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Ryan Browne (left), a Rutland fourth-grader, took the Feb. 13 Engineers Week edible car competition very seriously. (Photo: Andy Duback)

Rutland fourth-grader Troy Davine unwraps a piece of Bazooka Joe, pops the chunk of pink goodness into his mouth, chews, and asks his buddy Ryan Browne, "Hey, do you want this gum?"

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Family Effort For 25 years the Larocques, a close-knit clan in Vermont's Northeast Kingdom, have been the focus of a group of researchers from the UVM College of Medicine trying to unravel the mysteries of a rare genetic disorder that affects people worldwide.

Weather Reporter

After stumbling through a pewter scrim of frozen rain, half-blind and shivering despite a multi-layer swaddle in Leon Leonwood Bean's finest fabrics, I arrive at the Vermont State Climatologist's office in Old Mill with a mission.

THE WEEK IN VIEW

Feb. 20 12:30 p.m.
Sushi demonstration,
Reiko Kida.
Living/Learning B-
180.
656-1117,
registration required:
[Mutsumi.Coson](#)
[@uvm.edu](#)

Feb. 20 12:30 p.m.
Seminar: "The Role of
Local Participation
and Residents' Needs
in Sustainable
Development,"
Sabine O'Hara,
Concordia College.
Carpenter
Auditorium, Given.
656-3269 or [SNR](#)
[Seminar](#)

Feb. 20 12:30 p.m.
Seminar: "Nature
Writing and
Conservation
International
Biological
Conservation," David
Carroll. Room 105
Aiken Center.

Feb. 21 9-11 a.m.
Skiing: EISA
Championships at
Middlebury. Also
Saturday. Information:
[Athletics](#)

Feb. 21 3:30 p.m.
Colloquium:
"Mapping Gender,
Mapping Imperialism:
The Politics of Place
Names in Canadian
Travel Narratives,"
Wendy Roy,
University of British
Columbia. John
Dewey Lounge, Old
Mill. 656-3056

Feb. 26 12:15 p.m.
Lunchtime Talks:
"Fifteen Minutes of
Fame: Lasting
Legacies of the
Cultural History of
the 1960s," Melanie
Gustafson, history.

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Welcome to college, kid: Boston middle-schoolers arrived on campus Feb. 18 to learn about the good, bad and furry of undergraduate life. (Photo: Sally McCay)

Visit by Boston Kids Nurtures Dreams of Academe

The biggest storm in seven years didn't stop nearly 100 Boston area eighth graders from traveling to campus Feb. 18 for a three-day taste of academia and college life. They returned knowing much more about how higher education fits into their futures, as well as how to choose, apply and be accepted to college.

In the second year of this annual visit, which was sponsored by the College of Education and Social Services, the number of students from the Citizen Schools Eighth Grade Academy doubled. They were hosted by more than 100 UVM students, faculty and staff.

Citizen School Eighth Grade Academy is a non-profit after-school program serving students from 26 middle schools. Participating youth learn academic and leadership skills and make connections that will help them succeed in high school and college and become leaders in their communities. The group was founded by UVM alumni Eric Schwarz and Ned Rimer. (See [this story](#) for some background on the group and coverage of last year's visit.)

The visit to UVM is part of the academy's college sampler, which includes Harvard and MIT. Organizers expect that the trip will have a lasting effect on their impressionable charges.

"I see a number of these students some day graduating from UVM," academy director John Werner says.

Seager Maps the World Through Women's Lives

To Joni Seager, the globe is more a *tabula rasa* than a sphere of information. Its meaning is found, she believes, in the lives of the women who populate it, and her research has become an ongoing revelation of that meaning. Seager, a University Scholar for 2002-2003, will deliver a lecture on her recent work on Feb. 26 at 3:45 p.m. in Memorial Lounge, Waterman.

Seager, professor of geography, is one of the world's foremost scholars of feminist geography, a rapidly expanding field of research that explores the shape and shift of women's lives across continents and cultures. In 1997, she and colleague Ann Olson published a groundbreaking book, *The State of Women in the World Atlas*; the third edition, published by Penguin, is due out in April. In that revision, Seager draws on a vast amount of new global data to explore the key issues facing women today. They include equality, motherhood, feminism, beauty, culture, work, the global economy, changing households, domestic violence, time budgets, children, lesbian rights, women in government and more.

Seager focuses on women, but not to the exclusion of men and children. She believes that as women's lives go, so goes their society. "Wherever you find women who are deprived of basic human rights, you are not going to have great social structures," she says. She also investigates issues related to environment, human rights, population and the global political economy. "These topics are intertwined," she says. "I find that it is the synergy among these separate interests that drives most of my research and teaching..."

Seager also is a member of the Committee on Women, Population and Environment, a coalition of scholars and activists who developed policy platforms for the Cairo conference on population and the Beijing conference on women.

Seager's newest book is *Putting Women in Place: Feminist Geographers Make Sense of the World*, with Mona Domosh. The *Atlas*, which also was published in Germany, Norway, Italy, Sweden and France, received the American Library Association's Outstanding Reference Book of the Year award.

Three Strikes and Engineers Are In

After winning a regional event last spring, engineering students took their baseball-hurling robotic construction to the big leagues of a national design competition held in New Orleans.

Campus organizers were equally positive about the potential of the growing partnership. "What do we want from this partnership? In a few years we want to seem them back on campus as students," Jill Tarule, dean of the college, says.

The other hope for the partnership is that UVM students preparing to become middle-school teachers will intern in Boston in exchange. "We work hard to make sure our interns get experience in diverse settings so they can teach anywhere in the United States," Tarule says.

Taking the Plunge

Michael Brownbridge is tall enough, strong enough, nice enough, and gosh-darn it – people like him. He's also an entomologist and, despite his rugby-team and weight-room honed fitness, some of his colleagues wondered this week if the gregarious Brit hadn't stepped over the edge of bugdom.

Actually, Brownbridge's suspect affiliation was with "penguin pods," and he wasn't alone. The research associate professor took the "Penguin Plunge," an annual, brief dive into Lake Champlain's frigid waters, on Feb. 15. It was his sixth plunge, all made in fundraising service to Vermont Special Olympics. More than 600 people shivered their way into and out of the lake on Saturday to raise \$150,000 for the sports organization.

"The worst part," Brownbridge says, "was walking down the hill to the lake. ... because of the wind. The water actually didn't feel that bad" (at 33 degrees, it was balmy compared to air temperatures hovering around zero).

The veteran plunger was joined by four colleagues, three of whom have participated for several years and who also play for the Burlington Rugby Club: Declan Connolly, an exercise physiologist in education; Josh Henkin, an undergraduate alumnus and a doctoral student in cellular and molecular biology; Chris Davis, adjunct professor in business law; and Neil Kad, post-doc associate in molecular physiology and biophysics. Kad is the newcomer and non-rugby-team member. Brownbridge says, "We're working on Neil... he is a Brit, after all."

Although this winter's stacking up against record holders for extreme weather, Brownbridge recalls that the plunge three years ago "was the worst." Then, as with all plunges, he says, "it doesn't feel too bad going in, until you surface." Complete submersion stamps the effort as official.

The "penguin pods," groups of cohorts who enter the lake together, function like a rugby huddle in kicking up the bravado to forge on. Coming out's a different matter. "The wind and cold just extract heat from your body like a syringe," Brownbridge says. The rugby shorts, tee-shirts and bathing caps worn by the UVM group were more sartorial statement than protective wear. "The deeper you go, the harder it is to get out. Every muscle is contracting and resisting" efforts to make them move, he says.

The result was Nolan Ryan-esque: A third place finish in the American Society of Mechanical Engineering's event.

Students Travis Johnson, Rachael Van Wagner and John Partlow built the machine, dubbed "Baseball Frenzy," to hurl 30 baseballs in quick succession at three small fixed targets.

The device is on display on Feb. 21 at 2:30 p.m. in 209 Votey. At 3:00 p.m., ASME officials will present the successful UVM students with their trophy. To see the machine in action from the comfort of your computer, use this [Streaming Video Link](#) (You'll need a free download of Quicktime to watch the video. See the [EMBA News Page](#) for more details.)

Lifeguards in neoprene suits are in the water, and a rescue squad is nearby, but, in Brownbridge's time, everyone who went in has come out unscathed.

For information on the Penguin Plunge, or to sign up for next year, visit [Penguin Plunge](#)

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Gillian McFetridge, women's alpine captain, hopes her ski teammates can continue their winning ways at the EISA championships in Middlebury on Feb. 21-22. (Photo courtesy of UVM Athletic Communications.)

Ski Catamounts Notch Another Carnival Win

The ski team won its third carnival of the year in impressive fashion and established some momentum heading into the Feb. 21-22 EISA Championships with a dominating win at the Williams Winter Carnival.

Vermont won with 770 points, 119 points better than runner-up New Hampshire, which finished with 651 points. Dartmouth was third with 648.

In Friday's giant slalom events, women took five of the top six places; first-year student Jamie Kingsbury, of Waitsfield, Vt., won.

UVM took the top three places in the men's GS. Jimmy Cochran, of Keene, N.H., won his sixth race of the year.

Lowell Bailey, of Lake Placid, N.Y., won the 10-K freestyle in Nordic skiing, and Anja Jokela, of Shelburne, Vt., skied a terrific third leg to propel the women's 3-by-5-K relay team to victory.

The Catamounts are now seeking an unprecedented 28th straight Eastern title at the EISA Championships.

See the complete results of the Williams Carnival at [Athletics](#).

Writer to Share "Notes from an Evolving Project"

Saving the Landscape

National and state parks are wonderful, but much of the energy in modern conservation work is directed at larger targets: landscapes. In the latest of a series of lectures on this topic, Adrian Phillips, an influential Welsh conservationist, will discuss the complexities of large-scale conservation on Feb. 25 at 7:00 p.m. in Memorial Lounge.

Phillips is an honorary professor at Cardiff University in Wales. He also serves as the senior adviser to IUCN's World Heritage Program and was former chair of the World Commission on Protected Areas from 1994 to 2000. In addition, Phillips held the position of director general for the UK's Countryside Commission for 11 years.

His talk will be broadcast through a distance learning network. See this site for [background material](#). Streaming video of his talk, as well as an earlier lecture in the series, also will be available at the [Conservation Lectures](#) site.

The final talk in the series is scheduled for April 1. It features Nancy Bell, the Vermont director for the Conservation Fund. Bell is an advocate for the conservation of wildlife habitat, particularly for black bears. She is just completing the Green Mountain Bear Corridor, a 20,000-acre project that links two units of the Green Mountain National Forest. Bell also worked on the 133,000-acre Champion land deal in the Northeast Kingdom.

The lecture series is sponsored by the Conservation Study Institute and the School of Natural Resources.

UVM to Celebrate Hayford Biography

The posthumous publication of Vermont poet James Hayford's autobiography will be marked by a celebration in Special Collections at Bailey/Howe Library Feb. 20. Paul Eschholz, professor of English, says it will be "an informal gathering of family and friends of the poet," including Hayford's wife, Helen, and their son, Jamie, and Vermont authors Howard Frank Mosher and Garret Keizer. Carol Collins, whose father attended Amherst with Hayford, will read some of Hayford's poems, and Helen and Jamie Hayford will speak.

Hayford's autobiography, *Recollecting Who I Was: My Life and Work*, was published in December 2002 by Oriole Books. In it, Hayford writes at some length about his social and literary relationship with Robert Frost, with whom he studied at Amherst. The event, Eschholz says, will be a fitting "memorial for the recipient of an honorary degree from UVM in 1993." Hayford died

Bodies and houses, both containers for human aspirations and memories, are the subject of a colloquium by Lisa Roney on Feb. 24 at 3:30 p.m. in John Dewey Lounge.

Roney, an assistant professor of English at Bucknell University, is author of *Sweet Invisible Body*, a memoir of living with diabetes praised by Kirkus Reviews as "a poignant, painful life story."

Her talk at UVM is titled "Some Old and New Thoughts on Bodies and Houses, Notes from an Evolving Project."

one month after receiving the degree.

The reception will be held in the Special Collections Reading Room, from 3:30 to 5:30 p.m. RSVP required: 656-2138 or uvmsc@zoo.uvm.edu.

theview

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Awards and Honors

George Pinder, professor of civil and environmental engineering, received the 2003 American Society of Civil Engineering Julian Hinds Award for his pioneering, sustained and preeminent contributions to the science and practice of groundwater modeling and numerical solution methods and to the design of groundwater remediation strategies and groundwater quality management. Pinder's other honors include the American Geophysical Union's RCA Professor of Energy Resources Award and Horton Award and the Geological Society of America's O.E. Meinzer Award. In addition, he has been the recipient of the Eminent Scientists Award Medal and was named a University Scholar, in recognition of his contributions to research and scholarship.

David Barlow, 1969 doctoral alumnus, delivered the Lewis Distinguished Lecture at the Psi Chi/American Psychological Association National Convention last August. His lecture was titled "The Nature and Development of Anxiety and its Disorders: Triple Vulnerability Theory." Barlow, former professor of psychiatry at the University of Mississippi Medical Center and professor of psychiatry and psychology at Brown University, has published 20 books and more than 400 articles and chapters in the areas of anxiety disorders, sexual problems and clinical research methods. He received UVM's first Graduate Alumni Scholar Award and the 2000 APA Distinguished Scientific Award for the Applications of Psychology. He is editor of the journal *Clinical Psychology: Science and Practice* and is in private practice.

Publications and Presentations

Chyi-lyi (Kathleen) Liang, associate professor of community development and applied economics, participated in the 2003 United States Association for Small Business and Entrepreneurship annual conference in Hilton Head Island, S.C., in January. Liang presented an article, "The Impact of Starting a New Venture on Entrepreneurs and Their Families: A Comparative Study Between Rural and Urban Enterprises," based on a national study of small retail and service firms. The results did not show significant relationships between circumstantial variables and business location according to entrepreneurs' perception. However, rural entrepreneurs had different assessments of business development and changes in family relationships related to new venture creation, especially related to expectations and reality in family life. Liang also was one of the five finalists at the conference to compete in a Teaching Award for the Best Teaching Practices. She demonstrated four concepts in her teaching pedagogy – leading questions, action learning, simulation, and mentor system. She also incorporated a music presentation to teach Strategic Planning for Agricultural and Resource Entrepreneurship in the Department of Community Development and Applied Economics.

Donna Kuizenga, associate dean of the College of Arts and Sciences and professor of romance languages, recently published an article titled "*La Générativité dans les Mémoires de la vie de Henriette-Sylvie de Molière*" in *Féminités et masculinités dans le texte narratif*, edited by Suzan van Dijk and Madeleine van Strien.

Feb. 12 – Feb. 16, 2003

Awards and Honors

Major Jackson, assistant professor of English, has been awarded the Library of Congress Witter Bynner Fellowship.

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UVM HOMEPAGE

The Fast and the Curious

By Tom Weaver



Ryan Browne (left), a Rutland fourth-grader, took the Feb. 13 Engineers Week edible car competition very seriously. (Photo: Andy Duback)

Rutland fourth-grader Troy Davine unwraps a piece of Bazooka Joe, pops the chunk of pink goodness into his mouth, chews, and asks his buddy Ryan Browne, "Hey, do you want this gum?"

Gross, I know, but stay with me because the moment nicely illustrates something that is important to know about the Edible Car Competition during UVM's Engineers Week – the vehicles may be

constructed of food, but they're built with ingenuity and teamwork.

Ryan, fortunately, doesn't want the gum and Troy is just as happy to chew rather than give it up for adhesive. Together with their teammate Emily Davine (Troy's cousin), the boys are into the thick of building a car that they hope will roll farther, roll faster, or at least appear tastier than the works of 83 other teams clustered around tables that fill the whole first floor of Billings.

The edible car contest leads off a day full of activities that will bring more than 500 Vermont elementary through high school kids to campus. The occasion is the annual Engineers Week with activities sponsored by the College of Engineering and Mathematics that work from a spirit of fun to offer a window on the field.

Fast cars, quick minds

Ryan, clad in a t-shirt celebrating skateboarder Tony Hawk, is clearly a kid who likes things that roll, preferably fast. I ask him why his team has decided to run a pair of marshmallow wheels up front and bagels in back. "Aerodynamics," he says, pointing out how the shape is like a dragster. "Right now we're trying to fix the bottom. It needs support so it will roll better." Troy has gone off in search of another sheet of lasagna noodle.

At the other end of the table, their Rutland classmates – teams #40 Samantha Cohen and Dana Nelson, and #41 Caitlin Bliss and Alexis Taylor – are hard at work on their own vehicles. Samantha takes a break to tell me how they prepared for the competition with prototypes. "Our teachers said they wanted us to make sure we were serious if we were going to miss a day of school to do this," she says. Alexis notes that such preparation gave them a jump-start today. They learned that donut wheels don't work, and this morning they've quickly rejected that option in favor of rice cakes.

Teachers Wendie McLaughlin and Martha Welch stand by but leave the kids to their own devices. They say that the lessons their students take home from this day – teamwork, problem-solving, thinking quickly, shunning used gum – are ones that apply to any career or life endeavor, engineering or otherwise.

Alexis and Caitlin are taking a crash course in the thinking quickly part. The



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Family Effort

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Weather Reporter

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competition fast approaches as their jumbo rice cake wheels collapse on the pretzel axles; their car looks doubtful to even make it out of R & D and up to the North Lounge test track. Donut wheels will have to do. Fire in her eye, Alexis gnaws a red Twizzler down to make a new axle.

Things are a bit calmer at the other end of the table where Ryan, Emily and Troy are adding bits of styling – gumdrop hood ornament, ziti tailpipe. Emily is particularly proud of the sugar-wafer, mini-rice-cake and licorice driver she has made. "We keep trying to make things better," Ryan says, "but the problem is, will it roll?"

Test track

Now, it's time to find out. The Rutland bunch gently pick up their creations and make their way through the crowd to the five-foot particle board test ramp. This is where things get serious. UVM students from the Society of Women Engineers, which sponsors the edible car event, have stopwatches in hand. Voices piercing through the din, they call out numbers of the next competitors.

The kids look confident, but I'm a little nervous for them and I find myself scoffing at the older students' cars with their neat rows of Froot Loop detail, not a smudge of stray marshmallow fluff showing. I'm totally with Troy when he eyes a particularly ornate one and says, "Yeah, but ours is better."

Samantha and Dana step to the ramp with their biscotti compact, paired against Alexis and Caitlin. They're off, but not for long. Both cars come to a halt about two-feet down the ramp. Donut wheels. *Donut wheels*. There is lots of good-natured laughter, and the girls look as amused as anyone. Dana's dad, chaperoning the field trip, jokes that maybe there should be a Most Effective Braking award.

Rutland Intermediate's last hope steps up, paired with a team of middle schoolers from A.D. Lawton in Essex who bring all the wisdom of their advanced age and those IBM engineering genes to the line. Team Ryan-Emily-Troy stands up to the competition. Their car doesn't roll as far as Lawton's. But it rolls, or slides, down the ramp faster. That in itself is a victory, and later their car will earn a trip to the finals for its tasty looks.

Digesting lessons

Looking back, Ryan says he'll put rollability ahead of aerodynamics next year. Bagels front and back. Marshmallows are soft tires. Soft tires are slow tires. Alexis looks a bit disappointed. "It didn't go all the way down the ramp. The wheels are a little floppity, so it kind of lost balance and went to the side."

Ryan seems to be tinkering with designs for next February already as he fits together stray scraps of pasta. "We didn't come here to win," he says. "We still had fun and it's cool we got to the finals for tastiest car." Troy chips in with an "awesome!"

Leaving Billings, I walk past the table where the Rutland kids have worked for the past two hours. The mess looks something like a gingerbread trailer park after a tornado. There's a wax paper Bazooka Joe comic sitting amid the destruction of construction; I pick it up and read the fortune. "Begin yesterday, tomorrow you'll be ready for today." At the moment, there's just too much youth and sugar in the room for me to fully process this bit of bubble-gum zen, but I suspect it suggests that getting a head start on your future is a good thing.

That Joe, he knows.

Not a bubblegum event

Engineers Week is about more than careening bagel-cars. The fest includes a Rube Goldberg competition, bottle rockets, egg drops, pasta bridge-building, even frying pickles with electricity. The purpose, say organizers at the College of Engineering and Mathematics dean's office, is to get kids excited about, and appreciative of, engineering. More details: [Engineer's Week](#) website.

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Family Effort

UVM medical researchers are working with a Northeast Kingdom family to illuminate a shadowy and deadly genetic disorder

By Tim Traver



Biochemistry Professor George Long has done much of the lab work in UVM's long-running protein C deficiency study. (Photo: Adam Reisner/UVM Medical Photography)

For 25 years the Larocques, a close-knit family in Vermont's Northeast Kingdom, have been the focus of a group of UVM medical researchers trying to unravel the mysteries of a rare genetic disorder, protein C deficiency, that affects people worldwide. The condition has an incidence of one in 200 in the general population, but nearly one in four Larocque family members carry it. Among other problems, it can cause thrombosis – clots that form in the

deep veins of the leg – which in turn can lead to deadly pulmonary embolisms.

As the UVM study has evolved, it has extended beyond the characterization of a new-to-science clotting disorder to include biochemical, psychological, clinical and genetic components. UVM researchers typically set up in regional medical facilities or visit family members in their homes. Family members give blood samples, answer health questionnaires, and undergo ultrasound imaging of their leg veins. Back in the lab, the data collected in some of the state's most bucolic settings is studied with the most advanced techniques available. The study is one of the largest and longest running of its kind and has come of age along with the science of molecular biology. Blood samples from family members are analyzed using the latest gene-mapping technologies and statistical approaches, some originally developed for the Human Genome Project.

"There's no doubt this family has helped prevent thrombotic events in others who suffer from the condition," says Dr. Ted Bovill, professor and chair of pathology and the study's principal investigator.

Start of the search

The effort began in 1977 when Dr. Joe Dickerman, professor of pediatrics, examined a boy with swelling in his calves. He suspected thrombosis, and began sketching a preliminary family tree. The boy was clot-free, but Dickerman remained intrigued by the family. In 1977 the only known genetic risk factor for thrombosis was anti-thrombin III condition. Working with a resident, he tested 50 family members and found their anti-thrombin levels were normal. Dickerman realized that he was closing in on a new genetic risk factor for the disease.

The work stalled for a time, but outside researchers began to close in on characterizing protein C deficiency. In 1985, a call from one of them connected the UVM bloodwork on the Larocques with a genetic disorder beginning to draw increasing attention from researchers.

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Engineer's Week

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One of the first jobs of the study was to assemble a highly detailed family tree or pedigree. Peter Callas, assistant professor of pathology, who became and has remained the primary contact with family members, coordinated the work in the United States. This resulted, in 1989, in the first of many publications dealing with the family. Subsequently, an international team developed the family pedigree. Then genotypes for marked regions of the genome around the protein C gene were taken for 117 relatives from France, Quebec and Vermont. Applying statistical probabilities to all potential genetic pathways, three Quebec researchers were able to trace the specific protein C mutation back through 400 years. The trait originated with a distant uncle who emigrated from France to Quebec with his wife in 1669.

"We now know that the husband or the wife in this immigrant couple was most likely the originator of what has become a classic study of a genetic founder-effect in disease," Callas says.

A crucial protein

Thanks to the thrombosis study, more is now known about protein C and its role in clotting. Protein C was first cloned in 1982 by George Long, now a professor of biochemistry, when he was working for Eli Lilly & Company. Long was interested in the fundamental causes of thrombosis and sought to unravel the structure of the protein. "We needed to characterize the gene to understand the protein," he says. Using the early tools of recombinant DNA technology, Long sequenced the gene and characterized the mutation itself. He won the "Inventor of the Year" award from the Intellectual Property Owners Association in 2002 for his work, which contributed to Xigris, a medication used to treat a serious blood infection called sepsis. Protein C may eventually become a basis for treatment of other circulatory diseases.

"What makes protein C deficiency especially interesting to geneticists," says Bovill, "is that the clinical expression of protein C deficiency is so variable. Many protein C deficient family members, in fact a majority of them, all of whom are carrying the same mutant allele, never show any symptoms of thrombosis."

This anomaly sent researchers on a search deep into highly sophisticated molecular genetics studies, looking for multigenic interactions with protein C deficiency. Having ruled out many interactions, the UVM team, in collaboration with researchers at the University of Utah, is now looking for one or two unknown mutant genes that, together with protein C deficiency, results in thrombotic occurrences.

"One of the benefits of the thrombosis study and this wonderful family," Long says, "is that it will help medical science improve its understanding of far more common multigenic diseases like diabetes, arteriosclerosis and hypertension – extremely complex tasks because of the multiple genetic and environmental interactions that come into play to bring about the expression of these conditions."

Genetic hunt

The genetic research aspects of the thrombosis study, funded in part by a five-year, \$1.35 million National Institutes of Health grant, are at the leading edge of human genetic research. Using gene markers, researchers can look for relationships within the DNA of family members who have both protein C deficiency and thrombotic symptoms. The work calls for accurate clinical descriptions in the field, sophisticated molecular genetics analysis and intricate statistical analysis in the lab.

So far the search has been narrowed from the 30,000 to 60,000 genes in the human genome to 50 to 100 genes, many of whose function is still unknown. Bovill uses the analogy of searching through the San Francisco phone book to describe this aspect of the study. "We're going from the whole book to the C's and eventually down to a single, or several, street addresses."

Bovill says getting to that point, which will lead to better understanding of how to treat a condition as common as stroke, will depend on clinical data collected in field trips to examine family members in the Northeast Kingdom and Quebec. In the end, a quarter century of important scientific inquiry becomes a common effort, a family affair.

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Weather Reporter

UVM climatologist is as comfortable analyzing drought patterns with remote sensing software as she is talking about Addison County storms with farmers

By Kevin Foley



Ice, droughts, floods: Geographer Lesley-Ann Dupigny-Giroux is interested in climatic extremes. She finds no shortage of them in Vermont. (1998 ice storm photo: Sharon Fosbrook)

After stumbling through a pewter scrim of frozen rain, half-blind and shivering despite a multi-layer swaddle in Leonwood Bean's finest fabrics, I arrive at the Vermont State Climatologist's office in Old Mill with a mission.

"I have a bone to pick with you," I say, accusingly raising a wind-burned finger. "The weather stinks. Totally unacceptable."

Lesley-Ann Dupigny-Giroux, Vermont State

Climatologist, assistant professor of geography, expert in climate hazards and a key node in the surprisingly large Vermont network of weather people, laughs.

"We've just been spoiled lately," she says. "This is what winter is like."

Cold comfort

The first thing to know about Dupigny-Giroux is that she studies climate, not weather. Climate is weather made profound, the daily dips and dives of the thermometer understood in the context of decades, even centuries. Teasing out the patterns from daily ephemera requires her to keep her eyes on the screen, running number-crunching modeling programs, rather than the sky. The second thing to know is that Dupigny-Giroux nonetheless loves to talk about the weather, even draw it. She left my notebook festooned with a diagram of a distorting stone of Canadian high pressure, which is forcing arctic winds to flow down and chill Vermont.

"An 800 number, that's my dream," she says. "There's incredible knowledge out in this state that I'd like to tap. Take a farmer who has been on his tractor in a corner of Addison County for 35 years. He has incredible knowledge of that area's weather. It's wonderful to speak with someone like that."

Dupigny-Giroux spends most of her time on research and teaching – the state climatologist's job is more of a sideline and a fun title – but she enjoys talking weather around the state whenever she can. She's particularly fond of collecting weather proverbs and lore, which one day she hopes to publish with folklorist Wolfgang Meider, chair of German and Russian.

"Vermontisms are wonderful. Things like, 'As the days begin to lengthen, the cold begins to strengthen,' " she says. "You think about it, and it makes perfect sense. When we're past the solstice in January and February, we're furthest from the sun."

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Engineer's Week

Rutland fourth-grader Troy Davine unwraps a piece of Bazooka Joe, pops the chunk of pink goodness into his mouth, chews, and asks his buddy Ryan Browne, "Hey, do you want this gum?"

Family Effort

For 25 years the Larocques, a close-knit clan in Vermont's Northeast Kingdom, have been the focus of a group of researchers from the UVM College of Medicine trying to unravel the mysteries of a rare genetic disorder that affects people worldwide.

Born geographer

Dupigny-Giroux's interest in climate evolved out of her interest in geography. As an undergraduate in Canada, she was fascinated by the influence of soil erosion on the economies of developing countries. In graduate school, as she narrowed her focus, her interest in what water does on the ground evolved into research on droughts. This may seem unlikely for a climatologist in lush, green Vermont, but she's found plenty to study close to home.

"We think of drought in arid areas, but what does one look like here? What do we do about it?" she says. "This region is prone to droughts, in fact we've been in one very recently, but we didn't even have a plan."

Vermont was unquestionably in a drought in 1998, and again last year, when the situation got so bad by mid-winter that some legislators were thinking about asking for federal disaster funds. The spring and summer rains arrived on schedule, making the situation less dire, but the state still has questionable levels of ground and surface water. A single dry year could throw the state right back into drought. This time, at least, there will be measurable definitions of degrees of drought, and a plan for action. Dupigny-Giroux's research and advocacy played a part in the comprehensive plan created by state emergency officials.

The geographer is also interested in a climatic hazard that's the flip side of droughts: floods. Vermont, she says, is also prone to gluts of water, thanks in part to increased population and construction.

This was not the climatic reassurance I had sought during a frigid, sub-zero February. Could the professor, in her official role as Vermont State Climatologist, offer some reassurance, perhaps a reminder that it is a statistical certainty that the bitterest month will end and spring will eventually come?

Dupigny-Giroux thinks for a second.

"We are all closet meteorologists," she says. "The weather always gives us something to talk about."

theview

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