

# UMaine Today

CREATIVITY AND ACHIEVEMENT AT THE UNIVERSITY OF MAINE

SEPTEMBER/OCTOBER 2003

**Forests of the future**

**Gothic revival**

**Putting Maine history  
on the map**

## From the President

ONE OF THE MOST EXCITING DAYS on UMaine's calendar each year is the Friday before Labor Day. That's when many UMaine professors and staff members join me at our residence halls to help new students move in. A modern iteration of the traditional "Maine Hello," this activity is both enjoyable and instructive.

There is plenty of good exercise to be had, carrying boxes and suitcases and a variety of large and small appliances up flights of stairs. And we get the opportunity to meet the students, find out a little about their backgrounds, and learn about their goals and aspirations. Their enthusiasm is infectious and this interaction helps to orient all of us for the beginning of a new academic year. We also enjoy meeting mothers and fathers, on whose faces the mixture of pride and trepidation is readily apparent.



The Class of 2007 will be one of our largest classes in recent years and its members bring an impressive record of achievement as high school students and as citizens of communities all across Maine and beyond. With students coming from almost every state and more than 70 foreign countries, it is clear that word is getting out about the quality and value of a UMaine education. We are both proud and grateful to be gaining this recognition.

Those returning to UMaine this fall will notice continued progress on a variety of projects aimed at preserving the traditional beauty of our campus while improving our infrastructure to meet the instructional, research and social expectations of our students, faculty and staff. Of particular interest is a major project involving the reconstruction of the Fogler Library front steps. When that job is finished, one of UMaine's signature buildings will have a splendid new entrance.

As I begin my seventh year as UMaine's president, my enthusiasm for this university has never been higher. I look forward to both the achievements and the challenges of the coming year, beginning with the renewed spirit that September brings.

Peter S. Hoff  
President



ON THE COVER: What will the North Woods look like a century from now? That's the question *UMaine Today* posed to researchers involved in the university's interdisciplinary approach to forest management. Based on their research and the issues forests face today, UMaine faculty members have provided a glimpse of our future forests. (Story on page 2.)

Photo by Toby Hollis



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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 91 four-year, 62 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. UMaine is a member of the University Research Magazine Association.

*UMaine Today* is produced six times a year by the Department of Public Affairs, University of Maine, 5761 Howard A. Keyo Public Affairs Building, Orono, Maine 04469-5761, 207-581-3744.

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Printing and distribution of *UMaine Today* is underwritten by the University of Maine Foundation.

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**2 Future Forests**

Clues to what the North Woods might look like a century from now are rooted in the issues facing today's forests and the research being done to secure their future. University of Maine faculty in forestry and related sciences were asked to offer a glimpse of the future of our woodlands based on their research. Their provocative, interdisciplinary perspectives provide intriguing insights.



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**8 Raising Radcliffe: The Roots of the Gothic Tradition**

In her day, Ann Radcliffe was one of the first and most popular 18th-century novelists in England. Then history — and readers — forgot her. Today, literary scholar Deborah Rogers is changing that. Her extensive research on the reclusive writer sheds new light on Radcliffe's indisputable role in shaping the Gothic genre and strengthening heroines — elements that echo today throughout pop culture.

**11 Mapping the History of Maine**

To tell the story of Maine's past, some of the leading historians and scholars in the state have embarked on a seven-year research project like no other. When they finish, the *Historical Atlas of Maine* will detail the environmental, economic, social and cultural interactions that shaped the state and region, from deglaciation to the 21st century. The interdisciplinary perspectives on the history of Maine will be presented visually using archival records and new digital technologies.

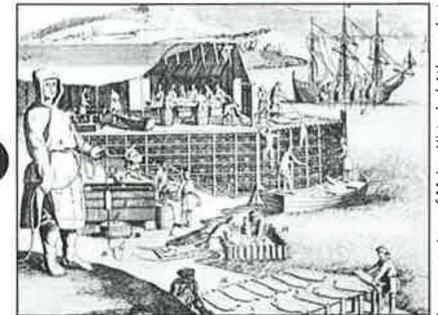


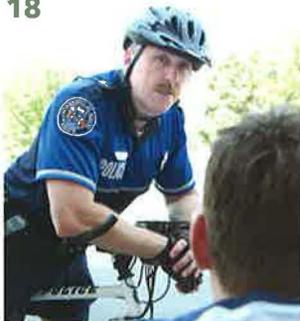
Image courtesy of Maine Historical Atlas project

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**15 It Starts with a K**

Five-year-old Kaleb Gifford loves to talk and tell stories, but it wasn't always that way. As a toddler, Kaleb started talking later than his peers and his speech wasn't always clear. That's when he and his family were referred to UMaine's Conley Speech and Hearing Center. At Conley's Family-Based Treatment Clinic, Kaleb, his parents and his sister worked with speech pathologists to develop the techniques to help him communicate better.

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**18 A Community Approach to Law Enforcement**

The University of Maine has joined other colleges and cities across the country and around the world in adopting a model of proactive policing. After one year, all indications are that it's working.



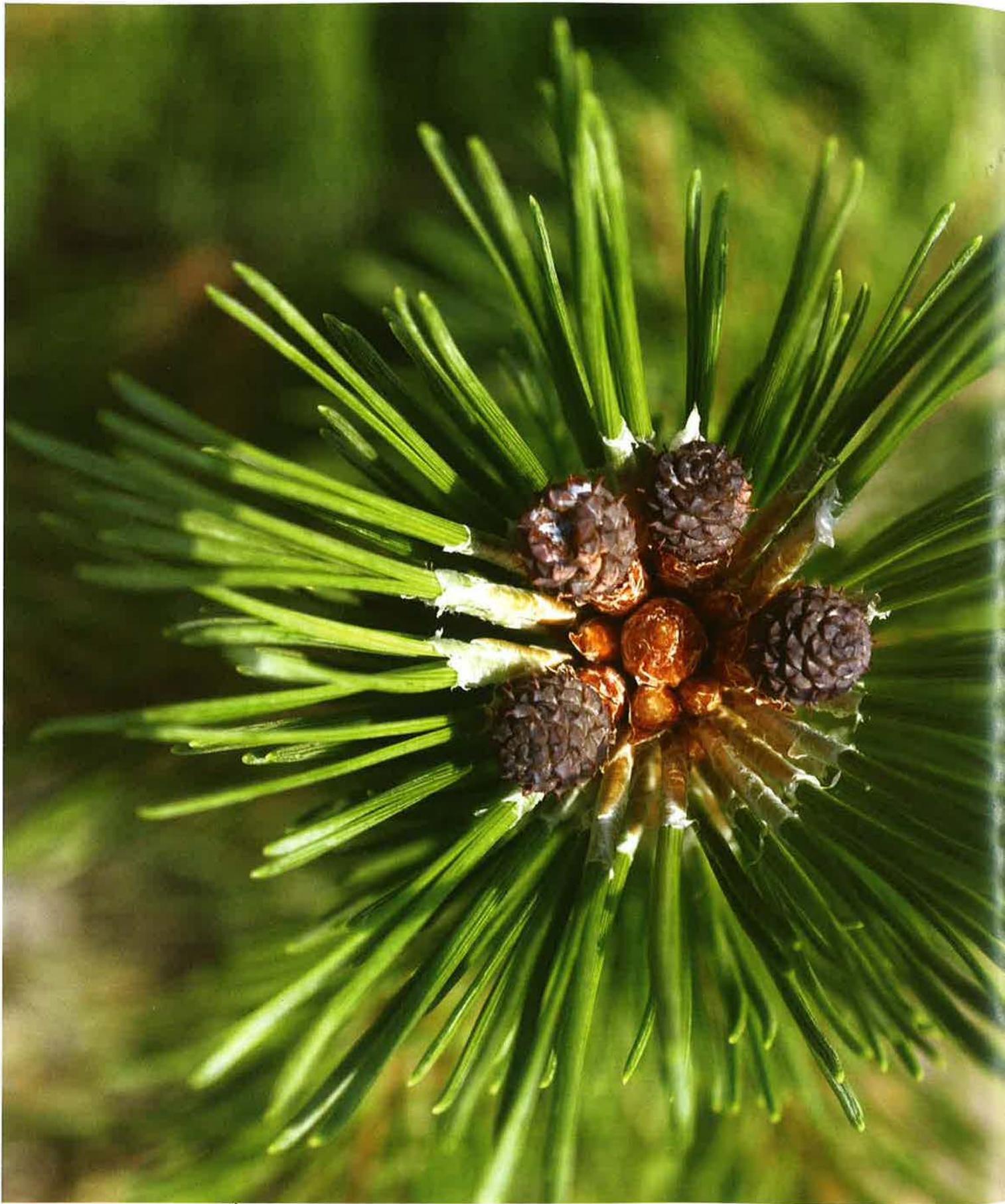
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# UMaine RESEARCHERS SHARE THEIR VISIONS OF FUTURE FORESTS



TO THE PUBLIC, the North Woods has many faces: a source of livelihood and forest products, a recreation and sports destination, a wilderness to preserve and an undeveloped area waiting to be tapped. Forestlands in Maine and beyond are cultural as well as natural resources with economic, aesthetic and environmental benefits.

Underpinning all those expectations is the ability to manage forested landscapes.

According to the Society of American Foresters, the United States has about the same amount of woodlands — 747 million acres — as it did 100 years ago. However, the pressures on those resources are much greater today than they were in 1903. In the next century, the capacity of our woodlands will be challenged like never before.

Chief among those challenges is a growing world population, standing today at about 6.3 billion and expected to double in the next 50 years. “A growing population will put increasing demands on forest resources,” says Bruce Wiersma, dean of the University of Maine College of Natural Sciences, Forestry, and Agriculture. “As they have for centuries, our forests must continue to contribute to this country’s economic foundation while increasingly being part of the global marketplace. The economic benefits, whether realized in the form of forest products, tourism or quality-of-life issues, are crucial to our future. Such contributions to economic well-being help to stabilize the human population and ultimately to protect the environment.”

Clues to what the North Woods might look like 100 years from now are rooted in the issues facing today’s forests and the research being done to secure their future. This year, the University of Maine celebrates 100 years of teaching and research in one of the country’s longest-running forestry programs. Its interdisciplinary approach to forest management includes the study of soils and ecosystems, history and climate change, wildlife and water quality. In the following pages, UMaine faculty provide a glimpse of what it will take to balance competing demands and sustained productivity in future forests. A sampling of their responses follows; their insights are presented in their entirety on the Web ([www.umainetoday.umaine.edu/issues/v3i5/forest.html](http://www.umainetoday.umaine.edu/issues/v3i5/forest.html)).

*Nick Houtman*



Photos (far left to right) by: Toby Hollis; Michael Mardosa; Jack Walas; David McLain/Aurora

## One forest

*Laura Kenefic is an assistant research professor in the Department of Forest Ecosystem Science who specializes in silviculture and long-term forest management.*

Today's forests are the products of centuries of land clearing, agricultural abandonment, harvesting, atmospheric pollution, and introduced plants and animals by humans. These forests are complex and very different from their pre-settlement counterparts.

Increased public interest and involvement in forestry, scrutiny of forestry practices through certifi-

stands of tree species such as yellow birch, white pine and cherry for high-value wood products, in addition to spruce and fir, and lower-value hardwoods for pulp and paper, or wood composite materials.

It means making investments with treatments, such as removal of low-value or diseased trees, tree planting and commercial thinning. It means anticipating pests and disease, especially in light of changing environmental conditions, and addressing the threat to our woodlands posed by invasive species, such as Norway maple, barberry and honeysuckle.



cation and conservation easements are positive developments. These forces work to counteract threats, such as parcelization and short planning horizons that limit long-term ecosystem-level management.

Challenges still exist. Though we have made significant advances in the science and technology of landscape-level management, better integration across ownerships and institutions is necessary. Additionally, forestry practitioners need more support and information from researchers to effectively incorporate ecosystem priorities into management. Efforts to integrate research and outreach will be instrumental in linking science to practice.

## Mixing it up

*Bob Seymour, the Curtis Hutchins Professor of Silviculture, studies long-term forest productivity. Professor of Forest Biology Richard Jagels specializes in properties of wood.*

The health and productivity of our future forests depend on thoughtful, science-based management. By taking a long-term approach, forest managers can continue to meet the needs of a diverse, high-value forest products industry, and provide recreational and environmental services for the public.

There is no single prescription for long-term forest management. It can mean promoting mixed

Conversely, a short-term strategy driven by landowners' needs to meet immediate financial goals could jeopardize benefits. Forests that people see from roads and trails in the future may not be noticeably different, but the net result would be a less robust wood products industry and fewer jobs.

## A warm-up

*Ivan Fernandez, professor of plant, soil and environmental sciences, studies forest soils from the plot to the watershed scale.*

In the next century, there's every reason to be optimistic that our forests will be equally if not more vital and productive than they have been in the past, despite increased demands on these resources. The effects of global warming in Maine would probably mean a better growing environment for forests, resulting in higher forest productivity. Yet warmer temperatures also could increase the risk of insect and disease outbreaks in forests.

A warmer climate with longer growing seasons, in the absence of significant increases in rainfall, would undoubtedly increase the risk of wildfires and the cost of fire management. The composition of forests can change so that, with higher nitrogen availability, species such as sugar maple and beech

could take over historically spruce-fir landscapes.

Current efforts to “preserve” forest ecosystem values in biodiversity, recreation or wildlife will take on added urgency; simply “leaving it alone” won’t automatically preserve such values in an era of climate change.

The period we’re about to enter may be unique in modern human history. A coordinated program of research, including long-term studies that capture slow and subtle changes in forests, will be critical in guiding managers of forest ecosystems.

fare well in such a rapidly changing world.

Lastly, suburban sprawl and its wildland analogue — timber liquidation — have a profound negative impact on biodiversity and values that forests hold.

Challenging times may be coming, but there is certainly a basis for optimism. Forest managers are far more attuned to these issues than they have ever been and there are many systems in place — forest certification, professional logger certification, conservation easements, ecological reserves and more — that are having a significant positive impact.



## Creature comforts

*Malcolm Hunter is the Libra Professor of Conservation Biology at UMaine. His research focuses on biodiversity in forested landscapes.*

It is entirely feasible to manage forests for timber production, and diverse and healthy populations of wildlife. Many species thrive in well-managed landscapes, and fortunately the amount of land that is well managed is growing steadily. Nevertheless, there are at least four issues that require our attention:

Under a logging regime, forests don’t grow as old now as they did when windstorms, wildfires and disease were major causes of tree mortality. Thus, our forests have fewer large, old trees, logs and snags — critical habitat elements for many species of wildlife.

Invasive, non-native species are a threat to ecosystems around the world, and Maine is no exception. The focus has been on our lakes and wetlands with Eurasian milfoil and purple loosestrife. However, our forests are still impoverished by the past assaults of gypsy moths, chestnut blight and Dutch elm disease.

The ominous prospect of accelerated climate change cannot be ignored. Maine species like turkey vultures, gray tree frogs and deer ticks have been shifting their geographic ranges, and a faster pace of change probably lies ahead. Some species will not

## Myths in the wilderness

*Professor of History Richard Judd specializes in 19th-century environmental history of Maine and the United States.*

What’s next for the Acadian forest? For more than a century, tourism has been an important part of the forest economy, but it always operated in the shadow of the industrial forest. If tourism is to become an economic mainstay, we need to think about how we package this forest experience.

In their heyday, railroad companies and hotel owners promoted the region as a mythical landscape of timeless purity and heroic wilderness activity. Just as 19th-century leisure activities — fishing, hunting, painting, rustication, tennis, croquet, golf — gave way to 20th-century activities, like auto touring, backpacking, and snowmobiling, tomorrow’s tourist will harbor a different myth of the Acadian forest, and from this will come different demands and different technologies to meet them. Land-use planning and development policies will have to anticipate these changes.

Wilderness management, whatever form it takes, should be predicated on a healthy debate about just what wilderness means in this region. A wilderness littered with abandoned skid roads, cellar holes and

rock walls challenges our strict division between trammled and untrammled.

Adventurers like Henry David Thoreau and Thomas Sedgwick Steele found this wilderness authenticating because it invoked the mystique of Indians, loggers, hunters, trappers, guides and river drivers. It was a cultural as much as natural place.

## Consumer confidence

*Kathleen Bell and Mario Teisl are resource economists. Bell studies the economics of land-use policy; Teisl looks at the delivery of market information through labeling.*



The future of U.S. forests depends on how well the public and forest managers understand the services provided by forests and the relative values of those services. Forest certification provides a useful example. The process calls for an independent third party to measure forest management practices against a set of environmental standards. It links consumers willing to pay higher prices for products from certified lands with forest managers who are willing to alter their practices in order to capture those premiums.

There are potential problems with the markets for certified products. On the demand side, forest managers see no premium for such products. It's possible that consumers don't really care or that they haven't been given adequate information through product labeling. On the supply side, certification is expensive. Owners of small, forested parcels cannot generally afford to have their acreage certified.

While our research suggests there is widespread public support for enhancing the viability of Maine's forest resources, there is little consensus regarding management practices and values of forest services.

## Logging logistics

*Andy Egan, associate professor of forest resources and program leader of Forest Operations Science, specializes in forest planning, timber management and harvesting.*

The view of the future forest depends on where you live. For rural residents surrounded by forestland, trees are a source of jobs, a way of life. Research on the labor market for loggers and others who work in these woods suggests that the number of people willing to do this work will drop.

What might this trend mean for the forest? Lack of woods labor may accelerate the transition to more mechanized forms of logging that are less labor

intensive. This could, in turn, affect silviculture (the art and science of producing and tending a forest) in the region, as forest managers attempt to match their tree harvesting recommendations to prevailing local logging technology and labor.

In addition, increases in logging mechanization will certainly influence the industry. Logging businesses will be required to make greater investments in equipment and training for skilled labor. Alternatively, less labor may reduce logging capacity, possibly resulting in higher rates paid to the remaining loggers. In either case, the forest products industry may see an increase in wood prices.

## Pests and pathogens

*William Livingston, professor of forest biology and chair of the Department of Forest Ecosystem Science, studies the interaction of trees with diseases and pests.*

The key to forest health and sustainability is to have a community of species adapted to their surroundings and to each other. The most obvious threats come from invasive pest and tree species growing in environments where they have not evolved.

Invasive pests can disrupt the native community. Examples include many of our most severe problems, such as white pine blister rust, beech bark disease, gypsy moth and hemlock wooly adelgid.

Tree species can grow where they have not evolved as the result of tree planting and by altering the natural disturbance regime through fire control, harvesting and abandonment of agricultural fields. Examples of these types of problems include spruce dieback on Maine's coastal islands due to spruce development on old fields, and more severe spruce budworm outbreaks due to management practices that favor balsam fir regeneration and development.

Dealing with forest health problems will require proactive management of the forest to correct poorly adapted forest communities resulting from invasive species or previous land-use practices.

## The good earth

*Steve Norton, professor of geological sciences, studies the interaction of atmospheric deposition with Maine's soil and water resources.*

Among the many factors that will affect future forest health and productivity, soil chemistry is pivotal. Chemical processes in forest soils evolve over time,

Photos (left to right) by: David McLain/Aurora; Kathy Rice; Toby Hollis; Nick Houtman; Frank Wihbey/Maine Nature News

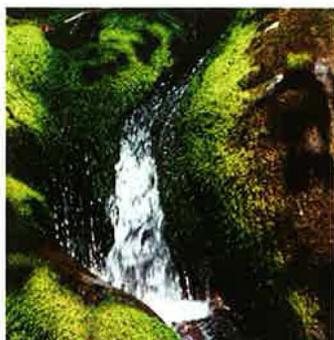
influencing what types of trees grow and how quickly they mature.

After 16 years of research at the Bear Brook watershed in eastern Hancock County, we see evidence that acidic deposition can strip nutrients, including phosphorus, from the soil at a faster rate than it can be replenished. Lack of this critical nutrient may already limit tree growth in some areas of the Northeast.

Aluminum, the second most common metal in the soil on a global basis, also is mobilized by acidic

increasing amounts of human-derived pollutants and simultaneously generate an economically important resource — timber.

These ecosystem interactions are complex and are best understood by taking into account biological, chemical and atmospheric components as a whole. In doing so, we might better estimate our impact on forests, and also measure the contribution of forests to the cycling of nutrients and the immobilization of pollutants. With this information, we hope to make better predictions about forest health into the future.



deposition. Aluminum compounds appear to play a crucial role in the phosphorus cycle by locking phosphorus up in stream and lake sediments.

It is possible that if acidic deposition continues at present levels, future tree growth may be affected. Research on this question, as well as studies of other soil nutrients, is continuing at Bear Brook, and at locations in the U.S. and Europe.

## Nutrients and pollutants

*Bryan Dail is an assistant professor of soil microbiology who is helping to coordinate forest research on nutrient cycling.*

Terrestrial ecosystems — and forests in particular — play a vital role in the cycling of elements and nutrients through the environment. Forests influence carbon and nitrogen, elements necessary to life that also affect our non-living environment, including the climate. Carbon and nitrogen cycling, and their interactions with climate, are influenced by human activities.

Our reliance on fossil fuels increases the amount of carbon dioxide (CO<sub>2</sub>) and biologically available nitrogen in the atmosphere. These elements can act as fertilizers, increasing the growth of forests. In turn, forests may provide an important reservoir for

## Limiting losses

*William Ostrofsky, an assistant professor of forestry, directs the Professional Development Office in the Department of Forest Management.*

One important determinant of forest health and overall timber quality is the frequency and severity of damage to residual trees resulting from stand harvesting activities. Because society is demanding less reliance on clear-cutting methods and more on partial harvesting techniques to achieve silvicultural goals, damage to residual trees is of continued concern.

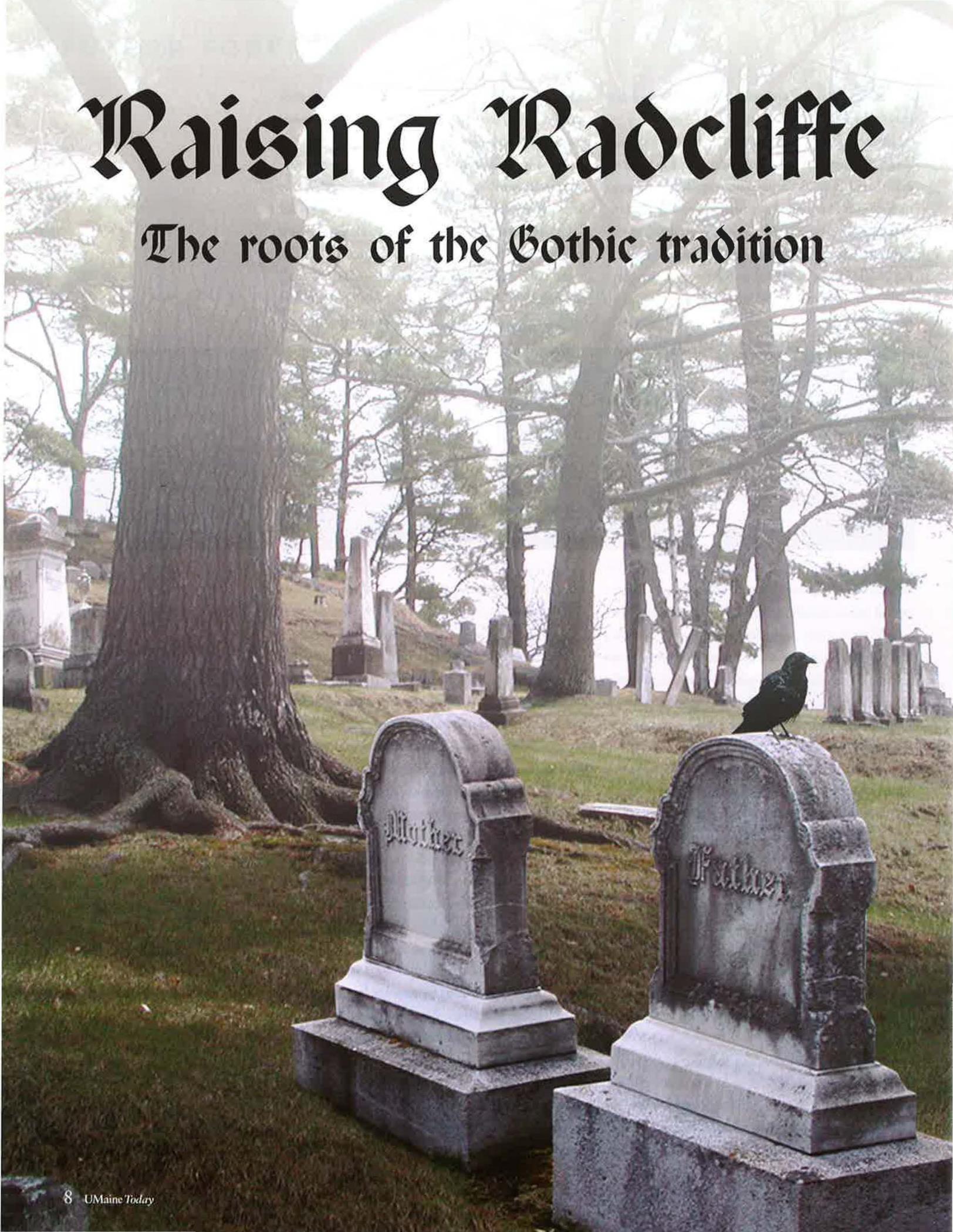
Residual stand damage affects the value and health not only of individual trees but also of the stand itself. Stands in which a high percentage of residual trees have been damaged are more susceptible to losses from insects and diseases. Tree growth in terms of wood production also is slowed by injuries.

Pre-harvest assessments could help identify high-risk stands. Unlike natural defect factors, residual stand damage from harvesting is well within management capabilities. Rotation and cutting-cycle lengths, equipment mix, operational layout, and operator skill and care all influence residual stand damage and stand quality.

The full text of "Future Forests" is on the Web  
[www.umaine.today.umaine.edu/Issues/v3i5/forest.html](http://www.umaine.today.umaine.edu/Issues/v3i5/forest.html)

# Raising Radcliffe

The roots of the Gothic tradition



## UMaine literary scholar explores the mystery and macabre in Ann Radcliffe's 18th-century novels

**T**HE ROOTS OF THE GOTHIC NOVEL tend to resurface this time of year, rattling pop culture's bones with fierce echoes of the past.

As summer stretches into fall and the landscape thins to reveal its own skeleton, pop culture confirms — whether with the success of the latest Stephen King novel or with the newest horror movie headlining at the local cineplex — that our culture remains seduced by the same qualities that sparked fear and dread in so many more than 200 years ago.

Windswept landscapes, haunted castles and a profound awareness of the supernatural all began their literary journey in the Gothic, which Horace Walpole pioneered in 1764 when he published *The Castle of Otranto* on Christmas Eve.

That day also marked the birth of Ann Radcliffe (1764–1823), whose hugely influential books came to redefine the genre as a metaphor for the female experience.

The author of such works as *The Mysteries of Udolpho* and *The Italian*, Radcliffe was one of England's first and most popular novelists. Today, however, she has largely been forgotten.

According to Deborah Rogers, professor of English at the University of Maine and an internationally known scholar of the author, Radcliffe is like many important women writers who were wildly famous in their own day, but have since almost disappeared. Rogers' three books on Radcliffe represent part of an international project to uncover forgotten 18th-century women writers.

"By the end of the 18th century, women had written some 500 novels," says Rogers. "Yet even after almost 20 years of feminist revisionist history of 18th-century literature, relatively few women have made their way into a canon dominated by the so-called 'fathers of the novel.'"

According to Rogers, not only did Radcliffe's books inspire plays, operas and imitations, they also influenced Romantic and Victorian literature, the detective, psychological and horror genres, and a wealth

of individual authors — from Jane Austen and Mary and Percy Shelley to Charlotte and Emily Brontë, Charles Dickens, Edgar Allan Poe and H.P. Lovecraft. They also, at least indirectly, influenced a host of contemporary authors, including Anne Rice, Joyce Carol Oates and Stephen King.

At the peak of her fame, Radcliffe's influence reached beyond England; her books were translated into Italian, German, French, Russian and Spanish. And yet she was something of an enigma, withdrawing from social engagements as she feared ordinary social contact.

Her estrangement from society was extreme enough to make Rogers wonder whether Radcliffe, like her characters, suffered from anxiety and depression, particularly since, at age 34, she virtually stopped publishing, thus throwing away a prized career and leading some to assume that she was either dead or insane.

"In the total absence of documentation, contemporaries were willing to believe, presumably because she was the reserved female author of Gothics, that Radcliffe was crazy," says Rogers. "Such interpretations are common problems in constructing a woman's life without proper evidence. Given her fame and her connections with publishers, Radcliffe would presumably have had easy access to the press. Still, remarkably, she never corrected wild rumors of her madness or death."

In constructing her own biography of Radcliffe, *Ann Radcliffe: A Bio-Bibliography*, Rogers contributed new material by extensively analyzing the one substantial existing Radcliffe manuscript (located in the Boston Public Library), which had previously been ignored.

"In general, writing life stories of women, who, in many cases, were not taken seriously, invites problems," says Rogers. "It's difficult because many of their important papers have vanished, perhaps because they were considered too insignificant to preserve. A special problem in writing about Radcliffe is that most of the information we have about her was originally furnished by her husband, William, who manipulated her image for posterity."



Since 18th-century women arguably contributed more to the novel than their male counterparts, it's important to recover female-authored texts and to recognize the female influence on our literary heritage, Rogers says. "Only then can we ensure the accuracy of literary history."

To describe Radcliffe's works, Rogers has coined the term "Matrophobic Gothic." By matrophobia, Rogers means more than fear of mothers. She also means fear of becoming a mother, as well as fear of identification with and separation from maternal figures. "I read matrophobia as the central metaphor for women's relationships with each other within the context of a male-dominated culture," she says. "My hope is that my research will help to confront, re-envision and revalue the mother-daughter connection."

Part of that research involves exploring how Radcliffe's Matrophobic Gothic examines gender differences and the problems involved in being female. "By emphasizing women's dependence, isolation and sexuality in terms of mother-daughter bonds, Radcliffe focuses on the dangers of female anxiety and paranoia," says Rogers. "The female tradition in literature has long been defined in terms of its focus on the character of the deluded heroine who reforms. I believe that very tradition also is distinguished by its matrophobic heroines."

While Radcliffe's novels are filled with fantastic details, such as ghosts, gloomy architecture, disembodied voices and mysterious manuscripts, they also follow patterns that allow heroines to test their inner powers in the face of persecution, to fight against confinement, thwart male domination and reconcile with their mothers — not unlike themes in some of today's romantic fiction, films and soap operas.

For instance, in *The Italian*, when the heroine, Ellena, finds herself locked in a convent, she discovers that the mother she once thought was dead is actually alive and living as a nun named Sister Olivia. When Olivia helps Ellena flee the convent, Ellena comes to accept not



Deborah Rogers

Photo by Toby Hollis

only her mother's position, but she identifies with her. Ultimately, both mother and daughter escape patriarchal violence and reconcile.

It's the sort of plot element that might be found in an episode of *Days of Our Lives*, a Gothic echo that continues to plunge through the sands of the hourglass and reverberate in other works.

Strengthening her link to the present is the fact that Radcliffe's heroines, like so many today, are not generally rescued by men. Also, they maintain their independence in romantic relationships, leaving some to observe that in spite of their perceived weaknesses, Radcliffe's women actually are rather strong and her books hint toward a sort of Gothic feminism.

"They seem more inspired by landscape than by love," says Rogers of the heroines. "The source of their strength and inspiration is not a man, but, rather, the scenery and the quest for

maternal reconciliation."

Key in achieving this were Radcliffe's rich landscape descriptions, which, at the time, were both praised for being gorgeous and poetic, and maligned for being verbose and redundant. She was deeply influenced by the travel literature of the time and by painters such as Claude Lorrain, Nicolas Poussin and Salvator Rosa. While she never visited Italy, she set three of her novels there.

"If her heroines experienced extreme reactions to the supernatural, they also experienced extreme reactions to landscape," says Rogers. "Her scenery not only reflects and enhances the plot, it also defines and summarizes character, powerfully evoking the elevated emotions associated with the idea of the 'sublime': only good guys appreciate nature."

In the same understated — and as Rogers argues, unappreciated — way, Radcliffe shaped the landscape of the Gothic novel and, in turn, the direction the novel itself would ultimately take.

Christopher Smith



Marsh did not succumb to economic pressures. Today, its 3,000 acres are overseen by the Maine Department of Inland Fisheries and Wildlife as part of the Scarborough Wildlife Management Area.

THE ROLE OF SALT MARSHES in the state's history soon will be highlighted in the *Historical Atlas of Maine*, an upcoming 240-page volume culminating a seven-year research project built on rigorous historical and geographic scholarship. In full-color, two-page plates, the atlas details the environmental, economic, social and cultural interactions that shaped the state and region, from deglaciation 14,000 years ago to the 21st century.

Drawing on a range of academic disciplines, the atlas incorporates new ways of thinking about human history. The perspectives are presented visually through a diverse combination of traditional, age-old methods (historical records, drawings, charts and photographs) and new digital technologies (three-dimensional computer-generated maps and satellite imagery). In these respects, the atlas will differ radically from all previous historical atlases of Maine or works on Maine history. The multi-year research project that is bringing the atlas to fruition also is unprecedented.

"We hope to bring together insights from a variety of approaches — history, ecology, geology, politics, marine sciences, ethnography, among other fields — in a way that will make the presentation in each and every plate truly interdisciplinary," says historian and University of Maine professor Richard Judd, one of the project's leaders. "This is something no historical atlas to date has accomplished. We see the *Historical Atlas of Maine* as offering a template for future state, regional and even national historical atlases."

Earlier this year, UMaine was awarded a two-year, \$293,500 grant from the National Endowment for the Humanities (NEH) to continue the atlas project's research and design. More funding is needed in order for the volume to be published in 2006 by the University of Maine Press. The project started with \$160,000 in seed money from the Maine legislature in 1999, followed by \$100,000 from the University of Maine System.

"The NEH grant, the largest (humanities grant) to the University of Maine in recent years, is national recognition of the quality of scholarly research and cartographic design contained in the atlas," says Stephen Hornsby, a geographer on the project and director of UMaine's Canadian-American Center.

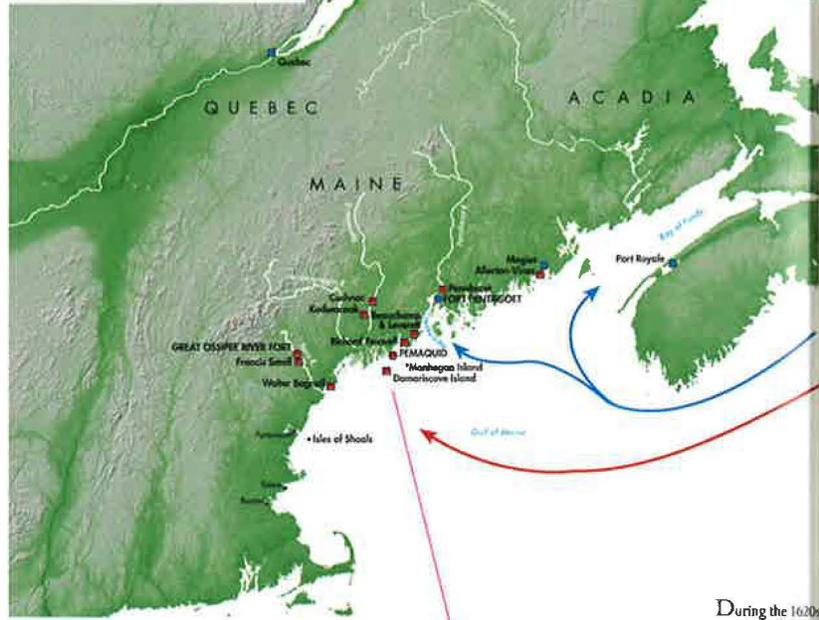
The *Historical Atlas of Maine* is designed to interest a variety of readers. It is expected to appeal to a popular audience with an interest in Maine and its history. In addition, the atlas will have a primary role in education, including use by school and college students learning about the culture, history and geography of Maine. Teaching modules based on the atlas are being developed for K-12 teachers.

Following print production of the atlas, researchers hope to develop

## 17TH CENTURY STAPLE TRADES IN THE GULF OF MAINE

ALAN FROST/STYRON J. HERRICK

Soon after exploring the Gulf of Maine, the French and the English began exploiting the fish and fur resources of the region. During the early seventeenth century, French merchants expanded their fur trade from the Gulf of St. Lawrence into the Gulf of Maine and Bay of Fundy, establishing trading posts at the mouths of the Penobscot, Saint John, and Annapolis rivers. Meanwhile, the English extended their trans-Atlantic fishery from Newfoundland into the Gulf of Maine, setting up fishing stations on the peninsulas and islands of the southern Maine coast; the English also participated in the fur trade, establishing trading posts on the Kennebec and Penobscot rivers.



From about 1610 to the early 1640s, merchants from the English West Country operated several fishing stations in the Gulf. A typical station comprised a collection of utilitarian, wooden structures: bunkhouses for fishermen, stages for processing the catch, and flakes on which to dry the fish. Agents, fishermen, and servants, as well as a few women, were sent out from England and lived year-round at the stations. Two-man shallops caught cod, the principal catch, in inshore waters. After processing, the fish were exported to markets in southern Europe, usually in the summer. Some provisions were raised locally, but most were imported from England, along with manufactured goods. There was a small trade with local natives for beaver pelts.



Domestic Island, view of an English fishing station and stage.



Map of the Province of Maine, ca. 1633, showing shallops each crewed by two men fishing for cod on the Iles de Shoals, and two English merchantmen vessels used for transporting men and supplies from England to fishing stations in the bay, sailing dried cod to markets in Europe.



Exposure of extreme low tide of the footings of former stages associated with a fishing station found on Domestic Island. On top of this masonry footing would be a wooden stage similar to that shown below.

During the 1620s in the developing around Massachusetts early 1640s, the English Civil War local merchants in supplying goods a fish, which was the Civil War, English manufactured goods merchants also des shipping refuse fish in return for sugar.



A View of a Stage &...

an interactive CD and Web-based plate modules.

"This is a project requiring a huge amount of time, money and commitment, but the potential is enormous," Hornsby says. "It makes an important point about how we can contribute to the understanding of Maine and its people. We have a strong sense of place in Maine and this will reinforce it."



THE *HISTORICAL ATLAS OF MAINE* PROJECT began in 1998 with the formation of a steering committee at UMaine, led by Professor of English Burton Hatlen. Joining him in the initial planning process were six other university scholars: Hornsby, Judd, Northeast regional and Canadian studies expert Jacques Ferland, Quaternary studies scientist George Jacobson, cultural and New England historian Martha McNamara, and 19th-century U.S. historian Marli Weiner. The cartographer on the project is Mike Hermann.

More than 70 historians from throughout Maine are contributing their scholarship to the project. Their wide-ranging expertise provides the social, economic and demographic information, as well as the history of cross-border connections with Canada. Much of the research in the atlas has never previously been published.

“Cartographically, we’re illustrating Maine at a level of detail that is unprecedented in previous works,” Hermann says. “We’re using Macintosh computers to design, produce and publish the entire atlas. We’re designing with detailed GIS data to visualize history within the unique geography that defines Maine and its people.”

To date, 40 of the 100 atlas plates, each defining a key development in Maine history, are approaching completion. The plates will focus on such chapters in history as cultural change in the colonial era, patterns of land ownership, religious history and French-Canadian migration.

**“Maine is not at the end of the road in the U.S. but rather in the middle of a region.”**

**Burt Hatlen**

Maine’s new atlas is modeled after three successful historical atlases published in recent years: the *Historical Atlas of Canada*, the National Geographic Society’s *Historical Atlas of the United States*, and the *New Zealand Historical Atlas*. At the heart of such volumes is the presentation of information about the past using images, such as photographs, drawings, historical maps, three-dimensional renderings, topographical and other maps, charts and graphs, and satellite imagery.

The *Historical Atlas of Maine* begins with an ecological and cultural examination of the state, and its regional, national and international context. It will bring into focus Maine’s history as a borderlands region and will illuminate the perspectives of women, and those of cultural, religious and ethnic minorities. In particular, it will emphasize the continuing role of the Native American community in Maine.

“The atlas will be a way of defining the culture and history of the region,” says Hatlen. “In school and through the media, we learn to think of Maine as the northeastern-most appendage of the U.S. However, the cultural, ethnographic, economic and religious links to Canada, particularly Quebec and New Brunswick, are strong. Even the landscapes are similar. Maine is not at the end of the road in the U.S. but rather in the middle of a region. The future of Maine depends on such regional thinking.”

*Margaret Nagle*



CAPE SMALL POINT, ME. On the Salt Marsh

A 185

1908 postcard courtesy of Kimberly Sebold

## Salt of the Earth

**THROUGHOUT HISTORY, most salt marshes along the Eastern Seaboard have been transformed by human activity, according to historian Kimberly Sebold, whose research has focused on the coastal wetlands.**

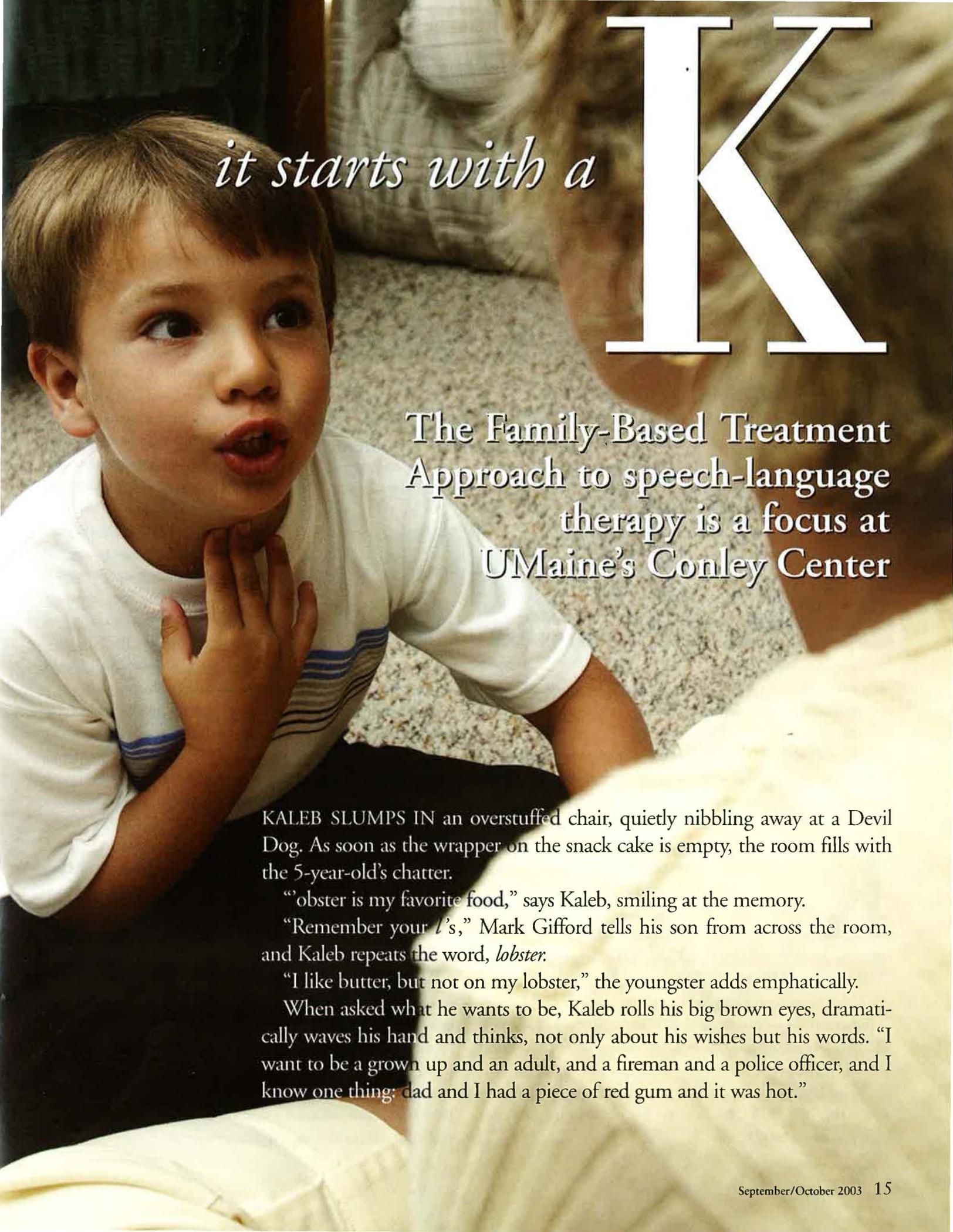
**“Humans have created a distinct and active history of this landscape,” says Sebold, an assistant professor of history at the University of Maine at Presque Isle. “This history focuses on the many agricultural, aesthetic and environmental benefits that this landscape has bestowed upon different groups, including colonial settlers, salt hay farmers, reclamation advocates, artists, writers, naturalists, conservationists or environmentalists.**

**“More importantly, for the present-day residents of coastal towns along the Gulf of Maine, this history has helped to shape their identity,” says Sebold in her 1998 UMaine dissertation, “The Low Green Prairies of the Sea: Economic Usage and Cultural Construction of the Gulf of Maine Salt Marshes.”**

**More than a decade ago, Sebold conducted research for the New Jersey Coastal Heritage Trail on the uses of that state’s salt marshes. When she came to Maine, Sebold studied salt marshes from Cape Ann, Mass., to Machias, Maine.**

**Her research is the basis for three plates chronicling the history of salt marshes in the upcoming *Historical Atlas of Maine*. Like the history of logging and some other chapters of the state’s past, the legacy of salt marshes stretches from colonial times to present day.**

**Today, along Maine’s 3,700 miles of shoreline there are more than 19,500 acres of salt marsh — more than in any other state or province on the Gulf of Maine, according to researchers at UMaine and the Maine Geological Survey cited in *Maine Citizens Guide to Evaluating, Restoring, and Managing Tidal Marshes*, published by Maine Audubon Society in 1997.**



*it starts with a*

# K

## The Family-Based Treatment Approach to speech-language therapy is a focus at UMaine's Conley Center

KALEB SLUMPS IN an overstuffed chair, quietly nibbling away at a Devil Dog. As soon as the wrapper on the snack cake is empty, the room fills with the 5-year-old's chatter.

"obster is my favorite food," says Kaleb, smiling at the memory.

"Remember your *l*'s," Mark Gifford tells his son from across the room, and Kaleb repeats the word, *lobster*.

"I like butter, but not on my lobster," the youngster adds emphatically.

When asked what he wants to be, Kaleb rolls his big brown eyes, dramatically waves his hand and thinks, not only about his wishes but his words. "I want to be a grown up and an adult, and a fireman and a police officer, and I know one thing: dad and I had a piece of red gum and it was hot."

The pronouncement is met with a split second of stunned silence.

“He’s never said a sentence that long before,” exclaims Kaleb’s 7-year-old sister Kelsey, as parents Mark and Heidi Gifford exchange knowing smiles.

These days, Kaleb is full of just such surprises.

It’s hard to imagine that this active, bright youngster starting school this fall was ever shy or, for that matter, ever at a loss for words. But as a toddler, Kaleb had chronic earaches — middle ear inflammation known as otitis media, one of the most common childhood illnesses. By age 1, most children have at least one ear infection; up to 20 percent of preschoolers get otitis media three or more times, according to *Ear Infections and Language Development*, published by the American Speech-Hearing-Language Association and the National Center for Early Development and Education, U.S. Department of Education.

The result is that youngsters like Kaleb can experience temporary hearing loss just at the age when they’re learning to speak. When the inflammation is accompanied by fluid buildup in the middle ear, sounds are muffled or inaudible.

**K**ALEB STARTED TALKING later than most of his peers. When he did speak, he was hard to understand, yet his hearing tested normal at age 2. That’s when the Giffords, who live in Bradley, Maine, were referred to speech therapy at the Family-Based Treatment Clinic at the University of Maine’s Conley Speech and Hearing Center.

“At first it was frustrating because you always want your children to be perfect and you never want to admit something’s wrong,” Heidi says. “We were hesitant to bring him to speech therapy because we thought he would get better.

“Being his parents, we understood what he said a lot more than anyone else,” says Heidi. “But from the first evaluation (at Conley), I knew that we needed to be there.”



**Kelsey helped Kaleb learn to say her name by prompting him to watch how her mouth moved, or how the letter g “sounded” by putting her fingers to her throat. As the older sibling, she also learned to reduce her natural tendency to complete his sentences or speak for him when his words didn’t come easily.**



The Family-Based Treatment Approach to speech-language therapy can be used with people of any age. Currently at Conley, children 18 months to school-age with their parents, siblings, and sometimes even grandparents, are the primary focus of this approach.

UMaine students in the Department of Communication Sciences and Disorders are exposed to the practice through their clinical work directed by speech-language pathologist Susan Riley at the Conley Speech and Hearing Center.

“We’re teaching students to use a systemic approach, based on the theory that you can’t work on parts in isolation from the whole. Something that is occurring with one member of the family — such as a communication disorder

— is going to have an impact on the rest of the family.

Each family member may have a different reaction and make different efforts to help. The key to this approach is to establish a partnership with the family. It’s an approach that’s existed in the field of social work and family therapy for a long time, but “was adapted for speech-language pathology by Mary and James Andrews,” says Riley, who studied under the developers of the Family-Based Treatment model for addressing communication disorders.

For the speech-language pathologist, the 60-minute weekly therapy sessions offer a glimpse into the context in which the client’s communication disorders occur and the ways in which family members may be trying to help. For family members and caregivers, such sessions are opportunities for input and involvement that are valued and respected. As part of the intervention, those who interact regularly with the child or adult with a communication disorder come away with more confidence, insight into techniques that will be beneficial and a better understanding of how speech-language change can occur.

It’s important to find the intervention techniques that work best for youngsters and their families. Relationships and roles in families vary. Issues beyond those related to a child’s communication delay or disorder may mean some parents are not ready to be involved in the therapy. But

for others, the Family-Based Treatment Approach is empowering and effective. Therapists identify the skills of the family members to be involved, establish goals with the family and help parents learn to recognize changes in a child's speech and language between visits.

**F**OR THE GIFFORDS, the Family-Based Approach was a natural choice. It was an opportunity to be fully involved in helping Kaleb, and it was a chance once a week to come together as a family for quality time.

In the opening sessions, Riley and her team review with parents the status of the child's communication skills and the long-term goal — successful communication. They also talk about the short-term, age-appropriate goals of speech-language development that may be realized in incremental steps.

For Heidi and Mark, it was the first time they recognized the difference between what they heard and what then 2 1/2-year-old Kaleb was saying.

"It was an eye-opener when they pointed out numerous letters Kaleb wasn't pronouncing correctly at the beginning of words," says Heidi. "The most obvious one was the letter *k*, so he'd pronounce his sister's name, *tesley*. The same with the *g*'s and *s*'s; he was skipping over or replacing them with other letters."

Helping parents learn to observe how, what and when their child communicates is an important first step. In speech-language therapy for Kaleb, the Giffords learned to listen for the sounds he struggled to say, then used techniques to help him. They repeated mispronounced words, offered examples of other words that sound the same, or slowed down their speech when his words tumbled out too fast and made him stutter. It wasn't long before the family was coming to therapy with methods of their own that worked best for them.

Part of the approach is being solution- rather than problem-focused, says Riley.

"When are the times the youngster isn't stuttering? When is the child making himself clear? We build on success by recreating the situations when the desired communication did occur," she notes. "Parents need to be able to focus on what's changing in the child's speech and language, not what isn't changing."

At home, the Giffords worked on one problem sound after another with Kaleb through their everyday conversation. It wasn't long before their ability to "tune in" to the nuances of speech and language went beyond their household.

"When you go through the therapy, you learn a lot," says Mark. "I found myself starting to listen to other kids and realizing how they were saying some things wrong.

"Going through this has taught all of us how to better help one



Photos by Toby Hollis

person in the family by doing it together," he says.

Six months ago, after two years of speech-language therapy, the weekly sessions at the Conley Center ended for Kaleb. He had made remarkable progress and his family had the skills to continue to help him maintain the momentum.

"He still has a hard time with *l*'s," says Heidi, "but he continues to try and doesn't get frustrated with it anymore. The more times we work with him on certain letters, the more it will sink in and eventually will click, as it has with the other letters."

"He's more confident in what he's saying," says Mark.

"He tells more stories now," Heidi adds.

"Some of his words and the way he phrases things are more grown up. It surprises you," Mark says.

Just ask Kaleb how to spell his name and he's got an instant reply: "It starts with a *k*."

**"We wanted to learn the tools to help him. We're with him all the time and the therapists are only with him once a week."**

Heidi and Mark Gifford

Margaret Nagle

# A *Community* approach to law enforcement

**UMaine's Noel March shares his expertise on strategies that work locally and globally**

A YEAR AGO, Noel March handed 15 police officers each a “deed” to one or more of the student residence halls on the University of Maine campus, formally assigning responsibilities that hearken back to walking a neighborhood beat, but with a proactive twist.

Among their duties: the officers are required to introduce themselves to each incoming first-year student in the buildings for which they are



Photo illustration by Valerie Williams

responsible. Opening the lines of communication early, March says, is a key to developing the type of relationships on which community policing is based.

“Community policing is a philosophy, an attitude and a strategy,” says March, director of UMaine’s Department of Public Safety and its year-old Community Policing Division. “Under the community policing model, police are not the faucet that controls the flow of crime, but officers serve as resources and specialists in the prevention of crime, the reduction of the fear of crime and in addressing the social disorder that causes crime.”

The community policing model of law enforcement represents an organizational change that has been “the biggest challenge in American law enforcement in the past 10 years,” says March, a nationally recognized authority on the practice. During that time, the percentage of U.S. police agencies adopting community-policing strategies has risen from 37 to 77. It is now, he says, the dominant law enforcement strategy in the country.

THE PHILOSOPHY behind community policing is rooted in the work of Sir Robert Peel, the founder of modern policing. While serving as a member of England’s parliament in 1829, Peel wrote nine principles of policing. His guiding principles, March says, create the foundation for developing the appropriate role of police.

“Under some historical models, police were thought of more like soldiers. Well, soldiers who are fighting a war are looking for the enemy. Peel would say that our true purpose is as peacekeepers who look for allies. That’s where we see our strength,” he says.

The community policing model has three interconnected components: the development of partnerships, an emphasis on problem-solving, and organizational change. Proponents believe that combining these elements increases the efficiency and the effectiveness of a police operation. Officers are in the role of collaborator rather than the tactical, reactionary street cop.

“Today there’s an expectation of a greater degree of service and involvement,” says March, “and a higher expectation of credibility than ever before from the public.”

The most vivid example of this success, March says, is New York City and its 45,000-member police force. Using what it calls a “neighborhood-oriented” policing model, New York City has dramatically decreased crime and is now, he says, “safer than Boise, Idaho.”

Similarly, colleges and universities around the U.S. are recognizing the particular applicability of community policing in the campus environment.

“Community policing is community building,” says Richard Chapman, UMaine’s vice president for student affairs. “In their service to a community like ours, police must set the appropriate tone and take the proper approach to interaction with students and



**A bike patrol, when weather permits, is an additional way for members of the campus community to connect with UMaine public safety officers.**

Photo by Toby Hollis

others. The community policing model helps to create the framework for a productive relationship between the officers and those whom they serve.”

MARCH’S POLICE CAREER started in 1980 as a patrol officer in Meriden, Conn. For the next 13 years, he worked in a variety of law enforcement roles, including chief deputy sheriff in Cumberland County and two years with the Maine Drug Enforcement Agency. Most of the work, he says, was in the “traditional, reactive mode.”

In 1993, March left police work for a “unique opportunity” in the business development department of MBNA New England, where he eventually became an assistant vice president. During this time, he gained a new perspective on law enforcement.

“When my business colleagues learned that I had been a police officer, there were numerous questions and observations that came to me, things that I never had the opportunity to hear before when I was immersed in the police culture and surrounded by bureaucrats and cops,” March says. “It gave me a new appreciation of why police exist and for whom police work.

“The minute you recognize that police are not an island among themselves but are a part of the community, that’s when you can realize a greater degree of professional satisfaction and effectiveness.”

The perspective gained from private-sector experiences led March back into police work, although in an area far different from the first part of his career. Intrigued by the growing interest in community policing and convinced that it represents a better approach to law enforcement, he took on the challenge of developing and managing the new Maine Community Policing Institute. Funded by a grant from the U.S. Department of Justice, the institute exists to train the state's law enforcement officers and members of the public in community policing.

Then in January 2002, March succeeded Alan Reynolds, who had served as UMaine's police chief for 26 years.

"One of the primary reasons we selected Noel was his professional expertise in community policing," says Chapman. "Working in concert with the other units in our Student Affairs Division since Noel arrived, UMaine's police department has actively engaged others on campus. As a result of this collaborative approach, the officers are more effective and our common goals of safety and productivity are more easily realized."

AT UMAINE, March oversees a department of 31 people — 20 sworn, state-certified officers, four security guards, five dispatchers and two members of the office staff. It's a small but dedicated group, responsible for a 660-acre campus that is home to nearly 4,000 residents from September–May. As many as 20,000 students, employees and visitors can be on campus at any given time.

"UMaine is not unlike any other community of this size, in terms of the social issues that arise from day to day," March says. "That is why we work to develop partnerships with students and other members of our community. Partnerships are force multipliers. The more people we have looking out for one another, the more effective we expect we are going to be."

Officers in a community policing agency are committed to resolving problems by eliminating the cause. Examples include adding lights in a parking lot or more speed limit signs in an area where traffic moves too fast. It also works with more serious issues.

"This approach helps us to prevent crimes before they happen and to deal with issues better," says Officer Deborah Mitchell, a 19-year veteran of the UMaine force. "Our power does not come from being intimidating, it comes from being approachable."

There is evidence that the wholesale adoption of the community policing philosophy at UMaine is working. During the 2001 fall

semester, residence hall damage at UMaine cost students approximately \$23,000. During the same time frame the next year, with significantly more students living on campus, that cost was \$13,000. UMaine police charged 264 people with crimes in the 2001 fall semester, 175 in the fall semester of 2002.

"The absence of arrests should be viewed as an indicator of success," March says. "If we're doing our jobs, that means a reduction in violations and an increase in voluntary compliance. That's the goal. That's the overall community objective everyone can buy into."



Noel March

Photo by Kathy Rice

OTHER MANIFESTATIONS of the community policing philosophy on campus include increased bicycle patrols in good weather. A community-policing desk in the Memorial Union is staffed during the mid-day throughout the academic year, with an officer available to answer questions or to discuss issues with commuter students and others. The department also has worked to make its Web site "more than just an online brochure." It now includes a section called "Campus Eyes," which allows people to

anonymously report suspicious activity.

"When communication begins to flow, and the trust begins to build and the relationships begin to strengthen, then the fabric of protection grows stronger across our community," March says.

Despite the focus on collaboration and crime prevention, March is quick to point out that the Department of Public Safety deals effectively and severely with serious issues. Community policing is not soft on crime.

"It is more effective on crime than anything we have tried in the past. We have more people willing to do more in their neighborhoods and in all parts of campus. That's what makes the difference. You can have the most effective and dynamic police force in the world, but without the willing cooperation and support of the public, you will be only a fraction as effective as you would be with that cooperation and support."

Ultimately, March says, exposure to community policing can be an important part of a UMaine student's education.

"If they learn skills about their role as a community member — someone who owns responsibility, in part, for peaceful coexistence, who has respect for others' rights and who knows how to be an active member of a community — they will be able to reduce crime, the fear of crime and social disorder. They will know their role in the community part of community policing."

Joe Carr

## Budgeting for beaches

FOR HIS THESIS in resource economics, Ed Cervone is researching the role of economics in harbor and beach management in Camp Ellis and Wells, Maine. Cervone, who has a bachelor's degree in geology from Princeton, sifted through years of cost/benefit studies, beach erosion data and records of institutional relationships. In his research, he also interviewed landowners fighting for their homes.

Miscommunication and lack of resources — human and financial — have contributed to ill will and distrust of state and federal agencies among many citizens and municipal officials. Their ire is rooted in decisions made more than a century ago, when the U.S. Army Corps of Engineers dredged boat channels and

built jetties at the request of both communities. The construction projects partly achieved their immediate goals but had negative long-term consequences. They reoriented the movement of sand, changing the shape of nearby beaches. Homes and beaches in Camp Ellis have been lost. Wells Beach has shrunk drastically in some places.

Today, Maine law limits renovation of damaged buildings and bans seawalls on sand beaches.

Cervone calls Maine's coastal policies



Photo by Nick Houtman

To better understand the role of economics in harbor and beach management, Ed Cervone also has studied coastal policies in New Jersey, where the state annually allocates \$20 million to a program that adds sand to beaches.

progressive, but adds that, unlike its richer neighbors to the south, the state lacks the money to put as much emphasis on beach management. His study is a useful starting point for improving related public policies.

## Two heads are better than one

**A**FTER THREE YEARS of undergraduate work in marine sciences at the University of Maine, Jennifer Jackson is at Georgia Institute of Technology this fall beginning doctoral research in aquatic chemical signaling.

She is 21.

Jackson spent the summer wrapping up her experiments that spanned five years in the laboratory of marine sciences researcher Sara Lindsay. Jackson first came to UMaine as a high school senior in the MERITS (Maine Research Internships for Teachers and Students) program.

As a MERITS intern and licensed scuba diver, Jackson had a choice of studying fish at the Atlantic Salmon Commission or mudworms in Lindsay's UMaine lab. Jackson chose mudworms because she knew little about them.

That first summer she collected mudworms — inch-long, centipede-like invertebrates living on mudflats — in order to study their feeding behavior. Mudworms can be biological indicators; learning how and what they ingest can help marine biologists understand where toxins and other pollutants accumulate in their body tissue.



Photo by Toby Hollis

As a member of Georgia Tech's Aquatic Chemical Ecology Group, which is funded by a National Science Foundation IGERT grant, Jennifer Jackson now is studying the chemistry, biology and engineering behind marine organism behavior.

Jackson also began studying regeneration — the ability of these mudworms to regrow body parts. For more than two years, she conducted experiments to see if two species regrew body parts — in this case, their heads — at the same rate.

Jackson found that both species have the ability to regenerate their heads in two to three weeks. From there, she studied the biology behind regeneration in the mudworms, including the molecular hunt for the gene that makes it possible. Ultimately, unlocking the mysteries of such nervous system regeneration could have human health implications.

At UMaine, Jackson majored in marine sciences with a concentration in marine biology, and was enrolled in Honors College. Now as a member of Georgia Tech's Aquatic Chemical Ecology Group, Jackson is exploring the significance of chemical signaling in aquatic environments, like the scent clams give off while eating deep in the mud.

## Sensing Shelf Life

**C**ARBON-CARBON COMPOSITE MATERIALS, like those at the center of the Columbia space shuttle accident investigation, are the focus of nationally funded research at the University of Maine.

Researchers in a UMaine mechanical engineering laboratory have successfully characterized the high-temperature degradation of the composites — one of the first steps in developing a sensor that can monitor the integrity of these materials in structures such as a missile or an aircraft wing. The work is funded by grants of more than \$700,000 from the Missile Defense Agency of the Office of Naval Research.

“NASA took some criticism for not monitoring the integrity of the shuttle wing structures, but it’s not fair. Non-destructive testing techniques that can be applied to these types of materials are just being developed,” says Mick Peterson, associate professor of mechanical engineering who leads the UMaine research effort. “We are now beginning to develop methods that can help us understand the degradation mechanisms by using in situ sensors.”

In laboratory tests, Peterson’s team used ultrasound to monitor the degradation of carbon-carbon composite material at temperatures of more than 1,000 degrees Celsius. The goal is to develop a high-temperature sensor with the ability to indicate the integrity of a carbon-carbon material already in use in a structure.

Carbon-carbon composites are constructed of carbon fibers embedded in a carbon matrix. They were developed in the 1960s for the space program because they retain their strength under high temperatures.

The theoretical shelf life of carbon-carbon material can be calculated by knowing how quickly it oxidizes. However, says Peterson, “useful life can change if something comes in and gets hotter than it’s supposed to or if there’s some contamination. We could have accelerated these oxidation processes in the carbon, and those accelerated oxidation processes can lead to premature failure.”

Peterson and his research team expect to have a prototype sensor system completed this year. Most recently, their preliminary research findings were presented to the International Conference on Composite Materials in July.



## Surveying the future

**IN RECOGNITION OF THE HIGH DEMAND** for surveyors by private firms and government, the University of Maine has established a Surveying Engineering Technology (SVT) Program.

The Bureau of Land Management has pledged \$250,000 to support the academic offering. Additional financial support is coming from the New England state surveying societies and the American Congress on Surveying and Mapping through the Surveying Education Foundation of New England Inc.

Faculty in the UMaine program include Ray Hintz, Knud Hermansen, Louis Morin and Steve Adam. Hintz, the SVT coordina-

### The University of Maine offers the only four-year surveying program in New England.

tor, has written software programs that are used by more than 25 state departments of transportation and consulting firms in the country. Hermansen also is a registered professional engineer and attorney.

SVT students learn the fundamental surveying skills — determining property boundaries, locating them on the ground and creating maps — combined with engineering, business and communications. To graduate, students must have supervised work experience and take the Maine state surveyor fundamentals exam.

The new program is part of the School of Engineering Technology, which offers construction management, and electrical and mechanical engineering technology degrees.

UMaine offers the only four-year surveying program in New England. An agreement with Central Maine Community College in Auburn enables graduates of that school’s two-year surveying program to transfer course credits directly to UMaine. Efforts are under way to develop similar agreements with two-year programs in other New England states.



## Looking for a crustacean connoisseur near you?

THE LOBSTER INSTITUTE AT THE UNIVERSITY OF MAINE now offers on its Web site ([www.lobsterinstitute.org](http://www.lobsterinstitute.org)) an international direc-

tory of researchers with expertise in a variety of crustacean-related areas. The directory includes scientists from Maine, New England and countries such as Canada, Australia and Japan. According to Lobster Institute Director Bob Bayer, the experts list can be a valuable tool for those in the industry, as well as for scientists, students and the public.

# Abrupt Atmosphere



**I**N THE LAST DECADE, ongoing research has overturned some long-held beliefs about the Earth's climate. Until 1992, prevailing scientific opinion considered climate to be a lethargic beast. Change came slowly, it was thought, over eons. Moreover, oceans and atmosphere — two of the most important parts of the climate system — were considered to be largely independent of each other.

Not any more.

Eleven years ago, the results of ice core analysis from the Greenland Ice Sheet Project 2 (GISP2) surprised scientists with a glimpse of a more temperamental climate system. Since then, evidence in ocean sediments and ice cores from Antarctica and high mountain glaciers have told similar stories. We now know that average temperatures, storm frequency, precipitation patterns and even ocean currents have changed substantially in less than a decade.

"There's no longer any doubt that the climate system in the past has changed relatively quickly," says Paul Mayewski, director of UMaine's Climate Change Institute and the leader of GISP2. "It's unlikely that there's a single cause, although in

my opinion, changes in the amount of energy output from the sun could play an important role."

Climate can change the course of human history. The fate of ancient civilizations was influenced by changes in the frequency and severity of flood and drought. About 600 years ago in a climate shift called the Little Ice Age, sea ice expanded at the poles and average temperatures dropped, causing Norwegian colonies to be abandoned in Greenland.

If scientists could get to the bottom of climate shifts, they might be able to predict future climate with more reliability. Such knowledge could have implications for energy, agriculture and even political stability.

Mayewski and his colleague George Denton, UMaine Libra Professor of Geological Sciences, are working with U.S. Sen. Susan Collins to develop a federal \$60 million research program on abrupt climate change. As currently envisioned, UMaine would lead a consortium that would include the University of New Hampshire, the University of Washington, Penn State and Columbia University's Lamont-Doherty Earth Observatory.



## Music for Multigenerations

**LIVE MUSIC** performed by some of Maine's leading artists is being heard in living facilities for the elderly as the result of a unique cooperative program between the University of Maine Center on Aging and the Bangor Symphony Orchestra.

The performances at senior housing facilities feature music by ensembles and commentary by music educator David Klocko. Joining the elders in the audience are area schoolchildren.

The initiative was made possible by a grant from the Maine-based Davis Family Foundation.

"It is always important to work to develop multigenerational connections between members of the community and elders who are at risk of becoming disconnected," says Lenard Kaye, a UMaine professor and director of the Center on Aging. "The idea here is to link those in nursing homes and other similar facilities to the lifeblood of the community, represented in this case by younger people and outstanding music. Music is one of those common threads that brings together people from different generations."

Bangor Symphony Orchestra Executive Director Susan Jonason says the musicians are enthusiastic about this project.

"One of the great things about a community-based orchestra like ours is that our performers literally know their audience and have a real connection with the community they serve," she says.

## Cultivating Connections

**R**ECOGNIZING the acute need for trained seasonal farm workers in the state, University of Maine Cooperative Extension has started the Maine Farm



Jobs Project, an innovative program to match workers with opportunities.

Maine farmers and growers, as well as operators of greenhouses and nurseries, fill out a short online form, providing information about jobs available and the types of skills new employees need.

A second short survey on the Web, designed for people looking for work in these areas, provides pertinent information about the availability of workers.

Once opportunities are identified, Cooperative Extension staff will design and present training programs. The goal is to equip prospective employees, including those who live in the state, with the practical skills and knowledge needed for work on farms or in greenhouses and nurseries in Maine.



Photo by Jim Dean

## Hearing a Need

FOR THE 35TH Annual Summer Games of Special Olympics Maine that were held on campus in June, volunteers from the University of Maine commu-

nity and from throughout the state were there to lend a hand. This year, those volunteers included six faculty members, and graduate and undergraduate students from the UMaine Department of Communication Sciences and Disorders, who conducted a hearing clinic for Special Olympics participants.

The clinic was one of three health screenings offered during the competition as part of the international Special Olympics Healthy Athletes initiative. The vision, dental and hearing screenings promote health and improve access to healthcare for Special Olympics participants.

At UMaine, the hearing

clinic was coordinated by audiologist Jim Dean of Mid-Coast Speech and Hearing Center in Camden, Maine, and audiologist and university faculty member

Amy Booth. Dean has participated in and organized hearing screenings for Special Olympics worldwide.

During the summer games on campus, 150 athletes and their coaches had their hearing assessed; 33 percent of them were recommended for further evaluation. Data from this and other Special Olympics hearing clinics are being compiled for further research on hearing loss in this population.

More than 1,000 athletes ages 8–94 competed in one or more of the 11 athletic events on campus. The summer games have been held at UMaine for more than 15 years.



## Watch for signs of Black Bears on the highways this fall

THIS FALL, Maine residents will have a new way to show their Black Bear pride while supporting scholarships for University of Maine students with the purchase of a UMaine specialty license plate for passenger vehicles.

The Black Bear license plates are available beginning Nov. 1 for \$20 for the first year, \$15 for renewals. Ten dollars from every purchase or renewal of a UMaine plate is tax deductible and benefits the university's Maine Black Bear Scholarship Fund.

The Black Bear Scholarship Fund supports need-based scholarships for UMaine students.



## Newly Named

THE LARGEST COLLEGE at the University of Maine has a new dean.

Ann Leffler, a former associate dean at Utah State University, has been named dean of UMaine's College of Liberal Arts and Sciences.

Leffler is a sociologist who has been on the Utah State faculty since 1980. She has served several terms as associate dean of Utah State's College of Humanities, Arts, and Social Sciences. She also has twice been interim dean, served as interim vice provost, was director of the Liberal Arts and Sciences Program, and was chair of the Regents' Task Force on General Education. Her research focuses on leisure as a passionate avocation.

Leffler earned a Ph.D. in sociology from the University of California at Berkeley in 1979.

Liberal Arts and Sciences is one of UMaine's five academic colleges.

## Waste Not, Want Not

MEMBERS OF Alpha Phi Omega fraternity and their friends love leftovers. Every Friday night during the academic year, you'll find them going from one University of Maine dining commons to another, seeking out the remains of the day — the extra bowls of salad, the side dishes and hot entrees that went unserved.

The students forage for food so that those in need can partake.

UMaine's Food Run Project has been a community effort of Alpha Phi Omega service fraternity since the 1980s. In recent years, members of Gamma Sigma Sigma service sorority have joined the effort.

In cooperation with Dining Services staff, the students wrap, bag and package up a week's worth of leftovers after the evening meals on Friday nights, then deliver them in a van donated by Cyr Bus Line to a soup kitchen and a homeless shelter in Bangor, Maine.

The leftovers most often include breads, pasta dishes, salad fixings and desserts. No milk-based products or foods that could spoil in transport are collected.



"Every week, four of us go to Manna Ministries to serve a meal and interact with people who eat the food we took there from the dining commons," says Will Borst, chair of the Food Run Project for Alpha Phi Omega. "Both Manna and the shelter are always grateful to have the food that would otherwise be wasted."

Dining Services Director Edward Nase estimates that 240 pounds of leftovers each week for 36 weeks are distributed to the needy through the volunteer efforts of the students.

## LASTING IMPRESSION



Photo by Toby Hollis



SEVEN DECADES AGO, University of Maine Professor of English Stanley Ashby started an Honors Program modeled after the tutorials, extensive outside reading and small group discussions he had in 1904 as one of the first Rhodes Scholars. When Ashby established UMaine's Honors Program for undergraduates in the 1930s, it was one of only a handful in the United States.

Today, that program is now a college. In UMaine's Honors College, 500 of the university's most academically talented undergraduates are engaged in interdisciplinary coursework and research with mentoring faculty. The rigorous curriculum culminates with an in-depth thesis project in the student's academic field.

Honors students explore areas of thought not closely related to their disciplines, all the while working in their majors with greater

intensity than is often possible in a conventional course pattern. Across the university, Honors College students and faculty members form a community of scholars.

Professor of Political Science Robert Thomson, who served as director of the Honors Program for more than 20 years, firmly believed that honors students need a solid grasp of "the basic approaches of science, social studies and humanities, and some consideration of the kinds of problems with which these areas of thought are concerned."

Last year, when the Honors Program became a college, UMaine President Peter Hoff called the transformation "a cornerstone of our focus on quality."

Today, more than ever, Honors is fulfilling its motto and "igniting a passion for learning."

*"Lasting Impression" features a memorable person or event in UMaine history.*

# Beauty IN THE Bog



Photo by Toby Hollis

**I**T IS A PRISTINE, REMOTE WILDERNESS few people have ever seen or experienced. Here, 100-year-old dwarfed spruce trees on the shrub-covered heath grow no taller than a person. Bog rosemary, insect-eating pitcher plants and 20 species of orchids are among the diverse, acid-tolerant plants able to eke out an existence in the infertile peatland, situated, in part, on university-owned land. The 616-acre Orono Bog is a bird-watcher's paradise.

This summer, the mile-long, wheelchair-accessible Orono Bog Boardwalk opened to the public. It culminated seven months of work by teams of volunteers, the Maine Conservation Corps and a host of contributors interested in providing access to an area formerly reached only by the hardest hikers.

Most recently, the Orono Bog Endowment Fund was established with the University of Maine Foundation to ensure the future of the boardwalk in the nature reserve.

The effort to build the boardwalk winding from the Bangor City

Forest into the bog was led by University of Maine biologist Ronald Davis, who has spent the last 15 years doing research to unlock the secrets of such wetlands around the world.

In 1974, the National Park Service designated the Orono Bog as a National Natural Landmark, confirming what Davis already knew: bogs have regional significance and have much to teach. The first lesson, says Davis, is simply one of beauty. Seeing a bog up close can be a thrilling journey into another world.

Just as important is the quiet unfolding of nature — the interplay of light, water and land that gives rise to specialized life-forms growing on top of peat that is 25 feet deep in some places. Interpretive stations along the boardwalk and guided tours help visitors learn about and appreciate the different peatland environments and types of vegetation that the trail traverses.

More information about the Orono Bog Boardwalk can be found on the Web ([www.oronobogwalk.org](http://www.oronobogwalk.org)).

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