

Being There

Faulty  
Intelligence

Send in  
the Clowns

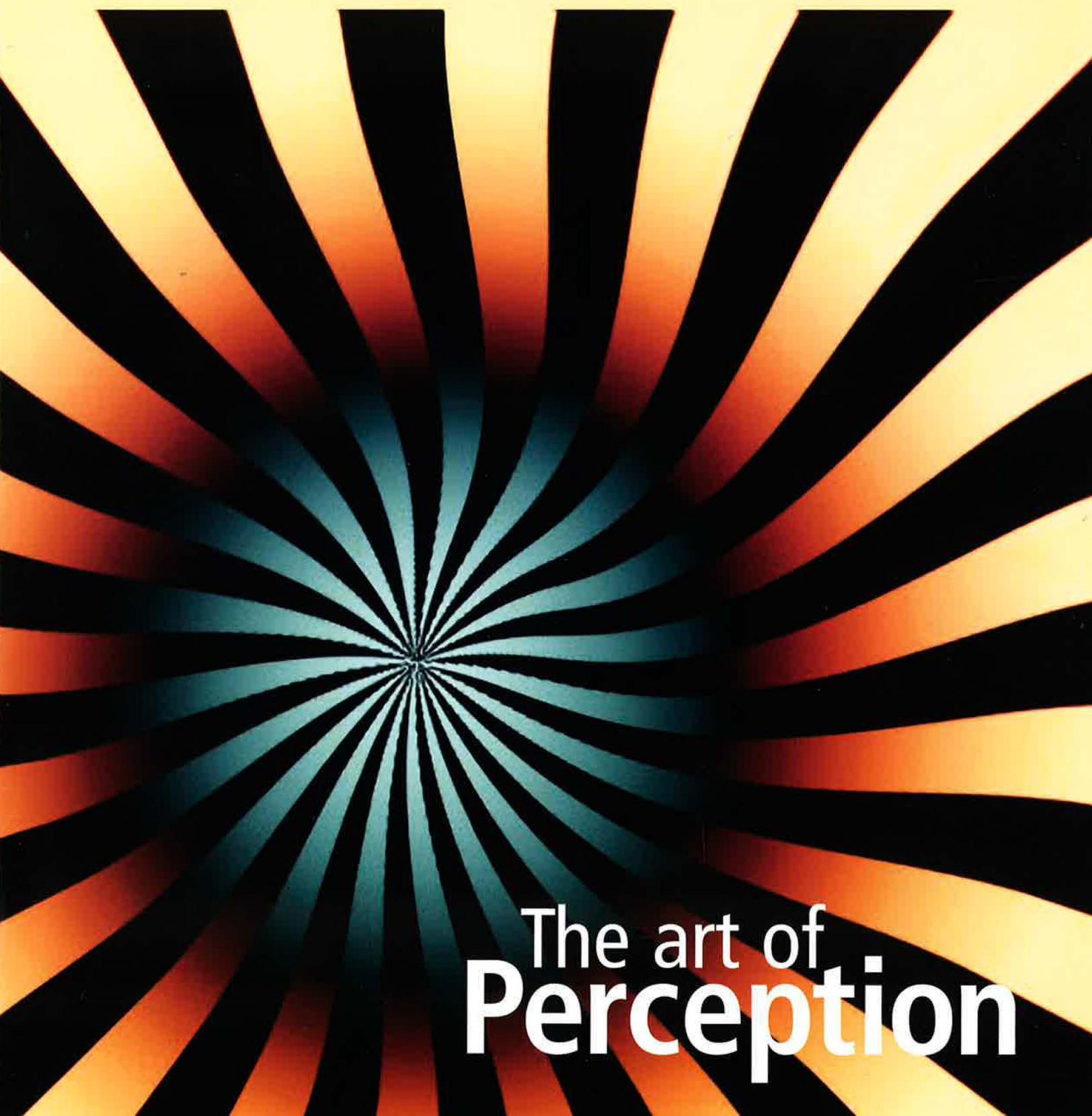
CSI: Orono

# UMaine *Today*

CREATIVITY AND ACHIEVEMENT AT THE UNIVERSITY OF MAINE

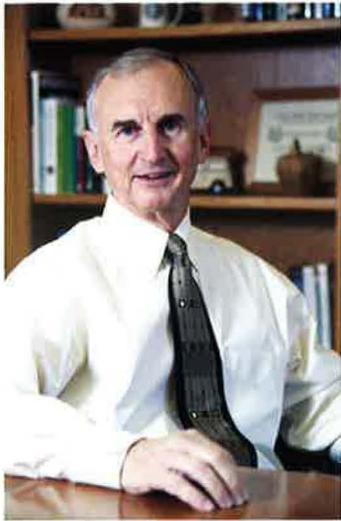
SEPTEMBER/OCTOBER

2007



The art of  
**Perception**

## President's Message



AS WE MOVE TOWARD the start of the fall semester, I am struck by a particular thought: The fall of 2007 will be a terrific time to be a first-year student at the University of Maine.

While our student community is thriving, as evidenced by continued enrollment increases and the high level of satisfaction our students report, we will raise the bar with new facilities and programming that will come online this fall. The centerpiece will be UMaine's new Recreation and Fitness Center, an 87,000-square-foot building that must be seen to be believed. That building is adjacent to UMaine's Hilltop residence halls and newly renovated Hilltop Commons dining facility. We plan to have all of our first-year students live in that campus neighborhood, with returning students

housed in other parts of campus.

This approach is rooted in research that suggests that it will enhance the first-year students' initial experience, improve their ability to acclimate to our community and assist them in getting off to a strong start in the classroom. We plan to supplement these initiatives with a comprehensive First Year Residential Experience (FYRE) program, through which our student affairs and academic staffs will deliver relevant and useful workshops and other activities directly to students in their residence halls.

There is tremendous excitement about these initiatives, particularly among those incoming students and their families. By doing all we can to enhance our students' experiences as soon as they arrive on campus, we increase the likelihood that they will thrive, both socially and academically. This should help improve student retention and assist in our efforts to continually develop UMaine as a model living and learning community.

Robert A. Kennedy  
President



ON THE COVER: Professor of Psychology and artist D. Alan Stubbs creates 3D digital images to teach concepts of perception. His images, like the one on the cover, called *DynLumEngArt*, "work" by having the viewer physically move closer to and away from them. The result is that the center of the image appears to brighten. The same illusory effect occurs in the *DynLumEffect* images on the computer screens surrounding Stubbs. The colors, number and size of the lines appear to have no effect on the illusion. Gradation of the boundaries — graded change of luminance — appears to be a key to the now-you-see-it, now-you-don't effect. See related story on page 14.

# UMaine Today

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## University of Maine profile

Located in Orono, Maine, the University of Maine is the state's land-grant and sea-grant institution. UMaine serves its home state through its explicit statewide teaching, research, and public service outreach mission. Offering 88 bachelor's, 64 master's and 25 doctoral degree programs, UMaine provides the most varied and advanced selection of programs available in Maine. The Carnegie Foundation for the Advancement of Teaching classifies UMaine as a Doctoral Research Extensive University, the highest classification.

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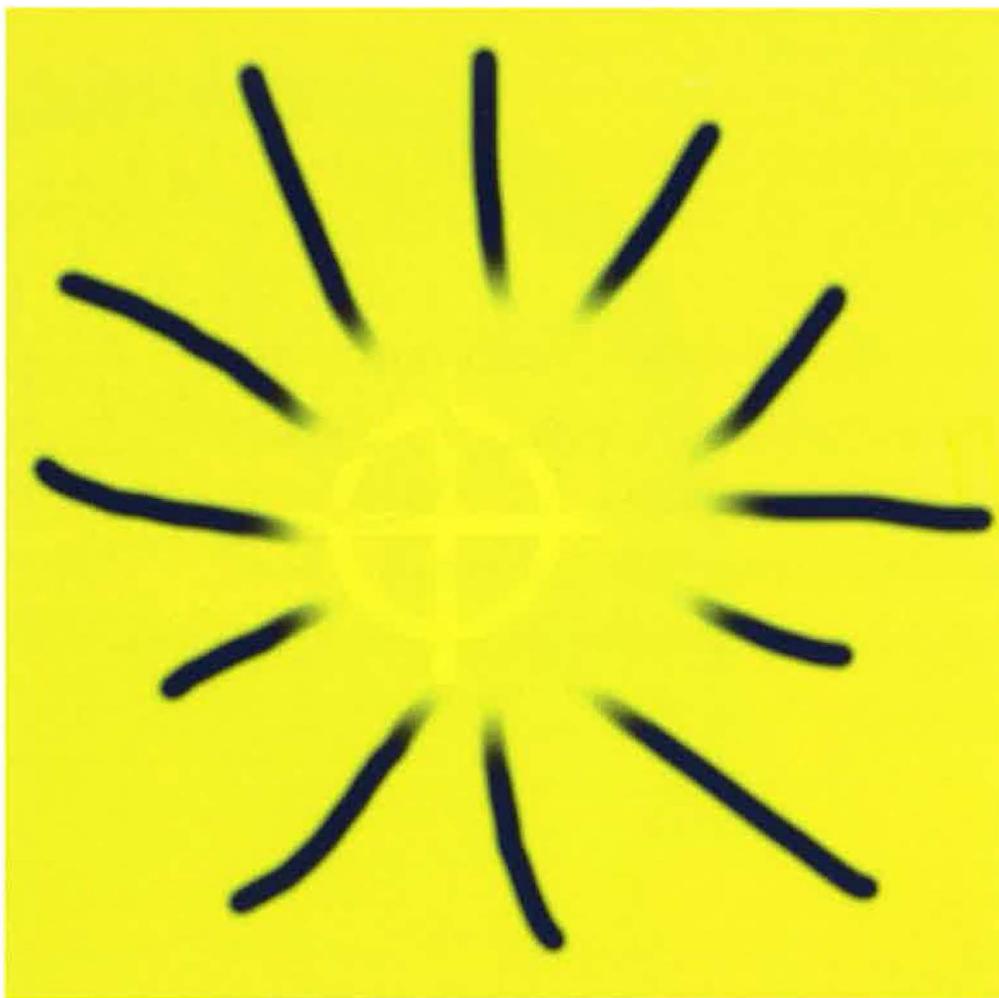
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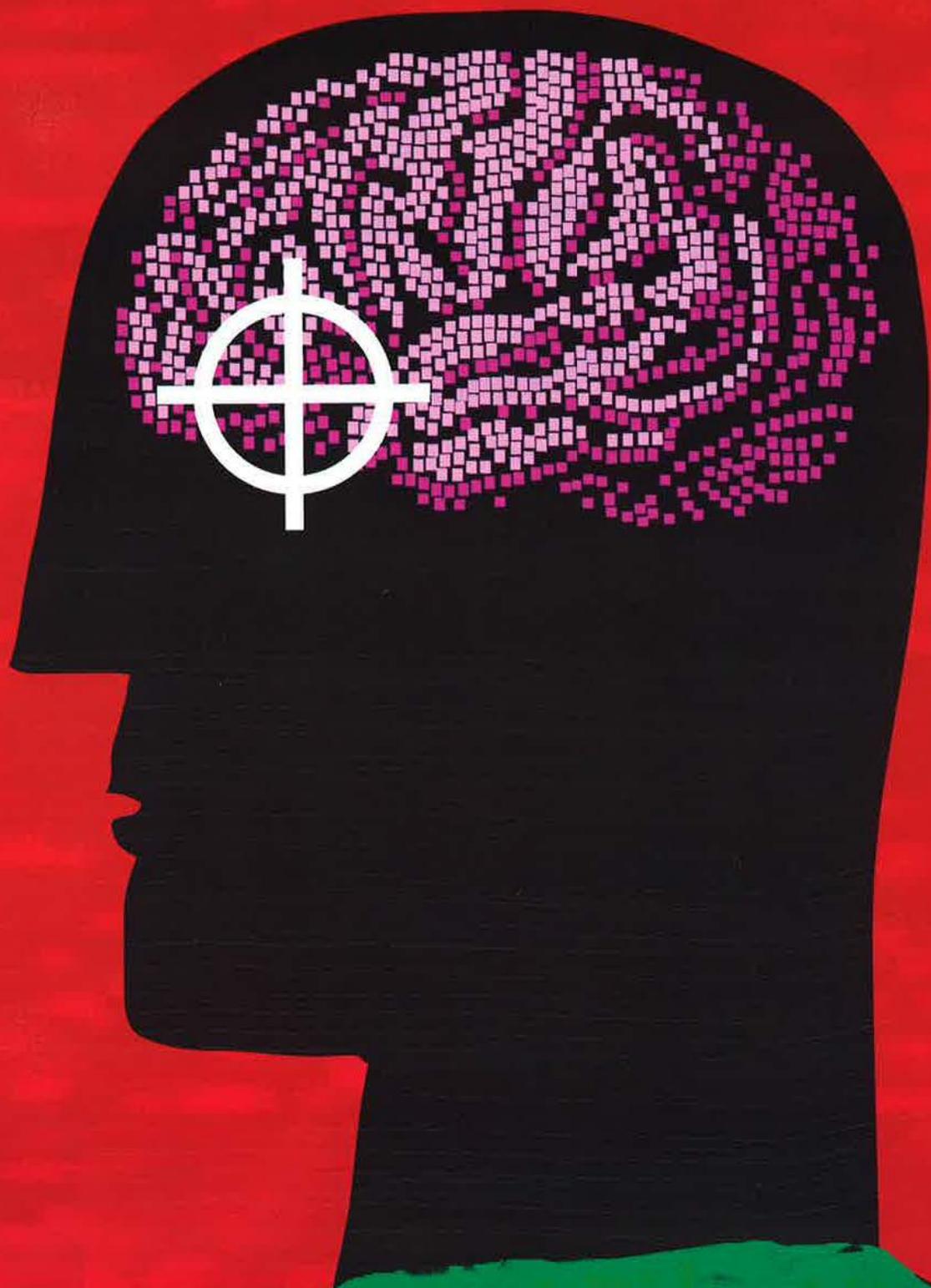
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# Faulty intelligence

**UMaine anthropologist studies the disconnect between humans' innate aversion to killing and penchant for waging war**

By Tom Weber

**I**f war is hell, as Civil War General William Tecumseh Sherman so famously observed, then why is it that human beings continue to engage in such large-scale murderous pursuits that could threaten the very survival of the species in our thermonuclear age?

Some leading scientists who have studied warfare through the ages have long suggested that humans — the males of the species, at least — have little choice when it comes to slaughtering one another in great numbers. Such warlike behavior, the scholars contend, is hardwired into the human brain.

We are, in other words, born to kill our own, an evolutionary trait that sets us apart from nearly all other species on the planet.

Paul “Jim” Roscoe, a University of Maine professor of anthropology and cooperating professor of Quaternary and climate studies, subscribes instead to an equally long-held theory that suggests just the opposite: humans actually have an innate aversion to killing. However, Roscoe believes that this natural aversion can be disabled when warfare is thought to be advantageous to a clan, a tribe or a nation.

“It certainly raises big questions, though,” Roscoe concedes of his theory. “If we do have an aversion to killing, how is it that we manage to kill pretty efficiently? And since we are a species that kills, how could that aversion to it have evolved and persisted through time?”

Roscoe thinks he may have found the answer to this seeming paradox in his exhaustive study of warfare among tribes in New Guinea, where he lived for a year and a half in the early 1980s and has revisited three times since.

“I argue that the uniquely developed intelligence of humans is the faculty that resolves those questions,” says Roscoe, whose article on the subject will appear in an upcoming issue of *American Anthropologist*,

**For many anthropologists, the most vexing question has been how humans, by their penchant for waging war and killing for revenge, strayed so far off the evolutionary track.**

# Faulty intelligence

considered the country's preeminent journal in the field.

Recent Darwinian explanations for why some species kill their own members, and why some don't, would lead us to expect that humans have an aversion to killing, Roscoe says. "I suspect we do," he continues. "But our highly developed intelligence actually finds effective ways to 'disconnect' that disposition from our actions, thereby allowing the innate aversion to persist.

"Given the great advances in warfare technology," he says, "it becomes less and less smart to do what we do. It's really a terrible dilemma that we're locked into."

**Born in** East Anglia, England, Roscoe began his professional life as a physicist, a field that he quickly decided "did not sit with me very well." He then spent three years trying to find a better fit, including part-time work as a stringer for the BBC, following in the footsteps of his father, a freelance journalist. When he later discovered anthropology, however, he knew immediately it was the career he'd been looking for.

"I felt that it could allow me to make a difference," says Roscoe, who got his master's degree in anthropology at Manchester University in England before heading to America to earn a doctorate at the University of Rochester in 1983. He arrived at UMaine a year later.

In New Guinea, Roscoe first studied the need for family planning and did ethnographic research among the Yangoru Boiken people living in the foothills of a northern coastal mountain range.

In 1993, he began to steep himself in the study of the root causes of war among the tribes of New Guinea, where myriad groups had been fighting one another until well into the 20th century.

Roscoe believed that if he were to

realize his hope of making a difference to life on the planet, there was probably no better place to start than by exploring the reasons humans wage war on one another and are one of a small minority of species that kill to avenge the death of kin.

For answers, he has spent the last 14 years rummaging in archives around the world for information about New Guinea warfare, and scouring the early accounts of German, Dutch and Australian missionaries who once lived among the tribes of the South Pacific island.

Collating all that material, he admits with a grin, "was a little like herding cats on LSD."

Roscoe has concluded that the highly developed human neocortex, the part of the brain responsible for the creativity and intellectual thought that enables us to achieve great things, also allows us to envision when killing appears to be in our self-interest and then to overcome our genetic predisposition against such behavior.

"This ability," he writes in his most recent article, "is self-evident in the material technologies that allow humanity to overcome so many of its physical limitations — for example, projectile weapons and armory designed to circumvent the physical limitations of bare hands and bared teeth for killing and the mortal jeopardy of soft underbellies under fire."

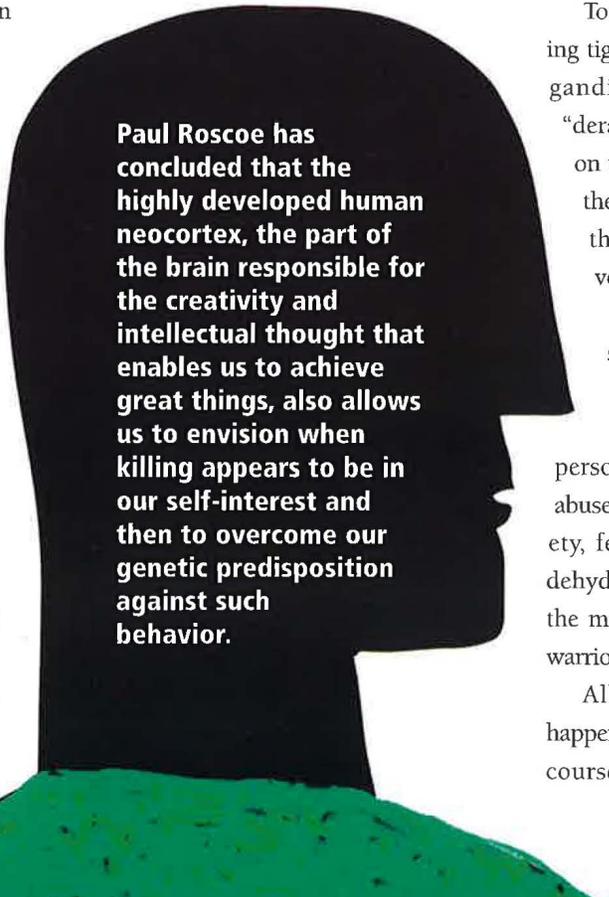
The same weapons, he continues, also create the psychological distance necessary for modern combatants to kill without having to look one another in the eyes.

**Our intelligence** conveniently allows us to dehumanize our enemies and perceive them instead as a lesser, undesirable, threatening species that must be eradicated. In the Vietnam War, for example, enemy soldiers were not human beings but "gooks." In the Rwandan genocide, the Hutus called the Tutsis "cockroaches." In New Guinea, enemies viewed each other as wild pigs and war as merely a communal hunt for a porcine prey.

To the Soviets, Germany was a menacing tiger, Roscoe writes, while Allied propagandists portrayed that nation as a "deranged, drooling gorilla." The Nazis, on the other hand, sought to dehumanize their enemies and the Jews by reducing them to "bacilli" or disease-carrying vermin.

"During military training in nation states and initiation in New Guinea," Roscoe writes, "young men are secluded from society, stripped of personal identifiers, subjected to verbal abuse and physical ordeals that inflict anxiety, fear, pain, exhaustion, hunger and dehydration, and then indoctrinated into the meaning and value of masculinity and warriorhood."

All of which sounds a lot like what happens at modern military boot camps, of course, and for good reason. If humans



**Paul Roscoe has concluded that the highly developed human neocortex, the part of the brain responsible for the creativity and intellectual thought that enables us to achieve great things, also allows us to envision when killing appears to be in our self-interest and then to overcome our genetic predisposition against such behavior.**



**“The more humans understand that they have this capacity, the more cautious they might be about marching to war. The sheer recognition that these are the kinds of creatures we are, and these are the techniques we use to get ourselves to kill, might help us to learn to behave differently.”**

Paul Roscoe

truly are born with an innate aversion to killing, as Roscoe suggests, disconnecting it is as critical to the making of a fearless young Marine today as it was for the creation of a New Guinea warrior a century ago.

“The New Guinea village is the modern nation state writ small,” he says. “Or conversely, the modern nation state is the New Guinea village writ large.”

**For many** anthropologists, Roscoe says, the most vexing question has been how humans, by their penchant for waging war and killing for revenge, strayed so far off the evolutionary track.

“Most of the other species have a much more logical way of going about it,” he says. “They fight, but not in a very dangerous way.”

Among other animal species, the outcomes of battle are usually decided not by lethal combat, but by ritualistic, threatening displays.

Red deer stags, to use a classic example, begin their territorial confrontations in the wild by roaring at one another as a signal of strength. Such bellowing bluster will often decide the matter, Roscoe says, as one of the stags realizes it is clearly overmatched and decides to throw in the towel. But if neither submits, the pair will engage in “parallel walking,” a side-by-side pacing display used to intimidate and size one another up.

If that still doesn’t do the trick, and neither stag backs off from the showdown, the animals engage in fierce head butting that rarely results in death.

“These ‘dumb’ animals have actually worked out a sensible way to go about it,” Roscoe says, “and one that works to their mutual advantage. They’ve devised a reliable way of figuring out who would win a fight to the death without either of them having to fight one. The question that anthropologists have wrestled with is why humans don’t do the same.”

About four years ago at the annual meet-

ing of the American Association for the Advancement of Science in Denver, Colo., the media took notice when Roscoe first floated the theory that a highly developed intelligence was the root of warfare and vengeful killing.

“I had briefly mentioned that we war because we’re an intelligent species, and that got quite a bit of attention,” he recalls. “It was kind of counterintuitive. We always speak of the great benefits of intelligence, and now I was saying hold the phone, maybe intelligence could be our downfall, given our thermonuclear technology. And the revenge stuff caught their attention for all the wrong reasons. Journalists were trying to get me to say George Bush attacked Iraq out of revenge.”

**Roscoe expects** his article in *American Anthropologist* to generate similar interest, largely because his theory runs counter to the argument by a leading anthropologist at Harvard, Richard Wrangham, that human males are genetically predisposed to kill.

Roscoe admits that his opposing argument is speculative and extremely difficult to test in real-world situations. But if it were to be proved sound one day, he says, it could offer valuable insight about the nature of human warfare and why we insist on putting our own species in peril.

“The more humans understand that they have this capacity,” he says, “the more cautious they might be about marching to war. The sheer recognition that these are the kinds of creatures we are, and these are the techniques we use to get ourselves to kill, might help us to learn to behave differently.”

Roscoe says it would be naive to think that war could ever be eradicated entirely, since there will always be Hitlers around to contend with.

“I suppose the most important thing is to try to limit the damage that we do to ourselves,” he says. ■

# student focus

## For the birds



Seabird chicks like this Laysan albatross are threatened by dense golden crownbeard.

**P**ERCHED AMID THE turquoise waves of the central Pacific, a 1,500-acre knob of sand and coral offered World War II airmen a much-needed dose of dry land to break up the monotony of the open sea. Midway Atoll, once a regular stop for transpacific military flights, welcomed fliers of the nonhuman variety long before work began on the U.S. Naval Air Base in the 1940s. Its isolated location and nearly predator-free terrain made it the perfect spot to raise the new year's brood, and, even today, its shores are a nursery for more than 2 million nesting seabirds.

Human habitation of the island, especially regular visits from abroad, has opened up its once pristine shores to a variety of invading opportunists, however. Brought to the island inadvertently in crates and boxes and bags of soil, or released on purpose with the best of intentions, invasive plants and animals have wreaked havoc with the island's delicate ecosystem, threatening native plants and seabirds that depend on the island's relative safety for survival.

Enter Christy Finlayson. A one-time tourist to Midway, the University of Maine Ph.D. candidate now leads the charge to protect the ecology of the tiny island from the ravages of unwanted guests — especially a cheerful yellow aster known as golden crownbeard (*Verbesina encelioides*).

"It's really a pretty little plant," says Finlayson, "but as it has spread and pushed out the native plants, it has also caused problems by forming dense stands that interfere with seabird nesting. It is also very, very hard to get rid of."

Finlayson's project combines research, educational outreach, and good old-fashioned muscle to combat the tenacious plants, and has proven effective so far. The project began as an assignment for a graduate-level course on biological invasives taught by Finlayson's adviser, UMaine biological sciences professor Andrei Alyokhin.

"I wrote a mock grant proposal for the course, and decided to focus on a real issue that was of interest to me. I contacted the Friends of Midway Atoll National Wildlife Refuge and worked with them to secure a grant from the National Fish and Wildlife Foundation's Pulling Together



On Midway Atoll, Christy Finlayson and her team have employed a multipronged approach to removing invasive golden crownbeard and restoring the island's native vegetation in a way that is both effective and ecologically sound — pulling up plants, carefully using herbicides, replanting native species and educating the public. Photos courtesy of Christy Finlayson

**“Golden crownbeard is a serious threat to native ecosystems, but you can still purchase it in wildflower seed mixes in the U.S. where it may not be native and ship it to locations where we know it is not native. Teaching people about the dangers of invasives can be just as important as the research itself.”** Christy Finlayson

Initiative grant program. We were awarded the grant in May of 2006, which funded two crews of volunteers to work on the island.”

While the project has been a success, the battle to remove the island's well-entrenched crownbeard population is far from over. On Midway, the plant can uncharacteristically grow 8 feet tall. Drought tolerant and highly adaptable, crownbeard can withstand a wide range of temperature and moisture conditions. It produces copious amounts of seed and can self-pollinate, giving a single plant the potential to become the source of a full-blown invasion.

In addition to outcompeting native plants, dense golden crownbeard stands can prevent seabirds from nesting. Worse yet, the rapidly growing stems can effectively trap growing chicks, preventing them from reaching the water when they are ready to fledge. Crownbeard's thick vegetation can make it difficult for adults to find their chicks at feeding time, and can often host populations of ants that may feed on vulnerable young chicks.

Finlayson and her team have employed a multipronged approach to eliminating golden crownbeard, utilizing a combination of techniques to remove the invasive and restore the island's native vegetation in a way that is both effective and ecologically sound.

“The volunteers pulled a lot of plants; we made huge piles along the side of the road. Long-term management is the goal, however, and crownbeard does very well in disturbed soils, so simply pulling up the plants just makes room for others to take their place,” says Finlayson. “With a combination of pulling, care-

ful use of herbicides, and an active program to reestablish native species that can competitively exclude golden crownbeard, we hope to remove the crownbeard and restore the island's natural habitat.”

Finlayson recently received additional funding from the National Geographic Conservation Trust for a project that will continue the fight against invasive species on Midway by establishing a comprehensive management strategy and conducting research aimed at identifying how invasive plants such as golden crownbeard may indirectly affect the health of native ecosystems. By harboring pest insects and serving as a vector for viruses and other pathogens, invasives may be harming native populations to a much greater degree than previously thought. Finlayson hopes to use the isolated island location to quantify these secondary effects.

As with many invasive species control projects, education is the key. Experienced in a variety of outreach and education methods, Finlayson is always searching for new ways to educate the public about the dangers of invasives. When the invader is a hardy flower with dainty, daisy-like blooms, the lesson can be a hard sell.

“Golden crownbeard is a serious threat to native ecosystems, but you can still purchase it in wildflower seed mixes in the U.S. where it may not be native and ship it to locations where we know it is not native. Teaching people about the dangers of invasives can be just as important as the research itself,” says Finlayson.



## Practicum experience provides graduate social work students with specialized geriatric training

# Being there

Longtime teacher Frances Stearns of Bangor, 88, is one of the Brewer Rehab and Living Center residents who shared their life stories during visits by Michele Garrity, a University of Maine social work graduate student in the Geriatric Practicum Partnership Program.

By Margaret Nagle

**T**HEIRS IS A PASSION too few of us understand. Michele grew up surrounded by the elders of her family and the richness they bring to life. Ken, who spent years grieving his parents' premature deaths, is committed to helping others through their bereavement.

For Mary, the last seven years of her mother's life heightened her awareness of geriatric mental health issues and the critical role of caregivers. Dyan, who changed careers to ease a growing sense that "a piece was missing" in her life, found what she was looking for in geriatric social work.

The four graduate students in the University of Maine School of Social Work spent the last academic year in a Geriatric Practicum Partnership Program (GPPP), made possible by a grant from the John A. Hartford Foundation under the auspices of the New York Academy of Medicine's Social Work Leadership Institute. The program provided specialized training in placements and rotations in agencies for elders statewide.

The goal is to increase the number of geriatric social workers and raise interest in aging as a field of practice among students.

The emphasis comes in light of the cresting elder wave — aging Baby Boomers.

"We're educating students to be proactive in the lives of older adults," says Nancy Kelly, field coordinator for the School of Social Work who codirects Maine's GPPP with Len Kaye, direc-

Photos by Michael Mardosa



**"I have worked with children and families, but didn't get nearly as much out of the experience as I did working with older people. They have so much experience and knowledge. Sitting and talking with elders is awesome."**

Michele Garrity

tor of UMaine's Center on Aging. "Most people think of elders as being at the end of their lives, but we're working with students to view them in the act of living."

With such specialized training, Master of Social Work (MSW) graduates provide services like counseling to elders in long-term care facilities and their families; work with assisted-living facilities and elders' families to find placements where mental health needs can be met; offer therapy as part of hospice services; and help to set policy and advocate for services to meet elders' needs.

"They graduate with a sense of how exciting it is to work with this age group, looking at the elders as the individuals they always were and will be," says Marjie Harris, coordinator of Maine GPPP. "It has to do with being part of a person's life at such an intense time and what an honor it is to be part of their life journey — helping them live until they die."

**Michele Garrity, Brewer  
Brewer Rehabilitation and Living Center, Long-term Care**

**M**ICHELE GARRITY is used to people being surprised that, at 25, she prefers working with the elderly, not children and families. But Garrity's career choice is as atypical as her upbringing that influenced her decision to pursue geriatric social work.

Growing up in Johnstown, Pa., Garrity was close to her four grandparents and two great-grandparents literally (they all lived within a mile radius of each other) and figuratively.

"From them, I learned respect," says Garrity. "When they said something, we listened. Hard work was huge, too. I also learned the value of friendship and creating those supports for yourself."

As an undergraduate in human development and family studies at Penn State, Garrity worked with youngsters for two years. But in her first year at UMaine, one of her graduate field placements was at Maine Cancer Consortium, where she assisted elders with their healthcare-related issues. In that setting, Garrity says she was on cloud nine.

"I have worked with children and families, but didn't get nearly as much out of the experience as I did working with older people. They have so much experience and knowledge. Sitting and talking with elders is awesome."

In GPPP, Garrity focused on chronic and terminal illnesses of elders in her primary practicum at Brewer Rehabilitation and Living Center. Two days a week, she worked with elders and their families, helping to coordinate care and ensuring that needs were met.

"I like the caregiver piece," says Garrity, who is now pursuing a career as a hospice social worker. "I thought it would be hard working with people who are dying. I'm not good with death. But doing visits with a social worker at Hancock County HomeCare & Hospice, I saw how dignifying the dying process can be."

People with chronic illness typically reach a point in their treatment when they realize they will not get better, choosing then to live the remainder of their lives as comfortably as possible, Garrity explains. That's when a hospice social worker can help with grief

# Being there

and fears, supporting both the elder and caregiver.

“The biggest surprise for me is how much I love hospice work. This program gave me the chance to see that,” Garrity says. “A lot of people when they go into a social work program say they don’t want to work in geriatrics and aren’t exposed to it. For me, the exposure drove my desire.”

**Mary Kellogg, Bangor**  
**Community Health and Counseling Services, Mental Health Care**

**I**N MAY, MARY KELLOGG received her MSW degree from UMaine, two decades after earning degrees in law and foreign service from Georgetown University.

The irony wasn’t lost on the Bangor lawyer.



**“One area I’m looking into is geriatric care management, helping older adults and their families navigate the system.”**

Mary Kellogg

“I had a wonderful job in a legal practice,” says Kellogg, “but I wanted to get into work that related to people differently than I did in law. And from the time I started in the School of Social Work, it felt like the right thing for me, a different way of thinking about the world.”

In her primary practicum at Community Health and Counseling Services in Bangor, Kellogg focused on geriatric mental health, which is so inextricably linked to physical health in older adults. At the center, Kellogg did mostly home-based therapy, with some case management. In her rotations, she had access to elders and their care providers in inpatient units at hospitals and mental health facilities.

“Exposure to the interdisciplinary collaboration was an important part of my education,” she says. “It opened my eyes. I was finding work in geriatric mental health very satisfying.”

Kellogg says she has learned important lessons about human dynamics, and the environmental, social and economic factors that can affect people’s mental outlooks. She also came to better understand the ongoing struggle of elders to navigate the often daunting and fragmented system of social services.

“Understanding how different components of the system work is very important in providing effective service to the elderly,” says Kellogg, who is considering a career in geriatric case management, helping elders and their families find the services they need.

Her focus is in keeping with her view of elders as “people who have lived rich and full lives, and who want to stay connected with others.” People like her mother, who was in declining health in the last few years of her life.

“She opened my eyes to what it is like to try and help someone with the sorts of needs she had,” Kellogg says. “Yet even as the dementia progressed, the core of who she was as a person remained. She helped me understand this, and that was a gift.”

**Kenneth Gates, Belfast**  
**Waldo County Home Health & Hospice, End-of-life Care**

**A**FTER A STINT IN the military and years of running his own businesses, Ken Gates worked in the corporate world until he felt “a quiet nudge from behind.” Ageism.

That’s when he decided to put his life experience to better use. And he followed his heart.

Three years ago, at age 61, he enrolled in UMaine’s School of Social Work.

“I’ve always been interested in older folks. I seek them out for their wisdom, their different perspective,” he says.

“I lost my parents when they were in their 60s. I wasn’t able to help them wind down their lives. That’s why clinical work with the elderly is what I wanted desperately to do.”

In his practicum with Waldo County Home Health & Hospice, Gates has seen the physical struggles of aging adults. In his in-home hospice therapy, he focused on the patient and caregiver until the day came that only one remained; then it was time to turn his attention to the bereavement process.

“A lot of hospice work is with the patient who is progressing to death, but our work doesn’t stop when a person dies,” Gates says. “When someone moves on, the caregiver vacillates between remorse and relief. We shift to the family, helping them through the bereavement, especially two or three weeks after the funeral, when they’re alone. That’s especially important in the case of someone losing a spouse.”



**"There's a great deal of satisfaction in helping people empower themselves. That's what social work is all about. We're not doing for them, but helping them help themselves."**

Ken Gates

For both the patient and caregiver, the hospice social worker is a listener, facilitator and advocate, Gates says, often posing the pertinent yet sensitive questions about estate planning and other end-of-life directives. While modern medicine can provide physical comfort like pain management, social workers like Gates offer emotional and spiritual support.

During an in-home visit, that support may take the form of talking about the past, taking down a letter to a family member far away or playing a quiet game of cribbage. All the while listening and observing intently.

"We're there to buoy them up, to give them a sense of belonging and purpose," says Gates, whose new career may focus on palliative care. "It's important that they know that their life has meaning. And that they are not alone.

"There's a great deal of satisfaction in helping people empower themselves. That's what social work is all about. We're not doing for them, but helping them help themselves."

Gates says the experience also has taught him that one person can make a difference in people's lives.

**In his hospice work, Ken Gates made home visits to 97-year-old Rachel Bonin of Northport, pictured above, and Art Boutelle, 69, and his wife, Joyce, of Searsport.**



# Being there

"I don't have the patience to change policy, but I admire people who do. I need the short-term reinforcement that what I'm doing is making a difference."

**Dyan Villeneuve**, Augusta  
**State Office of Elder Services**, Policymaking

**D**YAN VILLENEUVE knows the passion of advocates for the elderly working at the grassroots level throughout Maine to ensure older adults get what they need to live healthy lives. She's also seen the difference statewide policymaking can make for individuals.

Villeneuve hopes to be part of a concerted effort to bring issues facing older adults more to the fore in preparation for the cresting elder wave — aging Baby Boomers.

"I'd like to see this population get more respect in terms of funding. It seems a lot of times with state, federal or private funding, geriatrics is not considered 'sexy,'" she says. "People want to focus on children and families, and the elder population gets forgotten. I want to make elders — and their needs — more of a known entity."

As an undergraduate in social work, Villeneuve discovered her love of geriatrics while interning at Brewer Rehabilitation and Living Center. Her interest in planning and policymaking surfaced during a placement with the state Department of Health and Human Services' Children's Services division.

"I like the idea of a large system like DHHS that can still react and offer services to people on an individual basis," Villeneuve says. "My supervisor was a social worker who had an amazing way of

making every person or family that dealt with her department feel as if she was only working on what they needed. It was a very caring, individualized approach."

In the state's Office of Elder Services in Augusta, a division of Health and Human Services, Villeneuve was involved in policy planning activities, testimony before legislative committees and survey data compilation.

"This year focused me more on the political arena and I found the energy at the Statehouse intoxicating," says Villeneuve. "I see myself running for political office one day, something I didn't see myself doing before this year. Social workers are perfectly suited because we are trained broadly in how to deal with people and communities."

When it comes to older adults, an overarching concern statewide is the need for more long-term care options. Communities need to work in concert to achieve a larger voice of advocacy, presenting a unified message that they're ready to plan for the challenges the elder wave will bring. To be prepared, they need state guidance, support and resources, Villeneuve says.

"I think our state needs to be more proactive and less reactive. There are so many people in the state with a love for elders. We just need to get all of them together to plan for the inevitable, important issues like housing, transportation, healthy aging, integration of generations in communities." ■

**>> Read more about the Geriatric Practicum Partnership Program in the School of Social Work and the Center on Aging on the *UMaine Today* magazine Web site ([www.umainetoday.umaine.edu](http://www.umainetoday.umaine.edu)).**



**"There are so many people in the state with a love for elders. We just need to get all of them together to plan for the inevitable, important issues like housing, transportation, healthy aging, integration of generations in communities."**

Dyan Villeneuve

# Eleanor Days



Social reformer Eleanor Roosevelt, pictured here at a train station in Denver, Colo., in the 1930s, was a strong leader who inspired — and garnered inspiration from — other women. Today, Roosevelt’s vision, commitment and courage inspire a women’s leadership retreat, sponsored by the University of Maine Cooperative Extension Gender Project.

Photo courtesy of the Denver Public Library, Western History Collection, Harry M. Rhoads, photographer; RH1290.

DURING AND AFTER her White House years, Eleanor Roosevelt was empowered, sustained and emboldened in her social activism by like-minded women. That same courage and commitment to be an agent of social change is the inspiration for women leaders in Maine who gather every June for leadership retreats on Isle au Haut.

Eleanor Days: A Women’s Leadership Retreat is an outgrowth of the University of Maine Cooperative Extension Gender Project, which explores socialization and equity issues in homes, schools and communities. Among its initiatives is the Turn Beauty Inside Out program for girls.

“Many of the women who were coming together to support girls remembered their own issues and realities of growing up in a culture that was even more limiting than it is today, including stereotypes of what it means to be girls and women. They noticed how these messages were still affecting their work and leadership,” says Gender Project Coordinator Aileen Fortune. “That’s when we knew we also needed to do something for women.”

Since its inception in 2004, 48 women have attended the week-long leadership retreats, led by Fortune, an Extension

faculty member; and organization development consultants and facilitators Eileen Conlon and Deb Burwell. Some participants work with girls involved in Turn Beauty Inside Out, which focuses on issues of body image, empowerment, media literacy and leadership development. All of the women — professors and teachers, social workers, agency directors and service providers — gather as a group of 10 at each retreat to explore such leadership topics as self-care/sustaining for the long haul, and collaboration and competition in women’s leadership.

“As we try to balance our lives, often we pay more attention to what we don’t get done and forget to remember our brilliance,” says Fortune, a York County parenting and child development specialist for 25 years.

Eleanor Days is held at Stone Cottage, once the secluded summer residence of judge Harlan

Stone, who was nominated to be the 12th chief justice of the United States by President Franklin Roosevelt. According to island lore, the Roosevelts were among the Stone Cottage visitors.

“Eleanor was a bold leader whose work in the world was sustained by other women who kept her strong and aware of who she was,” Fortune says. “That whole idea of being sustained and emboldened by a group of women inspired this work.”

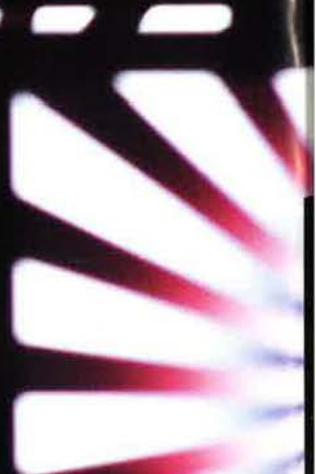
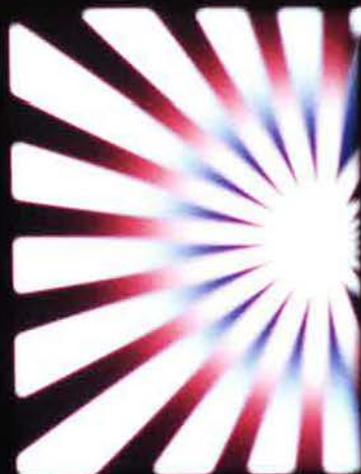
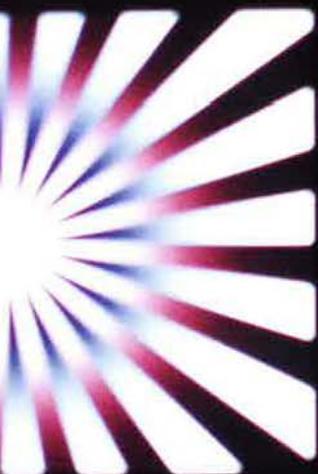
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**Exploration of women’s leadership, sustainability and activism as part of UMaine Cooperative Extension’s Eleanor Days is inspired by its namesake and other social activists.**

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*Digital images focus on visual ill*





**“All of these illusory effects show the importance of the distinction between the physical dimension and the psychological between luminance and brightness. Without it, we can make errors in judgment and think that there is a physical aspect for what we see when, in fact, we are being influenced by psychological aspects.”**

D. Alan Stubbs

**It began simply enough** nearly two decades ago. When the professor of psychology wanted to enhance students’ learning experiences in his 300-level class on perception, he introduced some visual aids — digital images of seemingly innocuous geometric patterns.

Suddenly, students discovered there’s more than meets the eye.

But is there?

In the visual illusion research of psychologist and artist D. Alan Stubbs, perception and reality can be worlds apart. As a catalyst of illusion, digital art helps to illustrate principles of perception. It also raises awareness of the important distinction between physical and psychological dimensions of stimuli that affect human behavior, including errors in judgment.

As pilots flying at night without instrumentation and outdoor enthusiasts caught in white-outs know all too well, there are times when our senses deceive us. Or, to put it another way, a dual reality seems to exist. And that, says Stubbs, gets to the truth of illusions.

“Illusion is something that’s not quite the same as you think it is,” says Stubbs, a University of Maine professor of psychology and an adjunct faculty member in the Department of Art. “For instance, all photos are illusions. The picture on the paper is not your Uncle Henry, but light or marks similar to what you see when you look at him. Put a CD in and the music sounds like whomever. That’s an illusion.”

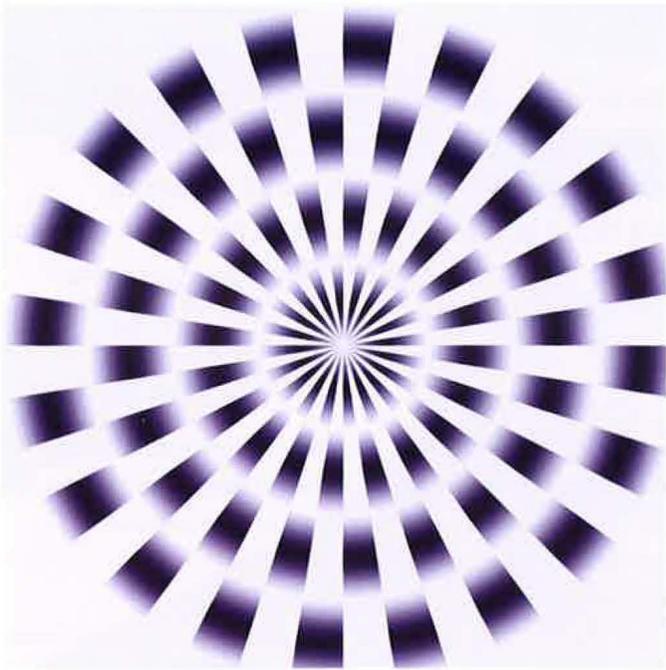
Some illusory images, like those Stubbs creates, might seem to be examples of misperception. Instead, Stubbs views them as mechanisms for understanding how the perceptual process works. That’s particularly important, because perception is a strong influencer of human behavior.

“Perception is fundamental,” he says. “If you can’t perceive, where is cognition going to

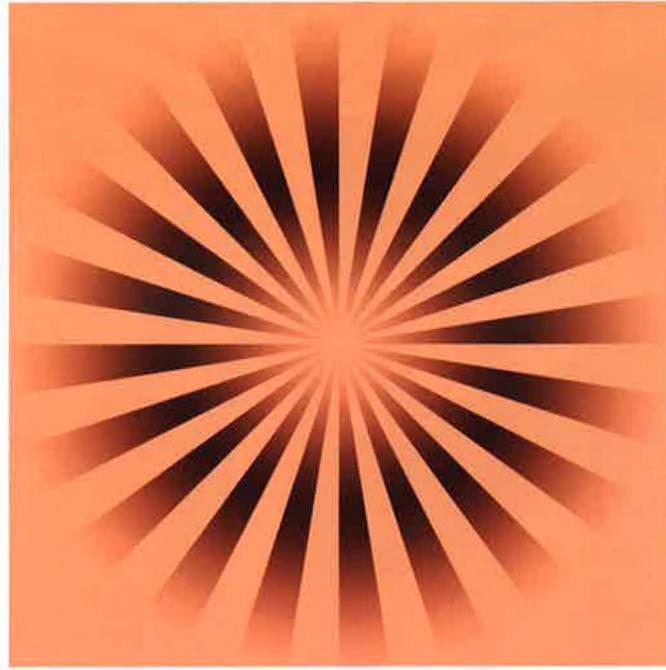
Perception research

By Margaret Nagle

# The Art of Perception



MachMoveGoodMANY



MachMoveNewWrinklePink

come from? You perceive, act and know. They can't be separated. As I study it, perception is directly gathering information about the world."

**Stubbs' research** has evolved from the study of time perception in animals to graph and image perception in humans. It dovetails into his decades-long passion for photography that began concurrently with his graduate research. For Stubbs, the science of perception informs his art and vice versa.

In the 1970s, Stubbs was using pigeons to study perception learning and behavior, as well as visual cognition. In particular, he explored how pigeons tell time.

Then, almost a decade ago, Stubbs turned his focus to another form of perceptual learning.

"I started doing a lot of graph experiments in front of a computer screen," he says. "That's where I became the pigeon."

With UMaine psychology colleague Laurence Smith, Stubbs studies graphical perception, or how people extract information from data graphs to draw conclusions. The psychologists examine the accuracy of people's graph-based judgments, as well as biases

**Some illusory images might seem to be examples of misperception. Instead, D. Alan Stubbs views them as mechanisms for understanding how the perceptual process works. That's particularly important, because perception is a strong influencer of human behavior.**

resulting from the graph formats or the viewers' expectations. They also consider what pertinent details are needed in graph design to effectively communicate to produce sound, informed judgments.

The research is similar to Stubbs' work in image perception, which had its start in the classroom where he sought to bring the perceptual process to life for his students. Using PhotoShop software,

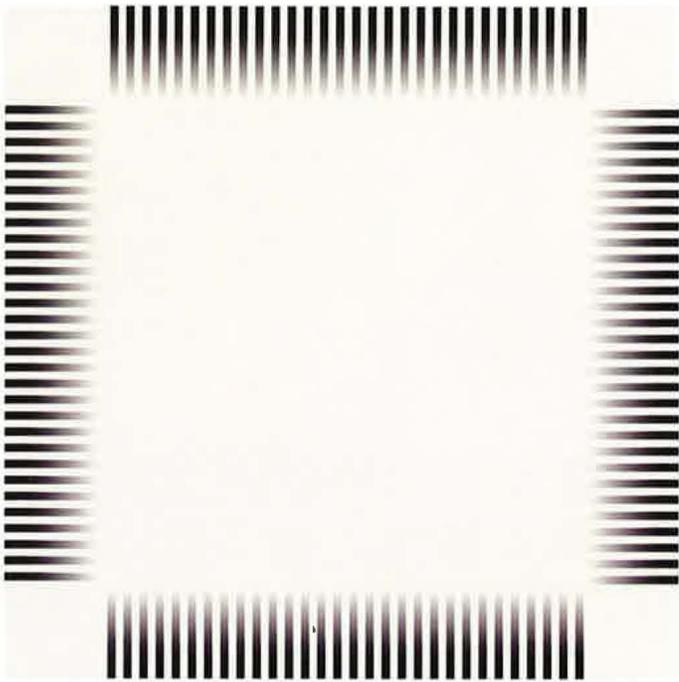
Stubbs took one-dimensional blackboard drawings and created his own 3D digital images that not only convey psychological principles of perception, but give the illusion of

increased and decreased brightness — and even movement.

"Students find the images fascinating because of the 'wow' factor, but I use them to make points. Even as they seem to deceive us, illusions give us a good truth about how the visual system works."

After a decade of creating the research-based visual aids, Stubbs has amassed a collection of original digital art that he now exhibits for the public. He admits that in the creation process, only one in 10 of his illusion images "turns out." But most important, those that do lead him to other questions about perception.

"I found I actually learn more about the phenomenon by creating the images," he says.



MachgloGoodPrint

**One of Stubbs'** digital art pieces, *Dynamic Luminance-Gradient Effect*, was deemed one of the Top 10 Best Visual Illusions of the Year in 2006 by the international Vision Sciences Society.

This year, Stubbs teamed with recent Ph.D. student Simone Gori of the University of Padua to create an image that was used as the logo for the 2007 Vision Sciences Society conference in May.

*Dynamic Luminance-Gradient Effect* — lines that meet in the center where a gradation of color or light is apparent — “works” by having the viewer

physically move closer to and away from the image. Move toward the center and the image appears to brighten, giving a “here comes the sun” effect.

In other images, shaded areas among the bars and lines in his artwork appear to move, grow or shrink, depending on the distance between a viewer’s eye and the image.

“It is an illusion in that nothing is changing. Nothing is getting brighter. There is only apparent motion. The illusion has to do with what’s happening across the eye,” Stubbs says. “It’s not a tricking; it just looks like the image is brightening when it’s not.”

Part of the reason such illusions work, says Stubbs, is the

**D. Alan Stubbs has amassed a collection of original digital art that he now exhibits. He admits that in the creation process, only one in 10 of his illusion images “turn out.” But most important, those that do lead him to other questions about perception.**



DynLumCoolVar22

retina receives increasing and decreasing light. Moving closer to a figure with a brighter center causes a person to see less in the periphery, while every point on the retina receives more light.

Gradation of the boundaries — graded change of luminance — appears to be a key to the illusory effect. “One explanation of this effect could be that these patterns, with gradients of lumi-

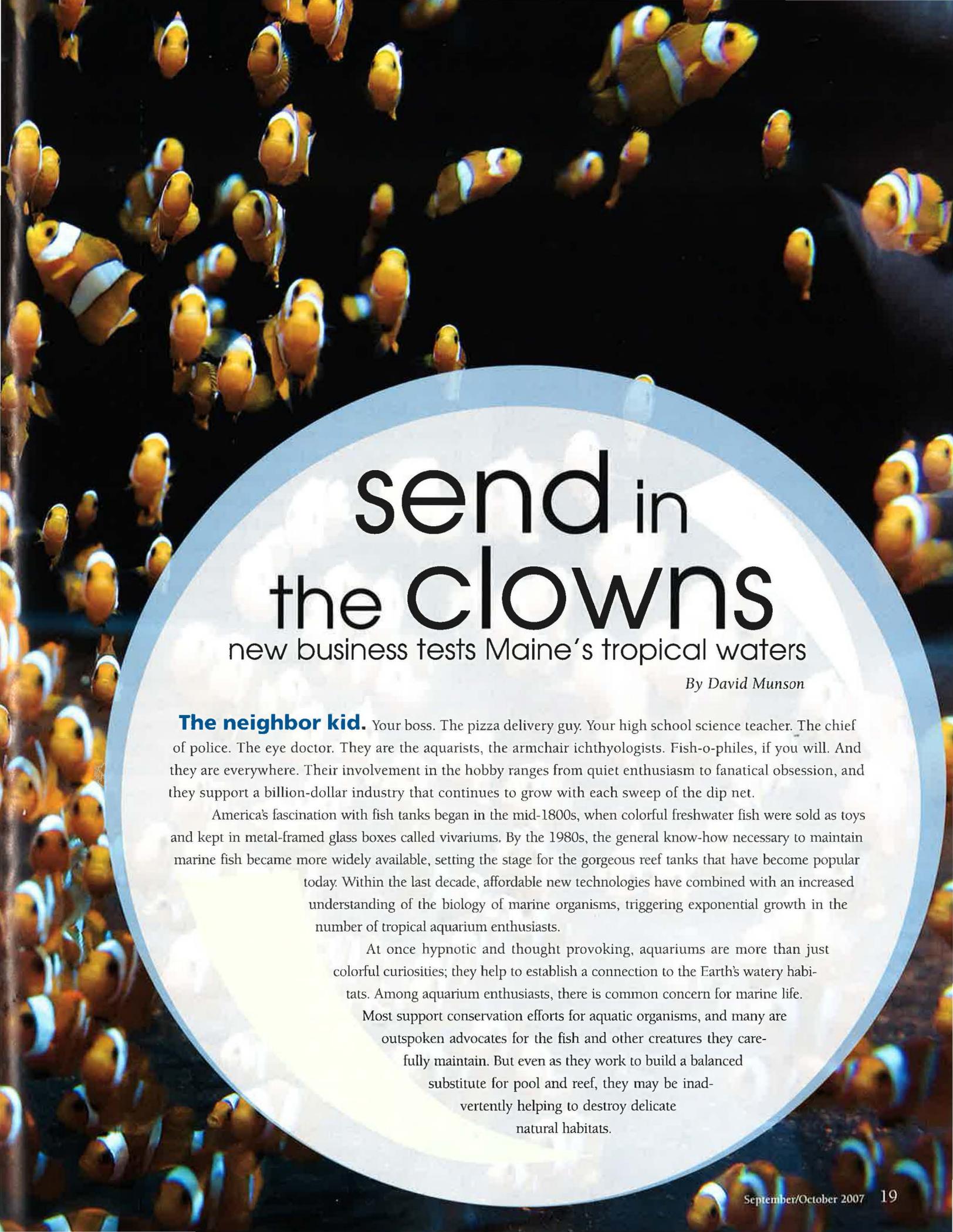
nance change, suggest to our visual system the presence of an optic flow, like a tunnel with a light at the end,” wrote Stubbs and Gori in the journal *Perception*.

In a sense, our visual system misinterprets the image, behaving as if it were a 3D physical situation instead of a two-dimensional pattern.

“All of these illusory effects show the importance of the distinction between the physical dimension and the psychological between luminance and brightness,” explained Stubbs, writing in *High Resolution*, a specialty newsletter for the displays industry. “Without it, we can make errors in judgment and think that there is a physical aspect for what we see when, in fact, we are being influenced by psychological aspects.” ■

**>> See more of D. Alan Stubbs' digital images on the Web ([perceptualstuff.org](http://perceptualstuff.org)).**





# send in the clowns

new business tests Maine's tropical waters

*By David Munson*

**The neighbor kid.** Your boss. The pizza delivery guy. Your high school science teacher. The chief of police. The eye doctor. They are the aquarists, the armchair ichthyologists. Fish-o-philes, if you will. And they are everywhere. Their involvement in the hobby ranges from quiet enthusiasm to fanatical obsession, and they support a billion-dollar industry that continues to grow with each sweep of the dip net.

America's fascination with fish tanks began in the mid-1800s, when colorful freshwater fish were sold as toys and kept in metal-framed glass boxes called vivariums. By the 1980s, the general know-how necessary to maintain marine fish became more widely available, setting the stage for the gorgeous reef tanks that have become popular today. Within the last decade, affordable new technologies have combined with an increased understanding of the biology of marine organisms, triggering exponential growth in the number of tropical aquarium enthusiasts.

At once hypnotic and thought provoking, aquariums are more than just colorful curiosities; they help to establish a connection to the Earth's watery habitats. Among aquarium enthusiasts, there is common concern for marine life.

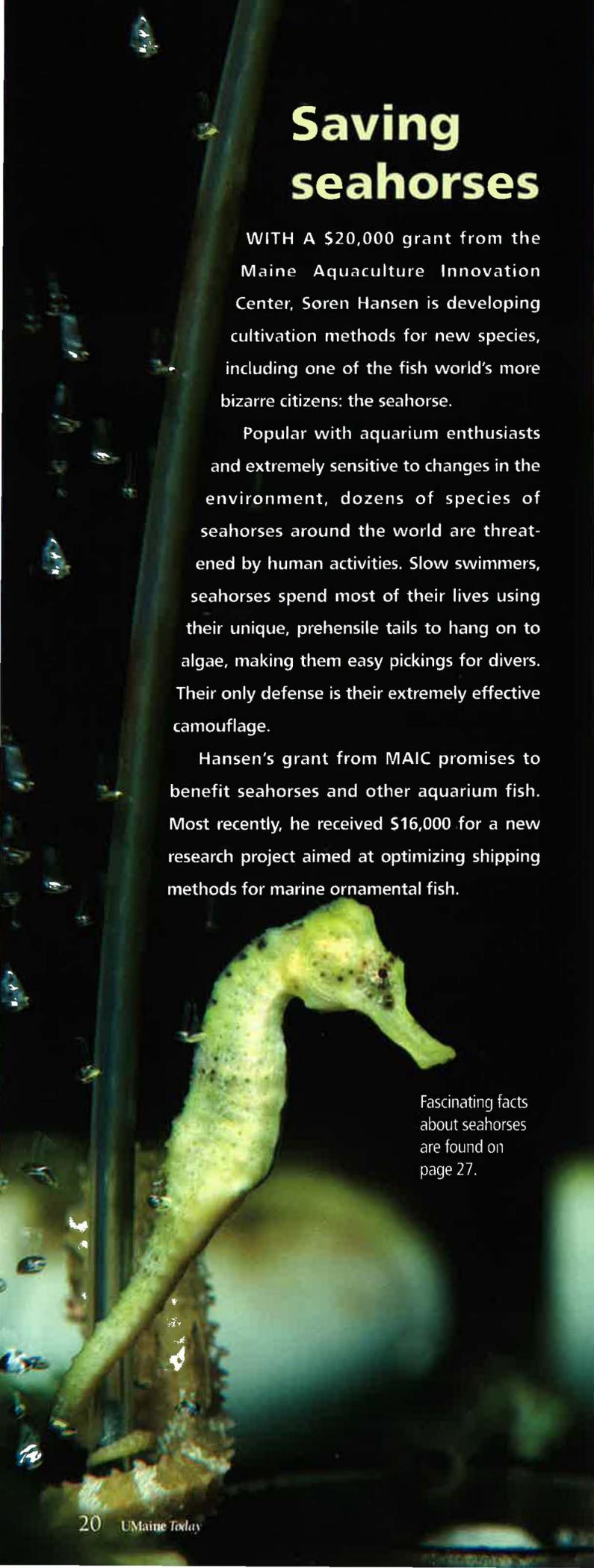
Most support conservation efforts for aquatic organisms, and many are outspoken advocates for the fish and other creatures they carefully maintain. But even as they work to build a balanced substitute for pool and reef, they may be inadvertently helping to destroy delicate natural habitats.

# Saving seahorses

WITH A \$20,000 grant from the Maine Aquaculture Innovation Center, Soren Hansen is developing cultivation methods for new species, including one of the fish world's more bizarre citizens: the seahorse.

Popular with aquarium enthusiasts and extremely sensitive to changes in the environment, dozens of species of seahorses around the world are threatened by human activities. Slow swimmers, seahorses spend most of their lives using their unique, prehensile tails to hang on to algae, making them easy pickings for divers. Their only defense is their extremely effective camouflage.

Hansen's grant from MAIC promises to benefit seahorses and other aquarium fish. Most recently, he received \$16,000 for a new research project aimed at optimizing shipping methods for marine ornamental fish.



Fascinating facts about seahorses are found on page 27.

Like his fellow fish-o-philes, Søren Hansen's passion for aquarium fish stems from the respect and appreciation he has for the world's marine and freshwater ecosystems.

"I really never get tired of watching them, even though I'm around them every day," says Hansen, who is pursuing his doctorate in the University of Maine's School of Marine Sciences under the guidance of faculty adviser David Townsend. "People are always stopping by to see the fish — it's just something that people are drawn to."

**Considering Hansen's** fondness for fish (he has an undersea screensaver on his computer, even though he has dozens of tanks full of the real deal, right behind his workstation), he was understandably appalled when he learned the realities of the commercial ornamental fish trade as an undergrad.

"Ninety-five percent of the fish you find in the pet store are wild-caught," says Hansen as he inspects the health of some iridescent purple dottybacks in one of the huge culture tanks at UMaine's Aquaculture Research Center (ARC). "One of the primary collection methods involves divers who use squirt bottles full of sodium cyanide to poison the fish in the cracks and crevasses where they hide so that they can be collected. This is incredibly stressful to the fish, and can damage the health of the fish being collected and the other creatures on the reef as well. (Our) whole project started as a possible way to solve the problems caused by traditional wild-capture methods."

The project has grown considerably since Hansen and graduate student colleague Chad Callan first began exploring ideas for providing an environmentally sound alternative to wild-captured aquarium fish. These days, there are between 2,000 and 6,000 fish in the ARC grow-out system at any given time: brilliant-hued dottybacks, enigmatic seahorses and the ever-entertaining clownfish. "Finding Nemo" is certainly not a problem at ARC.

But raising healthy, happy fish for tabletop tanks and office-mounted aquaria isn't as easy as Hansen and his team make it look. Working out the details of breeding, feeding and general care for each species can take months or even years, and the task requires considerable research and equipment, which has been funded by Townsend's grants, the School of Marine Sciences, and grants Hansen has received. Hansen and his team of undergraduate assistants constantly monitor their finny charges, making sure that water quality, temperature, space and food requirements are met.

The tiny fish larvae stage is arguably the most challenging in any aquaculture enterprise, and Hansen's tropical species were no excep-

**“The ultimate vision is to have a business that allows aquarium enthusiasts to feel good in the knowledge that what they are buying does not harm wild fish populations and the marine communities.”** Søren Hansen

tion. In addition to the considerable research required to determine the necessary environmental conditions for raising the microscopic fish, the zooplankton of the larvae’s diet also had to be identified and cultured, a process that took more than three years.

**The research** is paying off. With the help of live-food technician Jacqueline Hunter and undergraduate aquaculture technician Natasha Hussey, the details of each species’ particular needs have been hammered out and the fish are thriving. Hansen’s spin-off company, Sea & Reef Aquaculture, is already filling orders for happy pet store owners across the country, providing young, healthy fish that are an environmentally sound alternative to their wild-caught counterparts.

“For the last few years, we have been raising clownfish, dotty-backs and seahorses on a demonstration scale to show that it can be done,” says Hansen as he sprinkles a special diet of pelletized food into a tank containing a churning school of hungry clownfish. “My current system is limited to producing about 1,000 fish per month, but when we go into full production, we will be able to produce a lot more.”

Profits are promising, but Hansen is in it for more than just a job after college. Since the enterprise focuses on fish previously not developed for aquaculture, the opportunity for scientific discovery has been very high.

“These fish haven’t been raised in captivity before, and for many of them, no one even knew what the larvae looked like, so there has been a lot of potential for research in the basic science related to these fish. What we are working with right now can be applied to a lot of other species. In addition to offering a safer, sustainable alternative for the pet trade, these techniques could also be used to restock wild populations that have become depleted due to overcollecting and habitat loss,” Hansen says.

A number of UMaine undergraduates have been involved in research related to the project — from egg development to clownfish coloration — using fish and other resources housed at ARC.

As Hansen moves closer to completing his graduate degree, he is looking at ways to expand his existing

business by not only increasing the scale of his production operation, but by adding more choices to his list of tank-raised pets.

“We plan to raise some of the more expensive and exclusive aquarium fish in addition to the species we already have, and we hope to provide other aquaculture products. We want to raise shrimp, bivalves, live food — anything you might need to stock and maintain a reef tank, with everything raised in culture instead of taken from the wild. The ultimate vision is to have a business that allows aquarium enthusiasts to feel good in the knowledge that what they are buying does not harm wild fish populations and the marine communities.” ■

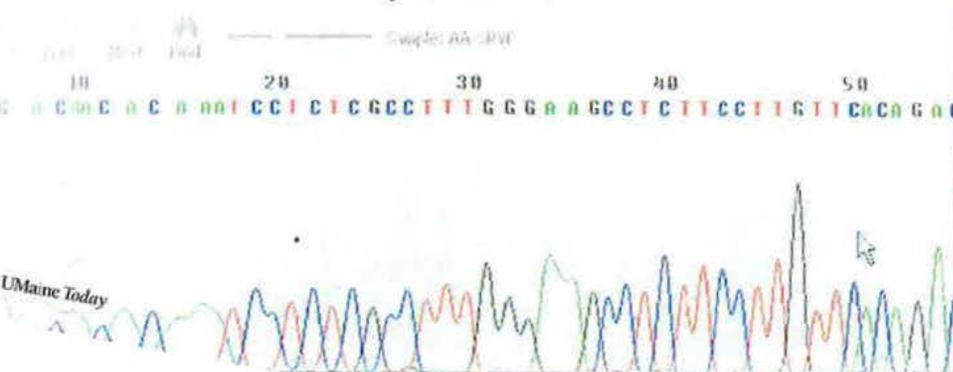




# CSI: Orono

Molecular Forensics Lab uses the latest in wildlife DNA analysis to help solve cases and train the next generation of Maine scientists

By David Munson





**W**HEN THE MAINE Warden Service has 150 pounds of unidentified meat in a freezer and a suspected poacher in handcuffs, the first call officers are likely to make is to Irv Kornfield, one of the country's leading experts in wildlife DNA analysis. As a University of Maine professor and director of the Molecular Forensics Laboratory on campus, he uses his expertise to convict criminals and exonerate innocent suspects, conduct fundamental and applied research, and educate the next generation of inquiring scientists and citizens.

Kornfield's lab, adorned with African artifacts and filled with forensic reports and tissue samples from across the country, is unique in its approach to scientific inquiry. Highly trained students, both graduate and undergraduate, not only work as researchers in molecular biology and population genetics, they also conduct tests and interpret data in the forensics lab, providing a valuable service to state agencies and other clients. Under Kornfield's careful guidance, students become active participants in the laboratory process, learning to apply the latest in DNA analysis technology to a broad range of investigations.

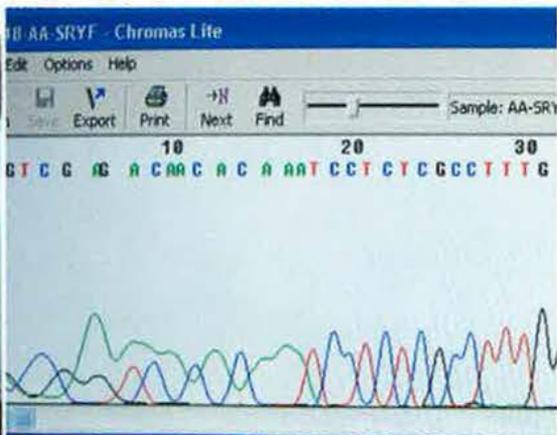
"I think that one of the most important things that we have been able to achieve here is a meaningful connection between forensics and teaching," says Kornfield, the 1998 Maine Professor of the Year and the 2007 UMaine Presidential Outstanding Teaching Award recipient. "A significant part of my efforts in forensics is aimed at the educational component. Some of my students go on to become forensic scientists and geneticists, but I hope

that all of them come away with a better understanding of the scientific method and the legal system."

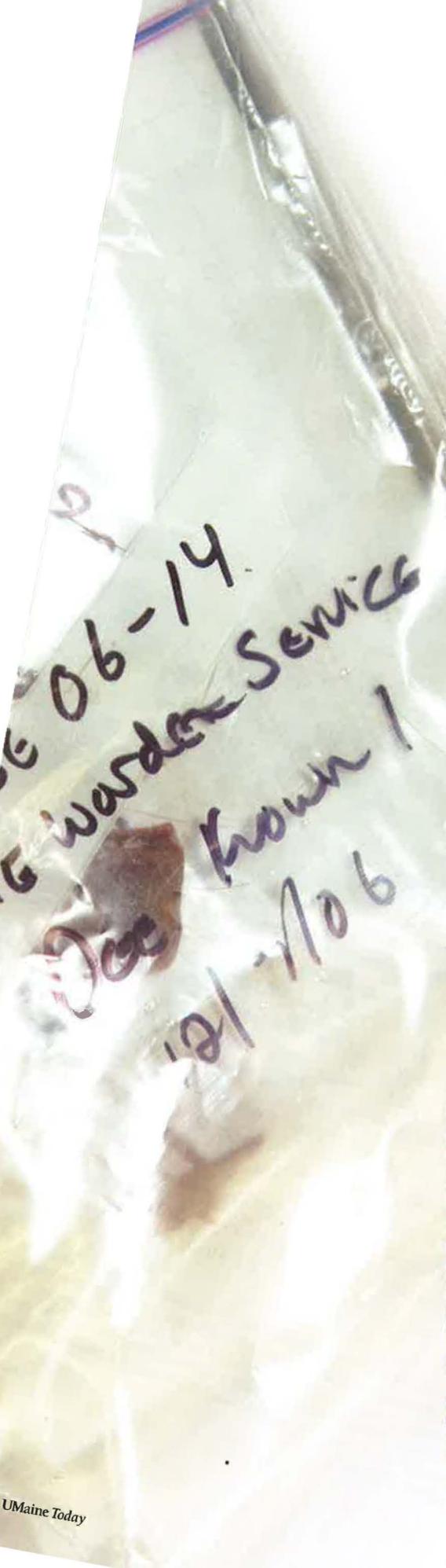
KORNFIELD AND HIS STUDENTS utilize the latest research techniques to determine the genetic characteristics of evidence found at crime scenes in Maine and across the country. From fish tissue shipped from Utah to antler samples confiscated in Maine's North Woods, evidence is handled using strict chain-of-custody protocols.

"Through the cases that are handled in the lab, students become trained in the interpretation of DNA and the techniques used to analyze samples," says Kornfield, a member of the American Society of Crime Laboratory Directors. "The data we collect can be used to link the remains of a field-dressed deer recovered from the crime scene to the blood in the back of the pickup to the meat found in the poacher's freezer."

With modest funding from the university since the lab opened a decade ago, Kornfield and his team have handled hundreds of samples. Most are for the Maine Warden Service, but the



Maine Inland Fisheries and Wildlife Wardens Dave Simmons and Deborah Palman drop off evidence in the Molecular Forensics Laboratory at the University of Maine where director Irv Kornfield, an evolutionary biologist, with the help of undergraduate researcher Lisa Kranich, will apply the latest in DNA analysis technology to aid Bureau of Warden Service investigations. The scientists can answer law enforcement questions about the origin of a tissue sample by sequencing several genes. They also can determine if the sample came from a male or female mammal, how many animals are represented (in order to determine if the bag limit was exceeded) and if two samples originated from the same animal. Kornfield's forensics work is so highly regarded, particularly when it comes to wildlife genetics proficiency standards, that he assists federal analysts in national laboratories.



lab also handles casework for many other states. Kornfield has testified numerous times in Superior Court, and his test results have been used in cases ranging from accusations of night hunting to possession of endangered species. But because these analyses are done in an objective, academic, scientific context, whether the suspect is innocent or guilty is immaterial. The evidence speaks for itself, he stresses.

By helping to establish an extensive reference database of genetic markers, the UMaine researchers have made significant contributions to scientists' overall understanding of the genetic complexities of New England's deer and moose populations as well.

"In order to be able to match two genetic samples, you need to know the relative frequency of the genetic markers for the area's overall population," says Kornfield. "We were one of the first to establish a comprehensive reference for whitetail deer and moose, and we are working on one for black bear."

By comparing genetic markers found in a blood or tissue sample collected in a criminal investigation to the established standard, researchers can determine its origin and match it to other samples from the case.

The lab is involved in more than just criminal cases, however. Whether it's a beached sea monster in Canada or a wayward chupacabra in Central Maine, Kornfield and his student researchers are at the ready, poised to weigh the DNA evidence against the rumors, tall tales and excitement that swirl around the latest biological and morphological mysteries.

While the sea monster carcass turned out to be the misshapen remains of a whale shark and the much-publicized, chupacabra-like "devil dog" was little more than a feral mutt, investigations such as these help to illustrate the struggle between science and spin for Kornfield's students. Examples from actual cases establish a real-world connection that highlights the power of science and the importance of the scientific method, both for students in Kornfield's lab and in his popular class, Introduction to Forensics.

FROM *SCOOBY-DOO* TO *CSI*, television shows and movies contribute to the fascination with forensics, and the popularity of Kornfield's class reflects that interest. Students sign up in droves to fill out mock crime scene reports,



Junior Lisa Kranich, a double major in molecular and cellular biology, and biochemistry, and Ph.D. student Dan DenDanto, a biologist who is one of the leading authorities on fin whales, assist in the Molecular



examine fake blood spatter and learn about the degradation of DNA. While the crime scenes are realistic mock-ups, the learning is real, and Kornfield sees the class as an important opportunity to inspire students to look beyond the obvious and uncover the truth.

"One of the primary objectives of the course is to have students understand hypothesis testing, a concept that underlies all science. An outcome of this understanding is the students' ability to formulate and ask informative questions."

The emphasis Kornfield puts on education applies to his research as

well. His latest project incorporates the use of cutting-edge microarray technology to help determine the genetic basis for various conditions and anomalies in wildlife populations. Functioning in much the same way that the human genome does in diagnosing genetic diseases, microarray profiles of animal species can be used to identify the specific genes and sets of genes responsible for everything from oversized antlers to chronic disease.

"We will be able to use microarrays from the bovine genome to look at genetic characteristics in deer. By comparing the affected and unaffected conditions on the microarray, we can identify the genetic correlates for specific traits," says Kornfield.

KORNFIELD AND HIS STUDENTS have developed a panel of DNA markers for identifying the degree of hybridization in individual deer. Matings between whitetail deer and mule deer result in hybrid offspring that are often larger than either parent. Hybridization between the two species can have important implications in hunting and other aspects of deer population management.

"Being able to distinguish between the two species and their hybrids is important in determining what's legal to shoot, and hunting organizations are interested in the implications in naming trophies," says Kornfield. "A male hybrid can have huge antlers that

could ensure its place in the record books, but how is it categorized? This project is also interesting from a population genetics perspective by helping to determine the degree to which genes of one species are able to infiltrate the population of another. We find genetic signatures that are consistent with such past contacts."

As associate director of the School of Marine Sciences, Kornfield continues to apply his knowledge of DNA and molecular markers to fish. His ongoing research examining the genetic relationships among populations of freshwater fish in Africa has made significant contributions to the field of molecular evolution, and his analysis of populations of haddock and other fish in the Gulf of Maine assists fisheries managers as they work to develop better management strategies.

In recognition of his research, Kornfield was elected a Fellow of the American Association for the Advancement of Science.

Regardless of the project, it's the connections he builds with students that he finds most rewarding.

"Some of the most rewarding experiences in science are those that I have shared with students," Kornfield says. "Creating new knowledge is exceptionally exciting. Involving students in all phases of research, from experimental design to publication in the scientific literature, can have a profound impact on their lives." ■



Laboratory. Samples they work on may be no bigger than a drop of tuft of hair or a bit of tissue, but they speak volumes when analyzed by scientists using the latest technology.

## Natural navigation

**T**HROUGH THEIR lifetimes, amphibians move within and between habitats for a variety of reasons, including breeding, summer foraging and overwintering. But just how they navigate in their travels remains unclear.

Studies of spotted salamanders, and red-bellied and red-spotted newts, have documented the use of direct cues, like scenting water — directly detecting a resource they are seeking. Other lab-based research has explored the use of indirect cues for orientation, like the location of sunrise or detection of magnetic fields.

Now University of Maine scientists have found what may be the first evidence of the use of indirect cues by juvenile wood frogs in the wild. Just what those indirect cues are, and how soon they manifest prior to or during emergence from the natal pool, remains unanswered.

UMaine researchers studied 400 wood frog tadpoles from a pond where emerging metamorphs travel northeast to a forested wetland. When the tadpoles were relocated to a new pool with a southwest wetland, most of the animals emerged and continued to head northeast, retaining the same directionality as at the site where they hatched.

The results raise concerns that amphibians like wood frogs that rely on indirect cues could have less adaptability to habitat changes. Such inflexibility could lead frogs into ecological traps, according to UMaine wildlife ecologists David Patrick and Malcolm Hunter, and wetlands ecologist Aram Calhoun, writing in the *Journal of Herpetology*.

## Exaggerating Success

PEOPLE EXAGGERATE what it took for them to succeed at a task in order to enhance or maintain their self-esteem, according to research by two social psychologists.

In four studies, three involving college students and one surveying psychology professors, psychologists Scott Eidelman of the University of Maine and Monica Biernat of the University of Kansas found that people are likely to cite more stringent standards for success. College students who met their exam standards and academics who earned tenure both exaggerated what it took to accomplish their goals, presumably as a means to deflect concerns about competence.



The researchers also found greater standard raising among those who succeed if their self-esteem is threatened, implying that the reasoning for exaggeration is a need to feel good about ourselves and our accomplishments.

“Standard raising is a strategy to use when success is achieved but competence is questioned,” wrote the researchers in a recent issue of the *Journal of Personality and Social Psychology*. “Because raised standards imply greater ability and effort, performers feel better about their accomplishments. In this way, they may get more from their successes.”

The National Institute of Mental Health funded the research.



Good



Average



Poor



HOT!

## Public Ratings

**Colleges and universities** should make their formal in-class student evaluations of teaching (SET) data publicly available online to provide more accurate ratings than the more informal assessments currently on the Web, conclude two University of Maine researchers after conducting a comparative analysis of RateMyProfessors.com and SET data.

In what is considered the first study of its kind, Theodore Coladarci, professor of educational psychology, and Irv Kornfield, professor of biology and molecular forensics, analyzed the correlation between the traditional higher education assessment method and the popular RateMyProfessors.com, the self-described largest listing of college professor ratings on the Internet. Their findings were published last May in the electronic journal *Practical Assessment, Research & Evaluation*.

Many professors oppose the publication of SET data because of concerns about privacy and other potential negative consequences. But without the release of SET results, students rely on what is publicly available, such as RateMyProfessors.com, which can mischaracterize the true standing of many instructors, according to Coladarci and Kornfield.

RateMyProfessors.com, established in 1999,

allows students to anonymously post 5-point instructor ratings in three categories — helpfulness, clarity, and easiness — and to provide general comments. Coladarci and Kornfield compared SET and RateMyProfessors.com (RMP) ratings of 426 UMaine faculty and found that two RMP indices — overall quality (the average of the helpfulness and clarity ratings) and ease — correlated “substantively and significantly” with their SET counterparts.

For example, the researchers found that when an instructor’s RMP overall quality rating was particularly high, “one can infer that the instructor ‘truly’ is regarded as a laudatory teacher,” as measured by SET.

However, there is considerable uncertainty about the instructor’s true status when the RMP overall quality rating is anything less than stellar. The researchers also note that RMP indices may be more trustworthy when based on many posts, but the fact remains that the Web-based assessments lack quality control, including the ability to satisfactorily represent an institution’s student body. Because of this, Coladarci and Kornfield suggest that universities make their teaching evaluations publicly available.

## giddyap

**A**t the University of Maine Aquaculture Research Center, Ph.D. student Søren Hansen is raising mostly clownfish and dottybacks. But he's also researching ways to cultivate seahorses, those cryptic little creatures with plant-like bodies that allow them to hide in aquatic grasses; camouflage is their best defense against predators. Seahorses boast a variety of other fascinating characteristics, according to Hansen:

- Seahorses mate for life.
- They are able to change color to blend into habitats and hide.
- They like to swim in pairs by intertwining their tails.
- Seahorses eat by sucking plankton and fish larvae through their tiny mouths at the ends of their snouts. Those at UMaine like to eat their food from small bowls placed at the bottom of their tanks.
- They move by beating their tiny dorsal fins nearly as fast as a hummingbird beats its wings.
- Females deposit their eggs in a special pouch on the male, where the babies grow until it is time for them to be born.
- A seahorse can move each of its eyes independently, focusing in two directions.
- Their genus name, *Hippocampus*, is Greek for "bent horse." UMaine researchers are raising common and lined seahorses, two of an estimated 35 species in the world.



## Reputational Bliss

IN THE WORLD OF BUSINESS, the success of a firm hinges on maximizing its value — and reputation. But the reality is that a good reputation doesn't guarantee that all the firm's actions will be good for all concerned, including those deeds valued most by the primary beneficiaries or stakeholders.

Thus, the basic dilemma: What or who should management act for? And what normative guides should it reference in taking action?

Two professors of management suggest one basic normative criterion by which firms could seek both bottom-line success and responsible behavior toward stakeholders. That benchmark — the best of all possible worlds for business — is reputational optimality, according to Barry Mitnick of the Katz Graduate School of Management at the University of Pittsburgh and John Mahon of the University of Maine Business School, writing recently in the *Journal of Business Ethics*.

Such "reputational bliss" is possible when all externally held reputations of the organization are positive, the result of using moral directives to guide decisionmaking, according to the researchers.

In our society, Mitnick and Mahon point out, a reputation based on moral grounds is more valued and stable than one built solely on outcomes, including distribution of benefits. A firm is more likely to use moral directives to guide its actions if it is closely observed and in a highly competitive economic environment, and if its corporate leaders have authentic moral beliefs that demonstrate corporate integrity. Firms also will choose moral directives when the choice advances their reputations in the eyes of stakeholders.

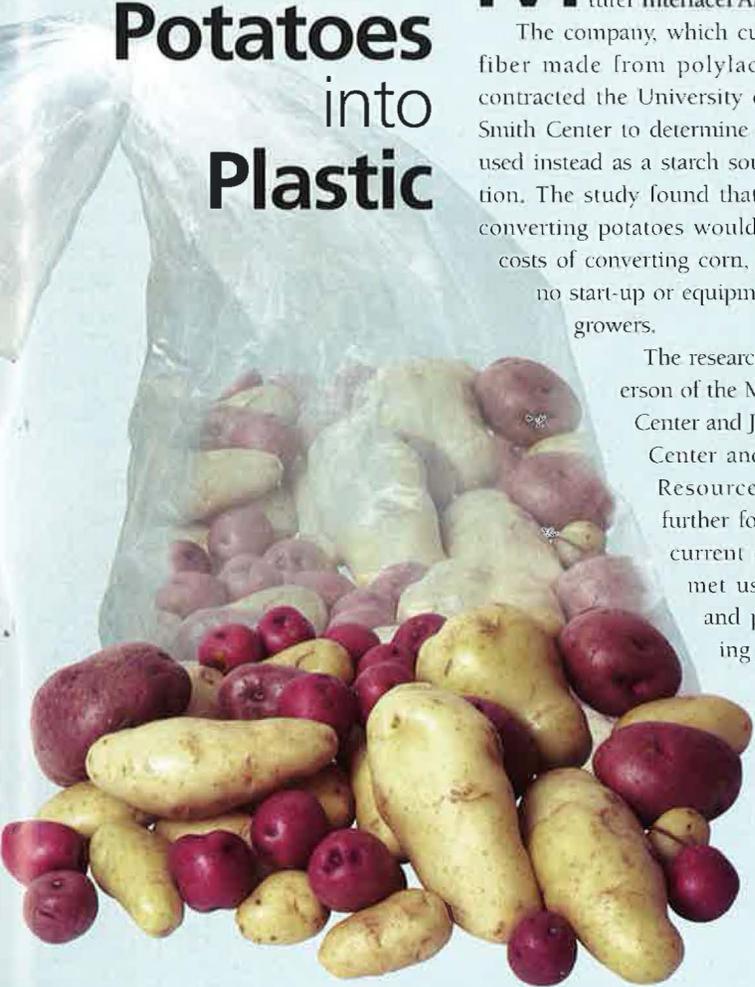
## Turning Potatoes into Plastic

**M**AINE POTATOES may be destined for more than the deep fryer if Maine-based manufacturer InterfaceFABRIC has its way.

The company, which currently uses biodegradable fiber made from polylactic acid (PLA) in corn, contracted the University of Maine's Margaret Chase Smith Center to determine if Maine potatoes could be used instead as a starch source for the plastic production. The study found that the costs associated with converting potatoes would be similar to the current costs of converting corn, and would require little or no start-up or equipment costs for Maine's potato growers.

The research, conducted by Kate Dickerson of the Margaret Chase Smith Policy Center and Jonathan Rubin of the Smith Center and UMaine's Department of Resource Economics and Policy further found that InterfaceFABRIC's current demand for PLA could be met using below-grade potatoes and potato waste from processing once tools and techniques are developed.

If produced, the new potato-based plastics would be nontoxic, biodegradable and renewable, unlike the many petroleum-based plastics currently in use.



UMaine's class opera  
*Figaro*

PREPARATIONS HAVE begun to bring *The Marriage of Figaro* to the Hauck Auditorium stage in February — and to classrooms across campus this fall.



*Figaro* is UMaine's first-ever "class opera" in a project that melds the inspiration of a class book with the University of Maine's operatic roots. The Mozart opera, to be sung in English, will tap the talents of music, theater and dance students and faculty throughout the School of Performing Arts. It also will be the springboard for discussions in courses on history, philosophy, sociology, women's studies, political science and French literature.

One goal is to involve as many performing arts students as possible "for a true school-wide production," says Stuart Marrs, chair of the Division of Music in the School of Performing Arts. In addition, other liberal arts classes are picking up on the opera's references to such topics as pre-French Revolution history, class struggle and Enlightenment philosophy.

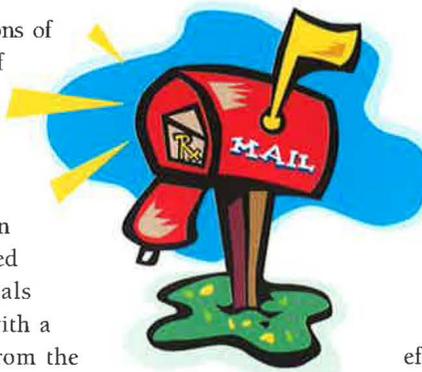
Also scheduled around *Figaro* are guest lectures, study guides and postshow discussions with the cast, crew and faculty.

"Productions like this have the potential to bring everyone — students, faculty and departments — together," says Professor of Theatre Tom Mikotowicz, the stage director for *Figaro*.

*Figaro* revives UMaine's classic opera tradition that, up until the late 1980s, featured an annual production. It also honors the long academic and performance career of music professor Lud Hallman, who has taught at UMaine since 1970 and will be *Figaro's* musical director.

## Safe Return

TO HELP KEEP tons of medications out of the environment and away from children, the University of Maine Center on Aging has launched a pharmaceuticals return program with a \$150,000 grant from the U.S. Environmental Protection Agency.



The mail-back pilot project is expected to remove 1.5 tons of unused over-the-counter and prescription medications from homes or the waste stream, according to Len Kaye, director of the Center on Aging. It also is the first step in implementing the Maine Unneeded Pharmaceutical Disposal Project, adopted by the state legislature in 2004.

An estimated 6,000 postage-paid mailers are now available to the public through participating pharmacies in four counties. In addition, an educational campaign is focusing on the hazards caused by the improper storage and disposal of unused medications.

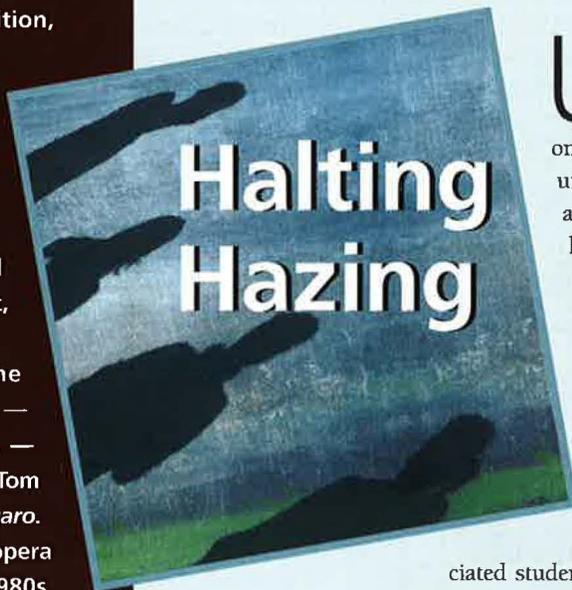
The Maine project includes an inventory of the types and quantities of drugs being returned. The inventory data could be used by the medical community to change prescription practices in an effort to reduce the incidence of unused medications in

people's homes.

The Maine mail-back and inventory aspects of the program are firsts in the country, according to EPA Project Officer Kathy Sykes.

Typically, unused, unneeded or expired medications are flushed down toilets or thrown in the trash, and ultimately can make their way into the environment. Since compounds in many medications are destroyed only through incineration, they often pass through landfill and wastewater treatment plants, and end up in waterways and groundwater.

Unused and unneeded drugs stored in homes also can wind up in the hands of children or thieves.



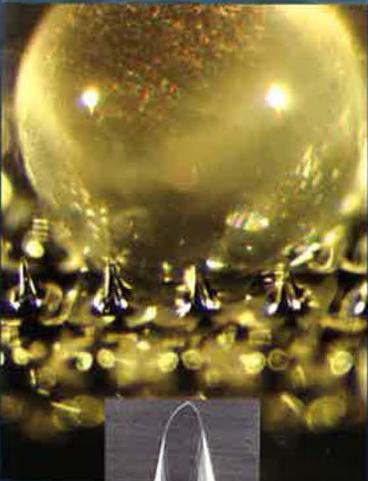
UNIVERSITY OF MAINE researchers Elizabeth Allan and Mary Madden have moved into the second phase of their groundbreaking research on hazing with a survey of more than 14,000 full-time undergraduate students from 52 institutions from across the country — the largest and most comprehensive survey of its kind. Allan and Madden hope the results of the survey will shed new light on the type and frequency of hazing behaviors, and students' perceptions regarding such practices.

"One important discovery that we made in the pilot survey is that our definition of hazing and the students' definitions are not the same. This latest survey and the associated student interviews are aimed at helping us better understand how students perceive hazing on campus," says Madden. "Our goal is to make a difference in terms of the culture of hazing on postsecondary campuses, and we need to fully understand the students' views in order to have an impact."

The final results of their comprehensive, nationwide survey are currently being tabulated as Allan and Madden work toward developing recommendations for addressing the problem of hazing in postsecondary education.

**UPDATE**

# last impression



THE UNIVERSITY OF MAINE'S research and development initiatives related to homeland security, including environmental monitoring, involve many diverse areas of study — from computer science to water quality. UMaine's Laboratory for Surface Science and Technology (LASST), the Advanced Engineered Wood Composites (AEWC) Center, and the Sen. George J. Mitchell Center for Environmental and Watershed Research are three campus-based focal points for UMaine's research efforts to protect our troops and our citizens. LASST is developing sensors for monitoring high temperatures in Air Force vehicles and equipment, and for detecting microbial pathogens, toxic chemicals, bioagents and explosives. Using nanotechnology, LASST engineers and scientists are developing materials that absorb toxic compounds in liquids, sequence DNA at high speed and more effectively sample fluids from biological tissues. AEWC's composites research includes the development of ballistic protection panels for troops housed in tents; new-age building materials with increased resistance to earthquakes, tornadoes and hurricanes; tamper-resistant shipping containers; and advanced composite hulls for the U.S. Navy's high-speed Mark V Special Operations crafts. At the Mitchell Center, numerous research initiatives are aimed at helping protect the drinking water supply.



# Onward

**A**T THE START of each academic year, a new group of University of Maine students spends 48 hours roughing it in the shadow of Mt. Katahdin. On the Onward Program camping trip to Baxter State Park, the mostly nontraditional-age men and women — among them, laid-off workers looking for a better career, single parents who want a better future for their children, first-generation college students and persons with disabilities — begin bonding into what quickly becomes a close-knit group. All share their hopes and fears about taking that first step to becoming students, members of a community of learners.

With its unique academic support system, Onward

prepares these students for success in college — and beyond. Today, Onward alumni can be found pursuing careers in education, social work, nursing, art, forestry and many other fields.

This past spring, the New England Board of Higher Education recognized the success of UMaine's Onward Program with a regional merit award.

To assist UMaine Onward students, the **Jerry Ellis Scholarship Fund** was established at the **University of Maine Foundation** in honor of Gerald C. Ellis, director of the University of Maine College Success Program, for his 33 years of dedicated service to the Onward Program.

UNIVERSITY of MAINE  
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[www.umainefoundation.org](http://www.umainefoundation.org)

Katahdin Photo by George Dooley

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