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UNIVERSITY OF NEW HAMPSHIRE

EXCELLENCE

1998



Teaching • Research • Public Service

Models for Excellence

This publication celebrates the richly diverse backgrounds and points of view that faculty bring to their students and to the University. Each year certain faculty members are singled out by their peers for special recognition.

What this publication makes clear is that there is no single model for "excellence" at the University, and that it takes a selection of scholars from different disciplines to represent our faculty as a whole.

It's that combination of excellence across the campus that makes this my favorite of the University's publications. Here faculty speak for themselves about their work in the context of the lives they live. And what a rich variety of voices we hear.

At the heart of any university is the work of faculty centered on teaching and learning. The teachers are themselves active learners, sharing their discoveries with their students.

At New Hampshire's flagship university, with its land-grant, sea-grant, and space-grant charters, teaching and learning include service to the public. But within the three-part mission of teaching, research, and public service, faculty roles take on a life of their own.

Walter Eggers
Provost and Vice President for
Academic Affairs

Excellence in their careers

Reaching a career pinnacle means a continued commitment to students, disciplines, and the University.

Ronald Clark
Distinguished Professor

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Jan Golinski
Outstanding Associate Professor

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Kevin Short
Outstanding Assistant Professor

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Excellence in research and public service

Along with teaching, research and public service are prized components of the University's three-part mission as a land-grant institution.

Jan Nisbet
Excellence in Research

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David Ramsey
Excellence in Public Service

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Excellence in the classroom

Teachers who excel do more than convey information. They share a love of learning and passion for knowledge that challenges students to become their best.

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Ronald Clark

On call with Ron Clark

Reacting to radar at a moment's notice

IT'S HARD TO TAKE A VACATION WHEN you run your own radar. Just about impossible, actually. "Basically I've been on call for more than 25 years," says Ron Clark, who has made some pretty nasty late-night treks to check on his radar, housed in a trailer at the edge of the woods. He's tramped through snow, dashed through downpours, and slogged through mud—all in the name of research.

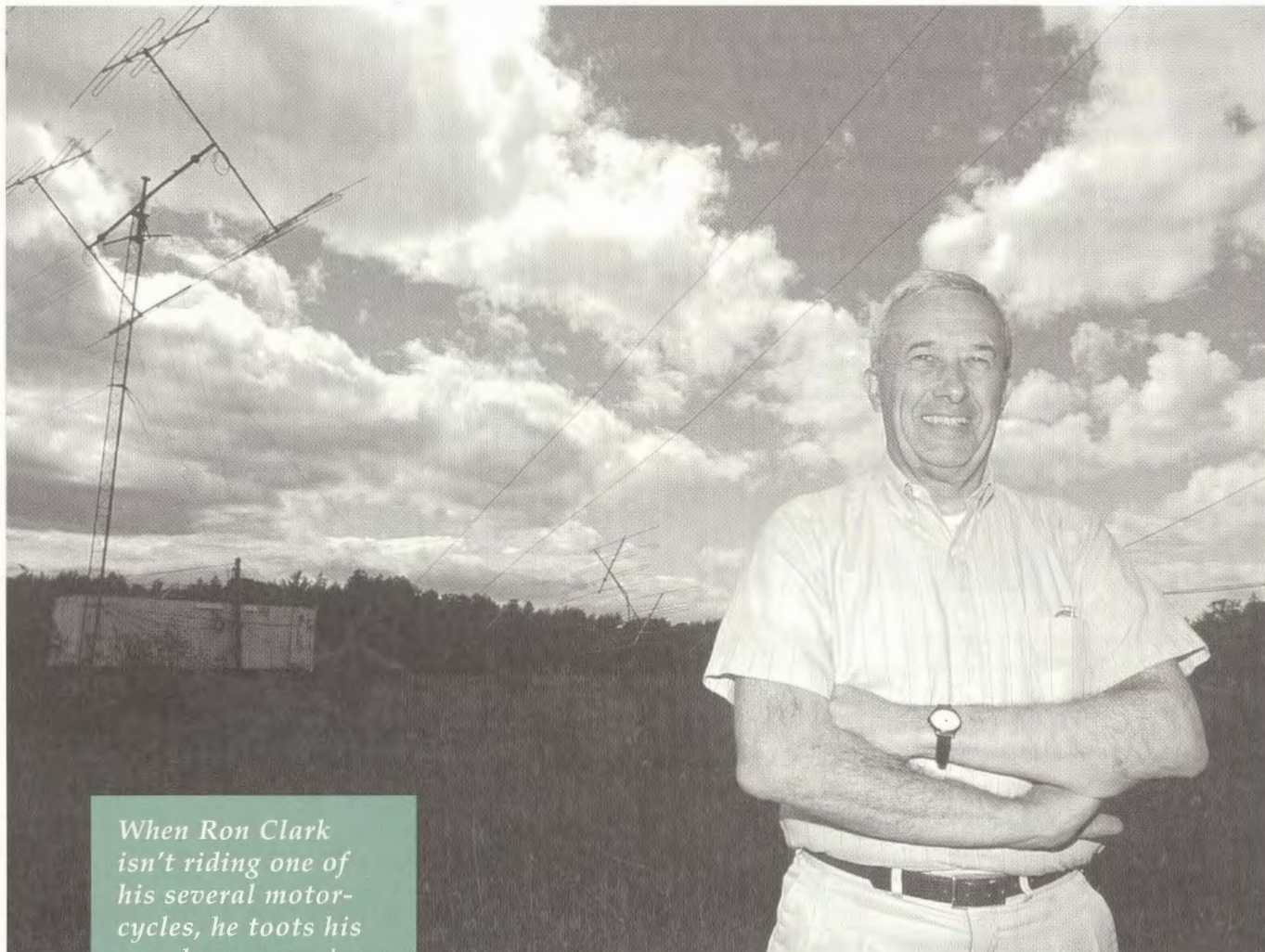
"Once you start this sort of work, it's hard to stop," says Clark, whose pulse Doppler radar station in Durham's Foss Farm Woods is thought to be the oldest continuously operating meteor radar site in the northern hemisphere. The professor of electrical engineering studies solar tides, planetary waves, and acoustic gravity waves—and he does so with legendary commitment.

Day and night for more than 25 years, two spidery antennae have sent radar signals 100 kilometers into the atmosphere. Information comes back roughly 1,000 times a day—every time the radar records a meteor. No bigger than grains of sand, these meteors whoosh by at 10 kilometers per second, leaving in their wake a stream of ionized particles. The radar signals that bounce back from these conductive "trails" add one more tiny piece to a complex research puzzle.

The process is painstakingly slow. "It's like trying to do a chemistry experiment outside in the middle of a windstorm," says Clark, whose work contributes to a worldwide effort to map a comprehensive picture of the upper atmosphere. In the 1970s, Clark was one of the first to spot the two-day wave, a back and forth sloshing of the atmosphere every 48 hours. "We were newcomers to this field," he remembers. "I told people about this strange wave and nobody was interested. Now it is a much-studied atmospheric component." More recently, Clark was the first to spot a giant seven-day planetary wave that swept through the atmosphere in August 1993.

As more satellites are launched, understanding "space weather" becomes ever more significant. "We depend on satellites for so much of our communication—everything from banking to air travel," says Clark. "If we get cut off, we're in real trouble." The value of Clark's work is affirmed by the nearly continuous National Science Foundation funding he has received during the past three decades. Clark's commitment to his research is part of what earned him this year's Distinguished Professor Award. But his commitment to teaching and to the University is equally noteworthy. "Unlike awards that are for teaching, research, or service, this one demands that you demon-

When Ron Clark isn't riding one of his several motorcycles, he toots his own horn, occasionally, when he picks up his trumpet for a bit of Dixieland jazz. He still performs with the "Dixieland Dads," a band started with fathers of some of his daughter's friends at Berwick (Maine) Academy.



strate excellence in all things over your whole career," says Professor Tom Miller, former chair of the Electrical & Computer Engineering department. "You have to be excellent in many ways for a very long time to win this award." Student evaluations praise Clark's teaching for its practicality. "Communications theory and digital signal processing are among the most highly mathematical aspects of electrical engineering," says one. "Dr. Clark brings a New Hampshire north-country practicality to his treatment of even the most theoretical material."

Clark values his teaching as a real opportunity. "Learning new things everyday, working with young people, and experiencing the joy of seeing students' eyes light up when they figure out a new concept makes teaching a neat job," he says. During 41 years at UNH, Clark has taught almost every area of the discipline. He also served as department chair for a decade and is valued by many as a mentor. "My colleagues are a big part of why I've stayed at UNH," Clark says. Along with those two angular antennae returning a steady stream of information from a mysterious sky.

—Suki Casanave, College of Engineering and Physical Sciences

Degrees and Research

B.S., Electrical Engineering,
University of New Hampshire

M.E., Yale University

Ph.D., Electrical Engineering, Syracuse
University

RESEARCH: Meteor radar techniques, upper atmosphere winds, digital signal processing, communications, ionospheric measurements and propagation.

Jan Golinski

STANDING AT THE BLACKBOARD IN HIS CLASSROOM IN THE PAUL CREATIVE ARTS CENTER, Jan Golinski is in his element. With a flourish of chalk, he sketches a diagram of the solar system to illustrate his explanation of the retrogression of Mars. With a few deft strokes, he shows Earth and Mars in their orbits around the Sun, demonstrating why Mars, which is farther from the Sun, appears to fall behind the Earth, even though it's actually moving faster.

Golinski, associate professor of history and winner of the outstanding associate professor award, is a master at making the complex comprehensible. In lectures delivered with wit and irony, he explains developments in the history of science—from Copernicus's explanation of the solar system to Einstein's theory of relativity. But, say colleagues and students, he then goes one step farther. He turns their world views upside down.

"I'm not just there to impart information," Golinski says. "I try to open students' eyes to the roots of an assumption. I like to complicate things, to show another side of a question they might have thought closed."

Golinski's field is history of science, and he brings the rigor and experimentation of his years as a student of science to the study of history. He concentrated on the sciences in secondary school, then attended Cambridge University where he began studying

physics, chemistry, and biology. He soon discovered, however, that he was interested in scientific ideas but not in the practice of science. So he married his interest in these ideas with a childhood love of history.

"The scientist is very much there in the historian," says graduate student Shannon Pelletier. "The scientist is interested in pushing the boundaries of knowledge and in interpretation, not just reflection on the past. Jan helps his students to do this. That's the most striking thing about his teaching. He encourages us to push out beyond safe topics and questions to open up new fields for ourselves."

Golinski views science not as a certain and unending progress, in which a pre-given order of nature is revealed, but as "a human product, made with locally situated cultural and material resources." Rather than a series of steps, he sees revolutionary transformations occurring, similar to the one at the beginning of the 17th century in Europe, when people began to see the natural world as matter, whose nature could be divined through experimentation.

Golinski's own research focuses on the history of science in the 18th century—a period known as the Enlightenment. In doing so, he has established a reputation as one of the world's leading historians of science. Golinski has contributed to numerous books and journals, written more than 30 reviews and three books. He's received fellowships from the Dibner Institute for History of Science and Technology at MIT, the Institute for Research in the Humanities at the University of Wisconsin, and the William Andrews Clark and Huntington libraries in California.

At the same time, he teaches a full course load in both history and humanities, and he recently helped develop a new course on the 20th century. Colleagues cite his tremendous dedication to the department and the University community.

"People can be outstanding because of their teaching, scholarship, or service," says William Harris, department chair. "Jan is absolutely superb in everything. He's a very fine teacher, an outstanding scholar, and a wonderful colleague who always pulls his weight. He is the embodiment of the best of what a UNH faculty member should be."

—Maggie Paine, University Relations

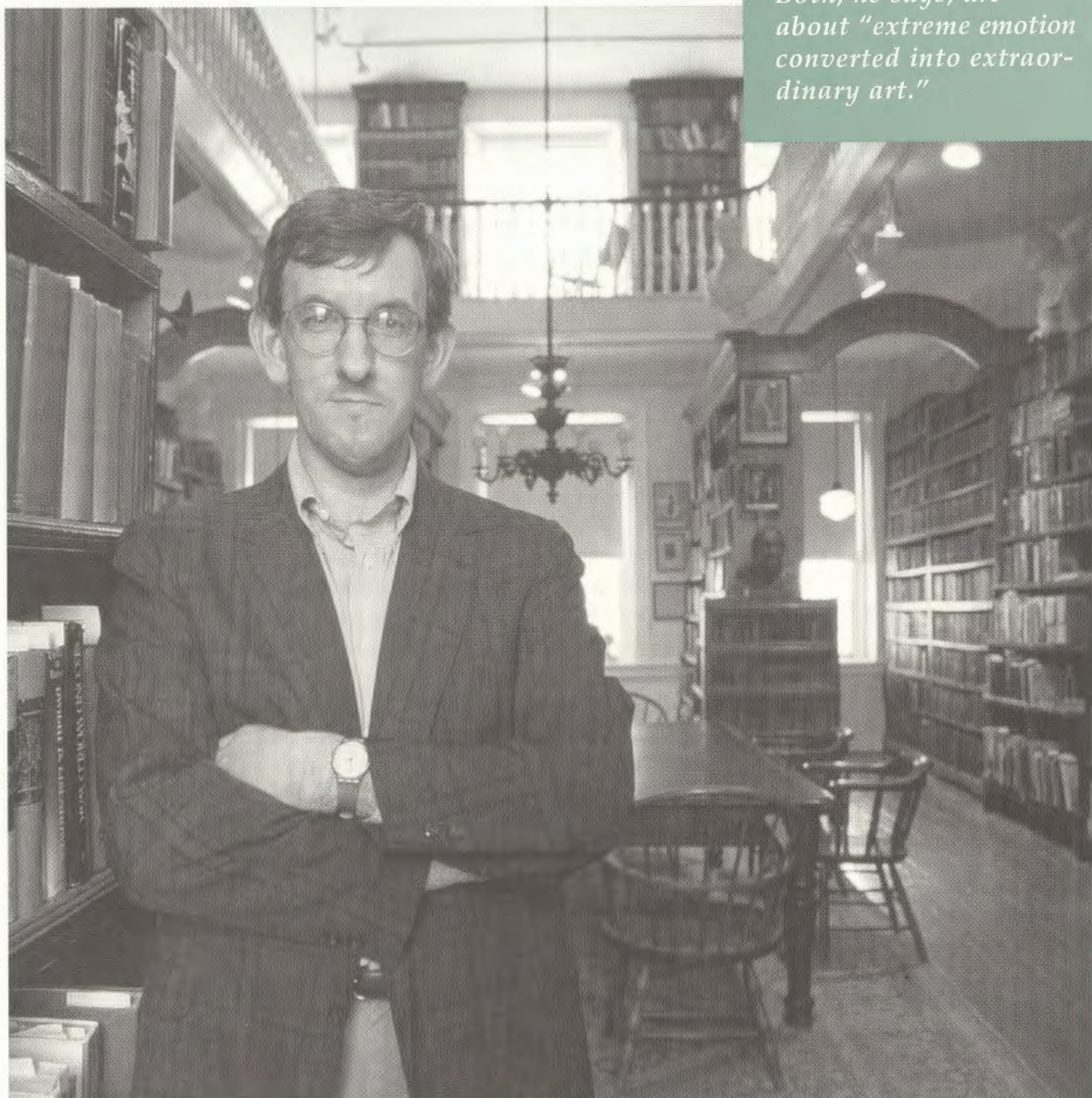
HISTORICAL FIGURE HE'D MOST LIKE TO MEET:

Denis Diderot (1713-1784), the French encyclopedist and writer, philosopher of materialism, critic of art and literature. "Diderot was always witty, but with a serious point. He used humor to open people's minds and challenge their accepted ways of thinking."

He's an opera fan whose favorite works are Rigoletto and Lucia di Lammermoor. Both, he says, are about "extreme emotion converted into extraordinary art."

The marriage of history and science

Turning world views upside down



Degrees and Research

B.A., M.A., Christ's College, Cambridge University, 1979, 1983

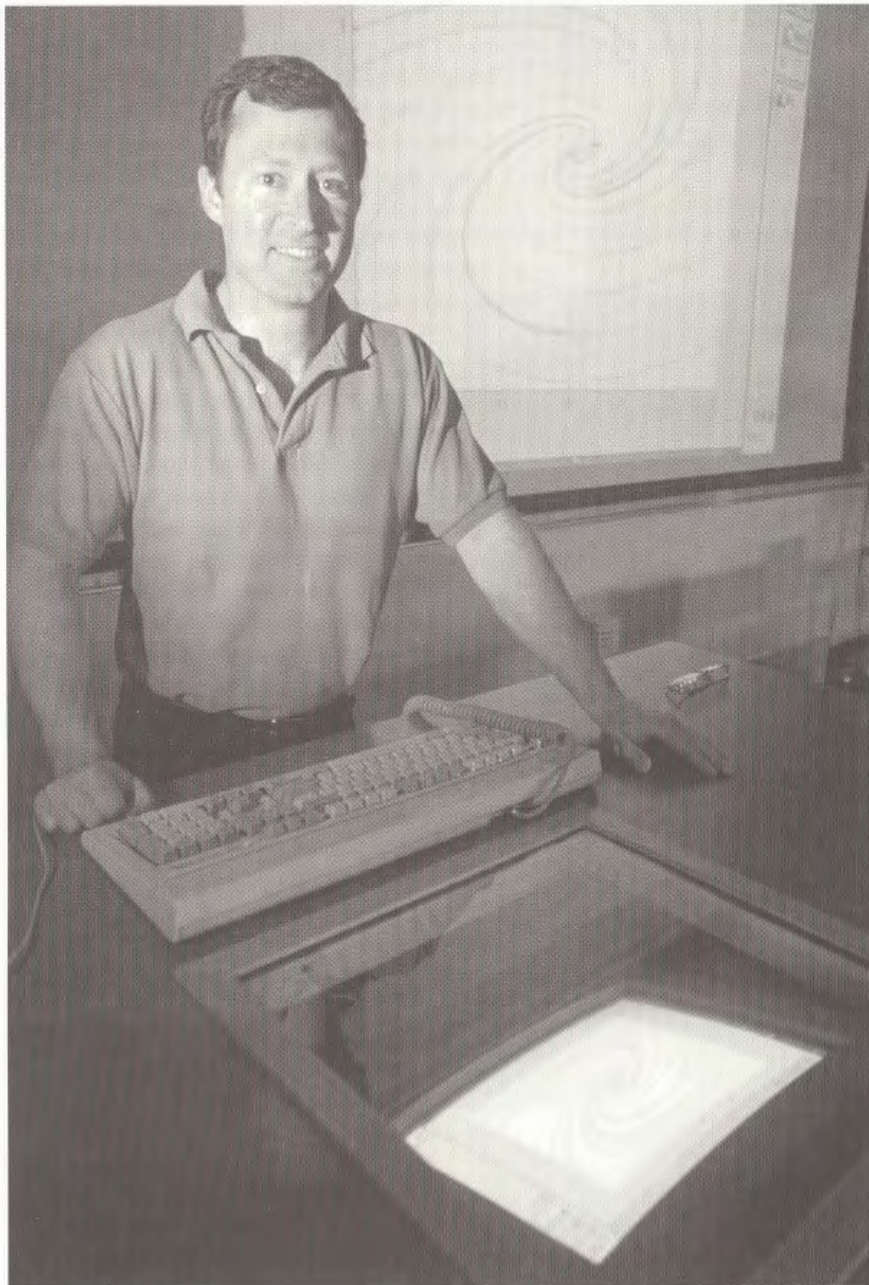
Ph.D., University of Leeds, 1984

RESEARCH: History of science during the Enlightenment.

Kevin Short

Predicting the unpredictable

Finding patterns in an erratic geyser named Plume



eruptions of a geyser named Plume.

He tackled the project with a talented undergraduate, Julie Raye. "Although we didn't have enough data to predict the eruptions," he notes, "we pulled the information we had together into a consistent mathematical model. The framework for prediction was there."

Their results will be published in an international journal for mathematicians and have already appeared in a publication for geologists. Next he'd like to tackle Old Faithful, which is not as predictable as its name suggests. Short defines chaos as the study of areas that fall between the periodic (marked by repeating cycles) and the truly random. But he says "many things that look like randomness" will reveal predictable patterns, if you carefully study data over time.

In the field of signal processing, he often looks for predictable patterns in seemingly random "noise." Noise, like static from a radio

the National Security Administration attempted unsuccessfully to woo him away from academia.

Unpredictable Teaching

Sophomore Emily Cuthbertson came to UNH intending to major in chemistry and music. She considered math dry and uninteresting. Then she took an honors section of differential equations with Short, who uses props, colored chalk, calisthenics, and humor to engage his students. He's also known for using volunteers to create a "human vortex."

But mainly, Cuthbertson was enthralled with the quality of his problems. After a second class with Short, she decided to major in mathematics. "His problem sets are always challenging—and they're not from the book," she says. "When we learned about sound processing, we had to use a computer program called Matlab to recover a voice from a signal that had a high pitched sound that made it so you couldn't hear the voice."

"I like students to learn how to punch through problems where the answer is not obvious from the outset," Short says. Not surprising for a professor who calls himself "very problem oriented."

"Once a problem gets under my skin, I don't easily let it go," he admits. "My mind is working on it even when I'm not paying attention." In fact, so much of his best insight has come unexpectedly in the shower or on vacation, that his wife, Michelle, can now forecast this seemingly random process. "She teases me that I need to take more vacations because that's when I get all my good ideas," he says. "And in some sense it's true."

—Virginia Stuart, College of Engineering and Physical Sciences

(Short was promoted to associate professor with tenure in June.)

THEY MAY BE ENTERTAINING, EVEN EARTH SHATTERING; but the problems mathematician Kevin Short likes to solve are never mere exercises. And they can come from unlikely sources.

"A friend of mine came back from Yellowstone National Park," recalls Short, "frustrated that they couldn't tell him when each geyser was going to go off." Short, honored as the University's Outstanding Assistant Professor, specializes in the study of chaos and nonlinear dynamics. He was intrigued by the idea of trying to forecast the erratic

signal, is the disturbance of an electrical signal. Finding a pattern allows Short to reduce the noise or identify hidden signals.

The federal government has made use of Short's mathematical powers of prediction more than once. He analyzed data from seismic monitoring stations, showing that signals representing distant atomic tests could be distinguished from background noise. He also demonstrated that a new chaotic communications technique developed by the Navy for encoding signals was not really secure—even though other experts had predicted it would be. As a result of that work, a research institute associated with

Short got his first real taste of science in second grade when he built a volcano that "sent particles and debris across the entire room." When he gets tired of studying chaos at work, he can always go home for more, courtesy of his three children: Timmy, 6, Gabrielle, 4, and Aidan, 1.

Degrees and Research

B.S., Physics and Geology, University of Rochester

Ph.D., Mathematical Physics, Imperial College of London

RESEARCH: Chaos, nonlinear dynamics, signal analysis, noise reduction, cryptography, seismology, geophysics.

Jan Nisbet

GROWING UP WITH HER FAMILY IN YARMOUTH, MAINE, JAN NISBET RECALLS THE powerful image of a young man with mental retardation who lived next door. "His family was poor and there was no place for him to get services. The school system wouldn't accept him. His family used to tie him to the house so he wouldn't wander." It is the kind of image that helped shape her life.

Ten years ago, Nisbet was hired to start and direct the Institute on Disability. Her initial budget was \$120,000. Today, Nisbet is principal investigator or

co-investigator on 34 applied research and demonstration projects totaling over \$23 million in external funding, including the New Hampshire Home of Your Own demonstration project that is now a national alliance of 28 states.

"During the last six years, largely because of Professor Nisbet's extensive applied research projects, the state of New Hampshire has become the most inclusive state in the country in regard to developmental disabilities," says Walter Eggers, UNH Provost and Vice President for Academic Affairs.

Nisbet supervises 48 staff members operating from offices at the University and Concord. She has served on national commissions that are charged with defining the future of children and adults with disabilities, and is past president of the Association for Persons with Severe Disabilities (TASH). She teaches the Introduction to Exceptionality class in the Education department.

"I have multiple agendas," Nisbet agrees. "But the one integrating theme of all my work is trying to change the ways in which children and adults with disabilities live their lives." Her projects look for ways to support school and community acceptance. "We know from research that the most fundamental way to change attitudes about people with disabilities is direct contact and personal experience."

One current agenda item is a project that examines what happens when you provide people with disabilities and their families with essential information about support services. What choices do they make? How do they spend their money? What are the outcomes?

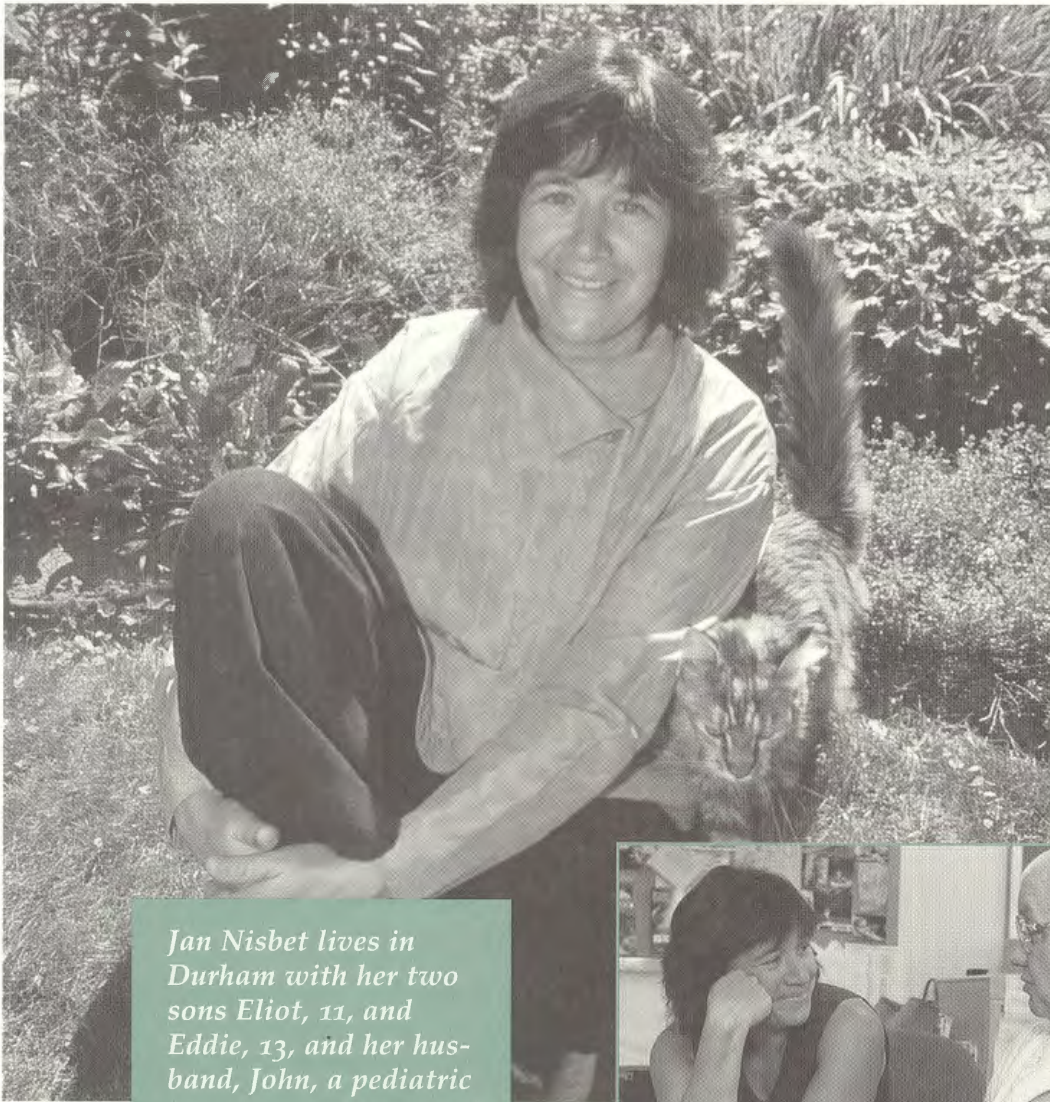
"We want to put people with disabilities and their families into the role of consumers of services," Nisbet says. "We're trying to discover the most effective, efficient way to support them on their own terms. Most importantly, we are working to create communities where people with disabilities and their families are in control of their own destiny."

For Nisbet, doing research is a lot like performing a two-step—or three-step, or four-step. "You break a problem down. You identify all the barriers. You create small solutions. You work to create the social and political solutions. And it's a funny place to dance, because you're dancing in social policy, and social policy is political; you're dancing in academia, and academia is really there to provide an objective analysis of social policies that work and don't work." She smiles. "So it's often a complicated dance, but for me it's the one that I love."

—Mary Peterson, University Publications

Transforming social structures

Applied research that changes individual lives



Jan Nisbet lives in Durham with her two sons Eliot, 11, and Eddie, 13, and her husband, John, a pediatric geneticist at Dartmouth Medical School. She is a self-described "soccer mom," reader, gardener, and homebody. "I have a great career, a great family, great friends, and great coworkers—who could ask for more than that?"



Degrees and Teaching

B.S., General Science and Physical Therapy, Simmons College

M.S., Special Education and Mental Retardation, University of Wisconsin-Madison

Ph.D., Education of Severely Handicapped Students, University of Wisconsin-Madison

TEACHING: In Nisbet's Introduction to Exceptionality class, students learn through film, literature, and personal interviews about the issues facing persons with disabilities.

David Ramsey

Sunrise, Sunset

It's nothing for a master of technical direction

Behind the scenes with David Ramsey, assistant professor of theatre and dance; technical director and scenic designer for Johnson Theatre

The Last Class—459. Stagecraft

Johnson Theatre: Enter stage left, David Ramsey, a tall bear of a man. Students applaud, several stand up.

Final presentations begin. After each one, Ramsey comments and chats about Shakespeare's Globe Theatre, lighting techniques for Renaissance theatre, the history of musical theatre, etc. The master technician is also a great storyteller.

The hit of the day is a student skit of Ramsey waking up, which plays on sound effects. The students describe how they created sounds by munching raw spaghetti, cracking a soda can and pouring bottles of water into a soup pot.

Ramsey nods his approval. They've understood the number one premise—theatre is an illusion.

Johnson Theatre

7 p.m., a Tuesday night, the last dress rehearsal for *¿De Dónde?*. The production is fluid and fast. The set is simple brown paper wall murals. But lighting, actors with multiple roles, and subtle stage levels create remarkable depth. "Oh, it's supposed to be smooth now," says Ramsey, who, as technical director, oversees the many rehearsals for each production. "It's amazing what we have at UNH. Mary Gallagher is an internationally renowned playwright, and students here have been able to meet and talk with her."

Lakes Region Summer Theatre—Meredith

As the sun sets, crowds of vacationers and residents around Lake Winnepesaukee head to the Lakes Region Summer Theatre (LRST); David Ramsey was the founder, and has been artistic director producer since 1992.

This community loves its summer theatre. For *My Fair Lady*, the police chief provided actors with bobby hats. And two years ago after a big storm knocked out power, the fire chief made sure the theatre was second on line (after the hospital) in time for its seven o'clock curtain.

That first year, 9,000 patrons came; last year brought 35,000. These are the facts of success.

But for Ramsey, the joy is the high school student who "discovers" theatre; the Meredith kid in *The King and I* whose smile captures the crowd; or the

UNH student who succeeds as technical director, actor, or costumer. And something else, too. That feeling of anticipation when the curtain goes up, and the story begins.

—Carrie Sherman, University Publications

(Ramsey was promoted to associate professor with tenure in June.)



David Ramsey (left) assistant professor of theatre and dance, poses for a "candid" with Lakes Region Summer Theatre employees Aubrey Toaka (center), a sophomore at Plymouth State High School and costume assistant; Shelby Younker '97, costume shop manager; and Jessie Kellogg '99, stitcher and draper. Other UNH students at LRST are Adam Michaud '99, technical director, and Mark Beauregard '99, actor.

Degrees and Awards

UNH Excellence in Public Service Award 1998

Emmy, *Sesame Street* (1994) for set design and decoration

United States Institute of Theatre Technology Award for Outstanding Lifetime Contribution for Design and Theatre Artistry (1990)

Zlatou Trigu (Golden Triga), "Design and Process," awarded to the United States at the Prague Quadrennial (1987). Ramsey was the technical director/production coordinator

Oscar Nomination, *The Color Purple* (1985) set dresser

ASSOCIATIONS

Artistic director and producer: New Hampshire Family Theatre, a non-profit theatre company, operating during the winter holiday season in Meredith.

United States liaison, International Organization of Theatrical Designers, Technicians, and Architects.

DEGREES

B.P.A., Plymouth State College
M.F.A., University of North Carolina at Greensboro

Recipe for Stage Blood

(compliments of Ramsey's course, Stage Properties)

50/50 corn syrup and chocolate syrup
Water
Red food dye
Laundry detergent, a dash

Mix syrups, add water, food dye and laundry detergent to achieve desired consistency and color.

Use on stage in a bucket behind a couch, e.g., knife fight can take place there, out of sight, or glop stage blood into plastic bag. Note: chocolate syrup makes the solution much more palatable (in that instance, omit laundry detergent).

Janet Sable

Enabling a better life

Therapeutic recreation re-creates mind and body

THE REACTION IS PRICELESS. A FAMILY CHEERS WILDLY ON THE BEACH AS THEIR daughter water skis for the first time. The daughter, whose legs have been amputated, beams with confidence from her tailor-made "sit ski." Jumping the waves and riding the surf, she won't let go of the ropes. She wants to hold onto this feeling forever.

It's a vivid reminder for Janet Sable, as she relives the rewards of her association with Northeast Passage, a non-profit organization dedicated to barrier-free recreation for people with disabilities. "The UNH/Northeast Passage affiliation makes it possible for therapeutic recreation students to gain experience far above that of their peers," says Sable, associate professor and winner of the Alumni Affairs Award for Public Service.

Jill Gravink, executive director of Northeast Passage, credits Sable, her mentor and president of the board of directors, for moving the program past its humble beginnings to growing success as a national model.

"I came at this with energy and ideas, and Janet helped me mold them into something the federal government and private foundations wanted to support," explains Gravink, referring to Sable's grant writing skills that continue to help the program prosper. Their collaboration has paid off, says Gravink, remembering the early days of "running the program from a couple of bags in the back of [her] car." Today, Northeast Passage sustains a budget of more than \$200,000.

Sable admits the administrative legwork can be tedious, but grants and private funding are the keys to keeping a "soft" budget firm. Whether she is presenting Northeast Passage or therapeutic recreation programs in general, the pitch to company CEOs and health care agencies can be a tough sell in these days of managed care.

The latest challenge is getting insurance companies to realize the "health promotion and prevention" factor. Like daily exercise, therapeutic recreation has positive effects on quality of life, she says. It can help prevent secondary conditions such as depression, substance abuse, obesity, and other ailments associated with life-altering disabilities.

"I deal with the joys and the frustrations of trying to convince people of the importance of it," explains Sable. "If only I could get them into the kayak or on the water skis. . . ."

Her alternative is a poignant video that shows persons with paraplegia skiing or climbing a mountain, people with spinal cord injuries racing in marathons. Tennis anyone? Another athlete lobs a serve and makes a quick pivot in his wheel chair to nab his opponent's return.

"They do it—it's theirs—and it's wonderful to see the impact it has on them and their families," she says. "They're out there enjoying life, trying new challenges and experiencing new successes. They build self-confidence, and friends and family gain a new perspective of their abilities."

The result is rewarding, but Sable knows the struggle it can take to get there and the hard work invested by all those involved. "It certainly doesn't

happen overnight, and I'm impressed with the patience our students exhibit," she observes, "the caring and respect for others, knowing when it's important to offer suggestions and when it's important just to listen."

One man, a quadriplegic, told Sable that his participation in therapeutic recreation "gave him his stories back." It wasn't until five years after his injury that he decided to take on scuba diving, snow skiing and sea kayaking, but it finally gave him something to talk about, something to embrace as his own.

"We are moving toward a much more inclusive society," Sable says. "Bringing people back into the conversation may sound simple, but the effects are far-reaching. Clearly we're working on physical ability, but leisure also defines who you are and what you enjoy."

—Tracy Manforte, UNH News Bureau



Sable's motto is, "I'd rather be playing." Whether it's with family, friends or solo, she is always ready for golf, skiing, running, a swim with manatees, a movie, or dinner and conversation. As a spectator, she's an avid Pittsburgh Steelers and Michigan fan.

Degrees

B.S., Psychology, University of Michigan
M.S., Therapeutic Recreation, Northeastern University
Ed.D., Counseling and Human Services, Boston University

Terry Savage

TERRY SAVAGE IS A TEACHER BY PROFESSION AND A student at heart.

His commitment to learning, in and out of the classroom, inspires his students, his colleagues, and his research. He empowers his students, building their interest in the material, and in learning itself. With this foundation, he engages students in classroom discussion where, as one student notes, they “embark on a transformative experience.” As one student explains, “No matter how incorrect an answer might be, he leads us to the correct answer by helping us believe in ourselves.”

Savage is fascinated by “the power of the multimedia computer to engage, inform, and structure the classroom conversation.” His work on Alan Turing, machine intelligence, and the history of philosophy have led him to explore the technology itself, as well as how it can be applied to teaching.

“Computers are universal machines, with limits not yet exhausted,” he says. “Their application in the classroom will revolutionize teaching.”

To enrich his own teaching, Savage developed a multimedia presentation to illustrate Robert Browning’s poem “Fra Lippo Lippi” that blends art, text, and sound to make the poem come alive in ways that no traditional lecture can.

“Fra Lippo Lippi” was a prime candidate for multimedia,” he explains. “The poem has an engaging rhythm and vivid imagery, but few students read poetry regularly, and they are often unfamiliar and uncomfortable with the rhythm. Browning wrote about an artist and his extraordinary paintings, but the text contained no images. The poem contained many unfamiliar terms, but students almost never looked them up.” A multimedia presentation is an opportunity to include all these things.

As a tool, Savage explains that multimedia “is both a way of doing things and a way of thinking differently about what we are doing.” To develop a lecture for his classes, he evaluates the materials and various media looking for those that effectively communicate an idea or concept. The

use of multimedia even requires that he rethink the way he looks at the materials. By using laser disc images, animation, and links to selected Web sites, Savage is free to tap all disciplines, opening doors for his students and himself.

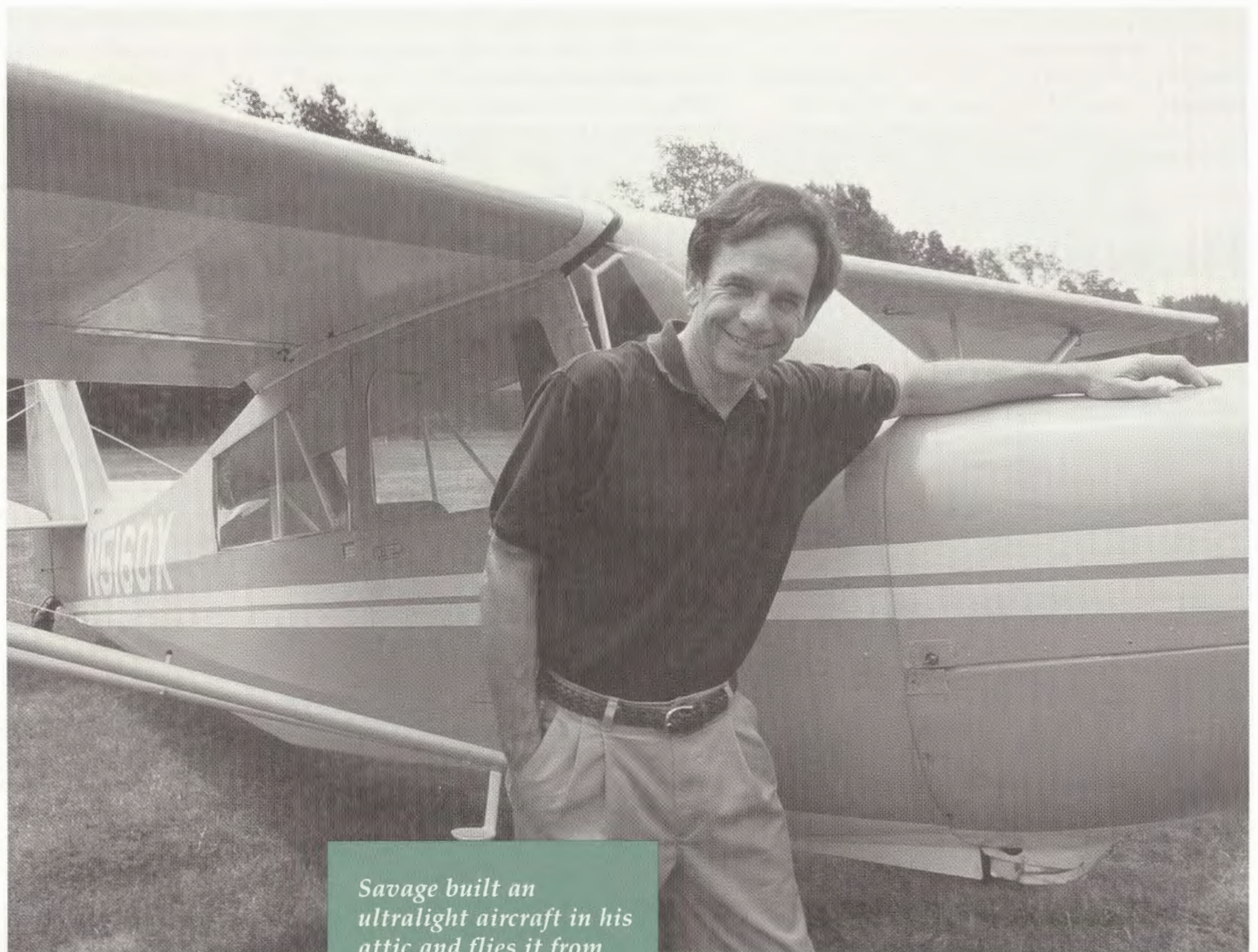
For Terry Savage, multimedia is a tool that contributes to the classroom discussion, and that is the essence of teaching.

“Engagement is the goal of teachers everywhere,” he says. “We watch our students’ eyes and brows. We want to know when they understand, when they are puzzled, when they have lost interest, and, above all, when we can draw them into the conversation.”

—Ginger Lever, UNH-Manchester

Rethinking teaching

New tools transform the classroom conversation



Savage built an ultralight aircraft in his attic and flies it from his backyard. He is an instrument-rated private pilot.

He restored an antique colonial home (1720), milling his own lumber from trees he cut, building cabinets, and furniture.

Degrees

B.A., University of New Hampshire
M.A., Boston University
Ph.D., Boston University

Jennifer Bernhard

ELECTRICAL ENGINEERING PROFESSOR JENNIFER Bernhard lightheartedly refers to herself as a salesperson. Not many people, she says, *really* know what engineering is about until they start studying it. Her students were likely directed to the major by a guidance counselor or parent who recognized their excellence in mathematics and science. Just like her.

When they take her courses, however, she hooks them, then closes the deal. Bernhard wants her students to love engineering as much as she does. Her technique, she says, is simple. "I try to make learning an active experience."

Take, for example, a lesson on electromagnetic waves—the invisible basis of all wireless communication signals. You can't see them, so how do you make students understand what they are?

"Have you ever been to a baseball game where everyone does the wave?" she asks, raising her arms above her head. "During one lecture, I have students recreate the wave to simulate an electromagnetic wave. As they rise vertically, the wave propagates around the room. Activities like this give students a physical link to the theory and help them stay focused on the concepts."

Students catch on and relish the learning experience. "Professor Bernhard has a very intense schedule with her classes and still finds time to produce cutting edge research in microwave theory and techniques," says one student, who worked with Bernhard on her senior project. "Her research has placed her among some of the most respected people at the University, and her reputation attracts support from outside companies."

Electromagnetics are a focus of Bernhard's research, including wireless communications, antennae and circuits—all involved in signal sending and processing. What interests her is how things in the path of the sending and receiving objects disrupt the signal.

"People don't realize how easily things can be disturbed," she says, noting a recent satellite snafu that temporally shut down communication signals worldwide. "Copy machines, for example, put out noise that can cause interference. Computers keep getting faster, which makes them more sensitive to noise. It's an interesting problem—and it keeps me in business!"

Bernhard gets truly animated about her subject. In no time at all, she has convinced this English

major that electrical engineering can be a captivating field of study. "It's about finding pleasure in the problem-solving process," she says. "You're constantly looking at the world in a different way. Everything is a process. How does it work? How can you make it work better?"

Bernhard relates a story that illustrates how being an engineer can change the way one thinks. Walking through town one night, she came upon a traffic light with a car stopped. Although there was only a driver, it appeared that two people were in the car. Immediately, she found herself trying to figure out how the lights had made that shadow.

While Bernhard says she doesn't think she was "born" an engineer, her curious nature suited her well for the profession. That, and parents who together exemplify who she is—her father is a process engineer, her mother a teacher. "I picked up the best from both," she says.

One of the few women who "leaked through the pipeline" between a bachelor's degree and doctoral degree in education, Bernhard says that a teaching assistantship in graduate school solidified her career choice.

"Being an educator helps me learn," she says. "Students will challenge your assumptions, ask you questions you can't answer. That's part of the fun. The other part is watching the light bulb go off when a student makes a breakthrough."

Bernhard, a rookie in the Department of Electrical and Computer Engineering, has been teaching for only three years. She says her development as an educator has been supported by feedback from her colleagues, and exposure to new research on college teaching through UNH's Teaching Excellence Program.

"There are incredibly talented teachers in this college," says Bernhard. "To receive the Teaching Excellence award at this point in my career, in the midst of these people, is humbling and an honor."

—Sharon Keeler, UNH News Bureau

Riding a wave of inspiration

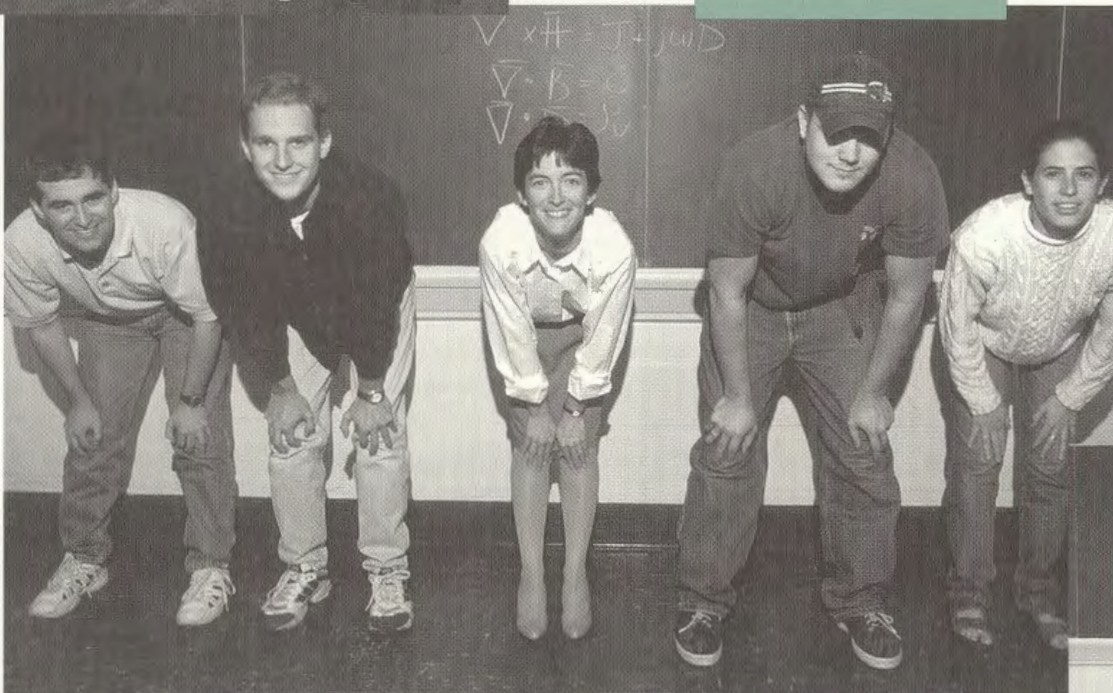
And engineering a fresh approach to learning



HOBBY: *reading historical mysteries*

FAVORITE AREA RESTAURANT: *Riverworks in Newmarket*

SECOND CAREER: *woodworking*



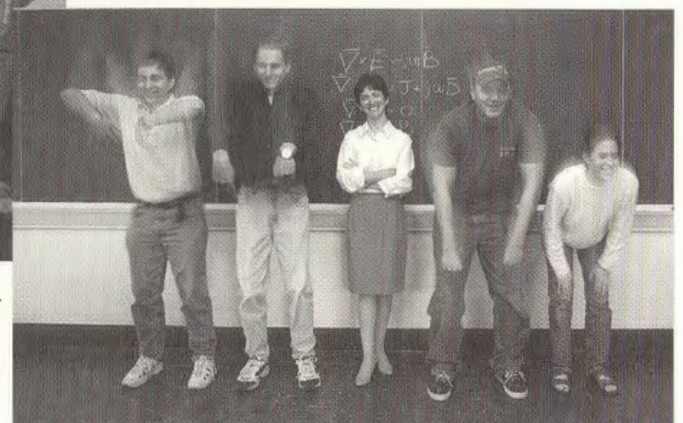
Bernhard and her students together simulate the movement of an electromagnetic wave.

Degrees and Research

B.S. Electrical Engineering, Cornell University

M.S. and Ph.D., Electrical Engineering, Duke University

RESEARCH: Wireless communication, electromagnetics for industrial and medical applications, microwave antennae and circuits.



Daniel Garvey

Moral dilemmas challenge his students

Over the wall with sound decisions

IT'S A RAINY SATURDAY, AND A GROUP OF UNH STUDENT RESIDENCE HALL ASSISTANTS (R.A.s) are trying to scale a 14-foot wall. Before they begin, though, the students create a set of rules for making the climb. Will they change the rules as the task becomes more difficult?

Therein lies the meat of Assistant Professor of Kinesiology Dan Garvey's research project in moral development—the goal of which is to improve the ability of college students to make sound decisions.

"Moral reasoning is the ability to think of the best possible action when faced with a complex moral decision," explains Garvey. "For example, instead of students saying 'We shouldn't steal because we might get caught,' I want to elevate their thinking so that they instead say, 'We shouldn't steal because, if everyone begins to steal, it will eventually lead to a state of social chaos.'" Garvey believes that many of the conditions necessary to improve moral reasoning and action are present in outdoor adventure programs. Just placing students outside and in an odd location requires them to develop new ways of responding to challenges.

"The concept of outdoor education," he explains, "is that people are put into actual situations where they have to make a decision. In the case of the R.A.s, the students have to get over the wall. I want to know what rules they create at first to climb the wall. Then how do they modify those rules in order to complete the task? How do they justify breaking their own rules?"

Garvey's eight years as associate dean of students at UNH (1980–1988) sparked his interest in moral development.

"Every Monday morning I'd get a list of names of students who had been detained by the police or taken to the hospital over the weekend—most often due to alcohol-related incidents," Garvey recalls. "Then I'd call each of the students to talk about what had happened. You wouldn't believe the elaborate justifications they'd give me for why—as an example—they were caught running naked across campus at 2:30 in the morning. Really fascinating stuff."

Research by Garvey and others has shown, among other things, that the values and norms necessary for groups to function in an outdoor activity mirror those needed by society on a daily basis—people have to learn how to get along,

share resources, be concerned about the welfare of others, and view how their personal behavior affects the group at large.

"It's a lot like life, really," says Garvey, laughing. "There are a lot of difficult issues in the world that we have to try to make sense of, from drinking to abortion to crime. None of these issues is black and white—there's a lot of gray in between. We're trying to teach students to embrace that gray area before heading out into the world and making concrete decisions."

The special consideration Garvey gives his students stays with them long after they leave his classroom. Wrote one: "I've never had a professor who has been able to give me such confidence. He helped me find it inside myself. Not by talking about it in general, but by really seeing me and pointing out things about me—things that were mine. He helped me reflect on who I am and made a difference for me and my ability to succeed. He is simply the best professor I've ever had."

—Heather Chakiris, University Publications



Degrees and Research

B.A., Sociology, Worcester State College

M.A., Social Change, Cambridge/Goddard Graduate School in Social Change

Ph.D., Social and Multicultural Foundations, University of Colorado at Boulder

RESEARCH: Outdoor and experiential education with emphasis on moral development and international concerns.

Garvey's family has sailed around the world three times, the first in 1984 when his son was only 5 weeks old. This summer, they traveled (by air) to South Africa, where Garvey worked to start a university in Tanzania.

Stacia Sower

HOW MANY CELLS ARE IN THE HUMAN BODY? ONE million? One billion? Try four to 10 trillion. That's a lot of cells interacting to create thousands of complex reactions. Anything can go wrong, any step of the way, and...

At the center of it all are the hormones, substances formed by one cell and conveyed to another, stimulating it to function a certain way. Twenty years ago, scientists had identified only 20 of these important chemical messengers. Today, they've detected more than 500.

That's a lot of new information in a short period of time. For those working in the field of endocrinology, it's an unending challenge to keep abreast of it all.

"It's an exciting time to be teaching," says Professor Stacia Sower. "But you realistically can't cover everything, so you have to make important decisions about what to teach. And new information is, well, being published as we speak."

Take, for example, the recent discovery of the impotency aid, Viagra. Sower says that she and colleague Bill Condon were running off copies of the article, detailing the scientific workings of the drug, the day it hit the national press. They wanted their students to understand better how the popular drug affects important biochemical processes in the body.

"When you make the science relevant, you can see the students' interest peak," says Sower. "Endocrinology touches on many things, from the immune system, to reproduction, to social behavior. I tell students they can get an 'A' in the class if they can identify anything in the human body that is not controlled by hormones."

No student has received the automatic 'A' because they have been unable to pinpoint any process that is not mediated by hormones. The proposal, however, gets them thinking.

"Why this? Why that? That's what science is," she explains. "It's coming up with the right questions, and then learning through discovery."

Students flex their creative muscles best in a hands-on environment, according to Sower. She directs 10 undergraduate students in her laboratory, which houses an internationally-renowned research program on the structure and function of brain hormones in lamprey—eel-like fish that represent the oldest lineage of vertebrates. Sower does so, not because it's a department requirement, but because she wants her students to have the best education. In her classes, this includes six months to a year of intensive laboratory training; interacting with graduate students, postdoctoral associates, and research assistants; and doing independent research projects.

Sower acknowledges that it requires major effort and funds from research grants to give each student such individual instruction, but she wouldn't have it any other way.

"The importance of independent undergraduate research projects cannot be overstated. Students are able to better understand science, obtain better jobs, and gain entrance into medical school and graduate programs," Sower says. "For me, it's enjoyable and rewarding to work closely with each student."

Developing personal relationships is something Sower tries to do, even in larger classes. To learn

her students' names, she uses a seating chart and takes attendance for the first few weeks of the semester. In an introductory Principles of Biology course with 120 students, she meets individually with every one of her pupils.

"I want them to know I care about their learning," says Sower, adding that the message is best delivered face-to-face. She relates the story of a recent student. "He got the lowest grade on the first test and I told him, 'If you come meet with me a couple of times a week, I'll make sure you succeed.'" The student ended up with one of the highest grades in the class.

Sower is so involved with her students, it's hard to divert her attention. Framed photos from class trips adorn her office. Shelves house photo albums of her students from holiday and graduation parties; she pauses at several images and talks a bit about each class.

"I have had some outstanding students, and that's what keeps me going." And what motivates a scientist to teach? "You're excited about the work yourself, and you want to pass it on. You learn and pass it on."

—Sharon Keeler, UNH News Bureau

On the slimy side of science

Getting a grip on lamprey—and endocrinology



FIRST CAR: '65 Mustang
FAVORITE FOOD: Fudge
RETIREMENT CAREER: Amateur archeologist
FAVORITE QUOTE:
"For all things share the same breath—the beasts (buffalo, salmon, etc.), the trees, the man...All things are connected. Whatever befalls the earth befalls the sons of the earth."

—Chief Seathl of the Duwamish Tribe, 1855.

Sower (right, above) and her students cheerfully handle lamprey eels in the research lab.



Degrees and Research

B.S., University of Utah

M.S., Oregon State University

Ph.D., Biochemistry and Molecular Biology, Oregon State University

RESEARCH: Comparative biochemistry, reproductive physiology and neuroendocrinology of reproduction in vertebrates.

Roger Grinde

Learning to think about thought

In problem-solving, it's the process that counts



Grinde is the father of three sons. The 5-year-old is fascinated by trucks and can tell a Peterbilt from an International Harvester. The 3-year-old is smitten with—believe it or not—vacuum cleaners (“all makes and models,” says Grinde). As for the 11-month-old’s future fixation, it’s anyone’s guess, says his dad.

ONE OF ROGER GRINDE’S ROLE MODELS WAS A PENN STATE PROFESSOR who would show up for class carrying nothing but a Post-it™ Note stuck to one finger.

That was it, recalls Grinde, then a Penn State graduate student and now assistant professor of management science. “No notes, no text, just a Post-it™ Note with some data for that day’s lecture. I asked him once how he did it, and he said, ‘If I used notes, I wouldn’t be thinking about where I was.’”

Grinde agrees. The Teaching Excellence Award-winner from the Whittemore School of Business and Economics uses few props. “If I’m looking at my notes, I’m not thinking about where we are in the thought process.”

And it’s the thought process that figures in Grinde’s Quantitative Methods courses. “My primary goal—and this might sound mother-and-apple-pie-ish—is that I want students to go out better thinkers and problem-solvers than when they came in.”

To be successful, they need the right tools. First, there is optimization—learning how to operate a system using available resources in the best, or optimum, way. Second, simulation allows students to build computer models that mimic business situations involving uncertainty. Finally, there’s decision analysis.

“Decision analysis is a formalization of common sense—for decisions too complex for the informal use of common sense,” Grinde explains.

The aim is using a structured approach to decision-making, from identifying the problem—sometimes the hardest part, he says—to developing a model, performing analyses and testing assumptions.

A case in point: one of his graduate students last semester analyzed how many customer service representatives a call center would need to maintain a set level of customer service. Another student team conducted an analysis for a company starting a small airline service with two planes. The big ques-

tion: which markets to serve, with what flight schedule, to maximize profits?

With management science, a model can give a so-called ‘optimal solution.’ “However, a human usually makes the final decision,” says Grinde. “Hopefully, the quantitative analysis leads to fresh insights about the situation.” Computer skills, math, and business theory are essential to the process. “But this is not a math or computer class,” he insists. “It’s a decision-making class.”

Grinde’s decision to steer his career toward business didn’t come until later in his career. He graduated from Carroll College in Montana with a degree in mathematics, and received a master’s in industrial engineering from Oregon State University, followed by four years of federal contract work. “I knew I didn’t want to go back to school immediately after my master’s,” he recalls, “but then I got the teaching and research bug.” He ended up at Penn State for graduate work in industrial engineering and operations research.

“Operations research is applying science and math and business theory to solve operational problems,” Grinde explains. So why isn’t he in the engineering school, with the other engineers and mathematicians? “My field is multidisciplinary—it can be found in engineering or math or business. It fits anywhere, and it fits nowhere.”

Grinde’s own “fit” is the classroom and his office, where he welcomes students at every opportunity. At his alma mater, Carroll College, “there was no such thing as office hours—if you were not [teaching] class, you were available to students.” And Grinde has spent a career learning through example, whether from Carroll College instructors and their open-door policy or from a Penn State professor armed only with a Post-it™.

—Carmelle Druchniak, UNH News Bureau

Degrees and Research

B.A., Mathematics, Carroll College

M.S., Industrial Engineering, Oregon State University

Ph.D., Industrial Engineering/Operations Research, Pennsylvania State University

RESEARCH: Applied optimization, learning how operations can make the most out of available resources. Recent projects include waste minimization in apparel manufacturing and facility location/vehicle routing problems.

Jane Harrigan



Improving journalism at the source

Professor as editor, classroom as newsroom

HER FIRST DAY IN THE CLASSROOM, JANE HARRIGAN HAD JUST TURNED TO WRITE ON the board when she heard a terrifying noise. It wasn't squeaky chalk; it was the sound of 20 students simultaneously pulling out their notebooks to record her words.

"I thought, 'My God, they think I know what I'm talking about,'" she recalls. "But then I realized, wait a minute. I *do* know what I'm talking about."

The winner of the College of Liberal Arts Teaching Excellence Award has spent the last 13 years talking about not just reporting, writing, and editing, but what journalism means and why it matters.

Harrigan began her career in the newsroom, and moving to the classroom was not a natural progression. As a student, she had lived in fear of class discussion. "I don't think I spoke in class a single time when I was in college," she says. "Now my students are shocked when I tell them that."

Becoming an editor made her speak up. "I loved it and I was good at it, and that gave me confidence."

The newsroom became her first classroom; her "students" were reporters in need. She helped novices rework stories and veterans fine-tune leads. Soon she had a loyal army of pupils stopping by her desk for editing advice. "So I started thinking, if I could only get to them sooner, I could really help."

Harrigan is the author of two books. The first, Read All About It: A Day in the Life of A Metropolitan Newspaper, chronicles how a single edition of the Boston Globe is produced. The second, The Editorial Eye, is used widely in journalism programs across the country, including UNH's.

Still, she had misgivings about becoming a professor. "I'm not a natural teacher, in the way that some people can hold a room by sheer force of personality," Harrigan maintains. What she loves is journalism, a profession revered during the heady days of Woodward and Bernstein but now too often reviled.

Her students learn from Harrigan that journalism can survive its own bad press. "I expect them to develop standards, and then keep raising them and chasing them all the time. Students are the future of journalism; they're the ones who will determine what it can become."

One student recently acknowledged her debt to Harrigan in evaluating the Newswriting course: "I've learned how to organize and write a news story, how to interview and take notes, how to make journalism creative and interesting, and what to aspire to in this field."

Last summer, Harrigan reminded herself what her students aspire to by accepting an editing/writing fellowship at the *St. Petersburg Times* in Florida. She'd been away from the newsroom a dozen years and "was starting to feel like a phony." The supervisor of dozens of interns who work in newsrooms across the region became a sort of intern herself, reporting for work at a newspaper that puts out 11 editions a day, dealing with a computer system that left her eyes crossed, even getting stuck in an elevator her second day on the job—what intern can't relate to that?

"It's not as if I felt out of touch with newspapers," she explains, "but teaching and consulting are a whole lot different from cranking out headlines on deadline."

She came back reassured that she still had what it takes, both in the newsroom and in the classroom.

"As a writer, I can affect only one story; as an editor, I can affect only one newspaper and its community," she says. "As a teacher, I can try to improve journalism at the source."

—Carmelle Druchniak, UNH News Bureau

(Harrigan was promoted to full professor in June.)

Degrees

BA, English, Boston College

M.A., Journalism, Syracuse University

Robert Macieski

The past is ever present

Asking students to explore where they stand

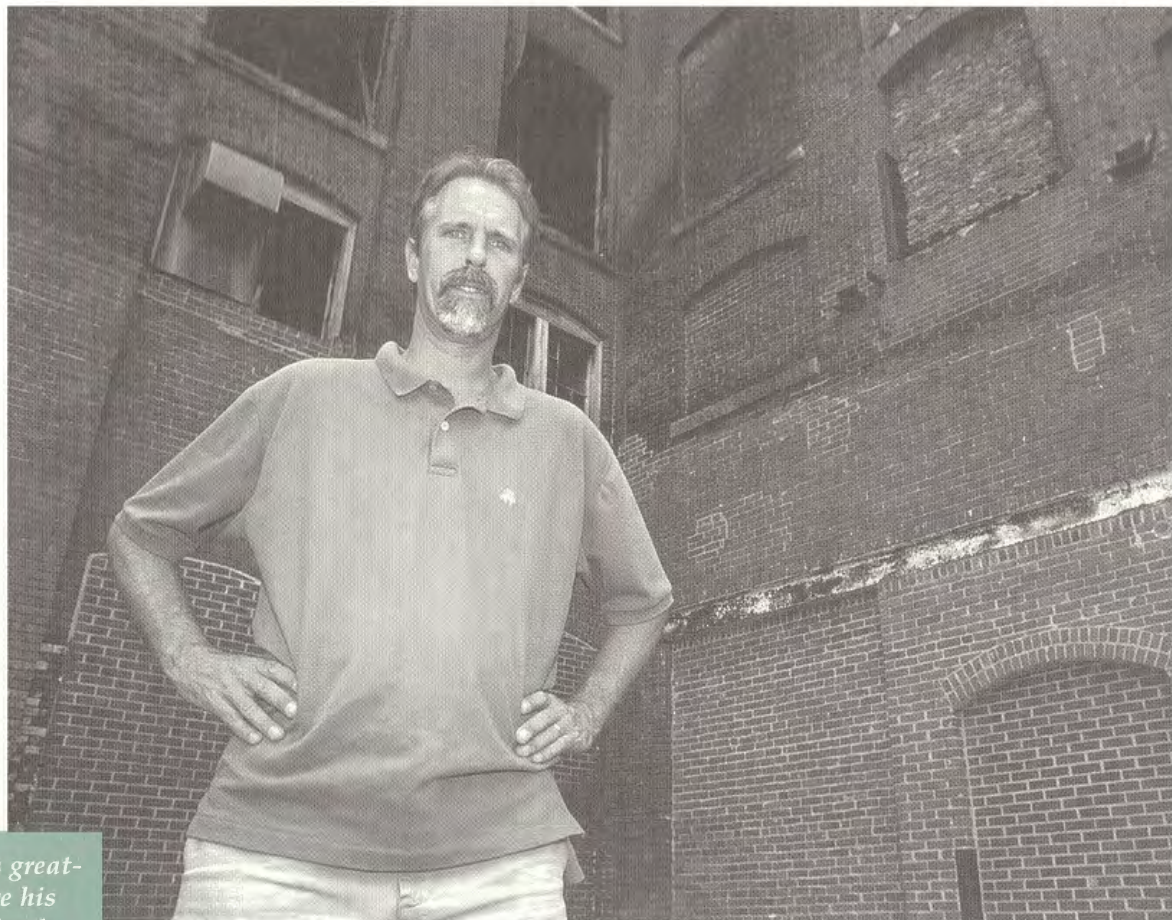
“REMEMBER LISTENING TO MY GREAT GRANDFATHER telling me about his experience as a young man during the Homestead strike and about the ‘fireworks’ that ensued as Pinkerton guards made their way down the Monongahela River. Of course, for a long time I thought he meant fireworks like on the Fourth of July, but he was talking about a battle that shaped American labor history.” Thus began Robert Macieski’s engagement with the past.

For this year’s winner of the UNH-Manchester Teaching Excellence Award, the past is not really past—it’s present in the world about us. Macieski sees history as a social form of knowledge, the product of countless hands, and looks at the assemblage of activities and practices by which historical ideas are embedded in landscapes, local lore, in song and children’s stories, school curriculum, and the myriad forms of popular culture. Students often enter his class history phobic. As one student writes, “Prior to Macieski’s class I had a strong dislike for history. From the first day of class to the last one, Robert Macieski made every lecture interesting. He would bring in videos, tapes, newspapers, art work, books, and even sing popular folk tunes. [When you] see his love and passion for history you [want to] share it with him.”

To do this, Macieski engages students in the process of interpreting history rather than memorizing names and dates. He sees teaching as a “dialectic where students and teachers create knowledge together.” In class they explore historical topics by examining an array of sources and together craft possible interpretations reflecting diverse perspectives. Remarkably, he leaves them wanting more. “It would be great if this class could be a full year,” said one student. Macieski does expect a lot, but he “inspires us to see that anything is achievable through perseverance and love for what you do.”

Macieski admits he’ll do almost anything—sing, dance, role play—to capture his students’ attention. He asks students to put themselves in the past. What choices would they make if they were confronted with similar options? Why? He wants his students to think about how people make choices that affect our lives today. He wants students to accept the power they have to create the present.

Macieski’s greatest joys are his two sons (and basketball buddies) Ben and Sam. He is also a member of the New Boston School Board.



Much of Macieski’s scholarship is aimed at public audiences as he endeavors to influence historical debate. He is former curator and director of the Slater Mill Historic Site

(Pawtucket, R.I.), and recently opened a Museum of Work & Culture for the National Park Service focusing on the history of labor and ethnicity in the Blackstone River Valley (Massachusetts and Rhode Island). Whether he’s staging a pageant, contributing to a film, conducting oral history projects, developing curriculum with social studies teachers, or crafting a plan for a bike way stretching from Worcester, Mass., to Providence, R.I., Macieski seeks to link the public with the past.

This spring he encouraged his public history students to “dig where they stand.” They created an exhibition, “The Old Big Shop in a Mile of Memories,” about the Amoskeag machine shop, the site of UNH-M’s facility.

Macieski is happiest when past and present meet, so it was no surprise that he helped organize a statewide commemoration to mark the 30th anniversary of Martin Luther King, Jr.’s assassination. Guided by a belief that people possess the power to bring about positive social change, Macieski constantly seeks ways to be involved in the process. And he enjoys every minute of it. “I get to read good books and talk to intelligent people about the things I love.”

Degrees and Research

B.A., M.A., Ph.D., History, Boston College

RESEARCH: Macieski is a 19th and 20th century social historian specializing in history of labor, urbanization, and ethnicity.

Georgia Kerns

Something special in the classroom

From UNH to Forteleza, and beyond

In her professional roles as educator, scholar, and colleague, Georgia Kerns is a listener, communicator, and bridge builder across differences in abilities, understandings, and cultures.

"She puts faces on, and gives voices to, issues that often become masked by institutions," says Tom Schram, associate professor of education and a colleague.

GEORGIA KERNS ALWAYS WANTED TO BE A TEACHER. IN 1969 when she began her teaching career in Delaware, a boy with severe disabilities changed her concept of education and changed her life.

Sherman was 10 years old when he entered Kerns's first-grade classroom. He had mental retardation and a seizure and a behavior disorder. Kerns, who had 32 other students, worked to include him in the class's activities.

"Sherman was one of those kids who just grabs you by the heart," recalls Kerns. "He had the most wonderful sparkling eyes."

Reading was hard for him. But, she discovered that Sherman had a beautiful singing voice and could hear something once and sing it.

"His particular needs and strengths caused us to include a lot of music in the classroom. I did some wonderful collaborative work with the music teacher," says Kerns. "At recitals we featured him in solos. It was so nice for his grandmother to hear something positive about him."

The challenge was constant, but welcome, and Kerns worked with Sherman for three years. Only once was it overbearing. A necessary restraining incident with Sherman resulted in Kerns being bitten and having to get a tetanus shot. "I tell my students that I literally got bit by the special ed bug," she says, smiling.

DAWNA LIEBER (UNH '81), AN ELEMENTARY SCHOOL teacher in Newmarket, like Georgia Kerns, was concerned about teaching all of the students in her classroom, including those who might be challenged by autism, dyslexia, Tourette's syndrome, or other learning disabilities. So, Lieber went back to school for her special education certification and studied with Kerns.

"I went back to get my certification because more and more children need services. I think they learn best with an inclusion model, but that's not to rule out a resource room with a special ed teacher," says Lieber. "I personally wanted to be as competent as I could be. That might mean working with special ed students in my classroom or collaborating knowledgeably with a special ed teacher."

"At this school, we build the learning context around the student. And Georgia is very sensitive to this; the child is at the center."

REGINA PEREIRA, AN ELEMENTARY SCHOOL TEACHER IN FORTELEZA, BRAZIL, LIKE DAWNA LIEBER and Georgia Kerns, was concerned about teaching all of the students in her classroom. In her second grade classroom, students ranged in age from 7 to 12, attending for just a half-day. If her students missed enough school, often because they chose to work, they were not promoted to the

next grade. Nonetheless, Pereira taught and then would take a long bus ride to attend night school for more courses in education.

In 1994, Kerns went to Forteleza to speak about special education. Her invitation was the result of a friendship with a UNH graduate student and native of Forteleza, Francisco Cavalcante. Friends of Pereira's, some fellow teachers, attended Kerns's talk.

Afterward they came up to Kerns and asked, "How can we get to UNH?"

—Carrie Sherman, University Publications

There are only two academic articles on special education in Brazil. One is "Brazilian Special Needs Education: Conceptual Framework and Policy for the 1990s," by Georgia M. Kerns and F.S. Cavalcante, published in the 4th Monograph of the Division for International Special Education Services of the Council for Exceptional Children.



Above: Kerns (right) and Dawna Lieber at Newmarket Elementary School.

Right: Regina Pereira and her students in her classroom in Brazil.



Degrees and Research

B.S.Ed., Elementary Education, University of Delaware

M.Ed., Special Education-Emotionally Handicapped, University of Delaware

M.Ed., Early Childhood-Special Needs, University of New Hampshire,

Ph.D., Special Education, University of Kansas

Guy Petty

TWENTY YEARS AGO, GUY PETTY FOUND LAND HE was looking for in Kittery Point—southern exposure, sloping to the water, with good thermal qualities. He traded an old Dodge for the plot and built a house that was based on principles, not drawings. He used local or recycled materials. Local pine clapboards (rather than Canadian cedar) covered with his own exterior house stain composed of turpentine, kerosene, linseed oil, and cayenne pepper to keep the bugs from eating the wood. The kitchen countertops are the backs of the old chalkboards that hung on the wall of the now defunct Warehouse Restaurant in Portsmouth. The house is so gorgeous . . . and yet so odd, he couldn't get a mortgage.

Petty built a 10-ton Russian woodstove that burns so hot—1,800 degrees—that the chimney never needs cleaning. It's fired up in the morning for a half hour, burning so hot the flames are horizontal, and then shut down so the heat from the firebox radiates through the bricks at 150 degrees, leaving the rooms at 72 degrees on a winter day. The southern side of the house facing Barter's Creek is made of solar panels (sliding glass door replacements). He worries a little that the house is one degree off from true South.

"I did all these things back in the days when sustainable energy was called alternative energy," Petty says.

Guy Petty has been doing naturally for more than two decades what the rest of us are just learning about. He calls it "making a clean stream for those who follow."

"The way to live is to assume that everybody else lives downstream, and we need to pay attention to what we're doing upstream."

And that's how he teaches. "I teach my students to question the answers, not answer the questions," he explains. "I want to be the catalyst, not the force." The recipient of the Teaching Excellence Award in the Thompson School, Petty assigns class projects that include house designs. Last year's class designed Sustainability Director Tom Kelly's house.

Though Petty is a licensed architect, a professor of civil technology—presumably a land person—he prefers water. "I like the edge where the water meets the sea. It's an equitable place. It has poor people and really rich people. It is the most amazing place."

And that is where one would find Petty every third day of lobster season as he pulls his traps from his 18-foot Eastern lobsterboat—built, by the way, from parts of junked boats. (The hull is an Eastern, but that's about it.)

I knew a little about boats before I interviewed Guy Petty, but nothing about him. So I wouldn't appear stupid about boats when I met him, I said to a boat-builder friend before the interview, "He told me he just finished a Herreshoff tender—do you think he made it from a kit, or built it from scratch?"

"Oh," said my friend, "probably a kit. Nobody builds a Herreshoff from scratch any more."

Nobody, maybe, except Guy Petty. His Herreshoff is a 13-foot cedar-planked dinghy, the cedar steamed to the shape of the hull and riveted together; the seats, gunwales, and hourglass stern made of mahogany. It is a boat that shines so bright white and with such a deep ruddy heartwood that you catch your breath. It is a boat that, when you stand beside it, you stroke. You just can't help it.

There were just enough planks to make the boat once—no room for a bad cut. "When you build a boat having no extra material," Petty says, "you think, and you think, and you think. Then, just before you make the cut, you think some more."

He belongs to no Internet chat groups or boating e-mail lists. The Herreshoff is not what some call a furniture boat; Petty trailers it to the public wharf in Kittery Point and puts in the water as if it were just a boat.

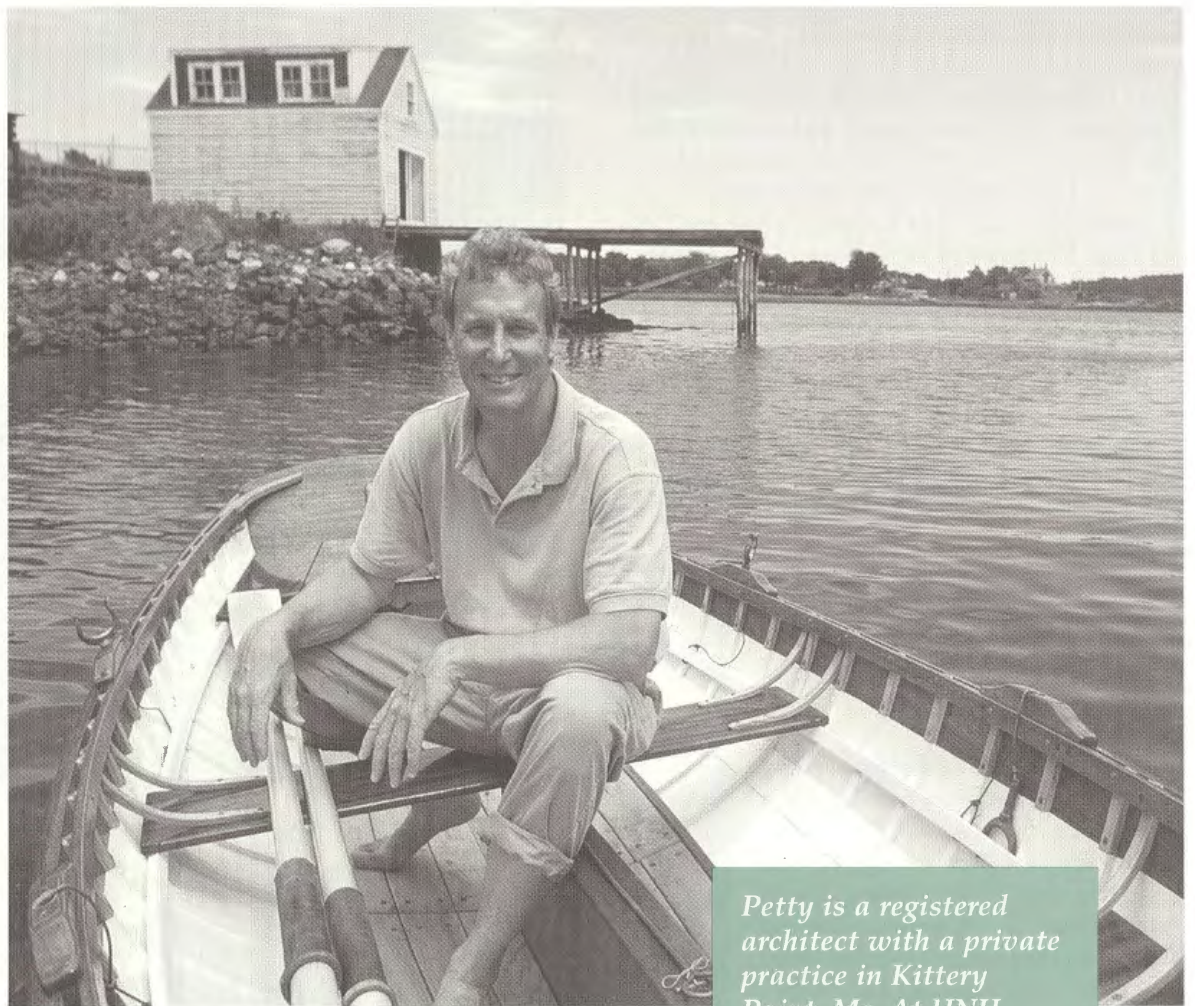
"It is a boat," he maintains.

The breast plate is a dead giveaway that this is no kit boat. It is made from the crotch of a white oak, cut and sanded and stained to silk. One sees the wood grains running separately along what were the two trunks, then converging and running together to the tip of the bow, as if downstream.

—Kim Billings, UNH News Bureau

The life that Guy built

Leaving a clean stream for those who follow



Petty and his Herreshoff enjoy a calm sea at Pepperrell Cove, Kittery Point, Me.

Degrees

B.Arch., Pennsylvania State University, 1969.

Petty is a registered architect with a private practice in Kittery Point, Me. At UNH, he teaches Statics (loads on beams and columns in structural design), computer-aided design (CAD I & II), and Architecture II.

Kathleen Wilson

Diva of the Divine

Teaching the transforming power of music

AURELIO DOMINGUEZ WAITS IN THE HALLWAY. HE'S CLUTCHING A PLASTIC RECORDER that Kathleen Wilson, who teaches the elementary music course, requires all her students to own. He hesitates then taps on Wilson's door.

"Aurelio!" she says and welcomes Dominguez into her office.

He motions with the recorder. "I'm here to play my requirement," he says.

"Lucky for you I haven't turned the grades in yet. But if you flunk the test today, that's it."

"Okay, okay." He turns to one side and blows a few practice notes while Wilson sets up the music.

"Of course he's waited 'til the last day," Wilson tells her visitor. "He's Venezuelan."

Across the room, Dominguez lifts his head and catches Wilson's glance. They both laugh, his anxiety melting in their shared joke.

Wilson spent the first 12 years of her life in Colombia and the Dominican Republic. The daughter of U.S. State Department employees, Wilson says Latin America was the culture of her childhood and forms much of her repertoire as a singer. Six years ago she was a Fulbright scholar, teaching music in South America, including Venezuela.

Several of her best students, like Dominguez, have since followed her to the music program at UNH. Anyone who has spent time in a class with Wilson can understand why. When Wilson teaches, she transfuses the classroom with her passion.

"When you teach, you forget who you are," Wilson says. "Often we're very aware of how others perceive us. What we look like, how we sound. Am I good enough? Teaching takes you out of yourself. For a few minutes, you make contact with other human beings on almost a spiritual plane. When you combine teaching, music, and singing, it forms a window into the soul."

After 11 years at UNH instructing singers and music educators, Wilson is renowned for her teaching style—and her fairness. Every course she teaches is based on a contract system where students decide what grades they'll earn and what criteria they'll meet to get those grades. It's their responsibility.

"If the students set the goals, you can be on the same team and stand shoulder-to-shoulder with them," Wilson explains. "You can say, 'I'll help you get there.'" Wilson finds students respond well to this system, achieving more than they initially thought they would. But then Wilson is known for inspiring students.

"When Kathleen came to the department, she made an immediate and profound improvement in our vocal program," says Peggy Vagts, chair of the music department. "She took kids who'd sung only in small town choirs and, in the space of a semester, had them singing six performances of *Così*."

"Another measure of her ability is her success teaching the elementary music methods class. A lot of the students, especially the men, aren't interested in teaching in elementary school. They resist the subject. But Kathleen entices them to open their minds, does all kinds of creative projects, and by year's end the students are amazed at how much they enjoyed the class."

Aurelio Dominguez agrees. A tenor by training, he has studied voice with Wilson one-on-one, an hour a week for four years. Now in her elementary music class, he's contracted for an A-. But to earn that grade, he must play a brief song on the recorder with 100 percent accuracy. Normally Wilson

allows students to take tests as often as they want until they reach the level they've contracted for. But Dominguez has waited until the absolute last minute.

"Oh God," he says, wincing. "I have to do this thing."

"What'll it be?" Wilson asks.

"I'll play *Warriors Brave*."

Swaying, his toes tapping in his sandals against the tile floor, he plays a haunting song of lost, long-forgotten hope.

As the last note recedes down the hall he smiles; his expression is priceless.

"Bravo!" says Wilson.

Bravo, indeed.

—Susan Warner Smith, *University Publications*



Wilson has 13 credits from Harvard Medical School for a course on voice disorders.

She's collaborating on a book on the parallels between therapies used to heal injured voices and techniques used to train professional singers. Her favorite things to sing are Bach (oratorio with orchestra) and Latin American art songs.

Wilson and her student, Aurelio Dominguez, try a song from *Don Giovanni*.

Degrees and Research

B.M., M.M. Music and Music History, University of Arizona

Ed.M., Ed.D. Music Education with a specialization in voice pedagogy, Columbia University

RESEARCH: Wilson studies 20th century Latin American art songs and is taking the fall semester off to finish a book on the subject. She also has 2,000 music manuscripts to review by December.

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