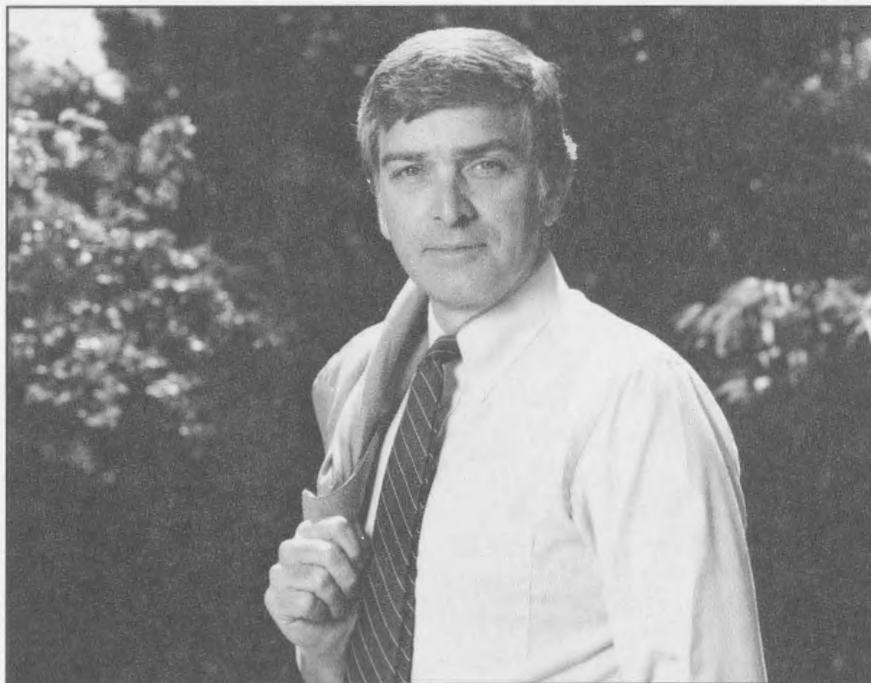


TEACHING

The Essence of Education

“ I will never forget this learning experience. He was an excellent teacher and now I feel he will always be a friend.”

from a student evaluation



Teaching: A Shared Experience

The intellectual vitality of a university depends upon a core of highly qualified, devoted faculty members. The University of New Hampshire is blessed in that regard.

In these pages are profiles of outstanding teachers who recently received University awards for teaching excellence. They represent the committed teaching in our classrooms and laboratories. The purpose of these annual awards is to recognize, honor, and encourage excellence in teaching. While the methods involved in superior teaching vary, excellent teachers tend to have certain features in common. Those chosen for these awards are engaged in ongoing creative activity in their fields. They have a clear mastery of their subjects and excel at conveying that knowledge to their students.

Teaching is a shared experience. These profiles demonstrate that quality in many ways: teaching is shaped, and reshaped again and again, by student response; teachers instinctively share insights and techniques with colleagues down the hall and around the world; ideas from their research infiltrate the classroom.

To be sure, teaching is one of the central missions of a land grant University. The fulfillment of that mission is essential, but more satisfying is the belief that we are helping to fulfill the lives of young people.

As I write this, and later, as you read this, there is a student somewhere at the University—listening to a teacher in a classroom, or perhaps poring over results from a laboratory experiment—who has paused to consider what he or she has just learned. It may be an idea that is an impossible dream; or, what is more exciting, it may be an idea that could make this world a better place to live.

The University exists for that latter possibility, and excellent teaching moves us closer to that goal. Our teachers offer that most generous gift of knowledge, and I am proud to share with you these portraits of some of the finest teachers at UNH.

President Gordon Haaland

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While studying the writing of Sarah Orne Jewett, Sarah Way Sherman found herself frequently drawn to the 19th-century author's home in South Berwick, Maine.

noon class, I'll skim the text again during lunch. What I have to do is know where every scene and passage is, so if it comes up in discussion, I can refer to it immediately." When the rhythm of a discussion is kept, says Sherman, "you can see it in the expression on people's faces.

"When I'm teaching a story or a book, I start with a brief discussion and a series of questions to establish a common text. Then we move toward the essential questions, to where they can open up to their own interpretations. It's through articulating their own thoughts, not repeating mine, that students begin the process of discovery that will stay with them after they leave my course."

For that reason, one of her favorite teaching stories is that of a class on Henry David Thoreau's *Walden*. "A faculty meeting kept me about fifteen minutes late that day and I expected to find the students hanging around by the coke machine. But when I got there, they were in a rapt, intense discussion of *Walden*. I just sat down in the back of the class and tried not to say anything. I didn't want to spoil it."

A Strong Sense of Vocation

"Ever since childhood," Sherman recalls, "I had an interest in writing and reading, and in talking about books. I had a very strong sense of vocation early."

Her parents had moved in the late 1950s from New York City to Conway, New Hampshire, where they bought and ran a radio station. Sherman and her younger sister grew up with a 250-foot radio tower in their backyard.

Her father studied at Maryland's St. John's College, the curriculum of which consists of exploration of a list of 100 "Great Books," texts ranging from Plato to Aquinas, Cervantes, Shakespeare, and Einstein. "We grew up with the Great Books in the house. And scattered on the

continued on next page

"We Draw on Our Own Experiences of Love and Communication"

Jewett writes stories about people achieving, through some kind of dialogue, a moment of insight. She works at a process of understanding through talking."

Sarah Way Sherman is discussing Sarah Orne Jewett, the 19th-century writer whose stories were filled, according to Henry James, Jewett's contemporary, with "elegance and exactness." Sherman's recently published book, *Sarah Orne Jewett, An American Persephone*, traces the use of mythology in Jewett's depiction of the villages of coastal Maine.

"They are stories," Sherman continues, "that draw the reader in, that make a collaborator of the reader. And she does it by subtle suggestion. As a reader, you have to participate in the stories and bring something of yourself to them."

In articulating Jewett's emphasis on communication and

empathy, Sherman defines as well her own approach to classroom teaching.

"When a class goes really well, everyone becomes actively engaged in talking things out, not only between teacher and student, but between student and student."

Teaching Is Like Jazz

"What I've found is that teaching is like jazz. It's very improvisational. It takes an attentiveness to whether the student is getting it; you don't succeed unless you get the students to participate."

This approach, where improvisation is used as a means to dialogue, depends on preparation. "My students laugh sometimes when I bring out my copy of the text we're reading," she says. "It's always jammed with little yellow slips and notes and page markers.

"I reread everything the night before; or if it's an after-

"A meeting kept me about fifteen minutes But when I got there, they were in a rapt, intense discussion of Walden. I just sat down in the back of the class and tried not to say anything. I didn't want to spoil it."

—Sarah Sherman

coffee table were issues of the *New York Times Book Review*, *Atlantic Monthly*, *New Republic*. I remember getting up in the morning and going downstairs to find my father reading W. H. Auden, or a history of the Civil War, or Nabokov.

"My mother was always involved in crafts, and through her I became interested in women's studies and culture, in connecting ideas with experience. Women's culture involves a lot of what has been left out of traditional literature—emphasis on the experiential side of life, on home and family life.

"My parents were wonderful teachers, and I also had wonderful teachers in high school and college." The teachers who influenced her toward the profession were those whose approach was student-centered, who relied on dialogue to produce insight and comprised what some scholars call "a community of discourse."

"Besides," she adds, "I just really like to talk about books. I always liked to talk as a student, and I often felt, leaving a classroom, that I'd talked too much." Laughing, she explains, "Teaching was a way to legitimize this passion for talking; it's given me an outlet."

Sherman graduated in 1972 with a degree in American Studies and Literature from Marlboro, a private, 250-student, liberal arts college in southern Vermont. She received her doctorate in American Civilization in 1983 from Brown University. From there, she taught composition at the University of Minnesota's 55,000-student Minneapolis campus before coming to Durham in 1980.

"As universities go, UNH is very small, very personalized. The thing I like about the UNH English department is that it does value high quality teaching. I think it's unusual. I'm a trustee at Marlboro, so I get to talk to a lot of students there. I keep telling them, there are a lot of dedicated teachers at state schools.

"Minnesota was a great school in a lot of ways, but they would have to try to teach literature in 200- to 300-person classes. We don't do that here. With the individual student-writing conferences here, the students get as

much attention as at Marlboro.

"Growing up in New Hampshire, having gone to public school in New Hampshire, I know where the kids are coming from. As many of the brightest kids in my high school class went to UNH as went to Ivy League schools. So I have a lot of respect for UNH students. Even if they can't afford to go to a fancy school, they deserve the best kind of education. If UNH didn't try to give that to them, I would feel very conflicted about being here."

That Vital Connection between Life and Thought

"The scholar must make that vital connection between life and thought," Sherman has written. She has quoted Emerson's declaration, "Only so much do I know, as I have lived." The application of her beliefs toward practical works in the form of teaching and public service have resulted in her winning a 1989 UNH Outstanding Faculty Award, in addition to her recent election as president of the New England American Studies Association. For *An American Persephone*, she has been awarded the 1989 UNH Book Prize from the University Press of New England. She has coordinated the English department's Feminist Criticism Reading Group and participates in a variety of lectures, panel discussions, and outreach programs.

"I'm feeling very lucky," she says, "that several things have all come to fruition together. I have ideas for another book, growing out of the Jewett book; but for now I want to take a breath, look around, stay open to surprises."

—Louis Mazzari, writer/editor,
University Publications

Counting the Cost of Medical Care

Boston looks like a pastel porcupine, bristling with colored pins on the map of New England in Dick Lewis's office. Pins mark other cities as well: Manchester; Concord; Hanover; Portsmouth; Portland; and Bristol, Connecticut. Each one marks an internship site for a UNH student in health management.

Between the pins are invisible lines. For a decade, Lewis has been patiently constructing a network of undergraduate interns, UNH alums, and other professionals in health management.

Lewis says his best teaching happens in his office, one-on-one. As he says this he leans forward in his chair, looking at you intently. He is a tall man, and the chair creaks toward you under his weight. "Just like I'm talking to you now."

He leans back again, raises his arms, and starts placing concepts in the air. "Here, in the center, is the student. Now I have a lot of roles. I'm the faculty adviser to the student chapter of the American College of Healthcare Executives. Let's just park that over here; we'll get back to it." He goes on to map in the air his various roles: as teacher, yes, of health management accounting; but also as the person responsible for placing each student in an internship site; a key player in job placements after graduation; and a link to alumni.

Setting up the Internships

Each student in health management comes to Lewis at the beginning of the junior year to start arranging an internship. "I'm the sole faculty member for the students when they're on internships," he says. Students come back to him for everything from technical advice to personal support. "We get to know each other pretty well."

Lewis also helps them understand how their internships fit within the larger field of health

management. He guides them through a process similar to his own when he started exploring the health management field as a graduate student. He studied who did what in the field; he went and talked to accountants, to managers, to personnel people, and found out what they did.

"I was your classic early sixties graduate," he says. "I went to a small liberal arts college and majored in history. I didn't know what I wanted to do, and that was fortunate. I wish we could still allow people to just think and take courses for four years without worrying about a career. But we don't have that luxury any more."

Lewis sees it as his responsibility to help the students make good career choices, both through coursework and the internships located on the map in his office. "And with 330 graduates of the program, more and more of those sites have alums working in them. Frequently the student internships turn into full-time jobs."

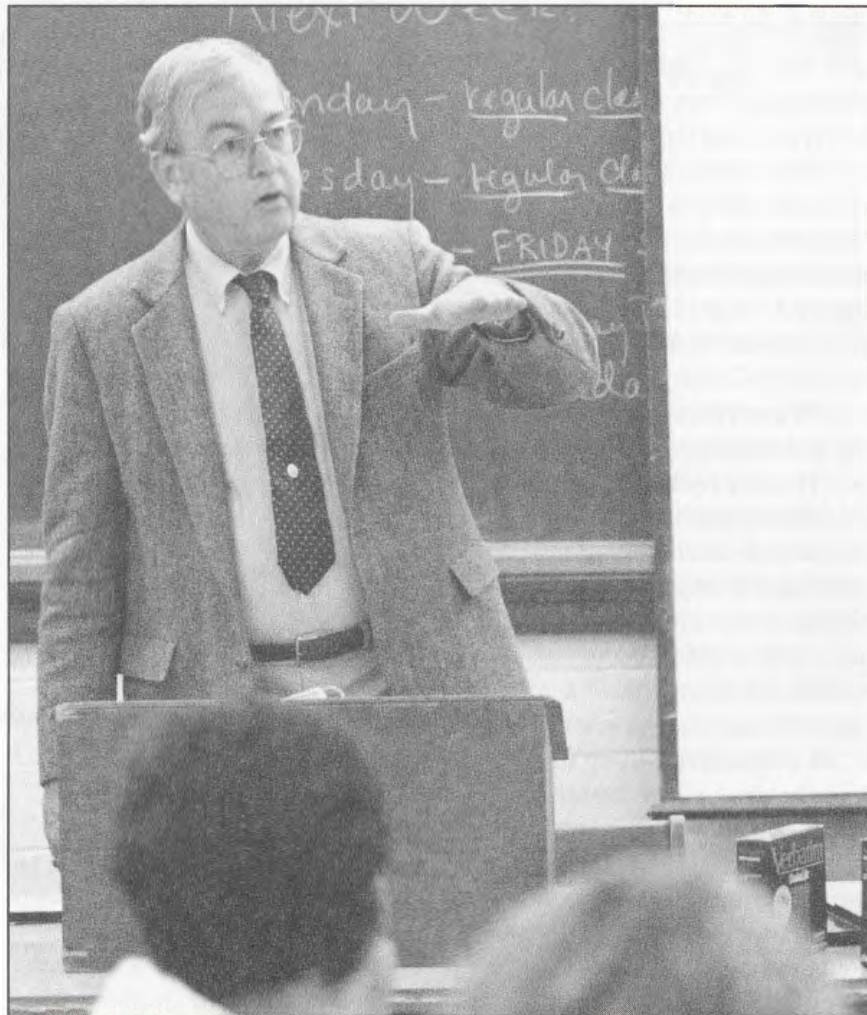
Helpers Face Hard Realities

Students who go into health care management are people-oriented. They want to help, and they want to serve, Lewis says. But along the way they have to pick up some hard-nosed business skills. A sign on his bulletin board says, "Over the next five years, one of every seven hospitals will die from its operations. I'm not telling them to go out there and make a big profit," Lewis says. "I'm telling them someone has to pay the bills."

At the same time, he tells them that the patient's ability to pay should not affect the treatment. "We have a problem with indigent care in this country, no doubt about it. But we must assure service. The patient is the center of the system."

Significantly, students take his accounting course at the same time they are taking a course in medical ethics—and after they

"I'm telling them someone has to pay the bills," says Richard Lewis of the crisis in health care management.



"Everybody knows how to price a pencil. But how do you price a unit of medical care? How do you price a day at a nursing home?"

—Richard Lewis

have completed their internships. "After the internships," he says, "they've seen the situations occur. They know what the numbers are about."

Lewis is well prepared to help students understand the realities of the health management field. Before retiring from the air force in 1981 and coming to UNH full time, he administered five different air force hospitals, including a clinic and medical evacuation unit in DaNang, Vietnam.

Lewis is also, of course, a teacher in the traditional classroom setting. He knows that his academic specialty—management cost accounting—is not a "fun" subject for undergraduates. "The eyes glaze over really quickly when you talk about accounting," he says. So he maximizes student involvement in the classroom. Students sit at computer monitors, facing a screen on which is projected the work on his own computer: charts, accounting problems, questions and answers. Day by day, the students build a complex understanding of finances. "Everybody knows how to price a pencil," he says. "But how do you price a unit of medical care? How do

you price a day at a nursing home?"

By the end of the semester, Lewis gives the students a case situation, four years worth of balance sheets from the "Jasper Hill Nursing Home." He gives them some variables; says that this, this, and this have changed. "What are you going to do?

People out there are scared about health costs. Where are you going to raise the price?" The students go to work with their Lotus spreadsheets, making the kind of decisions they will make for the rest of their lives.

The Ultimate Reward

"My greatest reward comes every May," Lewis says. The graduating students and their families gather in New Hampshire Hall. He says farewell and good luck to the students he has come to know in his office over the last years. And he meets their parents—and often their aunts and uncles and cousins—for the first time. "They come up to me and say how much their children have grown. And they say thank you. That's my reward."

—Richard Moore, writer/editor,
University Publications

"Why Are We Reading *Antigone*?"

The last thing in the world Terry Savage expected to do was teach. Small wonder. The associate professor of philosophy learned how to repair bicycles, washing machines, and motorcycles when he was twelve years old at the Western Auto store in Hampton. Savage mills his own lumber. He has built an ultralight airplane. He is restoring an 18th-century house. Summers, he manages a 425-site campground. With his family, he raises Mediterranean donkeys.

Primarily and amazingly, Savage's profession is teaching. The forty-three-year-old professor has taught at the University of New Hampshire at Manchester since 1976. He also has developed more than a dozen new courses, which range from Classical Greece to Computer Power and Human Reason.

The Turning Point

As an undergraduate at UNH, Savage first enrolled in engineering and then moved on to psychology. While he was wrestling with the different theories of social science, he met former UNH philosophy professor Peter Sylvester. Sylvester, Savage says, and political scientist Erwin Jaffe, changed his life.

"Peter liked my work, and mentioned me to his friend Erwin; and when I was a junior, Erwin hired me as a teaching assistant in an introductory political science class. That was the turning point for me. I couldn't wait to teach the next class. I couldn't wait to talk to the students about what they had read."

Nontraditional Students

Savage commutes from his home in Hampton Falls to the Manchester campus every day where he
continued on next page

"As time passed, they knew something was missing, something that would make them more comfortable in the world. So they came back to school, looking for whatever it is; and I would say the majority find it."

—Terry Savage

helps nontraditional students earn their associate's degrees and encourages them to go on to a four-year program.

"In a sense, all the students are nontraditional," he explains, "including those in the traditional eighteen- to twenty-two-year-old range. They're not just going to school and driving around in Camaros.

"They're working for a living and helping out their families. That's why I've taught here for thirteen years and why I will continue to teach here—because education is important to these people. Many of them arrive with little self-confidence and low self-esteem and I get to tell them they can do it and then watch them do it. It's a wonderful thing to see. And they're so grateful when they're through."

According to Savage, his students aren't driven by how much money they can make after they graduate. "Oh sure," he says, "they think about what kind of job they can get after going to school, but that's not their only reason for coming to UNHM. They're also here to be more a part of society."

Especially, he says, women in their thirties return to school

"looking for an experience they thought they should have had. Many of them graduated from high school, got married, and had children. As time passed, they knew something was missing, something that would make them, in a sense, more comfortable in the world. So they come back to school, looking for whatever it is, and I would say the majority find it."

Asking the Question Back

"Students who return to take a humanities course are required to do a lot of reading and writing. A lot of them get very upset, very emotional, when they see what is expected of them. But they take the classes seriously, and work very hard.

"They have more ability than they think they have and need a lot of encouragement. The reward for me is when they begin to develop their confidence."

Savage stresses the importance of the mix of students at UNHM. "When a student raises his or her hand in class and asks me a question, I ask the question back to the entire class: 'Okay,' I say, 'Why are we reading *Antigone*?' And a thirty-six-year-old student can raise his or her

hand and relate it back to his or her life. They're able to educate each other."

Savage's reading list can range from Plato to *Zen and the Art of Motorcycle Maintenance*. "I don't necessarily lecture," he explains. "My classes are an open discussion and I encourage them to look at experiences in their own lives when talking about a particular reading."

Sense of Community

Savage also enjoys teaching at Manchester because of the close camaraderie of his faculty colleagues. "It's a real community," he says, "and there is a close working relationship among the faculty."

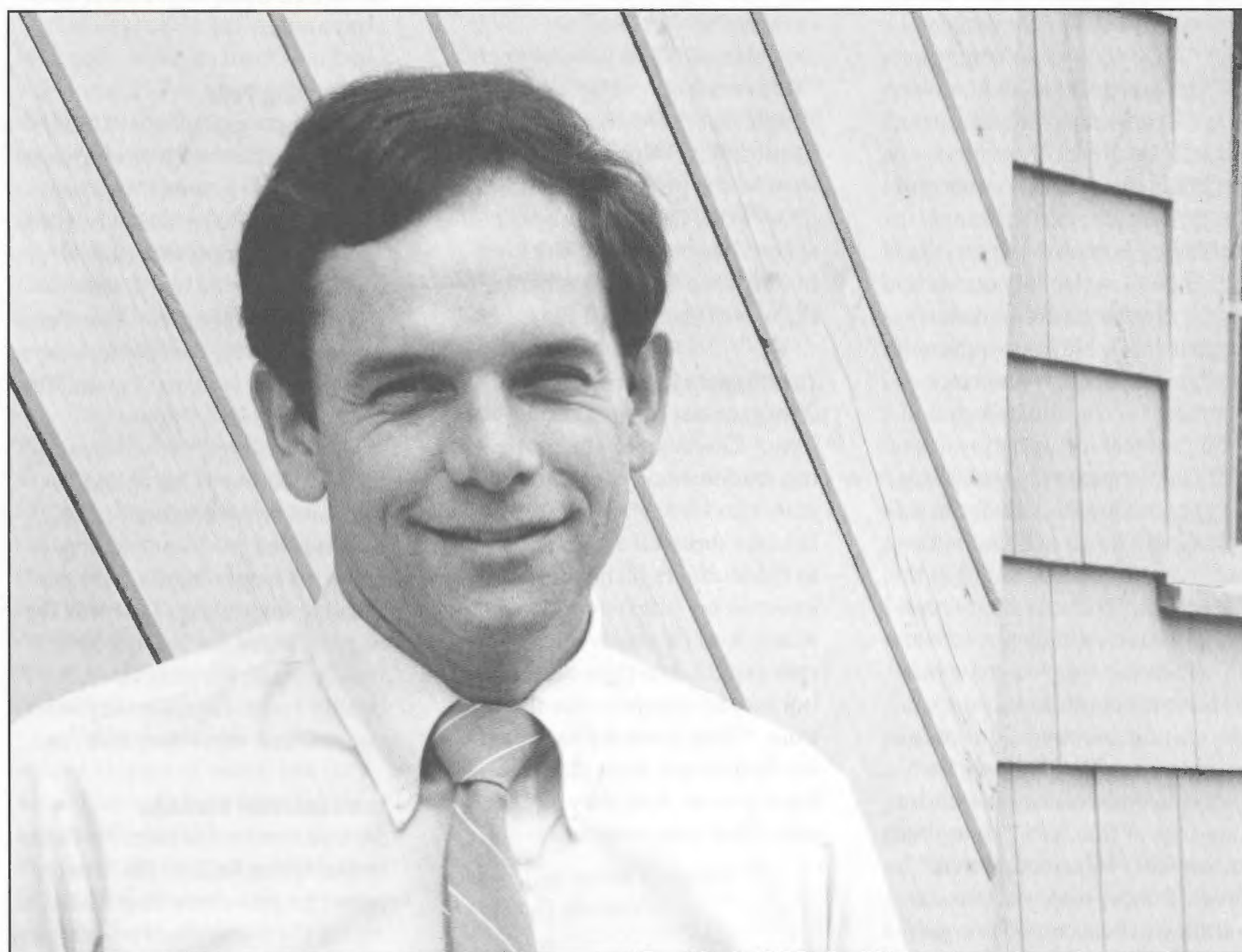
Before it had become fashionable to get grants to study the humanities, in 1976, Savage worked with faculty from other disciplines and helped write a proposal to the National Endowment for the Humanities. They received funding to develop new team-taught humanities courses.

Savage worked closely with UNH philosophy professor Drew Christie when he developed a section of Computer Power and Human Reason, a class that asks the now classic question: can computers really think?

In fact, Savage runs out of fingers as he counts off the number of courses he has developed at the Manchester campus with other faculty members—including Capitalism and Socialism, Humanities and Contemporary Social Issues, and a seminar on creativity.

"There is no one particular experience I can recall that has had an impact on me," Savage says. "The impact is the pattern—it's watching these people come here, sometimes scared and with little confidence, and leave two years later as changed people, satisfied people."

—Kim Billings, assistant director,
University News Bureau



Philosophy professor Terry Savage commutes two hours a day to teach nontraditional students at the Manchester campus.



For Nancy Kinner, there has always been magic in the workshop—first her father's, now her own.

Engineering with a Passion

Nancy Kinner's attentive eyes follow three-year-old Brian Malley to a bush in her front yard where he clips off a few sprigs of greenery with a pair of garden shears. The bush does not need trimming.

A different type of grownup might fret that he is harming the bush or degrading its looks. But the associate professor of civil engineering is seeing something else.

The little hands, soiled from earlier work in the garden with "Auntie Bubba," spread to their limits to grasp the handles of the shears. With an effort of which he is only recently capable, the boy squeezes the handles. Snick. The sharp blades fell a tiny branch. As the child looks for another target, Nancy Kinner is watching intently the process of learning.

For Kinner, encouraging others to learn is nothing new. "I'm really big on projects," Kinner acknowledges. "Projects are where students get to apply the theory you teach them in class."

When students apply what they learn, Kinner believes, they make it their own. Whether it's a pair of garden shears in the hands of a three-year-old or a dissolved-oxygen meter in the hands of an undergraduate, giving her students the right tools

and making sure they have a chance to use and understand them is what Kinner's teaching is about.

Working the Students Hard

"Nancy had the unique ability to take any subject and make it interesting," recalls Todd Wallace, a 1986 civil engineering graduate. Wallace works for a Glastonbury, Connecticut, engineering firm in its hazardous waste group.

"For fifty minutes she would be talking a mile a minute, using her hands, scribbling things on the board, pacing back and forth . . . you came out of her class tired," Wallace says. "But you could not help paying attention."

"She's very demanding," acknowledges senior Elizabeth Mikulis. Yet Kinner's expectations are matched by her own dedication and integrity. One time, Mikulis recounts, "I left a message that I needed to talk to her about a project I was doing. She came to the library looking for me. I don't know many professors who would do that."

For their junior project last year, Mikulis's class was divided into "companies" of six students assigned to design a facilities plan for the Boston harbor cleanup. The students had to

conduct site visits, interviews, and hours of research to come up with acceptable plans for a project that, in real life, was in the planning stages.

After their written reports were submitted, the student companies not only had to present their plans at a "town meeting" attended by faculty and graduate students, they had to defend their plans against irate townspeople like "Nancy McGillicuddy."

And the townspeople don't want technical answers, Mikulis found. "You have to be able to answer questions like 'How is this going to smell?'"

After the students presented their work, they were treated to a presentation by alumnus Al Firmin. Firmin, a vice president at the firm that actually did the facilities plan, presented his company's engineering solutions. "It was the best learning experience any of us could have," says Mikulis.

Starting in the Shop

Born in Oceanside, New York, Kinner was the youngest of three children. Her father, now seventy-one, was a maintenance foreman at a manufacturing plant. He had a "wonderful workshop at home" to which Kinner was no stranger. To this day, she says, "I love making things with my hands." In fact, the workshop in her Lee home is often the first place visitors are shown.

Of her mother, who died ten years ago, Kinner says with pride, "She spent a lot of time with her three children, raising them, and doing a fine job of it."

Her parents, neither of whom went to college, regularly insisted on taking their children out of school for a week in the fall and spring for special field trips to places like colonial Williamsburg and Gettysburg.

"When we were growing up, there was one thing that was a given: we were all going to college. Once we got there, we could study whatever we wanted and once we graduated we could be

anything we wanted, but we had to go to college."

Kinner began her college career at Cornell University in the ecology-conscious 1970s "when sixty-five percent of the students matriculated in biology and wanted to save the world." She found the resulting large classes impersonal and uninspiring. The first small class she had at Cornell was one in phycology—the study of algae and seaweeds—with John Kingsbury, founder of the Isles of Shoals Marine Laboratory. "I loved that class," Kinner recalls. "I thrived in that class."

A Turning Point

After attending a special summer program at the Shoals, where attention by three faculty members and a number of graduate students was lavished on the undergraduate students, Kinner

continued on next page

"For fifty minutes she would be talking a mile a minute, pacing back and forth . . . you came out of her class tired. But you could not help paying attention."

—Todd Wallace, student

was hooked on marine biology. Convinced she would like to return to study a certain type of sand flea, Kinner gained Kingsbury's approval—but only on the condition she conduct tests for him on the island's sewage system. She agreed and stepped into what would be a turning point in her career.

"Taxonomy was fun," Kinner says, "but this sewage treatment was an application of the biology I had been learning. It meant I got to play with wrenches and tinker with real systems."

Now, although her research focus has shifted to the treatment of radon in drinking water, Kinner continues the tradition of close teacher-to-student contact she experienced first at home and then with Kingsbury.

Putting the Pieces Together

Graduate student Amoret Bunn chose Kinner as faculty adviser on her master's thesis on the biodegradation of gasoline in groundwater. Next year, Bunn hopes to begin work on her Ph.D. with Kinner. One of the traits she admires in her adviser is Kinner's willingness to dive into an explanation of a process by reducing it to basic parts "and then putting it all back together again for (the students)." Another is her dedication.

"Nancy has a lot of respect for students and for the amount of hard work it takes to teach them," says Bunn. "She is a major reason UNH has been a success for me." One measure of the respect Kinner has for her students, adds Bunn, is that after a few weeks, she knows all of them by name.

"You're a student, you have a right to be known, especially when you get to be a junior," Kinner asserts. And suddenly taken by a new realization, she adds that knowing students' names "makes them work harder since they can't go to sleep in the back of the room or cut class because I know who they are! I'm in there working hard and I want to be sure they are in there with me."

—Tad Ackman, writer/editor,
College of Engineering and
Physical Sciences

Resource Economics with a Funny Hat

His students call him Sirrom E. Salgoud, or Dr. Doug for short. Either way, Doug Morris manages to capture the attention of his students on the first day of class and hold it throughout the semester.

Morris's subject is resource economics; but from his frequent references to music and literature, students quickly learn there is more going on than just the principles of supply and demand.

His goal is to teach students to look at the world with a fresh perspective, not to jump to conclusions before gathering the facts. Written as it would appear in a mirror, even his name — Sirrom E. Salgoud—is not what it seems.

During his nine years at UNH, Morris has taught electives in farm business management, land use economics, and linear programming. "But the course that has made me the most famous is RECO 411, Resource Economics Perspectives," he says with a smile.

Calculating the Cost of an Education

As a general education course, RECO 411 typically attracts 100 students—primarily freshmen and sophomores—per semester. Morris terms it "a major drawing card for undeclared students.

Most of our majors come out of that class."

The course is often a student's first introduction to economics and its mysteries of analytical number crunching and graphs.

In the first week of class, Morris introduces economics by asking students to calculate the economics of their education.

"I make them figure out the total cost of coming to UNH on a per-hour basis," says Morris. "That way, if and when they cut a class, they know how much money they've taken out of their pockets and ripped up."

Students enroll in resource economics because they want to solve the problems of the world, says Morris, problems such as pollution, land use, and contaminated water supplies. But first they must learn the tools of an economist, the concepts of marginalism, supply and demand, and opportunity cost.

"Before we can apply resource economics to what they read in the newspapers, they need to learn the basics," says Morris. "Meanwhile, I have to hold their interest."

Explaining the News

He achieves this by using real-life problems as examples in class. Students begin each class by

"A lot of students don't realize that their looks and reactions to me in class have a big impact on how the course turns out. Their interest drives me to work all the harder."

—Doug Morris



Doug Morris uses music, drama, and number games to hold student interest through the basics of resource economics.

looking at a news item that can be explained with a model.

"They learn to put an exercise into a graph and draw conclusions," says Morris. "They look at the analytical story."

Morris changes the course every year, introducing new data for exercises and problem sets. And as current events are constantly changing, he always has a new pool of resource economics issues to work from.

"What a lot of students don't realize is that their looks and reactions to me in class have a big impact on how the course turns out," Morris says. "Their interest drives me to work all the harder."

An Inviting Syllabus

His syllabus reads like a cross between a theater playbill and vacation brochure, inviting students to take a musical approach to their tour through resource economics.

Morris assigns a song to each letter grade, telling his students "to decide right now which song they'll be humming when they leave." Students see that their options in this class range from A ("Ode to Joy" from Beethoven's Ninth Symphony), to F ("Funeral March" from Sonata No. 2 by Frederic Chopin).

Other Morris innovations include the 96 Club, where any student receiving a 96 on the comprehensive final receives an A in the course. "This allows slow beginners a chance to overcome the poor start, and it helps to prevent these students from totally giving up early in the semester," says Morris.

Another Morrisism is "the ringer," a fictitious student added to the roster of large classes who performs four to six points below the next lowest student.

"This way when I am consulting those having trouble and finding themselves near the bottom of the rank sheet I can tell them to cheer up, because they could be where the ringer is," says Morris.

And then there are the cultural bonus questions, designed to reinforce the concept of opportunity cost. The questions offer bonus points for identifying the author and work associated with

an opening or closing line of a well known quotation.

"Some students tell me of calling their high school English teacher for help, enlisting their UNH English professor or roommates in this activity," says Morris. "Eventually many will tell me they are spending too much time trying to get six points, that the opportunity cost is too great. I smile because this is exactly the point."

At Home on the Farm

Tucked in a corner of James Hall, Morris's office is a showcase of his life growing up on a farm in Illinois and his love of agriculture, livestock, and the Oklahoma State University.

"A lot of kids come to talk to me feeling down and out," explains Morris of his office menagerie. "I figured if I could put together an office that catches their attention, we would have a better conversation."

Besides the hog hat which he is known to wear around campus the day before spring break, one of Morris's prized office accessories is the snake skin hanging on the wall alongside his desk.

"It's perfect, it even has the eyelids," he gushes. "It is only a garden snake but I tell everyone it's a rattler. They don't know the difference."

His environment also includes the 4-H trophies he won showing cattle, a horse collar from his family farm, and a student-generated beer bottle collection.

"I have to have fun doing something or I don't do it," says Morris. For seven years he left UNH to work as a government economist. "But I got bored," he says, and after spending some time on his family farm, he was drawn back to UNH.

Morris returned because he realized that teaching as a profession offered the "ultimate high."

"Every semester you go in and there are 100 faces looking at you," says Morris. "You accept the challenge of teaching economics so they like it and can apply it to their lives."

—Carolyn DuBois, writer/editor,
University News Bureau

"Teaching Is Like Getting Paid to Eat Ice Cream"

Peter Fernald, who has taught psychology at UNH since 1966, says he teaches "holistically." And he remembers exactly when it started. In the early 1960s, he was teaching an introductory psychology course at Indiana University and interning at Central State Hospital in Indianapolis.

"Part of my time was spent with twenty students who were doing well but the class was not making a difference in their lives," he recalls. "The rest of my time was spent with patients at the state hospital whose hearts, bodies, and minds were getting better. It occurred to me then that teaching well was much more than pouring facts into the minds of students."

Teaching above and below the Neck

The majority of formal education is "neck-up education," Fernald says. "The emphasis is on knowledge, but knowledge is of no consequence if it's not connected to the whole being."

Fernald likes to help students in both their understanding and their knowing. The word "understand," Fernald notes, literally means "to stand under." "Knowledge resides in the head, understanding in the body," he says. "Knowledge unrelated to our bodies—actually to our hearts, viscera, feelings, and passions—is of little value."

Fernald practices what he teaches. A large green ball rolls in the breeze in a corner of his office. Fernald jumps up from behind his desk at the mention of it and moves quickly, rolling the ball to the middle of his office. "This is how I relax," he says as he positions the small of his back against the ball.

He leans back so the ball supports him and he is rolling around on his back. He keeps up a steady stream of conversation. "We're all so used to bending

over our desks all day that we never think to bend the other way. The psychiatrist Alexander Lowen—a man I greatly admire—came up with this solution for back tension."

Getting to the Heart of the Student

If Fernald can roll around on his back so easily in front of a stranger, it's no wonder he's able to get twenty or thirty students to open up their hearts to him and have a good time doing it. "Teaching is like getting paid to eat ice cream."

He speaks about Jim Halla, a forty-year-old carpenter who enrolled in Fernald's introductory psychology course, primarily to satisfy a general education requirement. Halla is now a full-time doctoral student in the Massachusetts School of Professional Psychology.

After each exam, Fernald usually takes the top two or three students to lunch. With Halla, he says, "it was ridiculous. Halla was always going to the lunches. I had to start inviting more students to come along, just so we'd have someone different to talk to."

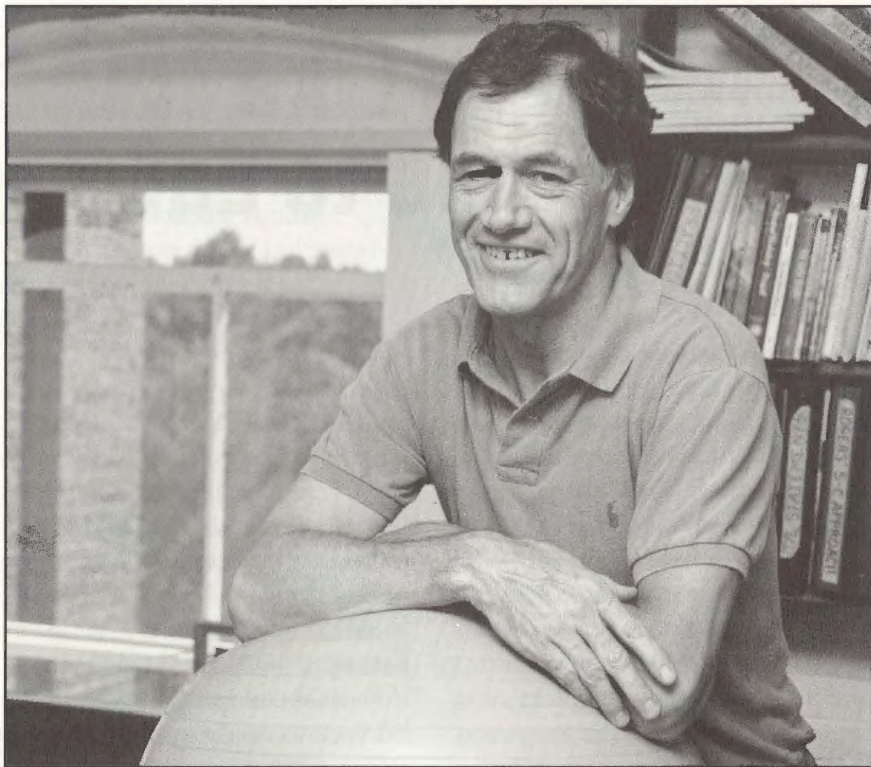
In addition, he invites entire classes to his home for dinner part way through the semester. "It makes an enormous difference in the spirit and camaraderie of the class," Fernald says.

Most times, it is "a grab-bag pot-luck, but," Fernald says, "we always end up with too many desserts."

Taking Risks

"I will never forget this learning experience," one of Fernald's students wrote recently. "Peter was outstanding. He was an excellent teacher and now I feel he will always be a friend . . . It's nice to be able to leave UNH having had this wonderful experience."

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Psychology professor Peter Fernald sometimes places a large green ball on the floor and arches his back over it—his solution to back tension, and an example of his holistic approach to well-being.

"He was an excellent teacher, and now I feel he will always be a friend. . . . It's nice to be able to leave UNH having had this wonderful experience."

—from a student evaluation

Such praise comes at the cost of taking many risks. "Over the years I have continually revised both the content and teaching methods of my courses," he says. "I teach what I'm trying to learn myself.

"Every class meeting is a unique experience. It has never happened before; it will never happen again."

Fernald likes to conduct demonstrations in the classroom, simplified versions of classic experiments. "But sometimes the demonstrations do not work out the way I expected," he says. "The students are delighted when my demonstrations bomb. But then we can struggle with the challenge of understanding why the experiment did not work out as planned."

During his twenty-three years at UNH, Fernald has kept himself intellectually stretched as a postdoctoral fellow in behavioral medicine and pediatric psychology at the University of Oklahoma's Health Sciences Center, a visiting lecturer for the University of Pittsburgh's Semester-at-Sea program, a visiting professor at Sonoma State University in California, and a psychological consultant at Winnacunnet High School in Hampton.

"But of all the blessings in my life," he says, "teaching has been the greatest one of all."

—Kim Billings, assistant director,
University News Bureau

Finding the Humanity in History

William Jones has led what he calls "a completely unplanned life." Well, not entirely. "I suppose I made some short-term decisions that produced long-term results," he says with a smile. As a professor of history, Jones knows that history is shaped by such short-term decisions.

Looking Back

Today, Jones looks back on a thirty-year teaching career and is content with his own personal history. He teaches "a little bit of everything," he says, from graduate-level seminars to undergraduate general survey courses that explain the history of the world, from the Greeks to current events.

He finds it all interesting, and he encourages his students to develop the same interest. "I think all human beings are curious as to their origins. If you personalize it, we're all curious about whence we came."

Jones came from Little Rock, Arkansas, and attended Little Rock Central High School, which a few years after his graduation became the focus of an historic school integration battle. History in the making, Jones would say.

He won a full scholarship to Harvard, and arrived in Cambridge in 1947 without any idea what he would study or what career he would pursue. "I changed majors frequently," he says; but he finally settled on history and literature.

Following his graduation, he won a one-year fellowship to study medieval French history at the University of Paris. He then returned to Harvard and decided to pursue graduate degrees in medieval European history, with a specialty in legal history, combining his undergraduate training with a lifelong interest in law.

In 1955, however, Jones made another short-term decision—he enlisted in the army.

He spent two years in the educational division of army

counter-intelligence, but he points out he wasn't wearing a trench coat and passing secret messages in exotic locales. "I was stationed in Atlanta. And in Atlanta, Georgia, there was very little spying going on."

With free time between secret messages, Jones taught history at the University of Georgia's Atlanta division (now Georgia State University).

After his army stint, Jones traveled to England, where he spent two years as a research fellow at Kings College—University of London. Upon his return, after earning his Ph.D., he became an assistant professor at the University of Georgia, later teaching at Ohio Wesleyan. He came to UNH in 1962.

Students Come First

Teaching has always been his first priority. "The University of New Hampshire has a good balance between teaching and research," he says, "but the bottom line is that undergraduate teaching is our bread and butter.

"I'm rather old fashioned," he says. "I see great value in a formal lecture." But he does try to vary his presentations from course to course, even if the subject matter is the same.

"Ideally, the nature of the course should change. You'd like to think you're making it better. It would be killing to rely on the same syllabus, the same readings."

After three decades in the classroom, Jones has developed what some might call tricks of the trade. "You must assume students are beginners and know absolutely nothing about the subject matter," he says.

He explains the material and tries to insert facts that would interest today's students. "For example, Ancient Greece had voting machines. We don't even have those in New Hampshire," he says with a laugh. He has also found that students are interested in the exotic, the unknown.

"Egypt fascinates them more than Adolf Hitler in the Second World War."

Staying in the Big Picture

Surprisingly, Jones says a teacher can know a subject too well; "You have to convey the forest and avoid all the trees." In subjects in which he has general, not too specific knowledge, he says, "I can see the big issue, because I don't know the trivial."

Jones's philosophy in the classroom: "If it works, use it."

"Sometimes I think they think of me as rather a stuffed shirt But students aren't here to be entertained. They're here to learn."

—William Jones

Teaching depends on context, on the constituency of the clientele." Graduate students should not be treated as undergraduates, for example, and smaller numbers of students can use group discussion. "Formal lectures work well where there's more diversity."

Asked what his students think of his approach, and him, Jones smiles. "Sometimes I think they think of me as rather a stuffed shirt," he says. "But I hope I'm able to convey an enthusiasm for the subject."

"Students aren't here for entertainment. They're not here to develop likes and dislikes. They're here to learn." Jones expects students to attend class, to pass in assignments on time, to make "a good faith effort to comply with the minimum requirements."

He smiles. "I possibly appear more stern than their parents and friends." He may indeed appear stern, wearing a jacket and tie on the hottest days; but Jones's ultimate goal is to educate students and instill in them an appreciation of what has come before them.

"I think it's misanthropic to find history a burden," he continues. "History is everything."

"I have no hobbies," he explains, almost apologetically. "Unlike other historians, I don't read or try to write murder mysteries."

Since his field of research is English legal history, Jones

does retain an interest in the law. Jones at one time was an adjunct professor at Columbia Law School. For six to seven years, he taught a legal history seminar. He recalls the post came with a charge account at the university's faculty club. As a Columbia adjunct, he explains, "I got free drinks and a thank-you letter." He adds, "But the letter was from the president of Columbia University."

His main interest remains focused on history, however. He has always been interested in east-west contacts; and, as a result, he has organized a series of conferences on the famous explorer Marco Polo that have taken place in China and Venice. In 1991, the tentative conference site will be Soviet Armenia.

Between conferences, Jones spends most of his time in the classroom, trying to get his students enthused about the Peloponnesian Wars.

The most effective way to stir students' interest, he says, "is to stress the humanity of history. It deals with human beings—that's the one thing students can relate to."

Approaching sixty years of age, Jones says he hasn't decided what to do after he retires. His plan, which remains unchanged since his days in Little Rock and Cambridge, is to make no plans.

—Carmelle Caron, editor,
Campus Journal

Bringing the Research Home

Ellen Cohn's cluttered office, on the third floor of Conant Hall, is the space of someone at work. There are reams of papers resisting containment, stacks of folders and binders, brimming bookshelves, and messages and articles fighting for wall space. There is an over-worked file cabinet, a typewriter, a computer, a few green, albeit struggling plants, and a desk full of handwritten notes. An over-size window opens up to leafy trees and brings in sunlight, providing a patch of serenity amidst the chaos of work in progress.

Cohn, an associate professor of psychology, recently has been recognized for her enthusiastic and relentless contributions as a faculty member at the University; and she is honored and pleased. But, she admits, she is uncomfortable with fanfare and publicity—it's the work she loves. Posing questions, getting results, creating and publishing information that may better explain human behavior and thought are what thrill her. Given limitless time and money, Cohn confesses, she'd do exactly what she has been doing—teaching and research.

Cohn studied at Clark University in Worcester, Massachusetts, and then at Temple University and Northwestern University. At Clark she met her husband, whose position as a professor of social psychology at Rhode Island College in Providence keeps him out of town four days a week.

Even when she has been on sabbatical, when she was also pregnant with daughter Erica, now four, she was studying and reading and writing. And in the summer, when she could choose not to work, she concentrates on her research.

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"I think it's misanthropic to find history a burden," says William Jones. "History is everything."



Social psychologist Ellen Cohn says she has always been drawn to issues of fairness and justice.

"The research of undergraduates is taken seriously. Some of them are doing important research on topics such as AIDS, and they go on to present their work at national conferences."

—Ellen Cohn

Applied Research

She is quick to clarify the difference between a clinical psychologist and a social psychologist, which is what Cohn is. A social psychologist studies people who are in social systems and applies the research.

"I've always wanted to be involved with work that can be applied to real life situations," Cohn underscores. "To simplify, there are two kinds of research—basic and applied. With basic research, you are trying to find out scientific laws, mostly through lab work. I'm involved with the kind of research I can apply to real-life social problems. In other words, our research becomes applicable, even though I may not be the person applying it."

Legal issues are the focus of Cohn's work. She says she has been drawn to matters of the law by a combination of an early honors thesis on fairness and equality that sustained her interest; the stimulating work of an adviser, Edward Samson; and happenstance.

Cohn is currently working on a project with Associate Professor of Sociology and Anthropology Sally Ward, Coordinator of the Justice Studies Program Susan White, and Associate Professor of Sociology Kirk Williams. The study, funded by a National

Science Foundation grant, is called "Unwanted Sexual Experiences" and considers the process of people's reasoning about cases of acquaintance rape. What one young woman may define as date rape, a young man may see as socially acceptable behavior. Cohn says their pilot study, which investigated the incidence of unwanted sexual experiences on campus, focuses on the gender differences in defining date rape.

"How do people make sense of this?", Cohn says. "The process, we are finding, is not as much governed by rules as by personal histories and perceptions. It's not black and white."

Fair but Demanding

"I think if you asked, students would say I am fair, but very demanding. Usually, when I'm in my office," she says, "there tend to be students in my office. I am available. I try to help students enjoy what they're doing—to make them enthusiastic and excited about research. I try to get them to work on projects that are important to them, projects that are creative. Research is not rote.

"Finding the positive aspects in their work is very important, too. They know I'm critical, but they know I care. Ultimately, I want them to think on their own."

For three years Cohn has coordinated the psychology department's annual undergraduate research conference, which encourages and provides a forum for the research of undergraduates. And for the same number of years Cohn has chaired the undergraduate program committee, which allows her to oversee a variety of programs and to assist undergraduates in acquiring funding for research.

Cohn says she is impressed and gratified not only by the

students' participation in the programs, including the conference, but by the quality of their presentations.

"Their work is extremely professional, and it's nice to see the research of undergraduates taken seriously. Some of these students are doing important research, on topics such as AIDS, and actually go on to present their work at national conferences."

Classroom Application

Cohn comes away from her work with opinions of her own about law and order in contemporary America. She says morality cannot be legislated—it's a matter of individual differences. "People have to make up their own minds," she says.

Cohn doesn't think that all laws are fair and just. She believes that one who accepts all laws, and does not question, is not being very thoughtful. Disagreeing with the law is our right, Cohn says.

"Civil disobedience is one way to object to the law," Cohn says. "Conscientious objectors during the Vietnam War, and other young men who went to jail or to Canada to express their objection to the war—they were disobeying the law. There are basically three levels of individual legal development. The lowest level obeys the law because they are afraid of getting punished. The middle group will abide by the law because it is good for society. The highest group of people will follow rules they think are good."

And so if questioning rules is the highest level of individual development, what does Cohn do when a student objects to HER rules?

"That's why I have mid-term evaluations," says Cohn, her eyes wide with optimism and assurance. "If there is something a student doesn't like about the class, that is the time to say it, not at the end of the semester." Cohn then shares the results of the evaluations with her students, and together they may make changes in the course structure. Cohn says, "I listen to them."

—Jan Waldron, writer/editor,
University Publications

Teaching across the Centuries

Janet Aikins walks through Durham, looking through the eyes of Jane Austen, or Aphra Behn; or Samuel Johnson, who told his friends that “books are meant to teach us to enjoy life, or to endure it.” Aikins would have her students, as well, use literature for the illumination of their own world, the opening of their eyes. It’s not an easy task.

She recalls her first attempt at teaching English 401, a mandatory writing and reading course for all undergraduates, as “disastrous.”

“It’s a very hard course to teach but ultimately one of the most rewarding,” says Aikins. The course requires students to write about their own experience—to begin to think of their lives in terms of literature. “You face a bright new group of college students who are enthusiastic, but who are also experiencing overwhelming change and growth. At first, I was too serious in my manner, but I listened to the advice of other teachers and learned to adapt to the needs of the class.”

Learning from Students

“The most important thing I have learned as a teacher is to listen to students,” Aikins continues. “By that I mean that when we read a text and I ask them what it was like, and whatever their answer, that’s where we begin the discussion. We ground what we do in the actual reactions the students have had.”

Aikins earned her B.A. in English from Grinnell College in 1972 and her M.A. in English literature from the University of Chicago a year later. In 1980 she completed her doctoral work at the University of Chicago, with specialization in the 18th century and the history and theory of drama and the novel.

Aikins has learned that students generally enjoy drama, and that they are surprised and curious when she introduces the novel as an 18th-century phe-

nomenon. For many students, the stumbling block is poetry.

“Enjoying poetry means you must zero in on the words—you don’t have characters, you don’t have actions,” explains Aikins.

“The reader needs to find a way to get involved in language itself.

“Poetry makes everyone uncomfortable,” she continues.

“That’s the way poetry works.

Being disturbed is the point.”

A priority for Aikins is that students read as much as possible during the semester. To help them plan their workload, Aikins allows students to choose from a variety of writing options: frequent shorter papers, fewer medium-length papers, or a combination of papers and a journal maintained throughout the course. Some students write a weekly “running examination” on assigned questions, while others elect the traditional mid-term and final examinations.

Aikins got the idea to offer a “paper package” and weekly testing option from another English department faculty member, a practice she says is common among faculty here.

“One of the privileges of teaching at UNH is learning from colleagues,” says Aikins. “We share ideas on teaching within the department.”

Cambridge: Open Eyes, Open Minds

In her office, a poster of England beckoning, Aikins talks about her role at UNH while preparing to depart for a six-week stint as an instructor in the UNH Summer Program in Cambridge, England.

The annual trek abroad has allowed Aikins to delve into her research on the late works of Daniel Defoe—for which she needs access to British libraries.

Cambridge also offers her the opportunity to teach a course she designed to be taught “on location” in England. The theme of the course is literal and figurative seeing, and it combines a survey of literature with the 18th-century art and architecture that can be seen in England today.

“Reading drama and fiction provides a ‘view’ into the world. My course explores themes that 18th-century writers cared about—contrasts between art and na-

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“Poetry makes everyone uncomfortable. That’s the way poetry works. Being disturbed is the point.”

—Janet Aikins



“Reading literature isn’t always immediately useful,” Janet Aikins says, taking the long view into the 18th century and back to today.

ture, country and city. Together the class questions how writers saw the world around them and how they chose to depict it."

Aikins assigns what she terms "exercises in seeing," requiring students to locate buildings or other landmarks of the 18th century.

"I ask students to give me the facts and then to make a personal comment—to reflect on their own sensations," says Aikins. The point, she says, is for students not only to see glimpses of a remote period in history through literature, but also to discover the various ways in which literary artifacts have been interpreted.

Rereading the Past

"People have sometimes incorrectly stereotyped 18th-century literature as a product of a white male upper class, and that's simply not accurate. These days we are rereading the 18th century and paying greater attention to the cultural diversity of the period, its racial and religious differences, and the position of women in society. We're getting away from the idea that the only 18th-century writers worth reading are such figures as Jonathan Swift and Samuel Johnson."

But, she is quick to add, it is important not to discount those writers by judging them in 20th-century terms. "If we ignore these writers we lose something, too."

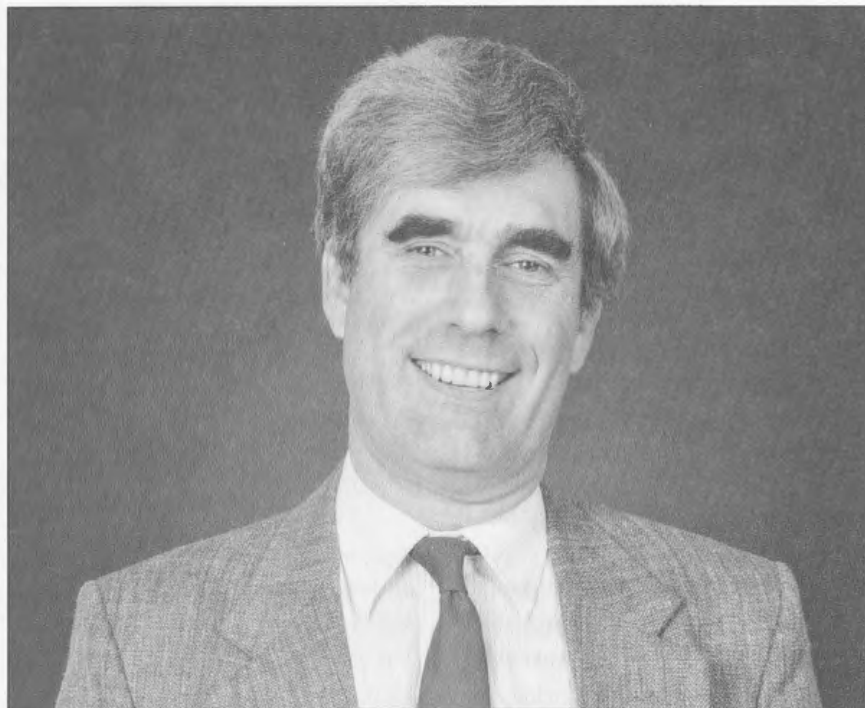
The key is balance and, she stresses, keeping an open mind while exploring whatever works we read from any period of history.

Intellectual Courage

"It takes a courageous student to know that books do not contain fixed realities and that exploration is what literature is all about."

"A student once said to me, 'Tell me it will be all right, that it is OK to study English literature merely because I love it; and that, yes, I really will be able to find a job when I graduate,'" Aikens continues. "I answered, 'Yes, it will be OK, because through literature, we learn to observe the world and make sense of it.'"

—Carolyn DuBois, writer/editor,
University News Bureau



"If they sit there like a row of cabbages," John Freear says of his students, "that's depressing. You need to get them involved."

In Accounting, One Thing Leads to Another

Thousands of miles away from his Lancashire, England, birthplace and the University of Kent where he studied and taught his first accounting class, John Freear clearly is at home in the Whittemore School of Business and Economics.

Surrounded by pictures of his homeland, Freear immerses himself in the business of the business school: grading exams, putting the final touches on a research paper, or talking shop with other faculty members. It's immediately evident, however, that Freear's priority is his students.

"If they sit there like a row of cabbages, that's depressing," Freear says. "You need to get them involved, you need to get them talking. Even if they say something silly, you shouldn't discourage them; because the last thing you want is for them to be afraid to talk."

Freear remembers what it is like to be a student—diligent, yet sometimes unable to comprehend difficult concepts.

"I clearly remember my professor of economics at Cambridge," Freear says. "He used to make things very, very,

clear. He would start off simple and straightforward, and make sure you stayed with him. If you didn't understand an idea, he'd express it in another way."

Building Blocks

For many students, Freear's introductory accounting class is the first exposure to accounting and finance—cornerstones for any business administration major.

But accounting, by nature, requires skills that build upon one another. Students must tackle case after case, keep up with homework, and learn new terminology throughout the semester. It is not a course where last-minute cramming can secure a passing grade.

"I don't believe in making a simple concept complicated," says Freear. "I prefer to make a complicated subject simple and then build upon it."

The approach worked for undergraduate Lisa Scigliano, a member of the class of 1990 pursuing a double major in business administration and political science. Scigliano studied managerial accounting with Freear in a summer course, hoping to grasp some of the concepts that eluded her the previous semester.

"In his class, every question is a valid question. He never made me feel awkward. He didn't just teach to the good students."

—Lisa Scigliano, student

Examples Make Concepts Clear

"He brings life to things," says Scigliano. "If something is difficult to understand, he finds a real-life example we can relate to. I had a problem with job-order costing versus process costing, but it became perfectly clear with the example he offered.

"In his class, every question is a valid question," Scigliano continues. "He never made me feel awkward. If someone didn't understand an explanation, he'd stop and think how he could better explain it. He didn't just teach to the good students."

Freear says he enjoys the challenges of the classroom not only because of his involvement with students, but also because it provides a practical setting to apply his research.

Freear's most recent research, a study conducted with William Wetzel, UNH Forbes professor of management, looks at sources of equity financing for new technology-based firms and equity capital for entrepreneurs.

"Research comes out in your teaching," Freear says. "You need to have that stream of scholarship coming through. I find it helpful to use real-life examples in class whenever possible."

From the U.K. to the U.S.

After graduating from Queens' College in Cambridge in 1963, Freear went to work as an articulated clerk, audit senior, at Garnett, Crewdson & Co. (now Spicer and Oppenheim, U.K.) in Manchester, England.

Four years later, Freear returned to graduate work as a P.D. Leake Teaching Fellow, University of Kent at Canterbury, graduating in 1969. He remained at Kent for the next fourteen years, teaching accounting and doing research in accounting history and farm and estate management accounting.

Freear's first introduction to UNH came in 1979, when a sabbatical brought him to the Whittemore School as a visiting associate professor of finance.

Since returning to UNH, Freear has watched one daughter, Helen, graduate from the University with a bachelor of science degree in Spanish and business administration, and another, Kate, prepare to enter

UNH as a studio arts major. His wife, Sally, is a docent volunteer at the UNH Art Gallery.

When not on campus, Freear likes to "potter about, achieving very little. I like to read detective and mystery stories and when I feel energetic, I do a bit of fencing. I also collect old pewter, when funds permit."

The Best of Both Worlds

Academically speaking, Freear has noticed several subtle differences between British and American teaching styles. An advantage of having worked within both systems, he says, is the ability to pick and choose from each.

"Knowledge is put in a greater number of smaller boxes here," says Freear. "Learning is more compartmentalized. In Britain, students take four courses a year versus eight here."

Although students may welcome the diversity offered by the greater selection of courses, Freear wonders if, when it comes to education, more is really less.

"Spending less time on one subject does restrict a teacher's ability to deal with something that has turned up serendipitously during the course," says Freear. "Britain's system gives you more flexibility to tackle issues as they arise, but much less opportunity for students to change programs and/or institutions, or to stray outside a major."

Freear explains that accounting is something that builds both vertically and horizontally. "There are a lot of links," he says. "And there is always the danger with little boxes that students won't make the links themselves."

For students like Scigliano, however, it isn't a matter of how classes are distributed over the academic year, but who is teaching those classes.

"I came into Dr. Freear's class feeling terrible about myself and my ability to make it in business," says Scigliano. "He's the best teacher I've ever had—he's boosted my confidence level 100 percent."

—Carolyn DuBois, writer/editor,
University News Bureau

E(nthusiasm)=mc²

It's exciting to look out and see a clear blue sky and know exactly why the sky looks blue, or why the breeze is on shore or off shore on certain days, or why music sounds like it sounds, or how your stereo system works." Robert Houston is warming to his topic, the kind of excitement he has stirred in students at UNH for more than three decades as a professor of physics.

Houston is a teacher's teacher, as much fascinated with the process of learning and teaching as the subject matter. What it takes, he has concluded, is enthusiasm—"lots of kinds of enthusiasm," he says. "It takes enthusiasm for your discipline, enthusiasm for going into the classroom every day; lots of energy so everyone will hear you, even in the back row; enthusiasm for the students themselves."

Houston's enthusiasm for the process of learning has led him to revise his methods continually over the years. "Not everyone learns the same way," he says. "You have to study every class. Every class has its own personality."

Learning to Read a Class

He has learned to "read" a class by their responses in the first weeks of a semester. "Part of the challenge is to get thirty to fifty, then sixty to eighty faces lighting up rather than four or five."

He also has had to modify his teaching techniques over the years as student preparation has changed. He has found himself doing increasing amounts of applied mathematics in class. "I would rather do demonstrations and talk about principles, letting the students do the math, but their ability has declined. They know some esoteric math, but they are not so good with multiplication and division. I can usually get an answer to within two decimal places in my head before they have a problem punched into their calculators."

Houston began teaching graduate students and upper

level courses. He laughs, remembering one of his first classes of exceptionally bright students. Of the thirteen students, six went on to Ph.D.s, five to master's degrees in physics. Two received Woodrow Wilson Fellowships. Houston had not been teaching long enough to know how exceptional the class was, and he graded them on the usual curve. "Imagine," he exclaims, "I gave a Woodrow Wilson Fellow a B."

By the 1960s he had grown to prefer the large introductory level courses. "The upper level students are learning more and more about less and less," he says. "Beginning students are pristine pure. And there are so many exciting things in the physical world that a student can suddenly understand with just a little physics."

Working with Public School Teachers

He also extended his enthusiasm to teachers of physics in elementary through high school classes, initiating a series of programs for teacher training. He still goes out to classrooms himself, armed with demonstrations aimed at surprising and delighting students while illustrating physical principles such as angular momentum and center of gravity: making a human gyroscope with a bicycle wheel and a rotating platform, for example, or demonstrating a wedge that seems to move uphill.

"The teachers in elementary schools are angels and martyrs," he says. "They walk into crowded classrooms day after day with a cheerfulness and grace that is amazing. But they don't know physics. I wish we could do more to make them comfortable with science."

As Houston has developed and modified his own teaching techniques, he has watched a lot of other teachers. "I'd walk down the hall, listening to my colleagues teach. I'd hear something and think, gee that's good, I'll have to try that. But often it

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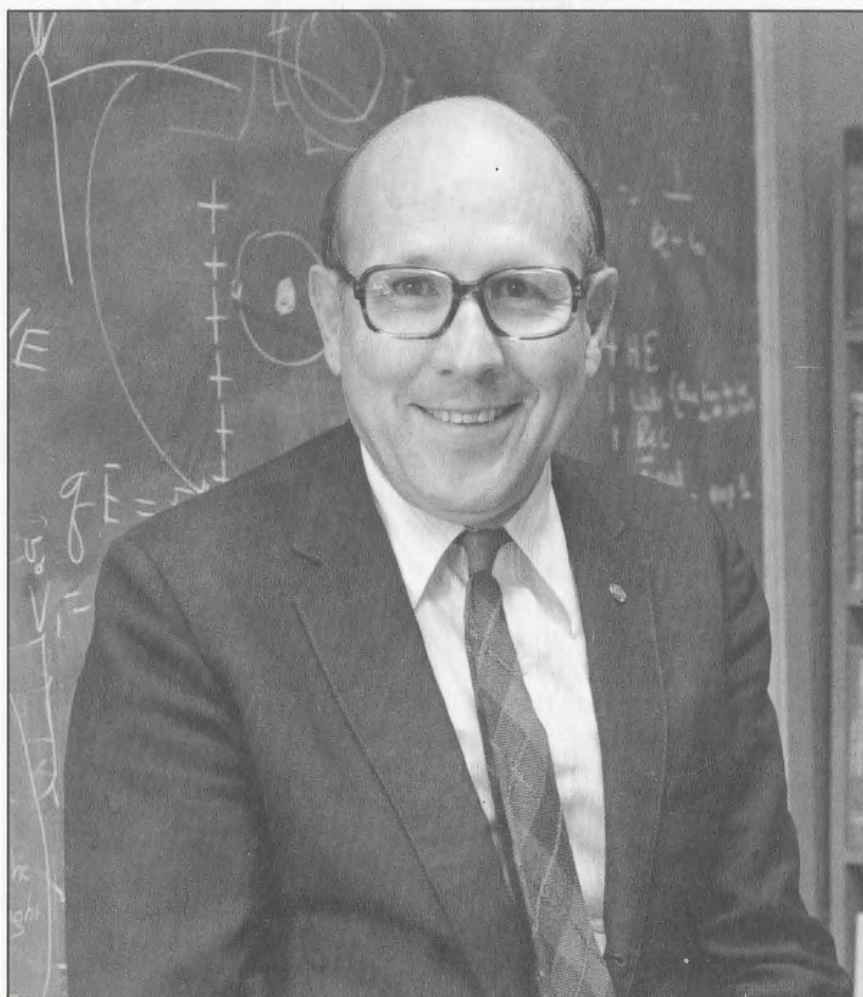
Teaching

doesn't work for me." Techniques come out of the individual teacher, he has realized; "but if you have enthusiasm, you can't miss."

Houston retired from thirty-two years of teaching at UNH in the spring of 1989. In his retirement he is building a house—enthusiastically—and working on an interactive computer program for teaching physics. The program helps students break down problems as Houston has tried to teach them: identify what kind of problem it is, underline the two or three key words that indicate the principles you need to solve the problem, name the principles, identify the symbolic expressions you need to do the equations.

"But I don't know if it will work," Houston says, with a shrug. Maybe, after all, the students will need an enthusiastic teacher.

—Richard Moore, writer/editor,
University Publications



"There are so many exciting things in the physical world that a student can suddenly understand with just a little physics."

—Robert Houston

The Professor Emeritus of Wonder, Robert Houston has taken his delight in physics from the UNH classroom to secondary school classrooms around the state.