max) Handler, a graduate student in geography, received the Graduate School's Distinguished Master's Thesis Award for his study of the "genealogy" of the Norwegian Coast Cod, a type of fish. Handler has also benefited from a Graduate School Fellowship and a National Science Foundation Fellowship. He is now pursuing a Ph.D.

A GLOBAL LEADER: RECRUITING THE BEST, WORLDWIDE

THE GRADUATE SCHOOL IS IMPLEMENTING an ambitious plan to ensure that the best and brightest graduate students from around the world enroll at the University of Minnesota.

Part of the U's strategic effort to position itself as a global leader, the plan also is intended to counter the steep decline in international student applications and enrollment that followed the events of September 11, 2001. In response, universities abroad intensified their international student recruitment efforts, and global competition for first-class students increased dramatically.

Making the University a GLOBAL INSTITUTION through internationalization is a key goal of the U's strategic positioning process.

The plan the Graduate School is implementing reflects the recommendations of an all-University committee as well as suggestions from the directors of graduate studies in programs campus-wide. Overseas networking and recruiting trips are a prime strategy, coupled with heightened efforts by individual graduate programs to achieve a broader global base.

Graduate School staff and graduate faculty already have made several recruiting trips overseas. Andrea Scott, director of admissions, visited Turkey in 2005 and India in 2006 and will return to Turkey this fall with political science professor Martin Sampson. Assistant admissions director Andrew Lucas and electrical engineering professor Bruce Wollenberg went to China last year to attend the International Education Expo in Beijing.

Lucas returned to Beijing this past summer with economics professor Jan Werner, and has also recruited in Canada. Meanwhile, Scott, Lucas, and others in the Graduate School are working with academic programs to design recruitment strategies for various disciplines.

TORSKE KLUBBEN FELLOWSHIP

Breakthrough eye research ... and a unique Graduate School partnership

WHEN THE UNIVERSITY announced last year that it had taken a controlling interest in a new company to treat the eye disorder macular degeneration, graduate student Paul Loftness had reason to thank the Graduate School—and his Norwegian roots. Loftness joined two University professors (the Institute of Technology's Arthur Erdman and the Medical School's Timothy Olsen) to develop and patent the breakthrough technology for the startup, which is called Macular Regeneration. Loftness's work as a Ph.D. candidate in mechanical engineering was supported both by a Graduate School Doctoral Dissertation Fellowship and by another fellowship fund administered by the Graduate School: the Torske Klubben.

The fund is named for a Minneapolis club devoted to Norwegian-American history and culture. Torske Klubben has raised funds to support Norwegian graduate students at the U for over half a century. In the mid-1990s, through a partnership with the Graduate School (which matches all Torske Klubben Fellowships with tuition scholarships), the club widened its focus to include Minnesota residents with a special interest in or connection with Norwegian culture.

Loftness was an ideal candidate. He had the strong leadership skills, academic record, and clearly defined career interest required of fellowship recipients. More than that, he still lives on the farm in southwestern Minnesota settled by his Norwegian ancestors, and since childhood he has maintained a lively interest in Norwegian artistic design. An accomplished woodturner, Loftness creates wooden bowls by hand, in the Norwegian tradition. He demonstrates his craft annually at the Nordic Fest at the Vesterheim Museum in Decorah, Iowa.

The vision-related technology Loftness helped develop—known as the "Olsen/Loftness/Erdman Device"—has shown great promise in studies, reports say. Loftness has pegged it as likely to "revolutionize" surgery for macular degeneration, a disorder that afflicts more than 10 million Americans and is the leading cause of blindness in older people. *—Myrna Smith/Kate Tyler*

FOUNDED IN 1933, the Torske Klubben is a Minneapolis club of men of Norwegian heritage who are deeply interested in Norway and Norwegian-American history and relationships. The group meets monthly to share a lunch of traditional Norwegian fare—including *torsk* (codfish), flatbread, boiled potato, and *aquavit* (a flavored liquor distilled from a potato mash). Its membership includes many prominent Minnesota citizens, including Chief Justice Russell Anderson.

Besides its social mission, the club aims to support future leaders and maintain strong cultural ties between Norway and America. The club's fellowship fund for graduate students dates to 1945, when it aided Norwegian students as a way of helping Norway recover from its occupation by the Germans during World War II.

Now, through the club's special partnership with the U Graduate School, several awards are made each spring to Norwegians and Minnesotans with a Norwegian connection. The awards each carry a $13,000 stipend, plus a full tuition scholarship from the Graduate School. Recipients are feted at Torske Klubben luncheons.

Recipients of the fellowship for 2007–08 are: **Kylah Aull,** music; **Leif Eikevik,** architecture; and **Ragnhild Hjeltnes,** public affairs.

B.J. Fesler meets with the Graduate School's Bill Venne. Fesler's gifts helped create the U's Fesler-Lampert Public Humanities Chair and Professorship, to strengthen the connections between humanities scholars and public audiences.

American studies trailblazer Riv-Ellen Prell, left, recently was appointed as the Fesler Lampert Chair in Public Humanities. Prell is analyzing institutional efforts to foster an "American" identity in young Jews after World War II. Meanwhile, the title of Fesler Lampert Professor in Public Humanities will be assumed by Erika Lee (history and Asian American studies), who is reexamining America's immigrant past from comparative and transnational perspectives.

Photo by Terry Flaust

SUPPORTING GRADUATE EDUCATION

"Supporting graduate education goes to the very heart of the University's pursuit of excellence. Closing the gap between the University of Minnesota and our competitors for the best graduate students in the world will require us to pursue multiple means of financing—both for fellowships and for support of academic programs, especially in new interdisciplinary areas. We're thrilled to launch our new fund-raising campaign for graduate education, and Bill Venne's just the person to head it up."
–Dean Gail Dubrow

BILL VENNE joined the Graduate School in June as development director. He has 18 years of experience raising funds for Minnesota cultural organizations including Illusion Theater, the Minnesota Opera, Ordway Center for the Performing Arts, and Hennepin Theater Trust. Venne will oversee the Graduate School's campaign to strengthen funding for graduate education.

BIG DREAMS

"WHY WOULD ANYONE EVER WANT TO FUND-RAISE FOR A LIVING?" In my 20 years of raising funds for worthy organizations, I have heard that question from friends and total strangers alike. The answer is easy—the extraordinary people you meet, and the thrill of helping them realize their dreams for causes they care deeply about.

Though I have been director of development for the Graduate School for only a few short months, I have already met two amazing donors. Both are women who, through their support of the University of Minnesota, are ensuring the continuation of their late husbands' dreams.

OLGA ZOLTAI and her late husband, Professor Emeritus Tibor Zoltai, emigrated from Hungary during World War II. They have always appreciated both their adopted and native homelands and the value of a global perspective. In 2000, they established the Zoltai Graduate Fellowship. It provides fellowships for full-time Graduate School students who have a strong interest in and a connection with Hungary or its culture. This year's recipient is Hungarian Fulbright Scholar Sandor Klapcsik, who is studying in the U's English department.

Another amazing donor is **ELIZABETH FESLER,** better known as B.J. Her spouse was the late David Fesler, whose family has a long history of supporting the University of Minnesota. B.J. and David shared a strong interest in stimulating interdisciplinary teaching and research at the U. Over the years, the couple funded five Fesler-Lampert chairs and professorships—including two in public humanities (see above).

Stephen Polasky (applied economics) has held the Fesler-Lampert Chair in Ecological and Environmental Economics since 1999. The Fesler-Lampert chairs in urban and regional affairs, aging studies, and public humanities all are annual appointments.

When I met both Olga and B.J., I was struck by their love for the University as well as the richness of their visions. That's our goal as development professionals—not only to help worthy organizations prosper, but to to help donors realize their dreams through philanthropy.

The Graduate School's role is to support world-class research and teaching at the U of M. If I can help you realize your own dreams for the University, for Minnesota, and the world, please contact me at 612-625-6977 or at venne025@umn.edu. *—Bill Venne, director of development*

THE GRADUATE SCHOOL

UNIVERSITY OF MINNESOTA
Driven to Discover℠

Award-winning Dissertations

Their topics are timely, their work is brilliant, and they go on to promising positions as up-and-coming scholars and leaders. They are the recipients of the Graduate School's annual "best dissertation awards," which honor (complete with $1,000 bonus and Campus Club ceremony) the U's top Ph.D. graduates in four broad disciplinary areas. Here's a brief look at the recipients for 2006 and 2007.

Arts & Humanities

Scott M. Laderman
American Studies
(Patricia Albers and Elaine Tyler May, advisers).

"Witnessing the Past: History, Tourism, and Memory in Vietnam 1930–2002."

Now: Assistant professor of history, University of Minnesota, Duluth.

John Troyer
Comparative Studies in Discourse and Society
(John Archer, adviser).

"Technologies of the Human Corpse."

Now: Visiting assistant professor of comparative studies, Ohio State University.

Biological & Life Sciences

Laura Angélica Díaz-Martínez
Molecular, Cellular, Developmental Biology & Genetics
(Duncan J. Clarke, adviser).

"The Centromere Linkage Pathway (CLiP): Towards a New Model for Sister Centromere Cohesion."

Now: Postdoctoral associate in pharmacology, University of Texas.

Jess Haines
Epidemiology
(Dianne Neumark-Sztainer, adviser).

"V.I.K. (Very Important Kids): A Pilot Program To Impact Weight-Related Teasing, Dieting, Internalization of Media Messages, and Body Satisfaction among Children."

Now: Instructor, Harvard Medical School.

Physical Sciences and Engineering

Nathan E. Schultz
Chemistry
(Regents Professor Donald G. Truhlar, adviser).

"Computational Nanoscience."

Now: Senior research chemist, 3M.

Jing Wang
Aerospace Engineering
(D.D. Joseph, adviser).

"Topics in Multiphase Flow."

Now: Postdoctoral research associate, University of Minnesota.

Social & Behavioral Sciences & Education

Pamela Kay Bjorklund
Nursing
(Joan Liaschenko, adviser).

"Taking Responsibility: Toward an Understanding of Morality in Practice."

Now: Assistant professor, College of St. Scholastica.

Katja M. Guenther
Sociology
(Robin Stryker, adviser).

"The New Trümmerfrauen: Rebuilding Women's Welfare in Eastern Germany since German Reunification."

Now: Assistant professor of sociology, California State University, Fullerton.

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