

# CALS

## NEWS

THE MAGAZINE OF CORNELL UNIVERSITY'S COLLEGE OF AGRICULTURE & LIFE SCIENCES

SPRING 2011

# THE HERO'S JOURNEY

**Grad students brave the rigors of international fieldwork to bring research to communities in need.**



Cornell University



A student rides by Minns Garden.  
**ON THE COVER:** Graduate student Bob Beazley (left)  
climbs with a friend in Kang La Pass in Annapurna, Nepal.

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Grad students brave the rigors of international fieldwork to bring research to communities in need.

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# DEAN'S MESSAGE

## Students' International Research Changes Lives—and Careers



With this issue, we are introducing some changes in *CALS News* to allow us to showcase an even broader array of great reports from around the college. I am excited to share these stories and recognize the accomplishments of our students, faculty, staff, and alumni.

Of note, we are increasing our reporting of student activities. This issue features a story that presents some of the important and exciting research our dedicated graduate students are conducting in remote locations around the globe.

This story is close to my heart. My own experiences as a grad student in Africa differed from those of Lydiah Gatere, MPS '05, one of our featured students, but, likewise, they played an important role in my life.

While a food science graduate student at the University of Wisconsin–Madison, in 1981, I joined a research team in Maseno, Kenya, near Lake Victoria. I was supported by Winrock International, a nonprofit organization to promote animal health and well-being for the benefit of humankind. I was the team's food scientist, working with animal scientists, veterinarians, nutritionists, agronomists, breeders, economists, and sociologists to develop and implement a multi-purpose goat system for small-scale farmers in western Kenya.

At that time, western Kenya and the surrounding area was experiencing the most rapid population growth rate of any place in the world. Family farms were divided among the sons with each successive generation. With increasingly small family farms, and many mouths to feed, crop space had become limited and many families could no longer support animal agriculture. I could see the consequences of nutrient deficiencies and imbalances among the children.

Successful adoption of milk-producing goat systems into these communities allowed families to provide themselves with milk and meat for their own consumption, and manure to fertilize their fields. Some families even generated important revenue by selling excess supplies. While I have not returned to Maseno since 1983, I understand that milk-producing goat systems now can be found throughout the region.

To be a community member in western Kenya for nearly two years, and to witness firsthand the dramatic resource limitations among my neighbors, was life-changing for me.

It was also career-changing. Before going to Kenya, my food science career path was still undefined. But what I saw in that beautiful country was how true suffering arises due to growth of unwanted microbes in the food supply. So much food is lost because of spoilage. A lack of infrastructure to support good personal hygiene also causes many to fall ill needlessly, and these problems are compounded by marginal nutrition.

My experience in Africa led me to examine my own life and interests, and how I could apply those interests to help people. Food microbiology became my passion.

I would encourage all students to expand their horizons by embracing opportunities to study abroad. Many of these opportunities are highlighted on page 10.

One hallmark of a CALS education is that it is not limited to the classroom. Experiential learning is an integral part of the Cornell experience and can take the form of an internship in the field or research in a lab. Some of the work being done by students has contributed to significant developments in cancer research, as highlighted in the feature on page 23.

As the "Hort Is Hot" feature on page 16 and the "Farmer and the Dell" story on page 20 show, while our courses and technologies have evolved over the years, our mission remains true: to develop leaders and deliver knowledge with a public purpose through exceptional educational, research, and extension programs.

I hope you enjoy this thought-provoking glimpse into our college and the people who make it great.

Kathryn J. Boor, Ph.D.

The Ronald P. Lynch Dean of the College of Agriculture and Life Sciences

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## Facebook Makes You 'Like' Yourself Better . . . But Also Lie



Provided

Unlike Snow White's queen, most of us do not enjoy gazing at the mirror on our wall. But we don't mind reflecting on our images as portrayed on our Facebook walls, according to Department of Communication associate professor Jeff Hancock. In a study conducted with Amy Gonzales, PhD '10, he found that use of the popular social networking site improved the self-esteem of Cornell student participants. This is probably because Facebook profiles allow users to put their best face forward by selecting what they want

to reveal about themselves, and serve as repositories of overwhelmingly positive feedback from friends and family, Hancock says.

In another study, conducted with colleague Jeremy Birnholtz, he found that Facebook may cause other complications in the way we interact with people. New modes of communication through technology are forcing us to rely on lies as a means to manage our availability, they have found. Most of these are little white lies, such as "I'm on my way" text messages or "Got to go, phone's ringing" excuses during online chat sessions, which Hancock has dubbed "butler lies" in honor of the personal assistants of yore who would provide a buffer when unwelcome guests turned up at the door. He estimates that up to 10 percent of text messages contain lies, and one-fifth of those are butler lies.

Birnholtz believes such widespread use of lies suggests that people are resorting to social solutions because there are insufficient technical solutions. That, in turn, indicates a need for more controls or features to help people manage their personal relationships online. By doing a linguistic analysis of the deceptive messages, Birnholtz says he might be able to design a program that could predict when someone wants information to be shared or protected.

"Our social conventions have evolved over 60,000 years. Facebook has been around for six. I think this is where a lot of the confusion comes from," Hancock says.

## Healthier Urban Gardens

Urban gardens give resource-poor families greater access to fresh and affordable produce and an opportunity to connect with their community.

But what if they are contaminated with lead, arsenic, or other dangerous metals? With the help of a \$1.25 million grant, a team of CALS scientists and Cornell Cooperative Extension specialists, led by Crop and Soil Sciences Professor Murray McBride, is assessing soil and vegetable contaminant levels in gardens in New York City, Ithaca, and other New York cities to understand the health risks and find ways to mitigate those risks.

Luckily, an initial study of 44 gardens in NYC found that less than 10 percent had high levels of lead, and gardens with raised beds were less likely to be contaminated.



Provided

### Current Books by CALS Faculty

*Honeybee Democracy*—Thomas Seeley, professor of neurobiology and behavior, Princeton University Press, 2010.

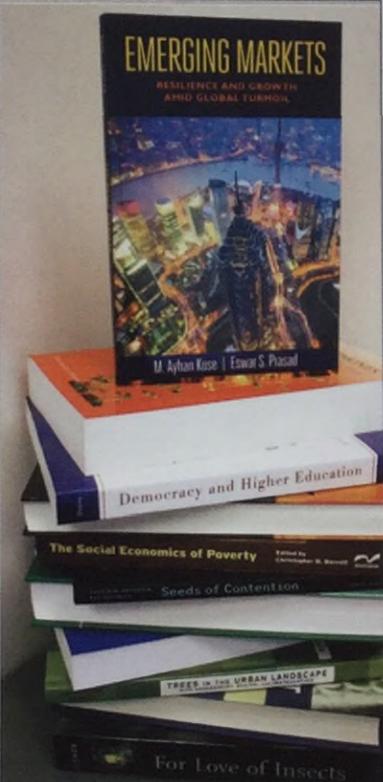
*Emerging Markets, Global Financial Crisis, Global Economics*—Eswar Prasad, the Tolani Senior Professor of Trade Policy, Brookings Press, 2010.

*Democracy and Higher Education: Traditions of Civic Engagement*—Scott Peters, associate professor of education, Michigan State University Press, 2010.

*Mathematical Programming for Agricultural, Environmental and Resource Economics*—Harry M. Kaiser, the Gellert Family Professor of Applied Economics and Management, John Wiley & Sons Publishers, 2011.

*Public Garden Management*—Donald Rakow, professor of horticulture and Elizabeth Newman Wilds director of Cornell Plantations, John Wiley & Sons Publishers, 2011.

*Bird Songs Bible*—edited by Les Beletsky and featuring sound recordings from the Cornell Lab of Ornithology, Chronicle Books, 2010.



Stacey Shackford

## Worms to the Rescue



It's a battle of the bugs, and in this case, farmers are being encouraged to raise roundworms to combat the invasive alfalfa snout beetle (ASB), which has already destroyed more than 500,000 acres of New York's agricultural land. Working with CALS research support specialist Antonio Testa and Cornell Cooperative Extension interns

Joshua Knecht '10 and Allyson Jones-Brimmer '11, a dozen North Country farmers mass-produced insect-attacking native nematodes using small fish-bait cups. Each cup inoculated with some 15,000 nematodes produced about 25 million infective juvenile nematodes, which were added to water and sprayed onto fields. For about \$75, a farmer could protect up to 25 acres of field, a bargain compared to the devastating costs associated with losing an entire crop to the pest.

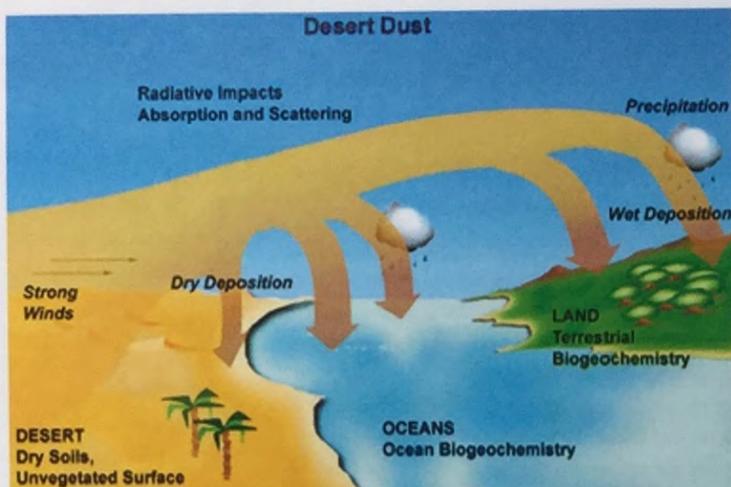
Meanwhile, plant breeder Don Viands has developed ASB-resistant alfalfa varieties, which are currently being prepared for commercial production. "We have seen root damage scores consistently drop and believe we can achieve even better results with subsequent selections," Viands says.

## Dust's Dirty Little Secrets

If the house seems dustier than it used to be, it may not be a reflection on your housekeeping skills. The amount of dust in the Earth's atmosphere has doubled over the last century, according to a new study by Natalie Mahowald, associate professor of earth and

atmospheric sciences, and the dramatic increase is influencing climate and ecology around the world. Soil particles in the atmosphere limit the amount of solar radiation that reaches the Earth, a factor that could mask the warming effects of increasing atmospheric carbon dioxide and influence clouds and precipitation. Dust can also affect the oceans, as it is a major source of iron, which is vital for plankton and other organisms that draw carbon out of the atmosphere.

Mahowald found that regional changes in temperature and precipitation caused a global reduction in terrestrial carbon uptake of 6 parts per million (ppm) over the 20th century, and that dust deposited in oceans increased carbon uptake from the atmosphere by 6 percent, or 4 ppm, over the same period. The study highlights the important role of natural aerosols' impacts on climate change, Mahowald says.



### New Grants to CALS

- \$40 million to the Durable Rust Resistance in Wheat project, from the Bill & Melinda Gates Foundation and the United Kingdom's Department for International Development;
- \$9.6 million to Ronnie Coffman, PhD '71, director of international programs at CALS, and K.V. Raman, professor of plant breeding, from USAID to launch a new Agricultural Innovation Partnership with Banaras Hindu University in India;
- \$6.9 million to Susan McCouch, PhD '90, professor of plant breeding and genetics, and others, to explore natural variation in wild and cultivated rice;
- \$5 million to Corinne Rutzke, MS '98, PhD '00, a senior research associate in biological and environmental engineering, and others, to train teachers to integrate hands-on learning about biofuels and bioproducts into their middle school, high school, and college classrooms;
- \$4.7 million to David Wolfe, professor in horticulture, and others, to investigate new tools and incentives for carbon, nitrogen, and greenhouse gas accounting and management in corn;
- \$4 million to Alan Collmer, PhD '81, the Andrew J. and Grace B. Nichols Professor of Plant Pathology and Plant-Microbe Biology, and others, to explore plant-pathogen interactions;
- \$3.6 million to Thomas Björkman, PhD '87, associate professor in horticulture, and others, to develop a \$100 million East Coast broccoli industry;
- \$2.5 million to Thomas Brutnell, associate professor in plant breeding, and others, to develop a tool to knock out genes in maize, to better understand how drought or salt tolerance works;
- \$2 million to Cornell Lab of Ornithology's Bioacoustics Research Program to develop new underwater recorders that distinguish marine mammal sounds from background noise;
- \$1.5 million to William Fry, PhD '70, and Christine Smart, professors of plant pathology and plant-microbe biology, and others, to combat late blight in tomatoes and potatoes;
- \$1.3 million to Anna Katharine Mansfield, assistant professor of enology, and others, to boost the eastern wine industry;
- \$875,000 to Ruth Ley, assistant professor of microbiology, to study the genes of twins to lead to a better understanding of how gut microbes co-evolved with humans and their diets;
- \$318,000 to Rowena Lohman, assistant professor of earth and atmospheric sciences, to study subsiding deltas and sea level rise worldwide with space-based geodetic observations.

## DID YOU KNOW?

Green tea and red wine drinkers take note: regular consumption of polyphenol-rich drinks can boost taste sensation, CALS food scientist Karl Siebert has found.



Provided

Bees, butterflies, and hummingbirds play a key role in deciding which flowers make it into our gardens.



Dennis F. Kullis

And according to these pollinators, the larger the better. But plants with more flowers may be at a disadvantage, says Andre Kessler, assistant professor of ecology and evolutionary biology.

Warm weather may cause maple syrup sap to flow a month earlier in 100 years. Trees are already being tapped a week earlier than they were in 1970, says Brian Chabot, professor of ecology and evolutionary biology, and Arthur DeGaetano, professor of earth and atmospheric sciences.



Provided

Most birds don't succumb to frostbite because there is so little fluid in the cells of their feet, and because their circulation is so fast that blood doesn't remain in the feet long enough to freeze, according to the Cornell Lab of Ornithology.



Provided

## Linda Rayor Brings Monster Bugs to TV

For those who enjoy nature shows as well as *Godzilla* movies, a new TV series starring Cornell entomologist Linda Rayor is right up their alley. *Monster Bug Wars*, hosted by Rayor, started its six-week run on the Science Channel on March 29. Combining the fun of a classic 1950s monster movie with real science, it provided a ringside seat to some of nature's deadliest encounters, from creepy crawlers devouring other creatures alive to the struggle of a bull ant using its lethal stinger to survive the suffocating silk of the redback spider—all in high-definition, super-magnified videography. Rayor has transformed hundreds of Cornell students from arachnophobics into arachnophiles over the past 17 years through her Spider Biology course in the Department of Entomology.



University Photography

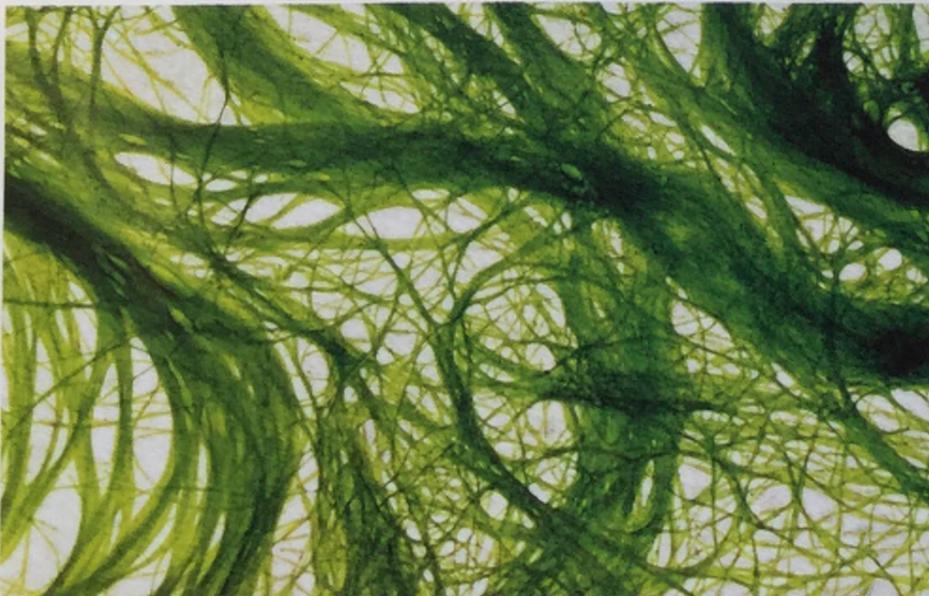
## 'It's raining . . . birds'

When thousands of birds began to fall out of the skies in Arkansas, Louisiana, and other places worldwide in January, the phones started ringing off the hook at Cornell's Laboratory of Ornithology. Expert Kevin McGowan soon became a regular guest on national radio and TV broadcasts as he urged people not to panic. He also tried to put things in perspective, reminding people that "birds hit things all the time, but usually it's only one or two, and so we don't really notice it." In fact, hundreds of millions of birds die every year from flying into windows, buildings, power lines, radio antennas, cell towers, and wind turbines. McGowan hopes the January incidents have inspired people to pay attention to the things we can all do to make the more dispersed tragedies less commonplace, such as marking windows and keeping cats indoors.

## Algae for Energy

CALS scientists are plunging into the seas in their continuing quest to harness alternative sources of energy. A \$9 million grant from the U.S. Department of Energy will allow Cornell—along with a consortium of schools and a Hawaiian research company, Cellana—to develop biofuels from algae. Relative to other fuels, algae produce at least 10 times more biomass per hectare than terrestrial land plants, according to Charles Greene, professor of earth and atmospheric sciences, who is a principal investigator on the project. Furthermore, algae use nutrients more efficiently than land plants, so there is no runoff of nutrients in the water; they are grown in seawater, so there is no demand for freshwater; and they don't require soil, so do not compete with food plants for good agricultural land. It may also be possible to extract proteins from the byproducts of algal biofuel production for use as nutritional supplements for animal feeds, the sales of which could help subsidize some of the biofuel production costs.

Xingen Lei, professor of molecular nutrition in the Department of Animal Science, is conducting feeding trials of such algal-based nutritional supplements in chickens and pigs. Beth Ahner, professor of biological and environmental engineering, and Ruth Richardson, associate professor of civil and environmental engineering, are also researching lipid biosynthesis and algal physiology to improve the algal biofuel process.



## This Microbe's for You, and Your Car



Stacey Shackford

Brewery byproducts could become the next biofuel, thanks to research by Largus T. Angenent, associate professor of biological and environmental engineering, and his research associate Jeffrey J. Werner. Employing powerful genome sequencing tools and brawny million-gallon bioreactor tanks at Anheuser-Busch, the scientists studied how efficiently microbes can produce methane from brewery waste. Typically the microbial populations in the sludge tanks interact and one of them produces methane gas. Anheuser-Busch recoups 20 percent of its heat energy use through the methane produced, saving them millions of dollars every year. Angenent's group analyzed more than 400,000 gene sequences of the microbes in the sludge, identified unique microbial communities, and monitored their characteristics. They hope to use their new knowledge to make the microbial communities produce carboxylates, which are a precursor to the alkanes found in fuel.

## Atkinson Gift Advances Sustainability

An \$80 million gift from David R. Atkinson '60 and his wife, Patricia Atkinson, establishes a



permanent center on campus to advance sustainability research and cultivate innovative collaborations, and positions the university to be a global leader in the effort to create a sustainable future.

The gift—the single largest to Cornell from an individual—builds on the success of the Cornell Center for a Sustainable Future (CCSF), which was created in 2007 with initial support from the Atkinsons and has been renamed the David R. Atkinson Center for a Sustainable Future.

The family's support for CCSF has funded more than 40 teams of researchers from across campus since its inception. It currently engages 220 faculty members from 10 colleges and involves 55 departments in interdisciplinary research related to the environment, energy, and economic development.

David Atkinson, a member of the CALS Advisory Council from 2003 to 2009 and co-chair of the Environmental Sustainability and Development Task Force, says that new ideas and collaborations are vital in a time of exploding global population and dramatic economic growth. Cornell is the best-positioned university in America, and arguably the world, to develop solutions, in part due to its place as the most highly ranked American university with a college of agriculture, he adds.

"Agriculture has an enormous impact on the environment. In addition, a productive, efficient agricultural sector is a key ingredient for economic development," David Atkinson says. "Any university addressing sustainability without a college of agriculture is operating at an enormous competitive disadvantage."



University Photography

## Plantations Opens New Welcome Center



University Photography

With its light-filled atrium and lobby surrounded by walls of windows and skylights, the new Brian C. Nevin Welcome Center is a beautiful beacon for visitors to Cornell Plantations. It's also a shining example of sustainability and a prize-winning architectural gem.

The new center, built into Comstock Knoll in the heart of the botanical gardens below Tower Road, is expected to meet the Leadership in Energy and Environmental Design (LEED) gold certification standards, but may even make platinum certification, which would be a first for a Cornell building. Green features include a living roof, solar roof panels that supply 40–60 percent of the building's heating and "free cooling" from vents that draw in cool air from the base of the knoll.

Its designers, Baird Sampson Neuert Architects, have won a 2010 Award of Excellence from *Canadian Architect* magazine and an award from the Ontario Architects' Association for their work on the center.

The building offers interpretive exhibits in the atrium, a reception desk, fully accessible restrooms, a gift shop, and small café. The second floor, accessible by stairs and a low-energy elevator, houses a small conference room, kitchenette, and a 100-seat multipurpose room that can be divided into two rooms.

The center officially opened to the public in February, and a grand opening celebration for the Ithaca community will be held May 22.

"We could not be more thrilled with this building and the many functions it will provide," says Don Rakow, MPS '77, PhD '87, the Elizabeth Newman Wilds Director of Cornell Plantations.

The welcome center is named for Brian Nevin '50, at the request of C. Sherwood Southwick, his business partner and the center's major donor. Nevin and Southwick co-owned Brianwood Antiques on State Street in Ithaca for 32 years.

## Shoals Lab Gets Greener

The Shoals Marine Lab outpost on Appledore Island, off the coast of Maine, is even more sustainable, thanks to a new water conservation building. A grant from the Biological Field Stations and Marine Laboratories Program at the National Science Foundation helped cover the costs of the \$165,000 project, completed in November, which will eliminate the need for 40 percent of the water formerly used for sanitation. A rooftop solar heating system will also provide a steady supply of hot water for kitchen and showers. It's just one more way Assistant Director for Island and Coastal Operations Ross Hansen is advancing his goal to transform the lab's operation from a 10,000-gallon diesel-generator power grid to a green grid, powered by solar panels and an 80-foot wind turbine. Island inhabitants do their part by taking limited showers and composting almost everything.

Sustainability also will be an integral part of a revamped curriculum, with a new offering in sustainable marine fisheries, a beefed-up sustainable engineering internship program, and core courses redesigned to meet changing requirements for life sciences majors. The Shoals Lab has a new base on the Ithaca campus, moving from Stimson Hall to Kennedy Hall, next to the Call Alumni Auditorium.



Provided

## CALS Research Helps Map DNA



University Photography

CALS researchers are part of an international collaboration to build the most detailed map of human genetic variation, which could provide a much more comprehensive understanding of the role of inherited DNA variation in human history, evolution, and disease, and the best methods to sequence DNA. The 1,000 Genomes Project, a public-private consortium, is using next-generation technology to sequence more than 2,500 individual human genomes from 27 populations worldwide by 2012.

Cornell researchers, including Andrew Clark, the Jacob Gould Schurman Professor of Population Genetics, and Alon Keinan, assistant professor of biological statistics and computational biology, were involved in designing the global sampling of human populations and analyzing the vast amount of genetic data to identify errors and perform population genetics analyses.

Meanwhile, Professor Charles Aquadro in the Department of Molecular Biology and Genetics, hopes to use the latest genetic mapping technology to reveal the deep genetic ancestry of 200 randomly chosen Cornell undergraduates, who swabbed their cheeks and submitted DNA samples. Aquadro has partnered with several others across campus and with National Geographic to explore the scientific, social, legal, and ethical implications of genetic testing as part of the new Cornell Genetic Ancestry Program.

—*Krishna Ramanujan*

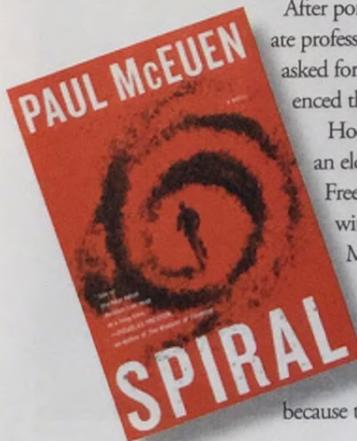
## Novel Spirals around Real Cornell Characters

She may seem an unlikely character for a fictional thriller, but mycologist Kathie Hodge, MS '93, PhD '98, is just that, in a new novel written by physics professor Paul McEuen. *Spiral*, a nearly eight-year endeavor that hit American bookstores on March 22, is a scientific thriller about a fungal organism that's the key to a terrible biological weapon dating back to World War II. McEuen, who is director of the Kavli Institute at Cornell for Nanoscale Science, says he was inspired after reading about ergot poisoning during the Middle Ages and the French Revolution, and its possible role in the Salem Witch Trials.

After poring over undergraduate biology textbooks, McEuen met Hodge, associate professor in the Department of Plant Pathology and Plant-Microbe Biology, and asked for her help with the science. As he continued to write, she greatly influenced the development of a central character, Maggie Connor.

Hodge is not the only Cornell professor featured. Protagonist Liam Connor, an elder statesman in his field, is a fictional mash-up of mathematician Freeman Dyson and recently deceased chemical ecologist Thomas Eisner, with a sprinkling of deceased Nobel laureate physicist Hans Bethe, McEuen says.

The novel is also set at Cornell, and the pages are peppered with other Ithaca references, from the Cayuga Dog Rescue organization to a nature preserve in Ellis Hollow. It has already been sold in 16 countries, and McEuen is working with a screenwriter on a screenplay adaptation, because the book has been optioned for film by Chockstone Pictures.



## Recent Gifts

- A \$5 million gift on behalf of philanthropist Yossie Hollander and his family to the Atkinson Center for a Sustainable Future will help address energy needs and assist farmers in developing countries by supporting research into biomass and biochar. It provides five years of funding for a multidisciplinary team of scientists led by Johannes Lehmann, associate professor of crop and soil sciences, who is working on a village-scale pyrolysis project to produce liquid biofuels.
- The field of dairy science received a big boost when Robert Everett and his wife, Anne, gave \$2 million to endow the new Robert and Anne Everett Professorship in Dairy Cattle Genetics. Everett, an emeritus professor of animal science, spent four decades making advances in the approaches and principles of dairy cattle breeding that improved the efficiency of milk production, ensuring greater profitability for dairy farmers and more affordable dairy products for consumers.
- Cornell's burgeoning interdisciplinary agricultural sciences major will be able to grow even bigger thanks to Richard C. Call '52, and his wife, Marie, who have contributed \$1 million to establish the Richard C. Call Directorship of Agricultural Sciences. The gift will be used for staffing, student internships, curriculum, and programmatic support for the popular program, which has grown from five to 80 students in five years.
- Life sciences majors in CALS and biology majors in the College of Arts and Sciences will be able to supplement their scientific studies with a strong foundation in business and entrepreneurship thanks to a gift from Jonathan '76 and Stacey Levine, and David '88 and Davena '88 Levine. Divided into three segments, the new minor is composed of one introductory microeconomics class, four core business courses, and two life science classes that emphasize business applications.

## Cornell Dairy Is a Sweet Sensation

Whether it be Triple Play Chocolate, Bavarian Raspberry Fudge, or Mint Chocolate Chip, Cornell Dairy ice cream has been melting the hearts of many in the Cornell community for decades.

The latest batch of aspiring undergraduate food scientists got to try their hands at creating new flavors as part of a final project in the popular Science and Technology of Foods course (FDSC 1101). The hazelnut-infused Nuts About Chocolate faced cold competition from Coffee

Toffee Cheesecake, Pumpkin Spice Cream, and the nondairy Tropical Apple Cider Coco(not!) frozen dessert, but came out ahead in a taste test and marketing battle judged by Dean Kathryn Boor '80, Food Science chair Dennis Miller, PhD '78, and Cornell Dining executive chef Steve Miller.

The sweet lessons were extended to high school students in Jacksonville, Florida, as part of an effort spearheaded by Steve Andon, who sits on the Cornell Institute of Food Science Advisory Council, in partnership with the City Kidz business

program. Together, they taught students not only how to churn out and serve ice cream based on their own recipes, but to develop products for potential supermarket sales.

Andon, director of Baltimore-based TIC Gums, also hopes to ensure the continued success of Cornell's world-renowned food science program by contributing to the reconstruction of its home, Stocking Hall. He was among the first to make a large contribution to the capital campaign, and his generosity will be recognized with a classroom naming.

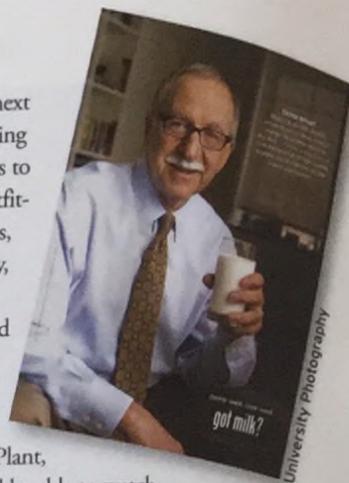
Construction has begun at the site and will continue in several

phases over the next four years. Stocking Hall, which dates to 1923, will be outfitted with new labs, a teaching winery, modern classrooms, networked meeting spaces, and an observational balcony above the Dairy Plant, where visitors will be able to watch Cornell ice cream, milk, pudding, and yogurt move through production, from processing to pasteurization to packaging.

In the meantime, Cornell Dairy has been busy getting the campus excited about milk as part of a novel campaign in conjunction with Cornell Dining.

University President David Skorton was the first Cornell celebrity to appear on promotional posters donning a milk mustache as part of the Got Milk? effort.

A new familiar face from CALS will be featured each month, and people are invited to share their guesses and suggestions for upcoming mystery guests at a special Facebook page.



University Photography



## Spurring Schoolkids to Eat Salad

Even small, inexpensive changes to a school lunchroom layout, such as placing fruit in attractive bowls, can make a huge difference in getting students to make better nutritional choices, according to Brian Wansink, the John S. Dyson Professor of Marketing and director of the Cornell Food and Brand Lab, and David Just, associate professor, both in the Charles H. Dyson School of Applied Economics and Management. Now a \$1 million grant from the U.S.

Department of Agriculture (USDA) will allow them to offer such expertise nationwide.

The new Cornell Center for Behavioral Economics in Child Nutrition Programs (to be known as BEN) will be a hub for psychological and economic research connected to childhood nutrition. Using the principles of behavioral economics, the center will help disseminate information on how schools can creatively "nudge"—not force—students to eat healthier.

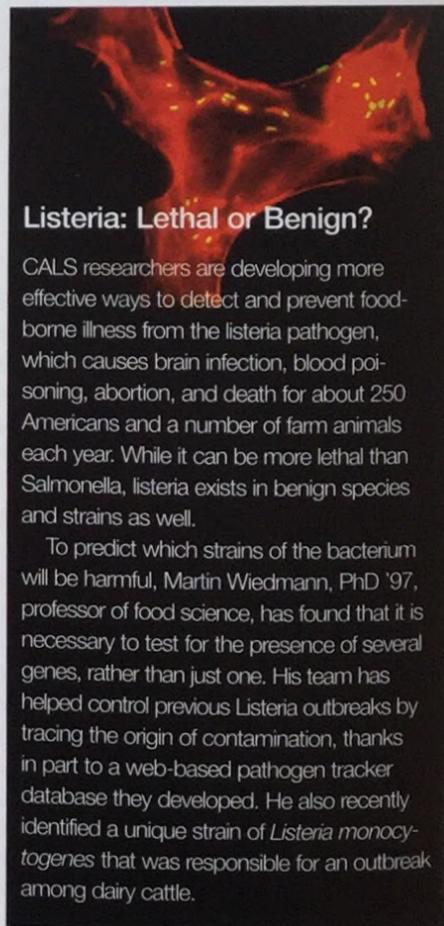
In pilot studies, one school increased consumption of salads by close to 300 percent by simply moving their salad bar near a natural bottleneck in the checkout line.

"We want to stimulate research that schools can actually use," says Wansink, author of *Mindless Eating: Why We Eat More Than We Think*.

## Listeria: Lethal or Benign?

CALS researchers are developing more effective ways to detect and prevent foodborne illness from the listeria pathogen, which causes brain infection, blood poisoning, abortion, and death for about 250 Americans and a number of farm animals each year. While it can be more lethal than Salmonella, listeria exists in benign species and strains as well.

To predict which strains of the bacterium will be harmful, Martin Wiedmann, PhD '97, professor of food science, has found that it is necessary to test for the presence of several genes, rather than just one. His team has helped control previous Listeria outbreaks by tracing the origin of contamination, thanks in part to a web-based pathogen tracker database they developed. He also recently identified a unique strain of *Listeria monocytogenes* that was responsible for an outbreak among dairy cattle.



Provided

## CU Expertise Attracts Colombian Dairy Company to Upstate

Cornell's dairy expertise has helped convince a Colombian dairy company to locate its first North American plant in western New York.

The new Alpina yogurt manufacturing facility at the Genesee Valley Agri-Business Park in Batavia is expected to lead to more than \$15 million in investment and at least 50 jobs. It was hailed by New York's governor as validation of the strength of New York's \$9 billion dairy industry, which is the largest segment of the state's agricultural sector.

Established in 1945, Alpina runs nine industrial facilities across Colombia, Venezuela, and Ecuador, and has a commercial presence in more than 12 countries.

One of the major factors for choosing the Batavia site "was the research and development capabilities and the experience in agriculture production that Cornell University has demonstrated," says Steve Hyde, president and CEO of

Genesee County Economic Development Center.

Alpina will have access to Cornell's pilot plant on the Ithaca campus and the Food Venture Center in Geneva to ensure its products are ready for large-scale production. Cornell dairy experts will provide training to Alpina staff and guidance in interpreting and following U.S. food processing and safety regulations.

"Our faculty, staff, and students have considerable depth in milk production and dairy processing expertise and aim to build lasting partnerships with this innovative company," says Dean Kathryn Boor '80.

Adds Cornell dairy plant manager Jason Huck, "Our dairy extension team is already immersed in the western New York dairy processing community, so this new collaboration will be a natural extension of our current efforts."



Provided

## Mushroom Course Casts a Spell on Students

Photos by University Photography



Left to right: Professor George Hudler teaching; fungus samples; lab coordinator David Kalb explains growth of a tree fungus.

No. 69 on the unofficial list of "161 Things Every Cornellian Should Do" is to take the Magical Mushrooms, Mischievous Molds class, something that more than 5,500 students have

accomplished. Now in its 19th year, the course has itself mushroomed into a university-wide phenomenon.

The first time it was offered, plant pathologist George Hudler expected perhaps two dozen students. "That first day I walked in, there were 225 people in the class-

room. [Since] then, it's just taken off. It's crazy, but it's been a lot of fun," says Hudler, professor and chair of the Department of Plant Pathology and Plant-Microbe Biology.

The course boasts an enrollment of 520 students this spring. One of them is Connie Hsia '11. "Class is almost like storytelling time," she says. "What would seem like a boring, even disgusting, topic is made extremely enthralling."

Natasha Shylo '11 adds, "I'm not even enrolled in this class, but I still attend every lecture because I've always wanted to take a fungi class and find them really amazing."

Hudler spins stories about the edible, the hallucinogenic, and the pathogenic varieties of fungi. He posits the possibility that the "bewitched" in Salem, Mass., may have had fungus-induced hallucinations. He tells of the discovery of penicillin

and how British scientists smeared its spores on their clothes in case Germany invaded.

Other fun facts Hudler likes to share: Aflatoxin could be the perfect murder weapon; fungi can serve as natural pesticides or ingredients in perfume; the oldest and biggest living thing on Earth is believed to be a 1,500-year-old mushroom in Michigan that spans some 37 acres; and the cause of the 1960 mass death of 100,000 turkeys in England was due to a common storage mold.

The class hosts a three-day open lab demonstration, where walk-ins can observe giant puffballs, grow oyster mushrooms, and even take home their own slime mold. Other special class events include a fungus hunt and an annual mushroom feast.

—Joyce Wu '13

Provided

## Lindsay Myron's Lens Gives Wide-Angle View of the World

Photographer Lindsay Myron '11 is developing a good snapshot of the world. The plant science and natural resources major spent winter recess of her sophomore year in Yunnan, China, where she helped Jim Lassoie and Louise Buck, of the Department of Natural Resources, research agroforestry and ecoculture while documenting the experience with photographs.

After studying abroad in Mongolia during the fall of her junior year, Myron returned to Asia last summer to study crop development for her senior thesis. Myron also visited Kenya last May to create a user's guide on photomonitoring for practitioners in Nairobi and the nearby Rift Valley.

A strong proponent of study abroad experiences, Myron says her studies in Mongolia provided a first substantial experience that she now can use as a point of reference to build upon as she continues to study international agriculture.

While in Ithaca, she works as a photographer for the *Cornell Daily Sun*; she also has had photos published in *The New York Times* and Glimpse, an online story-telling forum for travelers interested in film, photography, and journalism.

After graduation, Myron hopes to go abroad again to work in farming before pursuing a graduate degree in international agriculture development.



Provided

—Molly Cronin '11

## Israeli Student Creates Community Garden Back Home

Many green thumbs working together can nurture bountiful flora—and communities, too.

Adam Baratz '11, a double major in natural resources and development sociology, is exploring how environmental and social processes can support one another. He studied community gardening the summer after his sophomore year in New York City through the Cornell Urban Scholars Program.

"It was a really good jumping-off point for me to think about agriculture and environmental issues as a medium for community development," Baratz says.

Interested in bringing his work to his native Israel, Baratz traveled to Beit She'an last summer to lead the planning and construction of a community garden in the city's central park. He received the Freeman Fellowship through the Judith Reppy Institute for Peace and Conflict Studies at Cornell to aid in his efforts to turn around the neglected garden site.

Using knowledge gained from his academic studies and as a student manager at the Dilmun Hill student organic farm, Baratz enlisted the help of more than 200 community volunteers to construct a garden that features a spiral-shaped herb section, fruit and olive trees, and seats made from recycled materials, which the group beautified with mosaics and other artwork. He returned to Beit She'an over winter break to continue the work and create a plan for the garden's further development.

"As an Israeli, it was a fantastic opportunity to use the skills I acquired at Cornell back home," Baratz says.

When he is back in Ithaca taking classes, Baratz serves as president of Art Beyond Cornell, a student organization that provides weekly art lessons to youth in area detention facilities, giving them a chance to express themselves and to beautify their surroundings. As a Telluride Scholar, Baratz lives at the Telluride House on campus, a self-governed residence for undergraduate and graduate students that strives to create an intellectually engaged community. He is also a member of the Cornell Middle Eastern Ensemble, Jazz Voices, and an independent folk band.

—Molly Cronin '11

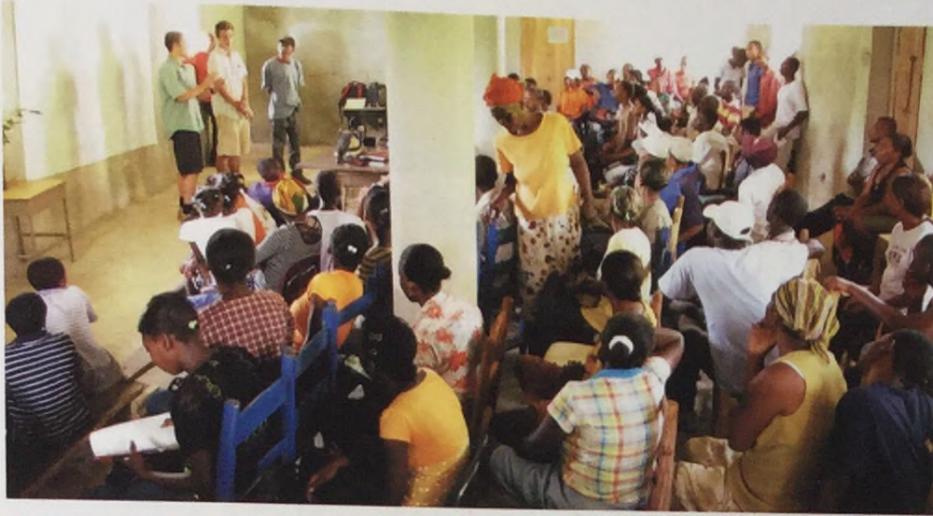


Provided

### For students looking to get an out-of-the-country experience beyond study abroad, opportunities abound through academic courses and extracurricular activities.

- Agriculture in Developing Nations II (IARD 6020) has taken students to nations throughout South and Central America over the past 40 years. Its recent focus has been India, where students can study international agricultural development and globalization.
- Experiential Garden-Based Learning in Belize (HORT 3200) is a new course featuring a trip to Belize over spring break. This year, 12 students created school gardens through a community food-based program, taught school children, and shared their lessons with local teachers.
- "Bridges to Community," a student-led service group, brings 30 students to Nicaragua each year. Before the trip, the students take Bridges to Community (DSOC 4500) in the Department of Development Sociology, which covers the culture and history of Nicaragua as well as international development.
- Professor of plant biology Kevin Nixon leads students on a three-week trip to Patagonia in southern-most South America to explore the biodiversity, ecology, and taxonomy of the region's plants. They trek across the dry Patagonian steppe in the rain shadow of the Andes, into the temperate rainforest in Chile, down the mountains to the Pacific, and end up in Tierra del Fuego.
- Juniors, seniors, and graduate students can work with faculty members on economic development projects abroad through the SMART program (Student Multidisciplinary Applied Research Teams). Part of the Cornell International Institute for Food, Agriculture, and Development, the program recently facilitated travel to South Africa, Kenya, China and Belize.
- For those wishing to plan their own experience, CALS alumni Cedric Hodgeman '04 and Raul Roman '64, PhD '68, have started UBELONG, an organization that facilitates short-term volunteering and educational opportunities throughout the developing world with activities in several fields. Current programs are in Bolivia, Ecuador, Peru, Cambodia, Laos, and Vietnam. Find out more at [ubelong.org](http://ubelong.org)

## Students Build Bamboo Nurseries in Haiti



Provided

He may be just 19 years old, but Chris Dennis '13 has already embarked on an ambitious international project that he believes is a simple solution to several of Haiti's environmental, economic, and social problems: bamboo.

Dennis, a sophomore in International Agriculture and Rural Development, and four of his friends have started several bamboo nurseries in Haiti to ease the island's environmental crisis and help house the 1.5 million Haitians rendered homeless by the earthquake of January 12, 2010.

Bamboo is a versatile, fast-growing, and rapidly renewable crop that can be used for housing, fuel, crafts, and environmental restoration, Dennis says. Planting the non-invasive "clumping" variety in heavily eroded areas helps save the soil, prevents flooding, and provides a habitat for wildlife. It also relieves stress on the island nation's few remaining forests, the most fragile of which contains the last square mile of a unique kind of cloud forest left in the world.

"Less than one percent of the country's forest cover remains, and it's still being cut at a rapid rate. Plus, 36 million tons of fertile topsoil are lost every year to erosion caused by this deforestation. It leads to flooding, destroys coral reefs, and reduces agricultural and fishing yields," Dennis says.

"There are so many problems, and they're all interconnected," he adds. "With bamboo, we can reduce poverty and help the environment."

The Developing Bamboo project was inspired by an initial trip in February 2010, when the group of Ithaca High School graduates went to make free promotional videos for nonprofit organizations in Haiti after the earthquake.

"The first trip was completely life-changing and eye-opening. It introduced us to a world we didn't really know existed," Dennis says. "It sowed the seeds. After that, we wanted to get involved in something more long term and tangible, something we could directly do to help."

Since then, the students have scraped together money from summer jobs, bake sales, and benefit concerts to fund two additional trips and have planted roughly 15,000 square feet of bamboo nursery. They have partnered with a local youth organization called CODEHA, the Association of the Peasants of Fondwa, and the NGO Volunteers For Peace, among others.

"Being young has been an advantage because people are way less threatened, and they want to take care of you. Plus, they seem to like our naive exuberance," Dennis says.

Each 2,000-square-foot nursery costs just \$500 and produces seedlings that can be used for reforestation with construction-grade bamboo. Once built and self-sufficient, the nurseries' operation is turned over to local Haitian organizations.

The next step is to make bamboo production an attractive and economically viable livelihood option that farmers will adopt on a country-wide scale. Interest so far has been high. More than 200 people turned up for a recent presentation in La Vallée de Jacmel, about 50 miles south of the Haitian capital, Port-au-Prince.

"Our goal is to plant as many nurseries as possible, and educate as many people as possible," Dennis says.

He is inviting other students to join him on his trips and has started a student group on campus. Other founding members include Jamie Johnson '13 and Sidney Madsen '13.

—Stacey Shackford

### All in the Family



Chris Dennis is not the only one in the Dennis family leaving his stamp on the world. His brother, Danfung Dennis '05, recently won the World Cinema Jury Prize and

the World Cinema Cinematography Award at the 2011 Sundance Film Festival for his first feature-length documentary on the war in Afghanistan, *Hell and Back Again*.

After graduating from Cornell with a degree in applied economics and management, Danfung worked as a consultant for small- and medium-sized enterprises in Uganda and South Africa. In 2006, he began working as a photojournalist and filmmaker, embedded with troops in Iraq and Afghanistan. His still photographs have been published in *Newsweek*, *TIME*, *The New York Times*, *The Washington Post*, *The Guardian*, *Rolling Stone*, *Le Figaro Magazine*, *Financial Times Magazine*, *Mother Jones*, *Der Spiegel*, and *The Wall Street Journal*.

PBS's *Frontline* opened its 2009 fall feature program, "Obama's War," using Danfung Dennis's footage. The immersive nature of the footage prompted a flurry of comment and inquiry from the Pentagon, the White House, veterans groups, and viewers and was nominated for a 2010 Emmy Award.

A host of other awards followed, including the Bayeux-Calvados Award For War Correspondents, and Danfung was named one of the 25 New Faces of Independent Film by *Filmmaker Magazine* and one of the 30 New and Emerging Photographers by *PDN Magazine*.

### Fast Fact:

The Cornell Lab of Ornithology recently received funding from the John D. and Catherine T. MacArthur Foundation to conduct biological inventories of the La Visite National Park in Haiti to aid in its long-term management.



Provided

## Artificial Intestine Will Help CALS Scientists Engineer Disease-Fighting Gut Bacteria

**C**ALS professor John March is attempting to transform bacteria in our gut into disease-fighting machines. Now, thanks to two members of his research team, he has a powerful new tool to help: an artificial intestine.

The three-dimensional hydrogel scaffolds developed by Jiajie Yu and Jong Hwan Sung, PhD '09, will allow scientists to grow cells under realistic physiological conditions, an important breakthrough. Previously, scientists had to rely on two-dimensional cultures or live animal models.

"We knew the flat models weren't accurate. Cells behave differently in different three-dimensional environments," says March, an assistant professor of biological and environmental engineering. "This will enable us to better study drug absorptions and

interactions between epithelia and bacteria in the intestine."

Yu and Sung used laser ablation to create a hard plastic mold, then covered it with a softer "sacrificial" mold made from calcium alginate that could be dissolved, leaving a collagen scaffold upon which live cells could be grown. In this way, they avoided damaging the delicate shapes during separation of the molds.

They tested the model by seeding it with human colon carcinoma cells. After being cultured for three weeks, it was covered with finger-like structures mimicking the intestinal villi.

All this was done on a tiny scale, about 1 mm high and 200 microns across, visible under a scanning electron microscope. March says scientists

had previously managed to fabricate models as small as 1 or 2 microns, but slightly larger sizes—especially those with tricky aspect ratios or curvature—have eluded them.

The technique used to make the models can be applied to create other micro-sized environments, in research disciplines such as tissue engineering, pharmaceutical sciences, and cell biology. And it does not use expensive or complicated equipment required by most microfabrication methods; it can be carried out on a common lab bench or a sterilized biosafety cabinet.

"I think we'll eventually be able to understand the 3D physical environment of the gastrointestinal tract and other parts of the body much more effectively than we do now," March says.

—Stacey Shackford

## CALS Can't Stop at Just One

**K**ettle-cooked or ridged, salted or flavored, potato chips are adored by Americans, who consume an average six pounds per person per year. Plant breeders at CALS are helping to feed the nation's appetite for the crispy snacks—and New York's \$62 million potato industry—by releasing two new potato varieties.

Waneta and Lamoka, named after a pair of twin lakes in the Finger Lakes region of New York, are especially appealing to potato chip manufacturers because they fare well in storage and produce a nice color when cut.

This is important because chipping potatoes are harvested in fall, but may not be chipped until the following spring, explains Walter De Jong, associate professor of plant breeding and genetics.

Lamoka also has a high level of starch, a trait that is desirable for chipping because it soaks up less oil when fried. Waneta has less starch, but is less likely to bruise, a characteristic that may appeal to farmers in New York, where fields are stony.

Both varieties are resistant to pesky potato pathogens golden nematode and common scab. This gives them a distinct advantage over Snowden, the chipping industry standard, which is susceptible to both diseases.

"New York growers will have a higher-quality product to sell," De Jong says.

First crossed in 1998, the varieties have undergone 13 years of testing, propagation, and evaluation. They have been grown on several farms in trials across the country, and reaction among both growers and manufacturers has been positive, according to De Jong.

Around 40 acres of seed were produced in 2010, meaning 400 acres of the new potatoes can be planted in 2011, and demand is already outstripping supply. Each acre yields about 30,000 pounds of potatoes.

Waneta and Lamoka are the seventh and eighth varieties released in the past decade by the Cornell potato breeding program, which develops chipping and tabletop varieties. Other recent releases include Red Maria, Adirondack Red, and Adirondack Blue, popular with consumers due to their novel red and purple pigmented flesh.

The average American eats 126 pounds of potatoes each year. Almost half of the 20,500 acres grown by New York's 150 commercial potato farmers are made into potato chips, and many are processed in Pennsylvania plants, such as Utz and Herts, De Jong says.

—Stacey Shackford



University Photography

### Fast Fact:

Potato chips were invented in New York, in 1853, when railroad magnate Commodore Cornelius Vanderbilt complained that his potatoes were cut too thick and sent them back to the kitchen at a fashionable resort in Saratoga Springs. To spite his haughty guest, Chef George Crum sliced some potatoes paper-thin, fried them in hot oil, salted and served them, and the "Saratoga Crunch Chips" became a hit.

# THE HERO'S JOURNEY

**Grad students brave the rigors of international fieldwork to bring research to communities in need.**

BY MARISSA FESSENDEN '09

**S**ometimes the most challenging part of a CALS graduate student's work is just getting there.

After two days wending his way from Kathmandu to Khundi using spotty public transportation, natural resources graduate student Bob Beazley recently hiked 18,000 feet into the Himalayan mountains in his quest to document the shrinking of glaciers due to climate change.

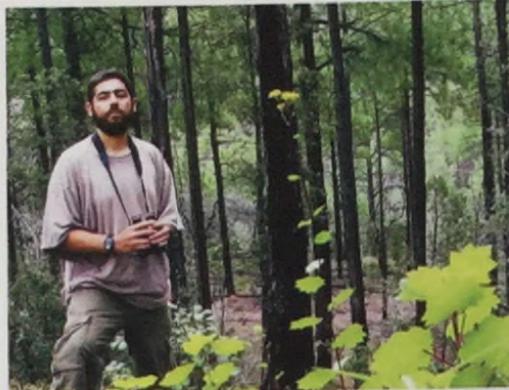
"I had seen many very poor rural mountain communities and I became interested in how they were able to survive," Beazley says.

Beazley spent seven weeks in Nepal and six weeks in China, trekking from village to village to conduct interviews for his master's thesis. His research sites included the Everest Basecamp and Annapurna Basecamp in Nepal.

A girl in Nar-Nepal Annapurna, Himalayas



Man from Kawagebo Kora, in the Himalayas.



Eduardo Carrillo-Rubio sampling birds in Chihuahua, Mexico.



Liz Hermsen at La Colonia in Patagonia.

“From the trailhead, the whole hike is about 250 kilometers and can take 15 to 20 days if you walk every day,” he says.

Eduardo Carrillo-Rubio was lucky if he could even find his sites. The master’s student in natural resources worked deep in the forests of the Tarahumara territory of Mexico, where residents and

researchers have to balance competing interests in timber harvesting and ecosystem protection.

He often went days without seeing a soul, and got lost countless times while driving from one site to another. And even though Carrillo-Rubio is a Mexican native fluent in Spanish, he still experienced challenges communicating with the locals.

One memorable encounter came when Carrillo-Rubio asked an old man for directions and the response came in Raramuri, the language of the Tarahumara.

“I have interacted before with people of different cultures and nationalities without having any language in common, but this was the first time all forms of communication failed me,” Carrillo-Rubio says. “After a few minutes we both smiled. He went back to tending his small flock of goats and I went back to my maps and vehicle.”

Their stories are just two examples of the intrepid nature of CALS graduate students who work abroad, traveling to far-off destinations and meeting people of diverse backgrounds. They are cultural and scientific ambassadors bringing innovative solutions to communities around the world. And with each new experience, the students realize how much more they have to learn.

### Restless animals

When your driver is worried, you should probably be worried too—that’s what Lydiah Gatere, MPS ’05, a PhD student in crop and soil sciences, learned while studying conservation farming in Zambia.

She was returning from a study site in Mpika to her base at the Wildlife Conservation Society and Community Markets for Conservation cooperative in Lundazi when her truck’s four-wheel drive mechanism failed.

“We tried putting debris, tents, and ropes in front of the truck to create traction but that failed,” she recalls.

They had stalled in the sand alongside a river, and Gatere noticed her normally calm driver was becoming increasingly agitated. When she asked what was wrong, he replied: “The elephants will soon be coming for a drink.”

They appealed for help from a nearby tourist camp and managed to continue on their way, narrowly avoiding a potential elephantine crush.

A beast of a different variety caused her to adjust her plans during a visit to the game management area of South Luangwa National Park.

“It got late and we wanted to pitch a tent, only to be told that a couple had been mauled by lions several days ago. So we slept in the local (health) clinic,” she says.

As Gatere’s experiences illustrate, it’s impossible to predict what one may encounter in the field.

“It got late and we wanted to pitch a tent, only to be told that a couple had been mauled by lions several days ago. So we slept in the local health clinic.”

—LYDIAH GATERE





Katie Ricketts and a student at the University in Malawi looking at cassava plants in Nkamenya.



Children in Malawi.



Ryan Crowder (right) in Pearl Lagoon, Nicaragua

All Photos Provided

For Liz Hermsen, PhD '05, a post-doctoral researcher with Maria Gandolfo in the Liberty Hyde Bailey Hortorium, sudden sandstorms left their mark on her memories—and her sunglasses.

While collecting and characterizing plant fossils from the Late Cretaceous (65.5 million years ago) and Eocene (51.9 million years ago) periods in Patagonia, she was sometimes pelted with wind and sand.

“In the Eocene era, the Laguna del Hunco flora was growing in a relatively moist and warm climate, but today that area looks like the dry areas of Nevada or Wyoming—widely spaced, scrubby vegetation, and amazing geology,” Hermsen says.

“One morning, we went to a site on a particularly treacherous slope. The wind was gusting and blowing sand everywhere. We finally gave up and went to a more sheltered site in the afternoon. Later I realized that my sunglasses were pitted from the sand.”

### Local matters

Deferring to local wisdom is a valuable lesson many students learn early on in their adventures abroad.

Katie Ricketts, a master's student in the Charles H. Dyson School of Applied Economics and Management, helps rural farmers get access to credit and links to local and international markets. She recently returned from a trip to Malawi, where she was helping small farmers conduct profitability analysis and planning with local extension agents.

“We spent a lot of time with the extension agents, and there were areas of disagreement and disconnect on how things should move forward,” she says. “But in reality, the local experts are often more equipped to offer interesting, relevant, and meaningful insight.”

Beazley echoed that sentiment. High in the Himalayas, he discovered how important local conditions are to the interaction between project design and implementation. Part of his work entailed analyzing the environmental, socio-economic, and cultural effects of road building.

“Roads make lives easier, giving farmers better access to markets and everyone else access to easier, more efficient travel. Roads open up access to health care, education, jobs, and social interaction,” he says.

However, roads can also cause increased crime and air pollution, the commercialization of sacred sites, and decreased trekking revenue as hikers prefer trails, he learned.

“As with many things, there are two sides of the story, and with positive change there are often negative consequences as well,” Beazley says.

### Challenge and reward

Many students report that one of the greatest challenges with international fieldwork is that no matter how earnest they are, or how much they believe their research will help, they are outsiders in the community and must be sensitive to local customs and conditions.

But despite frustrations, setbacks, and, in some cases, danger, they also speak fondly of life-changing experiences: trying new food, meeting new people, having their eyes opened to a new way of living in this world. Most wouldn't change their research or work for something more comfortable back home.

Ricketts remembers the time when she was first struck by the idea that her work was indeed helping improve people's living conditions in tangible ways.

“We were visiting a village savings and loan group in Northern Malawi when a

### The Commitment and Loss of Ryan Crowder

In November 2010, the Cornell community was grieved to learn of the death of one of our dedicated graduate students, Ryan Crowder, MPS '04, in Managua, Nicaragua. A grad student in natural resources, Crowder's work focused on developing sustainable fisheries with communities in Nicaragua. He cared deeply about international development, particularly for the lobstermen of the Mosquito Coast, whose efforts to organize into cooperatives formed the basis of his thesis research.

“Ryan took life in great big bites,” says Professor James Lassoie, of the Department of Natural Resources, who helped oversee Crowder's graduate studies. “He really was totally charged about committing his life to helping people in less-developed parts of the world.”

“Ryan was a really enthusiastic guy,” said Kayla Jacobs '13, whom Crowder taught when he was a teaching assistant. “He had a passion for what he did and showed that to everyone around him.”

woman stood up and proudly announced that she was able to buy chickens from the interest she earned on her investment,” says Ricketts. “This woman seemed to radiate a confidence about her. It was wonderful to see and hear.”

“I am always amazed at how friendly, generous, and hospitable rural Himalayan communities are,” Beazley adds. “Traveling and living in the mountains is very difficult, so when a stranger shows up, they extend their hospitality just like they would to a family member.” ■

# Hort Is Hot!

**The Department of Horticulture is a hothouse of activity, using new technologies to address big issues—such as creating new markets, fighting climate change, using water wisely, and reducing pollution.**

BY CRAIG CRAMER

**W**hen Thomas Björkman, PhD '87, looks at a humble head of broccoli, he sees green. He's leading a project to help growers cash in on growing interest in healthy, local foods and to nurture a \$100 million East Coast broccoli industry.

The project will reap environmental rewards too, by reducing reliance on scarce West Coast irrigation water and limiting greenhouse gases emitted during cross-country transport. A \$3.2 million U.S. Department of Agriculture (USDA) grant—with an additional \$1.7 million in contributions from private companies—is fueling this project.

“Today, 90 percent of the broccoli we eat on the East Coast comes from California or Mexico. So our goal is to build an East Coast broccoli industry that can provide a continuous, year-round supply and cut down on all that coast-to-coast shipping,” says Björkman, an associate professor in the Department of Horticulture based at the New York State Agricultural Experiment Station (NYSAES) in Geneva, N.Y. The project team includes scientists at eight universities and the USDA, plus 11 collaborating seed companies, distributors, and retailers.

Liberty Hyde Bailey (right), the department's first chair, would feel right at home in today's Department of Horticulture with its focus on big issues and innovative technology. Bailey pioneered the use of the camera to document horticulture, producing thousands of carefully composed and catalogued cyanotype prints.

“It costs about \$7,000 to ship a truck-load of broccoli from the West Coast, notes Björkman. “And half of that load is just the ice to keep it cold on the way.” Shorter trips mean less fuel, less ice, and the possibility of replacing cardboard shipping crates with reusable plastic bins.

Virtually all commercial broccoli varieties were developed for California growing conditions and don't perform well in the East. Phillip Griffiths, a colleague of Björkman's, has been selecting breeding lines of broccoli better suited to the East. He and other public breeders are poised to test promising varieties at four research stations and on farms up and down the East Coast.

Part of that testing will include analyzing levels of glucosinolates, antioxidants, and minerals. “Nutrition is a big reason consumers buy broccoli. We need to make sure the new varieties are at least as healthy as current ones,” Björkman says.

Extension educators will form five grower networks to share knowledge about how to grow and market the crop. Seed company partners will breed new varieties and gear up seed production. And packer-shippers will begin working out distribution logistics.

Miguel Gómez, an assistant professor in CALS' Charles H. Dyson School of Applied Economics and Management, will develop crop budgets for growers, identify cost-effective distribution systems, and assess just how much consumers value the “localness” of the East Coast broccoli.

Björkman and his colleagues are carrying on a tradition of cutting-edge horticulture dating back to 1889, when Liberty Hyde Bailey became the department's first chair. Bailey was a horticulture pioneer and also an advocate for nature study, women's

Team members evaluate broccoli varieties in Albion, N.Y. From left: Mary Van Ryn, broccoli breeder for Bejo Seed Co.; Thomas Bjorkman, assistant professor of horticulture; and Christy Hoepfing, extension educator with the Cornell Vegetable Program.



Provided



University Photography

Taryn Bauerle (left) with post doctoral associate Michela Centinari and Nathan Dykes, DVM '74, chief of veterinary imaging, uses a CT scanner to explore the unseen world of roots.

education, and strong rural communities. He'd likely feel right at home in today's Department of Horticulture. “We're not just about producing crops and growing food,” says Marvin Pritts, the department's chair.

“One of the difficulties doing root research is that you can't see them. So our lab is adapting technology from other fields—like medicine—to help us see what we can only imagine is going on underground.”

—Taryn Bauerle

“In everything we do, we consider environmental sustainability and impacts on human well-being.”

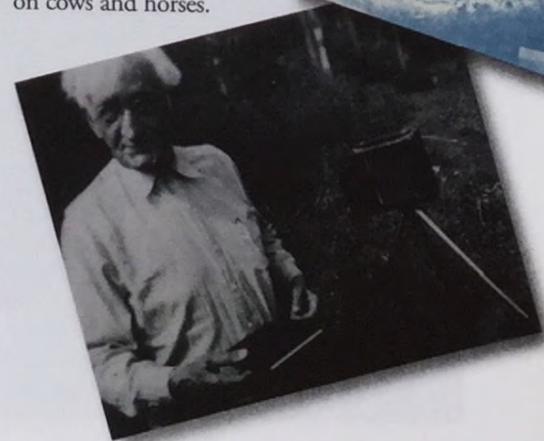
The department's basic research delves into crop physiology, biochemistry, and genomics, while applied research and extension programs address the needs of gardeners, turf managers, greenhouse growers, urban foresters, cut-flower producers, and myriad other audiences. The merger last summer of the Ithaca-based Department of Horticulture and the Department of Horticultural Sciences at NYSAES in Geneva has strengthened collaborations between these two groups of scientists. Students are among the big beneficiaries of the merger, notes Pritts, as new technology makes it easier for Geneva faculty to take a more active teaching role.

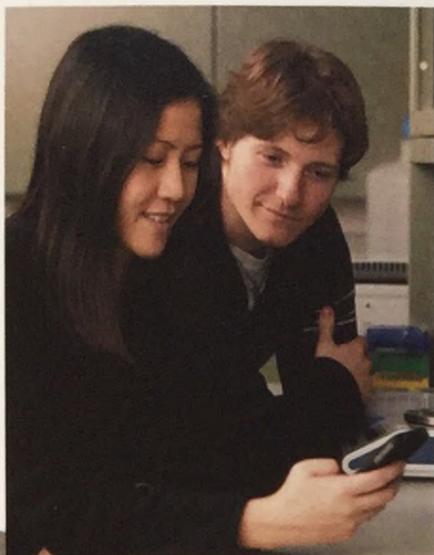
### New roots

New technology also makes for radical changes—and unusual collaborations.

Taryn Bauerle, who joined the department in 2009, studies root biology. “One of the difficulties doing root research is that you can't see them,” she says. “So our lab is adapting technology from other fields—like medicine—to help us see what we can only imagine is going on underground.”

One of her graduate students is growing trees hydroponically to see how roots respond to moisture stress and then analyzing the roots using a small CT scanner. For larger specimens, Bauerle's lab is using imaging equipment at the College of Veterinary Medicine normally used on cows and horses.





University Photography

Jenny Kao-Kniffin (above left), shown with grad student Kevin Panke-Buisse, is developing interactive applications for GPS-equipped mobile devices so turf managers can check detailed soil characteristics, weather data, and more. Liberty Hyde Bailey (left), shown here with his publications, had to rely on print to get out the word.



Bauerle is part of a \$5 million multi-institution project using moisture sensors and wireless technology to detect when plants need water in nurseries, greenhouses, and green roofs. "Our part is to characterize the variability of how roots grow in time and space, so we can create computer models that will help us know when to water and how much to water. The system will help save water and reduce pollution," she notes.

"I focus on human-managed landscapes, which are much different from farmers' fields. More people live near turf than farm fields. That makes managing turf weeds more complicated."

—Jenny Kao-Kniffin

Another Hort newcomer is Jenny Kao-Kniffin, a microbiologist and urban weed ecologist who joined the faculty just last year.

"I focus on human-managed landscapes, which are much different from farmers' fields," she says. "More people live near turf than farm fields. That makes managing turf weeds more complicated, but it's exciting working with the human dimensions."

Her goal is to develop weed-suppressive landscapes that rely more on cultural and biological management practices, which is especially important with increased pesticide regulation. Kao-Kniffin plans to develop applications for GPS-equipped mobile devices that will—based on location—help professional turf managers develop site-specific plans that take into account soil characteristics, weather data and other environmental factors, and even what local laws apply. Turf managers will use the applications to report pest outbreaks and seek advice, feeding information into a network of experts on campus, extension educators around New York, and other practitioners on the front line, Kao-Kniffin says.

"It's a system that relies more on information flowing in many directions through a network," she adds. "It's a 21st-century vision of extension."

### Farmers fight climate change

To better prepare farmers for the future, David Wolfe, a professor in the department, has been helping farmers cope with a changing climate that includes longer growing seasons, fewer but more-intense rains, and more heat stress for crops. Now

## Cutting-Edge Horticulture

Innovation in the Department of Horticulture extends beyond research to teaching, outreach, and community service. Here are some highlights:

**Cornell Orchards** is a working orchard complete with a sales room adjacent to campus—"it constantly reminds us that our work is closely tied to consumers," says department chair Marvin Pritts.

**Urban Eden students** plan and plant landscapes around campus every spring, applying what they've learned about trees and shrubs in class. Some students join SWAT teams (Student Weekend Arborist Teams) to help cities and towns inventory their street trees.

**Distance learning** courses for the general public in organic gardening, plant propagation, botanical illustration, and how to get started in farming provide the best of hands-on and online learning.

**The Vegetable Varieties for Gardeners website** is a popular citizen science project that helps people decide what to grow. Visitors can create garden profiles to showcase their gardens, review varieties, and communicate with each other on Facebook. ([vegvariety.cce.cornell.edu](http://vegvariety.cce.cornell.edu))

**Willowpedia** is a new website focusing on use of shrub willows as a sustainable feedstock crop for biofuels and other products. ([willow.cals.cornell.edu](http://willow.cals.cornell.edu))

**The Nature of Plants** instructor Taryn Bauerle teams with Cornell Outdoor Education to expose freshmen to plant biology while they climb and hang from ropes in mature forest trees.

**Food donations** to local food banks and pantries from the Thompson Vegetable Research Farm in Freeville and other facilities topped 1 million pounds since 2004.

**Viticulture and enology** majors design management plans for the organic vineyard at Cornell Orchards during spring semester, carry out the plan during summer internships, and make wines from the grapes in fall.

**A 2010 study by the National Research Council** ranks Cornell's Graduate Field of Horticulture second out of the 18 horticulture programs in the plant science category.

**Experiential Garden-Based Learning in Belize** course sends teams of students and extension educators to demonstrate how gardens can enrich school curricula.

**Hortus Forum, Cornell's undergraduate horticulture club**, raises money for educational field trips by growing and selling poinsettias and other plants on campus.

**The Turfgrass Program** uses weekly podcasts to help lawn, golf, and athletic turf professionals reduce their environmental impact.

**The Cornell Small Farms Program**, housed in the department, reaches more than 27,000 farmers with its *Small Farm Quarterly* in collaboration with Lee Publishing.

**A project for the military** connects with professionals who work with military families and youth to help them understand gardening's health and well-being benefits and how incorporating gardening activities can improve their programs.

For more info: [hort.cals.cornell.edu](http://hort.cals.cornell.edu)



Div. of Rare Manuscript Coll.

he's heading up a first-of-its-kind five-year, \$4.7-million, USDA-funded project to help farmers become part of the solution to climate change.

Farmers can play a big role in fighting climate change by sequestering carbon in their soils, more carefully managing nitrogen fertilizer, and reducing their energy use, says Wolfe. "And there are many co-benefits, including improved profits and soil health for farmers, and environmental protection and food safety for everyone."

Wolfe and a team of climate modelers, crop and soil scientists, biogeochemical modelers, mapping specialists, and economists will be working in corn-growing regions in New York, Iowa, and Colorado to develop low-cost, accurate ways to assess soil carbon levels and sequestration, as well as new tools

Farmers can play a big role in fighting climate change by sequestering carbon in their soils, more carefully managing nitrogen fertilizer, and reducing their energy use, says David Wolfe.

to manage and account for energy costs and greenhouse gas emissions.

One focus will be nitrogen fertilizer management, with Harold van Es and Jeff Melkonian, MS '83, PhD '94, of the Department of Crop and Soil Sciences taking the lead. Antonio Bento, an associate professor in the Dyson School, will look at how economic incentives and energy savings could speed adoption.



David Wolfe is heading a five-year, \$4.7-million project to help farmers become part of the solution to climate change.

"We'll be able to apply what we learn working with corn to other crops in New York and elsewhere," says Wolfe, who has traveled to Capitol Hill to brief policymakers on climate change and to Africa to assess how farmers there might benefit from carbon offsets.

Setting ambitious goals like these has helped the Department of Horticulture thrive in a changing world.

"We take seriously our role as part of the 'land grant university to the world,'" says chair Pritts. "We know that our work will have impact not just in New York, but across the country and around the planet." ■

## Horticulture Courses Then and Now

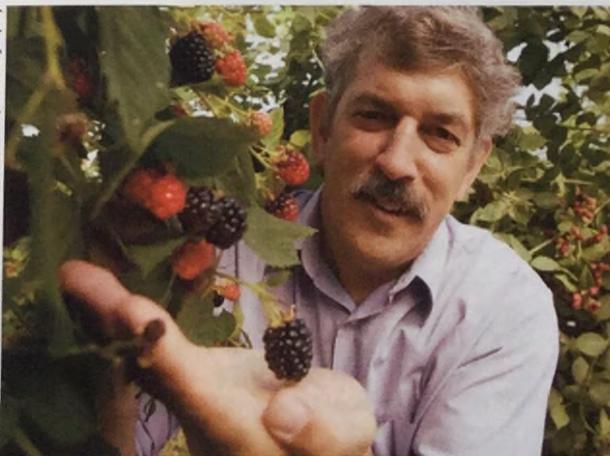
### Selected horticulture courses from the late 19th and early 20th centuries:

- Spraying of Fruit Trees
- Olericulture (vegetable cultivation)
- Nuciculture (nut cultivation)
- Subtropical Pomology
- Literature of Horticulture and Landscape Gardening
- Nursery and Orchard Practice
- Greenhouse Construction and Management
- Handicraft

### And today:

- Hands-on Horticulture
- Collaboration, Leadership, and Career Skills in the Plant Sciences
- The Art of Horticulture
- Practicing Sustainable Land Care
- Food, Fiber, and Fulfillment: Plants and Human Well-Being
- Sustainability and Organic Grape and Wine Production
- Restoration Ecology
- Experiential Garden-Based Learning in Belize
- Golf and Sports Turf Management

University Photography



Marvin Pritts (above), chair of the Department of Horticulture, says, "In everything we do, we consider environmental sustainability and impacts on human well-being." Bailey, the first chair, is shown at left with plow.



# The Farmer and the Dell

Technology is cropping up in fields, forests, and farmers markets.

BY STACEY SHACKFORD

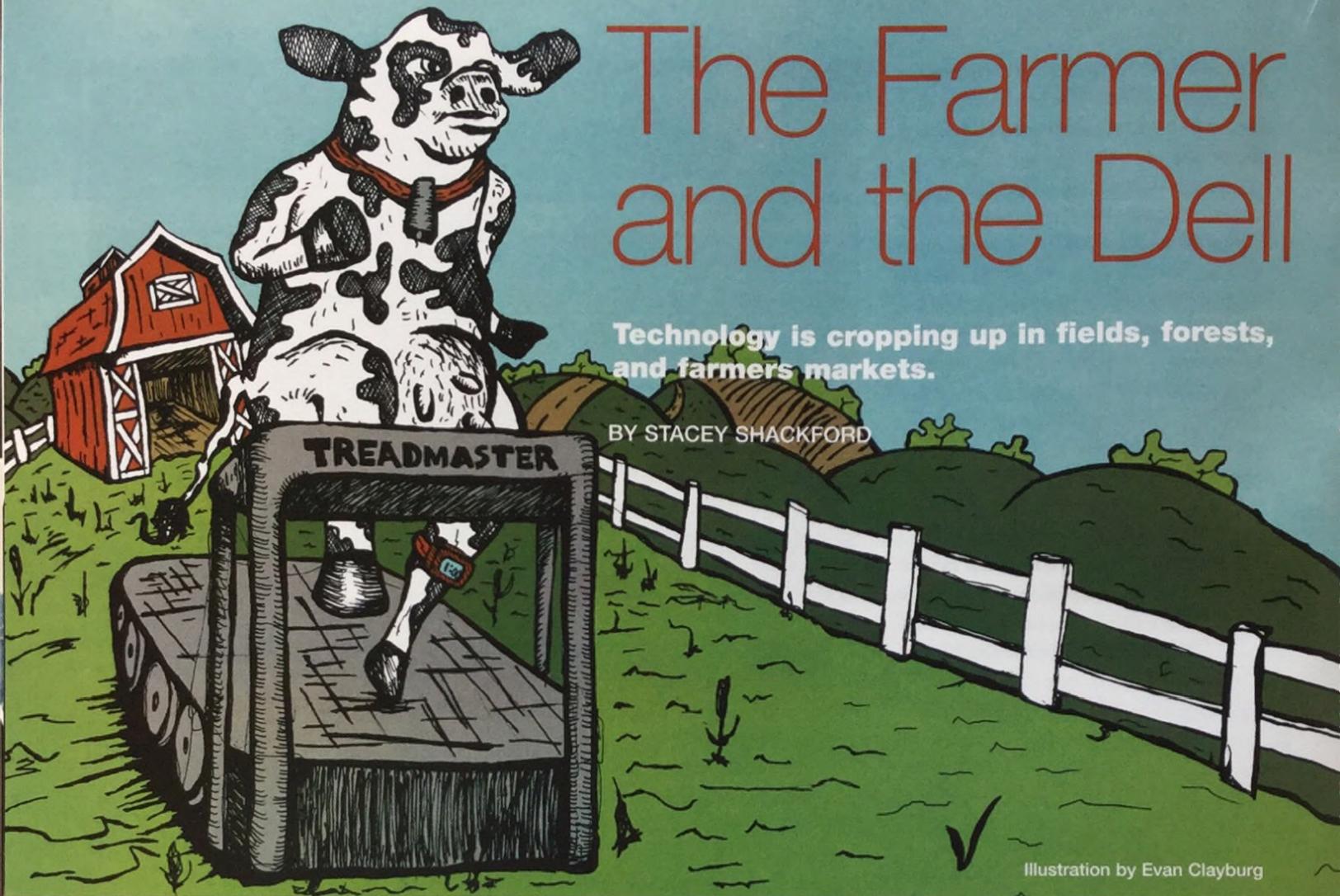


Illustration by Evan Clayburg

In May, the “Girls of Summer” will turn up on Fay Benson’s 140-acre farm with their pedometers, ready for a workout and a few moments in the spotlight.

The lovely 500-pound ladies will likely gain a little weight as they indulge in some serious dietary splurges, but that’s okay. In fact, it’s encouraged, as they are heifers on holiday, freed from the confinement of their home dairies and sent to the green pastures of Groton to bulk up and tone down.

As they frolic and feed in the fields, the bovine beauties could become social media starlets as their daily exploits and activities will be broadcast on Facebook, where they have a small but dedicated fan base.

It’s one example of how farmers are using modern media to promote their industry and reconnect people with a food chain that has become increasingly globalized and impersonal.

By posting photos and activity updates about the 100 heifers, Benson, an organic

dairy specialist with Cornell Cooperative Extension, aims to showcase their quality of life and how it is improved through grazing.

“One of the challenges that dairies face is people’s perceptions,” Benson says. “We are using Facebook as a way to dispel some myths about large farming operations.”

It also helps Benson reach out to other farmers who may be curious about the effectiveness of grazing compared to confinement or who, like him, may be looking to transform their farms into profitable part-time businesses.

After 20 years as a dairy farmer, Benson sold his organic cows in 2003 and began boarding heifers during the summer. Large commercial dairies pay Benson to board their cows because it frees up space and reduces their feed costs.

Benson is not alone in his innovation, or use of new-age technology. Gone is the image of the hayseed farmer plowing his fields while perched atop his tractor with a straw hat. Today’s farmer is more likely

to be controlling the tractor by GPS while simultaneously using his smartphone to check weather reports, email a buyer, or snap a photo of an ailing plant to submit online to a crop specialist.

For Benson that means using pedometers to track the amount of steps his heifers take every day, which can help him formulate nutrient plans. Fewer steps could be an early indication of sickness, while a spur in activity could mean the cow is ready to make some calves.

Other dairies have implemented entire robotic milking systems or other handy techie tools (see sidebar).

## Marketing with new media

For farmers who are loath to leave their fields and cooks who are cleaved to their kitchens, mobile technology and Internet-based social networking can be a godsend.

Todd Schmit, MS ’94, PhD ’03, the Ruth and William Morgan Assistant Professor in Applied Economics and

Management and director of the Cornell Program on Agribusiness and Economic Development, says it's also great for market research and networking. He hosted a conference on social media marketing for agribusiness professionals last November, which attracted about 60 farmers, business owners, and educators.

Keynote speaker Kerry Trueman, the author of popular blog *Eating Liberally*, told participants that social media is a priceless—and often price free—promotional tool.

"It's like word of mouth on steroids," Trueman said. "It doesn't replace one-on-one interactions with customers, but it should definitely supplement it." Schmidt quoted a study by social media management firm Syncapse that valued each Facebook fan at \$136.38, based on their potential product spending, brand loyalty and affinity, earned media value, and propensity to recommend.

Many farmers and foodies have successfully jumped on the social media bandwagon. At the Piggery, a popular Ithaca area sustainable agriculture pig farm, former molecular biologist Brad Marshall '97 and his agricultural engineer wife, Heather Sandford '97 use their @thepiggery Twitter account to inform customers about the latest deli offerings, CSA deliveries and farm activities.

Video sites like YouTube—with an astounding 1 billion views per day and now the second largest search engine in the world—present new opportunities for grassroots marketing and education. Alabama dairy producer Will Gilmer is an Internet sensation after posting quirky videos about farm life, including "Water 'n Poo—a song about nutrient management."

Farmers markets are getting in on the social media act, too. One success story is [www.cnybounty.com](http://www.cnybounty.com). Headquartered in Morrisville, N.Y., and developed with help from Cornell Cooperative Extension and the New York Farm Viability Institute, CNY Bounty is a year-round online farmers market that supports more than 110 local small and mid-sized producers, with free membership and free delivery to customers in Chenango, Madison, Broome, and Onondaga counties.

"Existing distribution systems generally cater to larger farms that can supply a steady, high-volume stream of goods," says organizer Sue Parker, a farm assistant with the Madison

## Tech Tools for Farmers

### GPS

- Advances in GPS (global positioning systems) allow farmers to map three-dimensional views of farm acreage to see details such as rises and dips, terraces and slopes, and terrain types, which could help them improve yields. It has proven a worthwhile investment at CALS' own research farms operated by the Cornell University Agricultural Experiment Station, where farm managers report that increased efficiency in seed, fertilizer, and pesticide application has already paid for the \$2,000 cost of the system in as little as a year.



### Software

- At CALS' Dilmun Hill student farm, the young farmers teamed up with their peers in the Center for Applied Mathematics to develop their own crop management software. The program not only helps them keep track of the amount of produce planted, harvested, donated, and sold, it allows farm managers to plot their plantings on a gridded field map. It then lets them know which crops should be planted next based on the farm's long-term crop rotation plan.
- Cornell alumni Jeff Frolikin Gordon, PhD '09, and Giulia M. Stellari, PhD '09, have developed free AgSquared software that enables small farmers to create a farm plan, manage tasks, organize employees, and keep accurate records.
- AgFleet, whose development was led by CALS alumnus Joe Russo, PhD '78, has been used on more than 15 million acres of agricultural land in North America. The company behind it, ZedX, Inc., has developed additional modular, web-based applications, including an irrigation scheduler and early warning systems for crop diseases and invasive pests. ZedX, Inc. maintains a research collaboration office at the Cornell Agriculture and Food Technology Park in Geneva.



### Gadgets

- There are handheld devices that resemble small, sturdy computer notebooks, packed with features. They bundle recordkeeping, mapping, and soil sampling, and feature WiFi or Bluetooth technology so that data can be shared with colleagues and experts. They allow farmers to track data over time, develop charts of past performance, and plan for future plantings.
  - Some devices have built-in cameras to take pictures of weeds or insects, which are then linked to a map for future reference, or chlorophyll meters, which measure the transmittance of a leaf at two different wavelengths and can help determine if the soil needs nitrogen.
  - Drought and water stress are important issues for grape growers. Horticulture professor Alan Lakso and graduate student Vinay Pagay, MS '08, are working with Chemical Engineering professor Abraham Stroock '95 to develop tiny microsensors, which can be imbedded inside plants to monitor real-time water stress and help growers strike the precise balance between drought and overwatering. "It will also offer advanced capabilities such as continuous, real-time measurements, autonomous operation, wireless data logging, and at a significantly lower cost compared to existing methods," Pagay says.
- Viticulture researchers are deploying low-cost sensors and using off-the-shelf cameras to build computer models that can distinguish grapes hidden among leaves and shadows. In field tests at the Lake Erie Research and Extension Laboratory in Portland, N.Y., Carnegie Mellon University PhD student Debadepta Dey tried out his new technique to non-destructively estimate crop load and canopy throughout the growing season by triangulating images and creating three-dimensional reconstructions of scenes below the foliage.



All Photos Provided

## Tech Tools for Farmers

*continued*

### Online tools

- The departments of Crop and Soil Sciences and Earth and Atmospheric Sciences have developed a free "Adapt-N" web-based tool that draws on local soil, crop, and weather data to provide better estimates of nitrogen fertilizer needs for corn—helping farmers improve the environment and their bottom line, as nitrogen fertilizer is typically the most expensive part of grain corn production. Professor Harold van Es said the tool is being tested in New York and Iowa, and has already generated a lot of interest.
- The Decision Support System tool developed by plant pathologist Bill Fry, PhD '70, helps manage potato blight, which can wipe out entire crops, and reduces the expense of fungicides. The program not only tracks incidences of potato blight on a map, but takes into account geographically precise historical and future weather data to produce farm-specific disease forecasts. By adding further details about the exact strain of pathogen found on a farm—or within a 50 mile radius—the system will also be able to rate risks and tailor remedies.
- The Cornell Net Carbohydrate and Protein System helps farmers maximize the use of homegrown and purchased feeds, bringing down annual feed costs as much as \$13,000 per 100 lactating dairy cows and reducing nitrogen and phosphorus excreted in manure by about one-third.
- Cornell Cropware plans manure and fertilizer utilization of a farm's cropping operation, reducing reliance on commercial fertilizers by up to 40 percent. The software has helped around 2,000 users in 42 countries meet environmental standards for soil erosion reduction, nutrient management, and water quality protection.
- Horticulture professor Alan Lakso and viticulture extension leader Tim Martinson, MS '88, PhD '91, working with the Institute for the Application of Geospatial Technologies in Auburn, N.Y., have created the Vineyard Site Evaluation website, where prospective vineyard owners can rapidly access information and maps with data overlays of soil characteristics, topography, and key climate data—all in one place.

County Cooperative Extension. "Getting their products to consumers is one of the biggest hurdles faced by Central New York's small and mid-scale agricultural producers."

Each week, CNY Bounty staff members coordinate product availability and pricing with producers. Product descriptions, prices, and photos are uploaded on the website, and customers place their orders. The organization handles about 150 orders per week for its selection of about 1,400 products, including meat, organic dairy, and farm-fresh produce.

Initially, it was a tough sell, as many considered it unusual to buy food online, Parker says. But in two years, the group has made more than 10,000 deliveries and \$500,000 in gross sales, about \$350,000 of which has gone directly to local farmers, while a 23 percent margin covers CNY Bounty's cost.

Parker says customers have embraced the opportunity to connect with farmers and contribute to the health of the local agricultural community. Something as simple as enclosing a brief biography of a farmer in a paper bag containing his produce can triple subsequent sales, she added.

MarketMaker, hosted by a national partnership of land grant institutions and state departments of agriculture, was adopted by CCE in New York City to build an electronic infrastructure connecting food-producing farmers with economically viable new markets. Today the site has more than 100,000 hits a month, connecting upstate farmers with New York City's retailers.

### Online outreach

Extension specialists are incorporating social media and emerging technologies into their outreach efforts. Cornell Cooperative Extension offices deliver their own online programming to address local issues, such as early-morning webinars about gas drilling for business owners in Chemung County. CCE is also part of the national Extension.org network, which hosts a series of educational webcasts and online courses.

With more than 60 percent of New York's forests in the hands of private citizens, connecting with the state's nearly 600,000 woodlot owners is essential for Arnot Forest director Peter Smallidge, a senior extension associate in the CALS Department of Natural Resources.

He established a monthly webinar series in May 2007, with topics ranging from woodlot management to invasive species.

"I was attracted to the technology. I thought it was cool," Smallidge says. "I also thought it was a way to have regular, cost-efficient contact with a large number of people, some of whom are hard to reach by conventional means."

The forestry webinar has been successful, beyond even Smallidge's expectations. In just three years of existence, more than 2,000 people from 44 states, responsible for managing more than 10 million acres of woodland, have registered, with an average of 107 participating each month, some who had never previously attended a traditional workshop.

**"I pick my educational tools based on their effectiveness, efficiency, and impact, not just because they are the latest thing."**

—Peter Smallidge

Smallidge estimates that conducting the presentations online saves around 7,000 miles per month of vehicular travel. And in a survey, participants estimated they would either earn or save more than \$90,000 based on the content of the webinars in 2010.

Smallidge has dabbled in other social media, including Facebook and Twitter, but has found them less effective for his audience. He says new media can be great tools to supplement traditional outreach, like printed publication and seminars, but shouldn't replace them.

"I pick my educational tools based on their effectiveness, efficiency, and impact, not just because they are the latest thing," Smallidge says. ■



### Online Exclusives:

**T**echie tools to go! Get the scoop on the best smartphone apps for farmers, scientists, and the rest of us.

Check out pointers on leveraging social media, gleaned from an Applied Economics and Management marketing conference.

And don't forget to follow @CornellCALS on Twitter and Facebook!

[calsnews.cornell.edu](http://calsnews.cornell.edu)

# Cancer's Big 'Cs'

**CALS scientists advance knowledge on causes, cures, and care.**

BY MOLLY CRONIN '11 AND ELLEN LEVENTRY '95

**T**wenty-five years ago, it was commonly thought that cancers arose from fundamental changes in the genetic code; that something, somewhere had gone awry with the building blocks of DNA and that doctors could do little to reverse the process. But in the 1980s, cancer researchers turned their attention from the genome, the sets of chromosomes that we inherit from our parents, to the epigenome: a group of chemical switches and markers that affect how our genes are utilized, or expressed, sometimes over generations.

The epigenome (literally "above the genome") tells each cell in the human body which of the almost 200 cell types it should become: brain, heart, skin, etc.

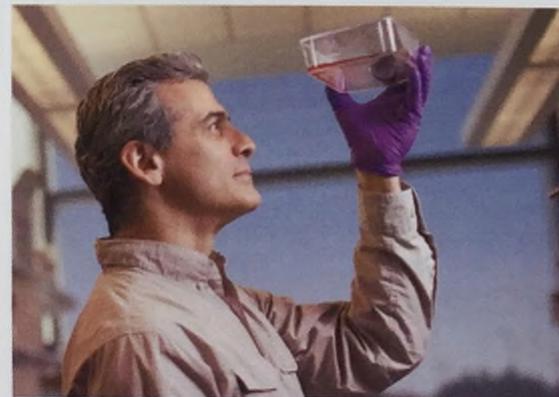
"If you think of the genome as words in the English language," says Paul Soloway '79, professor of nutritional sciences, "then you can think of the epigenome as the punctuation, or the grammar, that makes sense out of those words by regulating the expression

of genes properly and also preserving genome stability so one gene isn't amplified or silenced over another."

Unlike the genome, the epigenome, is very mutable and can be influenced easily by environmental factors. Toxins in pollution and poor nutrition can disrupt important epigenetic processes such as DNA methylation (in which a methyl group made up of one carbon atom and three hydrogen atoms attaches to and shuts down a gene), causing them to spin out of control. Such manic methylation has been shown to shut down tumor-suppressor genes.

The good news is that methylation and other epigenetic phenomena are reversible with pharmaceutical therapeutics currently on the market. But we don't yet understand the rules behind DNA methylation, so current treatments aren't as targeted as they could be.

Soloway is seeking to solve that problem. "If you don't know what you're manipulating, then it's hard to come up with a cure, a diagnosis, a therapeutic that can have benefit,"



University Photography

**Paul Soloway studies the epigenome, which regulates the expression of our genes.**

explains Soloway. His lab is working to identify the patterns, rules, and clues that control epigenetic marks in the genome.

And he's using nanotechnology to solve this big mystery. Working in conjunction with Harold Craighead, MS '77, PhD '80, in the School of Applied and Engineering Physics, as part of the National Institutes of Health Roadmap Epigenomics Program,

Soloway is developing technology that could possibly revolutionize epigenomic studies and provide a tool that could lead to advances in cancer treatments. Using a nanoscale device and different fluorescent dyes and reagents, one of Soloway's aims is to assess multiple epigenetic modifications, simultaneously, using very small quantities of genetic material through a process known as the single-molecule approach. And his group is weeks, not years, away from doing so.

"There are very useful techniques right now for forming epigenomic analysis, including methods that I use in my own lab, but there are some aspects to the single-molecule approach that can potentially supplant the existing methods and provide much richer information," he says.

### An aspirin a day?

Could a cure for cancer lie in something as simple as aspirin?

Taking her cue from research that found the use of anti-inflammatory drugs can

prevent colon, breast, and pancreatic cancer, Animal Science Professor Pat Johnson, PhD '83, gave aspirin to chickens and found that it slowed the progression of ovarian cancer. She is now conducting studies to see if earlier initiation of such treatment could stop the tumors from developing altogether.

Chickens are the only species besides humans that develop spontaneous ovarian cancer at a high incidence, with 20 to 30 percent of hens developing the disease by their third year of life. Ovarian cancer is the fifth-leading cause of cancer-related deaths in American women, according to the American Cancer Society. Johnson attributes our shared predisposition to ovarian cancer to abundant egg production; humans and chickens ovulate frequently.

While conducting the aspirin studies, Johnson also noticed that hens with early-stage ovarian cancer produced significantly fewer eggs in the year prior to diagnosis than those without cancer. So she is exploring the

**"It is exciting to use our background in avian reproduction to work on a disease of human relevance. We keep working on it because the disease is so bad and advances have been slow coming."**

—Pat Johnson

possibility that egg production may represent a new method of early detection, which improves chances of survival.

"It is exciting to use our background in avian reproduction to work on a disease of human relevance," Johnson says. "We keep working on it because the disease is so bad and advances have been slow coming."

Another obstacle in early recognition of the disease is finding where in the body the cells start to become tumors, Johnson says. Until recently, scientists believed the cancer originated among ovarian surface epithelial cells, but they now think it may develop in areas such as the oviducts or fallopian tubes.

Johnson's ultimate goal is to develop ovarian cancer diagnostics similar to the PSA

test, commonly used to detect prostate cancer.

"If we know where it originates, we may more effectively identify an early marker," Johnson says.

### From food lab to med lab

Unlike many of his food scientist colleagues, microbiologist Carl Batt did not start his career with the intention of finding a cure for cancer, but that is exactly where it has led.



Carl Batt

From his lab in Stocking Hall, Batt has spent the past decade working in conjunction with researchers at the Weill Cornell Graduate School of Medical Sciences in New York City and Ludwig Center for Cancer Research branch at Memorial Sloan Kettering Cancer Center to develop a vaccine that will encourage the immune system to respond to patients' existing cancerous lesions.

Here's how it works: the vaccine starts by identifying a molecule, usually a protein, which is found more often on cancer cells than on normal cells. The vaccine then stimulates the immune system to attack just the cancer cells that have those unique molecules.

With the vaccine in Phase I clinical trials for the past year, Batt and his colleagues look to decipher the best formulation of components to elicit a safe and proper immune response.

"Right now the trials are not to cure cancer but to further understand how you might get this immune response in the first place," Batt says. "Your immune system goes from the 'good guy' status, attacking bacteria and attacking viruses, to the 'bad guy' status, which is auto-immune disease. It's a fine line between getting your immune system to respond and not getting it to respond too well."

He's also experimenting with heat to kill cancer cells, mimicking the way the body induces fever to fight off viruses and infection. The challenge is in localizing heat within the body, exposing harmful cancer cells with-



University Photography

Pat Johnson studies ovarian cancer in hens.

out harming the body's healthy cells, he says.

Batt believes his vaccine could fill some gaps in standard treatments—surgery, radiation, and chemotherapy—and maybe even provide a cure for cases that are particularly stubborn and unresponsive to those treatments.

“This particular treatment is for after you get done with surgery, after you get done with radiation, after you get done with chemotherapy, and there is this recalcitrant population that is left,” he explains.

As for the directed heat treatment, Batt sees it as a “mop up” after surgery, since a major complication of cancer operations is removing the entirety of cancerous cells associated with a tumor, while preserving healthy tissue.

## An ounce of prevention

On the 1.6 million-acre Hopi reservation in northeastern Arizona, native cultural beliefs can be barriers to cancer prevention. Angela Gonzales believes they can also contribute to solutions.



Angela Gonzales

The associate professor in development sociology is using the rich tradition of storytelling—with a modern twist—as a vehicle to deliver messages that educate her people about cancer prevention and encourage screening.

As part of a project funded by the National Institutes for Health Center for Population Health and Health Disparities at the University of Washington and Black Hills Center for American Indian Health, she is using narration, images, sound, and video—in both English and Hopi—to produce DVDs featuring women who have been diagnosed with cervical cancer and parents speaking about the importance of getting their sons and daughters vaccinated.

“By combining the rich tradition of storytelling in Native communities with digital technology, we can empower community members to share their personal stories about

cancer, as well as develop HPV [Human Papillomavirus, which can lead to cervical cancer] vaccination and screening messages that are culturally relevant and speak to Hopi values around health,” Gonzales says.

She hopes it will help reduce the incidence of HPV in the community or catch it before it develops into cervical cancer.

Two strains of the virus—HPV 16 and 18—are responsible for 75 to 80 percent of all cases of cervical cancer, and can be prevented through a vaccine recommended for adolescent girls between ages 9 and 12. The vaccine is free for members of federally recognized tribes in Arizona, yet hesitation among Hopi parents has prevented widespread immunization.

In addition, fewer than 50 percent of Hopi women receive the recommended annual pap tests, which screen for HPV, so Gonzales is encouraging the use of at-home testing kits.

“If you can reduce the presence of the virus in the community as well as identify it and treat it early on, the potential to reduce cervical cancer in the community is tremendous,” Gonzales says. “Because it is such a small, rural, isolated community, these interventions, if effective, could dramatically reduce the incidence of cervical cancer in the population across generations.”

It's a personal quest for Gonzales, who lost both her father and maternal grandmother to cancer. The process of getting treatment for her grandmother, a member of the Hopi Tribe who did not speak English, was particularly difficult, she says, partly due to the stigma and fear associated with cancer among many American Indians, and partly due to the lack of preventive screening services.

## Phone home!

According to Geri Gay, mobile phones can be powerful tools for cancer treatment and support.

Gay, the Kenneth J. Bissett '89 Senior Professor and chair of the Department of Communication, has spent several years encouraging healthy behavior and providing easier ways to monitor medical treatment through use of “persuasive technology.”

As part of her latest effort, members of the



University Photography  
Geri Gay (back, center) and J.P. Pollak with members of the Interaction Design Lab.

Interaction Design Lab led by graduate student John P. (J.P.) Pollak '00, MPS '08, have developed Aurora, a smart phone application designed specifically for patients undergoing cancer treatment.

The virtual support and social networking system is like “Twitter with images,” Gay says. Patients at the Weill Cornell Graduate School of Medical Sciences select pictures that illustrate their moods and post them into a live feed, which other users can view to see how their fellow patients are feeling.

Not only could the program create a supportive peer network among patients, it could lead to better health care by aggregating experiential information for researchers and health care providers.

“If nurses or doctors are monitoring these things and notice that someone is really depressed for two or three days, they can do an intervention,” Gay says.

Gay hopes the system will enable her to better understand the concept of “emotional contagion”—how knowing someone else's mood can impact your own. Pollak says he hopes to study whether use of the system could reduce patient anxiety.

“They're not thinking about their treatment when they take out our apps and use them,” he says. “It's a fun and social way to help them get through the day, get through their treatment, get through whatever it is that they're going through.”

Pollak anticipates that Aurora will be available to the public within a few months, along with several other smart phone applications developed by the Interaction Design Lab. ■



Drew Harvell

## Coral Reefs Sending a Warning Signal

By Drew Harvell, professor in the Department of Ecology and Evolutionary Biology and associate director of the Atkinson Center for a Sustainable Future. This piece first appeared on CNN.com in September, 2010.

ITHACA, NEW YORK (CNN)—I work at an inland university in chilly upstate New York. Around here, many people feel a little global warming is good and there is really nothing that they can see or hear that will make them feel differently. News of warming sea surfaces and bleached coral reefs inspire little response when there's a chill in the air and the ocean is hundreds of miles away.

Sure, the ice is off the lakes a few weeks earlier and the growing season is a couple of weeks longer. But there are costs we are seeing now—mosquitoes, ticks and other species of insects are really thriving with the warmer weather while some species of trees, like sugar maple, are suffering slow declines.

However, none of these small, incremental impacts gives one a sense of imminent disaster, but the reality is that increased sea-surface temperatures will impact hundreds of millions of people, whether they live in Key West or Kalamazoo.

In contrast to the incremental changes we are seeing here in the heartland, the sea is

already undergoing catastrophic changes on a massive scale, ones that are unprecedented in human history and that may be largely irreversible on human time scales.

**The sea is already undergoing catastrophic changes on a massive scale, ones that are unprecedented in human history.**

During the past few months, coral bleaching near Aceh, Indonesia, in the Coral Triangle and in the Andaman Sea of Southeast Asia has left vast tracts of reefs impacted, with up to 80 percent of the corals dead or dying at some of these sites.

Bleaching occurs when corals get so thermally stressed that the symbiotic relationship with their solar-powered algae falls apart, and the pigmented algae get expelled. The result is a bleached reef that looks starkly white because the white skeleton underlying the coral skin shows through.

Imagine if overnight all of the leaves on the trees in your neighborhood turned white from losing their photosynthetic pigments. Then think about what it would look like if more than half of those trees didn't recover and died.

Coral reefs are an ecosystem rich in biodiversity beyond our wildest imagining—we are still discovering the countless links that support transforming nutrient-poor tropical oceans into an oasis of life. Reefs provide a home to countless small crabs, worms, starfish and rich zooplankton which hide in the reef by day and come out at night to be a rich banquet for fish.

Young fish shelter and feed in the reef, until large enough to survive elsewhere. Gobies are an example of a small reef fish that shows big declines on reefs affected by bleaching; the butterfly fish also is a species that feeds directly on coral and so declines with reef damage. Reefs that have bleached and died quickly erode and cannot fix carbon from the sun or provide habitat for fish.

Even as I write this, I am anticipating that one of the largest bleaching events in the history of the Caribbean is under way. We don't know yet if this event will become the largest because it has not reached its peak. I have checked NOAA's Coral Reef Watch website every week this August and September to monitor the sea surface temperatures and to try to guess at what level they might peak.

Currently, the trajectory is on course to be markedly warmer than the record-breaking summer of 2005. During that year of record-breaking bleaching and devastating hurricanes, including Katrina, scientists identified the extreme sea surface temperatures as a once-in-a-100-year event.

Well, here we are five years later, and with a month to go before the expected temperature maximum during mid-October, it looks like we are in for a greater once-in-a-100-year event in the space of five years!

So, this raises the question—does this really matter to folks in the heartland? Does it matter that nobody is even aware that this huge event is even going on? Well, it matters if we

care about global biodiversity, since those reefs in the Coral Triangle are at the center of both fish and coral biodiversity.

It also matters if we care about the people who make their living on the fish, snails, crabs, and other animals that live on the reefs in the Coral Triangle, Southeast Asia, and the Caribbean—and the people who eat seafood in your town and every town.

It matters if we are concerned about future tsunamis in the Indo-Pacific because those reefs are the strongest wavebreaks known to protect fragile coastal communities. And finally, it matters because coral reefs fuel billions in tourist dollars to fragile economies in the developing world and in our territorial waters.

So, for people who are concerned about the fate of the global environment and human civilization, it does matter.

We are an ocean nation with vast areas of coral reefs. The exclusive economic zone of the US includes not only a 200-mile coastal zone around our fifty states, but a 200-mile zone around rich marine resources in the Pacific, including Guam, Midway Island, Palmyra Atoll and American Samoa.

It is important to realize that the effects of

climate change are being felt more directly in the oceans than on land. Just because they are out of sight does not mean that they should be out of mind.

Most people have not experienced first-hand the already disastrous impacts of climate change on our ocean. But soon enough we will start to notice disruptions in terrestrial ecosystems as well. To help coral reefs and other affected coastal ecosystems, much more stringent management policies must be implemented to control overfishing and landbased pollution. This can improve the resilience of these climate-stressed ecosystems.

In the larger policy arena, to slow this sea surface warming we must not only reduce greenhouse gas emissions, we have to figure out a way to get the CO<sub>2</sub> concentration below the level of the 388 parts per million it is at now. The target of 350 ppm CO<sub>2</sub> advocated by 350.org movement is a way forward if future generations are to benefit from the services coral reefs provide and the sense of awe that they inspire.

*The opinions expressed in this commentary are solely those of Drew Harvell. (Reprinted with permission from CNN.)*

## SOUND BITES

- “Most people believe that given the opportunity, everything else equal, people will lie more online than they would face-to-face,” said **Jeff Hancock**, associate professor of communication, in an ABC News interview.
- “We already know bedbugs have become an epidemic, but now we’re seeing bedbugs threaten romance. You basically double your odds of an infestation when you start dating someone,” entomologist **Jody Gangloff-Kaufmann**, PhD ’99, told *Marie Claire* magazine.
- “Piracy is not the only robbery on the high seas. A 56-year-old policy known as cargo preference is costing U.S. taxpayers an estimated \$140 million each year for humanitarian food shipments and is affecting millions of aid recipients worldwide. . . . Rather than promote ineffective shipping subsidies under the guise of humanitarian assistance, national security, and ‘buy American’ objectives, Congress should revisit the role of cargo preference as it applies to international food aid,” agricultural economist **Chris Barrett**, the Stephen B. and Janice G. Ashley Professor of Applied Economics and Management, wrote in *The Washington Post*.
- “People aren’t really the master and commander of what they eat. They’re influenced by a lot of things in their environment—for instance, simple things like the size of their serving bowl and the size of their spoon. People are adamant that these things don’t affect them, because nobody wants to admit that the size of the bowl is smarter than they are,” **Brian Wansink**, the John S. Dyson Professor of Marketing and director of the Cornell Food and Brand Lab, told Irish newspaper *The Independent*.
- “We shouldn’t be trying to trim government spending by cutting things most people don’t understand. We should be helping more people to understand more things, so that the complicated realities of the modern world can be discussed in a rational and informed way,” said **Warren D. Allmon**, professor of earth and atmospheric sciences and director of the Paleontological Research Institution, in a guest column that appeared in *The Albany Times-Union*.
- “When it comes to horticulture, grapes are so much more romanticized than any other crop. People don’t realize they are requiring quite a bit of (chemical) spray. Seventy percent of the fungicide used in the U.S. is used on grapes,” **Sean Myles**, PhD ’10, told *The Toronto Star*.

### UPDATE FROM PROFESSOR DREW HARVELL



Many people have now heard that 2010 was either the warmest year on record or tied with 2005. I don’t want to argue the case, because what is more relevant than the mean global temperature is how hot it got in ecologically sensitive habitats.

In an Op Ed I wrote for CNN (see opposite page), I drew attention to the significant over-warming in the Caribbean this past fall. By the end of the event, temperatures in the southeastern Caribbean from Tobago to Curacao were the warmest on record. Overall, heat stress for the basin exceeded 2005, making it another disastrously warm year in

the Caribbean. The photos in my Op Ed were taken by my colleague Ernesto Weil at his lab in Puerto Rico. Many Puerto Rico corals died in the 2005 bleaching event, and we were very concerned about a repeat in 2010.

In mid-October, during the peak of the warming, the weather was overcast and stormy in Puerto Rico. By the time the sun returned, the hot temperature anomaly had slid to the southeast Caribbean; thus, although Puerto Rico’s reefs did experience an extensive bleaching event, it was not as lethal as initially feared. Basically, the vagaries of weather (a rain storm) offset the lethal climate effect in one region (Puerto Rico) during the critical time.

We did take samples in October to measure the immunity of the corals to disease and whether their beneficial surface bacteria shifted during the event. This will enable us to learn more about the vulnerability of coral reefs during these warm temperature anomalies.

The most severe impacts of this year’s bleaching event occurred in the southeast Caribbean—in Curacao, Grenada, and the reefs of Los Roques. We received reports of widespread bleaching and do not know yet the extent of the mortality following that event. This picture shows what these reefs looked like the week of Feb. 4, nearly four months after the event. Similarly, the arctic experienced the warmest temperatures in history this past year, perhaps the warmest in 2,000 years.

Climate scientists are in agreement that these kind of events will increase in frequency. We are facing an ecological disaster on Caribbean coral reefs.

## 1930s

**Alice Husted Church '35** of Blauvelt, N.Y., writes she has many fond memories of Cornell and Cornell Plantations. At 97 years of age, she is still planning and enjoying her gardens.

## 1940s

**John Rezelman '41** of Bath, N.Y., just published a book (at the age of 91!) about the history of the potato industry in Steuben County. The book is entitled *Bushels, Barrels, Bags, and Boxes*. Since Rezelman retired from Farm Credit, he has pursued many interests including writing.

## 1950s

**Norman E. Gary, PhD '59** of Citrus Heights, Calif., is an emeritus professor of apiculture at the University of California-Davis and the author of a newly published book on beginning beekeeping titled *Honey Bee Hobbyist: The Care and Keeping of Bees*. The paperback book, published by BowTie Press, is intended to be "entertaining, authoritative, and easy-to-understand," said Gary, who shares his extensive beekeeping knowledge spanning more than six decades. Gary trains bees to perform in action scenes in movies, television shows, and commercials. He developed and taught the first insect behavior course at UC Davis.

## 1960s

**James Leider '60** of Lake Bluff, Ill., is chairman and CEO of Leider Horticultural Companies, Inc., a large-scale nursery and plant distributor. Leider recently joined GSKy Plant Systems' board of directors. GSKy is North America's leading provider of indoor and outdoor vertical living garden systems.

**L. Dale Van Vleck, PhD '60** of Lincoln, Neb., was recently named to the USDA-ARS Science Hall of Fame. Van Vleck joined ARS in 1988 after retiring from Cornell. He officially retired in 2007 from the ARS Roman J. Hruska U.S. Meat Animal Research Center in Clay Center, Neb. He and his wife, Dolores, have a son, **John P. Van Vleck '86**.

**Donald H. Sawyer '61** of Watertown, N.Y., and his wife, Kayrena, celebrated their 50th wedding anniversary in July 2010. They own and operate Sawyer Farms in Burrville, N.Y., which is a dairy farm run by their grandsons as the eighth generation of Sawyers. Both Mr. and Mrs. Sawyer are active in the farming community and serve on many agricultural boards including the Jefferson County Historical Society. They have three sons: Thomas, Scott, and Mark; a daughter, Danielle; 12 grandchildren; and two great-grandsons.

**Otto C. Doering III '62** of West Lafayette, Ind., was recently named director of the Purdue Climate Change Research Center. Doering had been serving as the center's interim director since October 2009 and has many years of experience working on the economic analysis of environmental issues. He was a member of the Intergovernmental Panel on Climate Change that shared the 2007 Nobel Peace Prize for their work on climate change.

**Wayne P. Olson '62** of North Lauderdale, Fla., writes that Cornell dramatically changed the life of this once-poor farm boy from Norwich, N.Y. He has authored six books and says that Cornell is "magnificent in every way."

**Robert T. Harris '65** of Coldwater, Mich., retired in July 2010 as chairman of the board of Alliance Foods, Inc. Harris joined Alliance in 1967 as an account executive in their Syracuse branch office. He moved to the Alliance home office in Coldwater in 1972. He has held various senior management positions throughout his career and retired in 2005 as Alliance's CEO. He and his wife, Marge, have four children and 10 grandchildren.

## Big Red Boast for Long Island Winery

Provided



At Bedell Cellars on Long Island, the Big Red boast isn't just about its critically acclaimed Merlot blend, Musée—the winery also employs several generations of Cornell graduates.

From winemaker to sales manager, the roles run the gamut, and CEO Trent Preszler says it speaks to the diversity of offerings at the College of Agriculture and Life Sciences and the breadth of skills its graduates acquire.

"The CALS degrees are not one-dimensional, and the students gain expertise in all aspects of the wine business" says Preszler, a 2002 M.S. grad in

agricultural economics who is also a Cornell Ph.D. candidate in viticulture.

"They become fluent in aspects of business and marketing, chemistry and botany, microbiology and sensory science. All those interests are then piqued and primed for when they enter a job in industry, and they are ready to contribute to a winery in a variety of ways," he adds.

Bedell winemaker Rich Olsen-Harbich '83 is also a Cornell graduate, (B.S. Plant Science), as is its national sales manager Adriana Coderch '10 (B.S. Food Science, Enology), social media specialist Steve Carlson '09 (B.S. Food Science, Enology), and former harvest intern Benjamin Riccardi '08 (B.S. Plant Science, Viticulture), who went on to become the winemaker at Lamoreaux Landing in Lodi.

"We recruit from CALS because we know these graduates will have knowledge specific to our industry and our growing climate. Many of them come from family farms or wineries and understand on an intimate level what they're getting into, and they aren't afraid to roll up their sleeves and work hard," Preszler says.

"Over the years, Cornell has both led and responded to the needs of the wine industry," Olsen-Harbich says. "At times the university has been prodded by industry to delve deeper into topics and needs, while at other points the work done at Cornell has opened new doors and pathways otherwise unseen."

Owned by film executive and art collector Michael Lynne, Bedell and its sister winery, Corey Creek Vineyards, encompass 78 acres that yield approximately 10,000 cases of wine annually. The tasting rooms also double as art galleries, and the labels are designed by renowned artists Barbara Kruger, Ross Bleckner, and Chuck Close.

*Read more about CALS alumni in the wine industry on page 34.*

—Stacey Shackford

**Uri Mingelgrin '65, MS '66** of Rehovot, Israel, was recently appointed chief scientific officer of Adama Technologies Corporation. Mingelgrin's appointment was unanimously approved by the board of directors. Mingelgrin's expertise spans government and the private sector with extensive expertise in environmental sciences. He and his wife, **Susan '67**, have two sons: Dan and David.

**James F. Davis '67** of Hayesville, N.C., has been the chairman of the Clay County (N.C.) Republican Party for the past two years and a syndicated columnist for the Sentinel newspapers and other web publications. His wife, Luisa, teaches art history classes at the local college. Son, **Cristian Davis '97**, is a biology professor at the University of Maryland. Daughter, **Samantha Davis '00**, is an associate director for Alumni Affairs and Development in the College of Human Ecology at Cornell.

**James W. Becket, PhD '68** of Davis, Calif., was honored by the Davis Chamber of Commerce in January with its 2010 C.A. Covell Award for Davis's Citizen of the Year. The Covell trophy recognizes individuals who have demonstrated leadership in civic activities, given

unselfish service to the community, reliably followed through on their commitments, and been involved in a variety of civic activities. The award, initiated in 1944 by L.N. Irwin, was first presented to longtime Davis mayor C.A. Covell and was named in his honor.

**Paul E. Lehman '68** of North Tonawanda, N.Y., retired in August 2010 after nearly four decades as a Niagara County Cooperative Extension educator. Lehman and his wife, Jane, remain very active in retirement doing volunteer and local community work. He is looking forward to traveling and a trip to Alaska.

## 1970s

**Robert L. Simpson, Jr., PhD '71** of West Bloomfield, Mich., was named provost and vice president for Academic Affairs at Kettering University. Simpson was serving as interim provost and vice president for Academic Affairs during the 2006–2007 academic year. Prior to this, Simpson was a professor of biology and environmental science at the University of Michigan-Dearborn. He and his wife, Penelope, have two children: Elizabeth and Robert.

# ALUMNI NOTES

**Robert W. McGory '73** of Vero Beach, Fla., has joined Indian River Medical Center as pharmacy director. During his career, McGory has been involved in various research projects about the effects of medication and dosages on patients, pain control, and organ transplantation—all resulting in publications in his name and that of his research teams. McGory received his BS degree in microbiology from Cornell and his master's from the University of Kentucky in Lexington. He received his doctor of pharmacy degree from the College of Pharmacy at the University of Minnesota in Minneapolis.

**Richard H. Munson, MS '73, PhD '81** of Oxford, Ohio is teaching at Miami University in Oxford, Ohio, in the Department of Botany and is creating a small container operation that specializes in native plants. He has a daughter, Sarah, and son, David.

**George B. Ray, MPS '73** of Shaker Heights, Ohio, in 2009 wrote a book, *Language and Interracial Communication in the U.S.: Speaking in Black and White*. The book was recently named Outstanding Scholarly Book for 2010 by the International and Intercultural Communication Division of the National Communication Association.

**Michael R. Van Valkenburgh '73** of Brooklyn, N.Y., and his team of associates have won an international competition to redesign the St. Louis arch grounds. The project will be constructed by October 28, 2015, the 50th anniversary of the completion of the city's arch. The Michael Van Valkenburgh Associates portfolio includes the redesign of Pennsylvania Avenue at the White House and the design of Brooklyn Bridge Park. They also redesigned Cornell's own Bailey Plaza, adjacent to Bailey Hall. Van Valkenburgh received his BS degree from Cornell in landscape architecture.

**William R. Holder '74** of La Grange, Ill., was recently appointed to the board of directors of La Grange Memorial Hospital Foundation. Holder is a stock broker for professional investors and is also a member of the La Grange Village Board and of several area committees and boards. He holds a BS from CALS and is also a graduate of SUNY Cobleskill. He and his wife, Denise, have two children.

**Brig. Gen. Rhonda Scott Cornum '75, PhD '80** of Landstuhl, Germany, is the director of comprehensive soldier fitness for the U.S. Army. Cornum is a board-certified physician and served as a flight surgeon in 1991 during the Gulf War. Cornum began her distinguished military career after earning her PhD from CALS in nutrition and biochemistry. She was the commencement speaker at Florida State University in August 2010. Her memoir, *She Went to War*, was published in 1992 and recounts her experience as a POW captured by Iraqi forces and released eight days later.

**Kenneth M. Ferguson '76** of Seattle, Wash., was named vice president of development of Omeros Corporation. Ferguson brings more than 20 years of experience managing research and development organizations. He holds a PhD in pharmacology from the University of Texas Health Science Center and a BS in biological sciences from CALS.

**Helen M. Turley '76** of Calistoga, Calif., was honored by *Wine Spectator* magazine with their 2010 Distinguished Service Award. Turley owns Marcassin Vineyard and has made some of California's greatest wines in over three decades in the state's wine industry. Turley was honored for shaping the course of modern winemaking and was featured in the *Wine Spectator's* July 31, 2010, cover story.

**Gordon G. Willard '76** of Newington, Conn., was named the executive director of the Connecticut Humane Society in July 2010. Willard has over 26 years of experience working with and heading various animal shelters and clinics across the country. He most recently worked as a Florida-based consultant for a multitude of national humane organizations, including the American Humane Association's Shelter Evaluation Program, evaluating shelters from Nevada to Washington, D.C.

**Harris Alan Lewin '79, MS '81** of Champaign, Ill., was named vice chancellor for research at the University of California-Davis. Lewin is a member of the Royal Swedish Academy of Agriculture and Forestry and a fellow of the American Association for the Advancement of Science.

## 1980s

**Jonathan W. Jaffe '80** of Smithfield, R.I., received the 2010 Pride of Farm Credit East Outstanding Citizen Award. The award was presented at the organization's annual meeting in Albany. Jaffe is a vice president with Farm Credit East in Dayville, Conn., and has worked as a business consultant and farm tax specialist with Farm Credit for over 27 years. He and his wife, **Lisa Scheiner Jaffe '80**, have two grown children, Andy and Jennifer.

**Jeffrey A. Winton '80** of Indianapolis, Ind., was recently named vice president of communications at Eli Lilly and Company. Winton assumed his role in October 2010 and will become a member of the Eli Lilly and Company Global Corporate Affairs Leadership Team. He will be responsible for communications across Lilly, including oversight of corporate and product communications, employee communications, issues management, and digital and social media communications.

**Brian S. Zweig '80** of North Greenbush, N.Y., was recently named to the board of trustees for Hudson Valley Community College. Zweig was appointed to the seven-year term by then-Governor David Paterson. For the past 12 years, Zweig has operated Business Opportunities Management Consulting, which helps businesses develop new products and markets. Zweig is also active in the local community, having recently served as a Rensselaer County legislator and served on the boards of the Rensselaer County Farmers Market, the Rensselaer County Soil and Water Conservation Board, and the Rensselaer County Agriculture and Farmland Protection Board.

**William H. Walton, MS '81** of Deer Park, Ill., was recently named Civil Engineer of the Year by the American Society of Civil Engineers (ASCE) Illinois Section. Walton is a licensed civil and structural engineer in 16 states and has over 30 years of experience in geotechnical and geotechnical design. Walton accepted the award at the annual dinner meeting in Chicago in October 2010.

**Lawrence K. Pierce '82** of Aromas, Calif., and his employer, Duda Farm Fresh Foods, introduced a red celery in November 2010. Pierce joined Duda in 1989, where he became the company's manager of seed research, specifically in the area of celery breeding. He holds 35 patents that either have been issued or are pending. Celery breeding is slower than most crops because it is a biennial, taking two years to make seed. Most of his research, and that of his wife, Vicki, who also works at Duda, is directed toward improving the flavor and texture of celery.

**Andrew C. Beers, MS '87** of Nassau, N.Y., was named in September 2010 acting commissioner of the Office of Parks, Recreation, and Historic Preservation by then-Governor David Paterson. Beers had served as OPRHP executive deputy commissioner since 2007. Prior to that, Beers was deputy state director of the Nature Conservancy. He is married to **Elizabeth E. Meer, MS '90**.

**Thomas A. Raga '88** of Masa, Ohio, recently joined DPL as director of government relations. Raga has extensive experience in government, having served

as a member of the Ohio House of Representatives where he was vice chairman of the House Finance and Appropriations Committee. Prior to joining DPL, Raga was vice president of advancement for Sinclair Community College. He is involved in various community groups in Warren County. DPL is a regulated electric utility company providing service to over 500,000 retail customers in west central Ohio.

**Steven H. Reich '88** of Short Hills, N.J., was named managing director of product management and business development for Pivot, Inc. Reich previously served as CEO of FX Bridge Technologies Corp. Pivot revolutionizes how buy and sell-side traders manage liquidity and trade in high-touch markets. Reich is married to Julie Tananbaum Reich '88 (HuEc).

**Gidon Coll '89** of New York, N.Y., is the founder of Original Sin Cider. Founded in 1997, Original Sin Cider is a New York-based hard cider company and announced their first shipment of its alcoholic cider to the U.K. and Sweden in December 2010. Sourcing local ingredients, the dry, traditional American cider leaves out artificial colors or flavors. Today, the ciders are available in 28 states. The company's sales grew 70 percent in 2010 from the prior year. The cider is gluten-free and made with Champagne yeast and premium-quality ingredients. For more information: [www.origins.com](http://www.origins.com).

## 1990s

**William L. Burnquist, PhD '91** of San Paulo, Brazil, was recently appointed as the general manager of operations in Brazil for Ceres, a leading developer of bioenergy crops. An experienced leader in Brazil's sugarcane and ethanol sector, Burnquist will administer the day-to-day activities of the company's subsidiary, Ceres Sementes do Brasil Ltda., including local seed production and Ceres's network of sweet sorghum trials. The company markets its seed under its Blade brand. Ceres holds one of the world's largest collections of fully sequenced plant genes.

**Dr. Paul S. Matz '92** of Sicklerville, N.J., and his wife, Miriam, welcomed their daughter, Lilah, on July 29, 2010. Lilah joins older sisters Rebecca (5) and Eliana (18 months). Paul is a pediatrician in private practice.

**Christine M. Rizzo '92** of Syracuse, N.Y., was recently appointed director of the Jefferson Community College Foundation. Rizzo will be responsible for cultivating financial support, planned giving, grant coordination, alumni relations, and special event planning for the college. Rizzo has a BS degree in education and a master of divinity degree and a master of arts degree in theology from Aquinas Institute of Technology in St. Louis, Mo.

**Dr. Seliga Moore '93** of Wrentham, Mass., recently joined Milton Chiropractic and Rehabilitation as the clinical director. Moore has over 14 years of clinical experience as a sports chiropractor and has practiced in New York, Colorado, Massachusetts, and Rhode Island. She completed her educational studies at both Cornell and New York Chiropractic College, graduating with honors from both institutions.

**Michael R. Barone '94** of Hamburg, N.Y., was named one of the "40 and under 40" by Business First of Buffalo. The awards program, held annually, recognizes 40 of western New York's up-and-coming business and community leaders under the age of 40. Barone joined SUNY Fredonia in January 2008 and heads public relations, advertising, publications, and the university's website. He is married to CALS alumna **Tara Ann Barone '91**.

**Dr. Dean DeRoberts '94** of Jacksonville Beach, Fla., has joined the medical staff of Community General Hospital in Syracuse, N.Y., as a board-certified plastic surgeon. DeRoberts received his BS in biological sciences and is also a graduate of SUNY Upstate Medical University and Wake Forest University Medical Center. He has spent the past four years in private practice in Jacksonville, Fla.

**Charles R. Deprima '95** of Milford, N.H., married Samantha Appleton in August 2010. Deprima is a recycling coordinator for the city of Manchester, N.H. Appleton is the director of marketing and public relations for Intown Manchester. They reside in Milford with Appleton's twin sons, David and James.

**Frances A. Largeman-Roth '97** of Brooklyn, N.Y., is the senior food and nutrition editor at *Health Magazine*. She is a nationally recognized health expert and has helped thousands of women lose weight and eat healthfully with her recipes and smart diet advice. She recently co-authored with Ellen Kunes a book entitled *The CarbLovers Diet*, which features a step-by-step seven-day CarbLovers Kickstart Plan. More information: [www.carblov.com](http://www.carblov.com).

**Scott A. Conroe, MPS '98** of Cortland, N.Y., recently wrote a book about his experiences as a faculty advisor to a Cornell fraternity. It has become a popular textbook for Greek leadership courses. The book, *I Take Just Pride: How a Fraternity Reinvented Itself, Why a Professor Joined*, was published in 2007 by Box Grove Communications. It explores issues faced by fraternities and sororities at Cornell and across the nation.

**Pier Marcelo Romero Kotre, MS '98** of Pichincha, Ecuador, owns a fruit processing plant called Sweet Pleasure® Products that makes tropical fruit concentrates for European bottlers and processors.

## 2000s

**Tsiorasa Jose Barreiro '00** of Hogsburg, N.Y., along with his wife, Randi Rourke Barreiro, were both named "Native American 40 Under 40" award recipients by the National Center for American Indian Enterprise Development. Tsiorasa is vice president of sales with Ongweoweh Corporation. Randi is the editor of *Indian Country Today*, the largest Native American newspaper. They have three children: Kanatires, Tehokwirathe, and Karakwatiron.

**Alyson C. Grippo '00** of Jersey City, N.J., married David J. Morrisey on November 13, 2010, in West Milford, N.J. She is a planner for intimate apparel, children's wear, and swimwear at Saks Fifth Avenue Corporation in Manhattan. She also has a New Jersey real estate license and is a sales associate for ReMax Gold Coast Realty in Hoboken, N.J.

**Dana C. Pulverenti '01** of Yardley, Pa., married Raymond M. Cianni on February 20, 2010, at the Greystone Castle in Canastota, N.Y. She received her BS from CALS and her Doctor of Optometry from Pennsylvania College of Optometry. She is an optometrist at Temple University. Cianni is an optometrist at Total Eye Care Centers. The couple honeymooned in Hawaii.

**Amy Beth Arrigo '02** of Chalfont, Pa., married Jeffrey H. Goldman on September 26, 2009, in Falmouth, Mass. Arrigo holds a master of science degree in organizational dynamics from the University of Pennsylvania. She is employed as a human performance specialist for Accenture in Philadelphia, Pa. Goldman is a systems engineer for Telerx Corporation, a subsidiary of Merck and Company in Horsham, Pa.

**Nancy K. Franz, PhD '02** of Ames, Iowa, was named in May 2010 as associate dean for extension and outreach for families and 4-H youth at Iowa State University in the College of Human Sciences. She is also the director of ISU Extension to Families. She lives with her husband, William Gahnz.

**Dr. Gordon D. Peddle '02** of New York, N.Y., recently joined Animal Emergency and Referral Associates of Fairfield, N.J., as their veterinary cardiologist. Peddle received his BS in animal science from CALS and his DVM from the University of Pennsylvania School of Veterinary Medicine. He has published a variety of veterinary journals on both cardiac and noncardiac subjects, including original research, review articles, and case reports.

**Ashleigh Ayers Snelson '02** of Boston, Mass., married John J. Sullivan on September 25, 2010, in Chatham, Mass. Snelson received her MBA from the Tuck School of Business at Dartmouth University in June 2010 and is working as a consultant for Bain & Company in Boston. Sullivan is currently enrolled in the Tuck School of Business and will graduate in June 2011.

**Jennifer C. DeMichele '03** of New Canaan, Conn., began her second year of residency at Strong Memorial Hospital in August 2010. In June, she was presented with the Schuster Award, which recognizes the display of outstanding leadership and adaptability as a medicine pediatrics intern. DeMichele graduated from the University of Connecticut Medical School in May 2009. She is participating in a combined four-year medicine and pediatrics residency, which, when completed, will permit her to become board certified in both internal medicine and pediatrics.

**Nicole Hirsch '03** of Rochester, N.Y., is the director of outreach programs for Lollypop Farm, the Humane Society of Rochester and Monroe County. She also holds an MPA from the Maxwell School at Syracuse University.

**Dr. Gregory Johnson '03, DVM '07** of Goshen, N.Y., along with his wife, Dr. Ann W. Johnson, were recently appointed associate veterinarians at the Perry Veterinary Clinic, PLLC. Johnson is a companion animal clinician, while Johnson is a mixed practitioner with primary interests in food for animals/dairy and

companion animals. Gregory Johnson was raised on a dairy farm in Goshen; Ann Johnson is a native of the Pittsburgh area. They met at Cornell's College of Veterinary Medicine.

**Rukmini R. Potdar, PhD '03** of Albany, N.Y. is the program director for Sociology at Excelsior College.

**John R. Tauzel '03** of Schenevus, N.Y., received the 2010 Robert H. Rumler MBA Scholarship from the Holstein Association USA. The scholarship is awarded annually to an individual pursuing their master of business administration. Tauzel is currently pursuing his MBA with the S.C. Johnson School of Management. For the past seven years, Tauzel worked with the New York Farm Bureau, most recently as a senior associate director of public policy.

**Andrew H. Stumacher '04** of Staten Island, N.Y., married Lauren Sherman on October 30, 2010, at the Rockleigh (N.J.) Country Club. Stumacher earned his BS in applied economics and management and an MBA degree from Wagner College. He is a client reporting manager with Alliance Bernstein in Manhattan. The couple honeymooned in Hawaii.

**Morgan Whitney Chase '05** of Buffalo, N.Y., married Dr. Robert Donnarumma, Jr., on September 19, 2009. Chase is a food scientist with Rich Products Corporation. Donnarumma is an emergency medicine doctor for the University of Buffalo.

**Michelle L. Turk '05** of Baintree, Mass., is in her second year as a comparative medicine postdoctoral fellow at Massachusetts Institute of Technology. She holds a BS degree from CALS in animal science and received her DVM from Colorado State University.

**Jonathan S. Leiman '08** formerly of Bethesda, Md., is a master's candidate in the University of Montana's Environmental Studies Program. He recently received a \$500 Love of Learning Award from the Honor Society of Phi Kappa Phi. The award is given to 80 Phi Kappa Phi members nationwide to help fund post-baccalaureate studies and career development. Leiman received his undergraduate degree in natural resources.

**Matthew T. Cogger, MS '09** of Washburn, Wisc., now operates Maple Hill Farm with his father, Tom. Cogger noted the demand for local foods was on the rise and realized that what was lacking in the region was wheat. They sell much of their wheat to many local bakeries and businesses and also raise Hereford hogs. Cogger hopes to grow even more wheat, increasing from eight acres to 10 this year and plans to put in his own flour mill.

**Gabriel T. LaHue '10** of Aptos, Calif., begins two years of service with the Peace Corps, which will take him to Paraguay as a crop extension volunteer.

**Joseph R. Wilson '10** of East Meredith, N.Y., became engaged to Pamela D. Cason of Johnson City, N.Y. Wilson is pursuing a DVM from Purdue University's Veterinarian School in Indiana. Cason is a licensed veterinary technician at SPEAK Animal Hospital in Binghamton, N.Y. A June 4, 2011, wedding is being planned.

Prepared by Mary K. Alo

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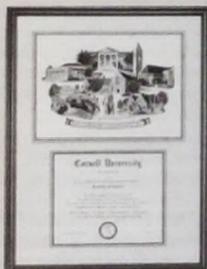
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# ALUMNI ASSOCIATION PRESIDENT'S MESSAGE



## I Am Cornell!

**H**ave you heard about the initiative "I Am Cornell," an online, ongoing photo project that is piecing together a mosaic? The premise is that Cornell is bigger than a bunch of buildings sitting on a hill. Cornell is thousands of people, each with his or her own story. The same could be said about the College of Agriculture and Life Sciences (CALS). During Reunion last year, there was a booth in Barton Hall where alumni could videotape themselves explaining why they are Cornell. I had difficulty pinpointing one specific item to explain why I am Cornell.

Many of us can create a long list of the ways that Cornell helped us when we were undergraduates—whether it was by providing us the opportunity to see notable figures, conduct research, or travel to new places. When I was close to graduating, one of my professors used his contacts to help me obtain job interviews. Once I landed a job, it was the Cornell Alumni Association that helped me form a network of friends in my new location.

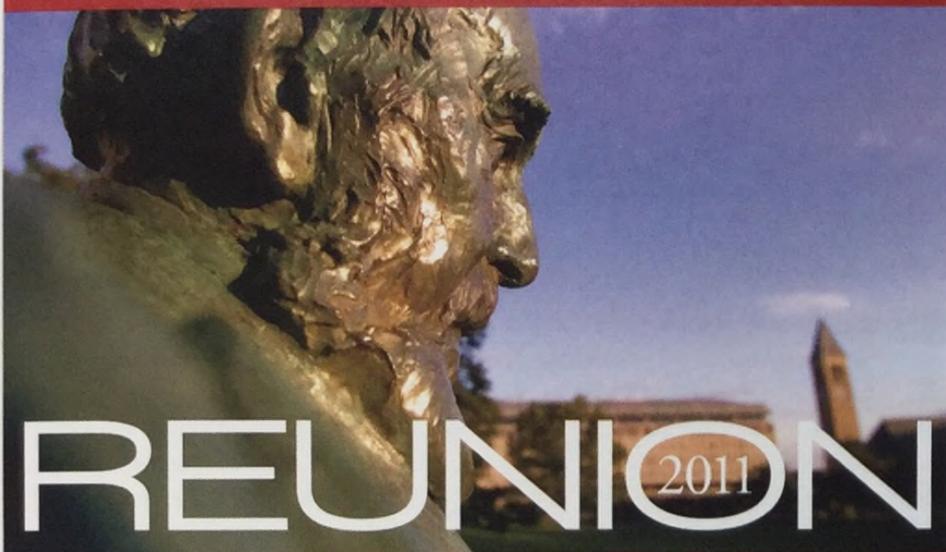
Recently, though, the reach of Cornell became clearest to me. Students in the school district where I work participated in a national competition to design an experiment that would be flown in low Earth orbit to test the effect of microgravity. The winning proposal for our district was an experiment titled "The Development of Minnow Eggs in Space." The students had to obtain fish eggs within three weeks, which meant we needed fish eggs in December. After several days of searching the Internet and making phone calls to suppliers around the country, I was seriously considering telling three 10-year-old girls that they wouldn't be able to conduct their experiment because we couldn't find eggs. Then I contacted Mike Walter in the Department of Biological and Environmental Engineering (BEE), who reached out to his contacts, and within a half hour I received a phone call from another BEE professor who gave me contacts to provide us with eggs. The experiment was back on track. The three girls now want to be scientists as a result of participating in this experiment. Who knows, they may be future Cornellians.

Our connection to Cornell and CALS is always there. Share your experiences of what Cornell and CALS have done for you at the Cornell College of Agriculture and Life Sciences Alumni Facebook page. Please remember to "like" it while you are there.

I am CALS because I am part of a great network of people always willing to help. It is important that as alumni we continue to nurture our connection to Cornell and CALS. Please consider reviewing the chart at [cals.cornell.edu/alumni/get-involved.pdf](http://cals.cornell.edu/alumni/get-involved.pdf) and identifying ways that you can get involved. Your level of involvement can vary from low to high and can take various forms, such as giving to the Annual Fund, contributing time to mentor students, organizing an event, or serving on a department advisory board. The most important thing is to be engaged in some way.

To participate in "I am Cornell," make a sign telling what Cornell means to you. Then have someone snap your photo holding it. The only rules: sign your name (first only) and write the phrase "I Am Cornell" on your photo. Alumni and students should include their class year. Share *your* Cornell with the world via the I Am Cornell Flickr group at [www.flickr.com/groups/iamcornell](http://www.flickr.com/groups/iamcornell).

*Diane M. Irwin '94*  
2010–2011 CALS Alumni Association President



## Join CALS for Reunion Weekend: June 9–12, 2011

### Friday, June 10

#### **"Fly-Fishing in the Finger Lakes," talk by Michael Lenetsky, Leon Chandler Chapter, Trout Unlimited**

10:00 am–11:00 am, Mann Library, Room 102  
Cornell alumni are invited to learn from a local angling master what the Finger Lakes region offers for fly fishing enthusiasts of all levels.

#### **Earth and Atmospheric Sciences Open House**

11:00 am–2:00 pm, Snee Hall Atrium  
Visit the Timothy N. Heasley Mineral Museum and inspect our mastodon and fossil exhibits while keeping an eye on the earth's last rumblings at the Snee earthquake seismograph. Enjoy a stroll with the self-guided tour through the Engineering Quad rocks.

#### **All-Alumni Affair with CALS Department Display Booths**

11:30 am–1:30 pm, Barton Hall  
Enjoy the sights and sounds of Barton Hall at Reunion—there will be college and unit displays, music, alumni of all ages, and great food by Cornell Catering. Lunch tickets available on site.

#### **Wine, Cheese, and a Side of Moo: A Farm-to-Barrel Experience**

12:00–6:00 pm, Tours depart from Alumni House, 626 Thurston Avenue,  
*Pre-registration required*

Experience firsthand the wonderful handcrafted food and wine crated on the east side of Cayuga Lake. The tour includes two cheese farms and two farm wineries. Learn about the cheese-making process and how to pair wines with cheese.

#### **The Food and Brand Lab Consumer Camps**

1:00–2:00 pm, 102 Mann Library; 2:00–3:00 pm, 32 Warren Hall; 3:00–4:00 pm, 102 Mann Library  
Professor Brian Wansink, the John S. Dyson Professor of Marketing in the Charles H. Dyson

School of Applied Economics and Management, and Associate Professor David Just will offer workshops on why, what, when, and how people eat. Workshops are limited.

#### **Pass It On: Personal Archiving in the Digital Age**

1:00–2:00 pm, John L. Stone Computing Center (Mann Library, 1st floor)

In the digital age, how do we ensure that the photographs, videos, and other memorabilia we create with our digital cameras and computers can be safely preserved for our children and grandchildren? Join library staff to learn strategies for archiving your digital family memorabilia.

#### **Liberty Hyde Bailey Lecture, "Feeding the World and Fueling Our Future"**

1:00–2:30 pm, Call Auditorium, Kennedy Hall  
Whether it be feeding our appetites for fun foods or fueling our desire to lead a more sustainable lifestyle, CALS research makes big impacts in our lives. Hear about how Walter De Jong creates new potatoes, Margaret Smith advances the organic food industry, Larry Smart builds green energy solutions using willow, and Susan McCouch fights world hunger by enhancing rice.

**Moderator:** Jan P. Nyrop, CALS Senior Associate Dean and Professor of Entomology

**Panelists:** Walter De Jong, Associate Professor of Plant Breeding and Genetics; Susan McCouch, PhD '90, Professor of Plant Breeding and Genetics and of Plant Biology; Larry Smart, Associate Professor of Horticulture; Margaret Smith '78, PhD '82, Professor of Plant Breeding and Genetics and Associate Director of the Cornell University Agricultural Experiment Station

#### **Landscape Architecture Open House**

1:30–4:30 pm, 440 Kennedy Hall  
The undergrad landscape architecture degree is one of a kind in the Ivy League. Visit the studio and mezzanine, enjoy drinks and snacks, and chat with faculty, staff, and fellow alumni.

#### **Olin Lecture**

3:00–4:15 pm, Bailey Hall  
Each year, the Olin Lecture brings to campus an internationally prominent speaker to address a topic relevant to higher education and the current world situation. The lecture is free and open to the public.

#### **Mann Library Open House**

3:00–5:00 pm  
High technology and classic Art Deco, creative collaboration and quiet study, book browsing and bird watching, beautiful art and hard science—these are some of the features that make the renovated Mann Library one of the most popular research and learning centers on campus. Drop in during the open house to explore on your own or request a guided tour at the Mann Reference and Information Desk.

### Saturday, June 11

#### **Reunion Run**

7:30 am, Barton Hall, Garden Avenue entrance  
Pre-registration encouraged for the 2- or 5-mile courses.

#### **CALS Reunion Breakfast and Open House**

8:00–10:00 am, Trillium, Kennedy Hall  
Enjoy fellowship with alumni, faculty, friends, and Dean Kathryn Boor as she gives her first Reunion welcome. Diane Irwin '94, CALS Alumni Association president, will host the association's annual meeting. CALS departments will host information tables for you to browse. Registration required.

#### **State of the University Address**

10:30 am, Bailey Hall  
Cornell University President David J. Skorton will deliver his annual Reunion State of the University Address. All registered Reunion attendees and their guests are welcome.

#### **Communication Department Open House**

11:00 am–1:00 pm, Kennedy Hall, 3rd floor  
This reception gives alumni and friends of the Department of Communication a chance to connect as well as to mingle with current faculty and students. Stop by to learn about the exciting things happening in the department.

#### **All-Alumni Affair with CALS Department Display Booths**

11:30 am–1:30 pm, Barton Hall  
Enjoy the sights and sounds of Barton Hall at Reunion—there will be college and unit displays, music, alumni of all ages, and food by Cornell Catering. Lunch tickets available on site.

#### **Plant Biology Alumni Gathering**

11:30 am–1:00 pm, G37 Plant Sciences, MacDaniels Room  
Join us for light refreshments while visiting with fellow Plant Biology, Botany, and Plant Science alumni and current and former faculty. Historical photos will be on display.

#### **Biological and Environmental Engineering Alumni Gathering**

12:00–1:30 pm, Riley Robb, Room 105  
Enjoy a light lunch while visiting with fellow alumni and current and former faculty. Lab tours available.

### Mann Library Open House

1:00–4:00 pm

High technology and classic Art Deco, creative collaboration and quiet study, book browsing and bird watching, beautiful art and hard science—these are some of the features that make the renovated Mann Library one of the most popular research and learning centers on campus. Drop in during the open house to explore on your own or request a guided tour at the Mann Reference and Information Desk.

### Wine Tasting

1:30–3:30 pm, Trillium, Kennedy Hall

Savor the flavor of New York State wines and meet winery owners at this very popular annual Reunion event. Free admission to all alumni and guests, 21 years of age and older.

### The Class of 1976 presents "Nutrition, Memory, and Immunity"

2:30–3:30 p.m., Martha Van Rensselaer Hall

*Co-hosted by the College of Agriculture and Life Sciences and the College of Human Ecology.*

The Division of Nutritional Sciences faculty are engaged in extraordinary research that's providing optimal guidance for healthful eating. Hear from a panel of distinguished professors—Mal Nesheim, PhD '59, David Levitsky, Marie Caudill, and others—about their innovative research. Honorary guest Margery Devine will be in attendance to greet former students, faculty, and friends.

### Allan Hosie Treman '21 Memorial Concert

2:30 pm, F.R. Newman Arboretum (Flat Rock entrance), Cornell Plantations  
Annual Reunion concert

### Tour the Paleontological Research Institution (PRI) and the Museum of the Earth (affiliated with Cornell's Department of Earth and Atmospheric Sciences)

3:00–4:00 pm, Museum of the Earth, 1259 Trumansburg Road, Ithaca

A right-whale skeleton welcomes you to the museum, where you can follow the major transformations of life through fossils and videos. Observe the new seismograph display and view research by EAS faculty and students. Collect fossils from the Devonian seas of Ithaca. Fun for all ages! Free admission for alumni and families.

### Natural Resources Wine and Cheese Reception

3:00–4:30 pm, Breezeway between Fernow and Emerson Halls

Join us for wine tasting and light refreshments while you visit with fellow Natural Resources alumni and former and current professors. Share recollections of your days in Fernow and at field sites. Department chair Marianne Krasny will provide a brief update on the department and its programs. There will also be displays of historical photos, posters of recent faculty and graduate student projects, and information on programs at the Arnot Teaching and Research Forest.

### Special Earth and Atmospheric Sciences Faculty Lecture

3:30–4:30 pm, Paleontological Research Institute, 1259 Trumansburg Road, Ithaca

Presentation by Warren D. Allmon, professor of Earth and Atmospheric Sciences and director of the Paleontological Research Institute.

### Cornelliana Night

9:30 pm, Bailey Hall

Join the Alumnae Chorus and the Alumni Glee Club in songs of Cornell. Reunion attendance and giving will be recognized.

## Ongoing Weekend Events

### Cornell Plantations Tours

Stop by the beautiful new Nevin Welcome Center and explore Cornell's botanical gardens, arboretum, and natural areas.

### Mann Library Ongoing Exhibits

Thursday and Friday, 8:00 am–5:00 pm; Saturday, 1:00 pm–5:00 pm

### Landscape As Verb: photography exhibit by Marc Miller, MLA '05, Department of Landscape Architecture

Mann Gallery, 2nd floor

Miller uses synchroballistic photography to explore the relationship between landscape representation and motion through digital images. Sponsored by the Cornell Council on the Arts.

### Rainbows and Plunge Pools: Fly-Fishing and the Lore of the Streams

Mann Lobby, 1st floor

Our age-old fascination with fish and fishing is examined through the double lenses of science and literature and illustrated with beautiful images from Mann Library's Special Collections and the Comstock Entomology Library collection.

**For more Reunion Information, please visit [www.alumni.cornell.edu/reunion](http://www.alumni.cornell.edu/reunion).**

**For CALS Reunion Events, please visit [www.cals.cornell.edu/alumni-friends](http://www.cals.cornell.edu/alumni-friends).**

## Breakfast Registration Form (Note: New start time of 8:00 am)

**Register online at [www.cals.cornell.edu/alumni-friends](http://www.cals.cornell.edu/alumni-friends) before June 1, 2011.**

**Registrations are recorded on a first-come, first-served basis.**

Please note that your registration is not complete until the breakfast fee is paid.

**Registrations should be received no later than June 1, 2011.**

A name tag will be given to each registered guest upon arrival at breakfast.

**\$20 per person.**

Name

(print exactly as to appear on name tag)

Class Year/Major

Address

City

State/Country

Zip/Postal Code

Telephone

E-mail:

Reunion Year

Guests

Class

Class

Membership Expiration Date

Number of Registrations

Total Amount Enclosed \$

Please make your check payable to the CALS Alumni Association or pay with

VISA

MasterCard

Discover Card

Expiration Date

Account #

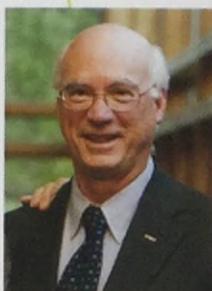
Signature of Cardholder

Mail to CALS Reunion Breakfast, Cornell University, 274 Roberts Hall, Ithaca, NY 14853-5905; Phone: 607 255-8711; E-mail: [alsaa@cornell.edu](mailto:alsaa@cornell.edu); Fax: 607 254-4690.

**Must be received no later than June 1, 2011.**

# Generations and Cornell Alumni Shaping the G

## John Dyson '65 Millbrook Vineyards and Winery, Williams Selyem Winery, and Villa Pillo



An accomplished businessman and public servant, Millbrook Capital Management chairman John Dyson has served as New York's commissioner of agriculture, commissioner of commerce, chairman of the New

York Power Authority, and deputy mayor of New York City. As agriculture commissioner in the 1970s, he formed a task force to develop the Farm Winery Bill, which ignited the growth of New York's wine industry. His personal detour into wine began in 1979, when he and his wife, Kathe, converted an old dairy farm in his Hudson Valley hometown of Millbrook, N.Y., into Millbrook Vineyards and Winery. They now own over 1,000 acres of vineyards, including Villa Pillo in Tuscany, Italy, and Williams Selyem Winery in California's Russian River Valley. Dyson is a Cornell emeritus trustee, and his family's gift of \$25 million established the CALS Charles H. Dyson School of Applied Economics and Management in 2010. He is a recipient of the CALS Outstanding Alumni Award and past chair and a current member of the CALS Advisory Council.

## John Williams '74 Frog's Leap Winery



A native of upstate New York and a former dairy farmer, John Williams trained at U.C. Davis and the Finger Lakes Glenora Cellars before establishing Frog's Leap Winery in 1981. While

focused on producing wines that reflect the climate and soils of their origin, Williams is an industry leader in organic grape production, cultivating over 200 acres of certified organic vineyards in California's Napa Valley. Williams's commitment to sustainability has

led him to harvest more than just grapes from the land: the winery became 100 percent solar powered in 2005—courtesy of a half acre of vineyard with over 1,000 photovoltaic panels—and the hospitality center now uses geothermal heating and cooling. His son Rory '11 is completing his M.S. in Food Science, studying the chemistry of wine aroma.

## Peter Saltonstall '75 King Ferry Winery/Treleaven Wines



With his wife, Tacie, Peter Saltonstall has been the co-owner of King Ferry Winery, the makers of Treleaven wines, since 1984. As head winemaker, Saltonstall focuses on producing small quantities of

wine with intense varietal character by hand harvesting grapes, reducing yields in the vineyard, and fermenting in oak barrels. Along with producing award-winning wines, Saltonstall was instrumental in changing national and state laws to allow direct shipment of New York wines to other states, allowing New York wineries to maintain direct relationships with their customers in other states. He has chaired the board of the New York Wine and Grape Foundation, serves on the CALS Advisory Council, is a past member of the Cornell Institute for Food Science Advisory Council, and collaborates with researchers in Cornell's enology and viticulture program. He was recognized in 2007 with the CALS Outstanding Alumni Award.

## Helen Turley '76 Marcassin Vineyards



Pioneer and perfectionist Helen Turley is one of the most influential winemaking consultants in California. She was one of the first to recognize that the wilds of the Sonoma Coast were an ideal

**L**ong before the establishment of the viticulture and enology undergraduate major at Cornell in 2008, CALS alumni have been leaders in the wine industry from coast to coast. They have pioneered new wine regions, worked for legislative reform to foster industry growth, implemented green practices, and explored new markets from cult wines to distilled spirits.

These Cornellians represent a fraction of the outstanding alumni in the industry.

# Innovations: Grape and Wine Industries

environment for producing high-quality wine grapes, establishing her own Marcassin Vineyards there in 1985. Since then Marcassin has become one of California's most renowned wineries, and Turley has become one of the first winemaking super-consultants, working with over 20 clients in her 30-year career.

With her allegiance to capturing the grape's varietal character and producing balanced wines, she is credited with ushering in California's cult wine revolution. In 2010, she was the recipient of *Wine Spectator's* Distinguished Service Award for her many accomplishments in the vineyard and wine cellar.

## Fred Frank '79

### Dr. Frank's Vinifera Wine Cellars



Fred Frank's grandfather, Dr. Konstantin Frank, brought the cultivation of the European *Vitis vinifera* grapes to the Finger Lakes, altering the course of the Finger Lakes wine industry. Fred Frank,

who trained as a winemaker in Germany, serves as president and manages the team of winemakers, whose track record of wine medals led the *Wine Enthusiast* to name them "Finger Lakes' Most Award-Winning Winery" in 2007.

The national attention garnered by his Rieslings helped establish Riesling as the signature varietal for the Finger Lakes and elevate the international reputation of the region's wines. Frank has served on the CALS Advisory Council and the CALS Alumni Association board of directors. In 2010, CALS honored him with an Outstanding Alumni Award. He has three children attending CALS: daughters Megan '11 and Gretchen '10, and son Kyle '14, who hopes to continue the Frank family legacy.

## Larry Perrine, MS '85

### Channing Daughters Winery



Larry Perrine established the first formal grape research program for the Long Island wine industry as a Cornell research viticulturist and served as a consultant for 11 years. Next, he joined Channing Daughters

Winery, where he is now president, CEO, and co-owner. At the winery, Perrine has fostered an atmosphere of artisanal experimentation. Channing Daughters is the only winery on Long Island's east end that produces wine from rare varieties such as Malvasia, Refoseco, and Ribolla Gialla. Fermentations use both wild and commercial yeasts and depart from standard methods, such as fermenting white grapes with their skins—a practice traditionally employed only with red grapes. Perrine has served on the board of the New York Wine and Grape Foundation, the NYS Agricultural Experiment Station Advisory Council, and the Long Island Horticultural Research and Extension Center's Grape Research Advisory Committee.

## Kim Wagner '85 & Stephen Osborn '84

### Stoutridge Vineyard



Kim Wagner and Stephen Osborn established Stoutridge Vineyard in 2001 on Hudson Valley land that was first planted to vineyards in the 1700s. Their "slow wine" approach results in wines with

a natural haze and sensory complexity. To minimize their environmental impact: they installed a solar array that produces enough electricity to meet the winery's need. Wagner and Osborn are expanding their production to make room for a distillery that will transform New York-grown ingredients into bourbon, vodka, and gin. Wagner serves on the Life Sciences

Advisory Board, the CALS Advisory Council, the Governor's Task Force on the Wine and Grape Industry, and the board of the NYS Wine and Grape Foundation.

## Torey Arvik, PhD '03

### Cork Supply USA



As a specialist in wine spoilage, Torey Arvik has been on the front lines of keeping wines safe from the scourges of "Brett" and cork taint. After earning his doctorate at Cornell, he developed wine diagnostics at ETS

Laboratories in St. Helena, California, and then served as director of technical services for Jackson Family Wines for four years. In March 2011, he became the technical services and operations director of Cork Supply USA, the second-largest global producer of natural cork closures and known for their commitment to sustainable cork oak forestry. Arvik also supports the global research and development program for their natural cork products and their custom cooperage program, which produces ultra-premium wine barrels.

# END NOTE



## 'One Great Idea': Cornell Cooperative Extension at 100

In early winter of 1911, John H. Barron of the Cornell Class of 1906, accepted a job offer to become the first Farm Bureau agent.

Byron Gitchell, secretary of the Binghamton Chamber of Commerce, had proposed the establishment of a bureau within the Chamber to “extend to farmers the same opportunities now enjoyed by the business men of the city.” The Delaware, Lackawanna, and Western Railroad joined together with the Broome County Chamber of Commerce, U.S. Department of Agriculture, and the State College of Agriculture (now CALS) to finance the establishment of an office to work with farmers. The college was unable to contribute financially but would “give advice and encouragement.”

A farm agent would be employed to conduct demonstrations and educate farmers individually and in groups about the best methods, crops, livestock, labor, tools, and other equipment.

When Barron began work on March 20, 1911, he was assigned a horse and buggy and set out to establish himself as “one of the most popular and effective extension specialists ever to represent Cornell University.” One hundred years ago, the “One Great Idea” that is Cornell Cooperative Extension was born.

The new Farm Bureau was initially met with some skepticism. Farmers openly wondered if the railroads were interested only in making money for themselves, or if the government was simply trying to raise production instead of securing higher prices for what was already produced. It soon became clear that Barron, who had a college education and was raised on a farm, had the credibility to engage the agricultural community. It also became clear to Agent Barron that he could not meet the challenges before him on his own and he needed a network of local people to disseminate information. So a board of directors was formed, and what would become an impressive statewide and national network took root.

What started in Broome was replicated rapidly in neighboring counties, and within a short period, Extension organizations were formed in most New York counties. Extension and the Farm Bureau functioned as the same organization until the early 1950s, when Congress mandated that the function of lobbying for specific legislation to benefit individual producers should not be a function of a government-sponsored program. New York Farm Bureau and Cooperative Extension went through a thoughtful separation at that time and they have operated as collegial but independent organizations ever since, with Farm Bureau acting specifically in the interests of its members and Extension taking on a broader educational role.

The notion of a strong, credible educator with close ties to Cornell is alive and well in Cornell Cooperative Extension's work today. Local Extension workers have a deep understanding of the communities they serve, which no doubt would have impressed John Barron in his day. Now in its 100th year, Cornell Cooperative Extension (CCE) provides access to New York's land grant university through an extensive network of field-based staff and nearly 40,000 volunteers.

Several of the centennial activities during 2011 prepare CCE to take advantage of new opportunities created by changes in funding at the national and local levels. While increasing the sustainability of agriculture and the world food supply continue to be major priorities, also taking the stage as central priorities are renewable energy, effects of climate change, nutrition and health, and family and community development. The idea that science can be applied to everyday problems—the “One Great Idea”—draws people together and will underlie Cornell Cooperative Extension's response to the challenges of a new century.

—George Preston '72

Senior Communications Advisor for Cornell Cooperative Extension



# CREATIVE WAYS TO GIVE

Charitable gifts provide essential support for the College of Agriculture and Life Sciences. The following giving opportunities address tangible needs such as equipment, travel funds, scholarships, and more.

The CALS Development Office is available to discuss various giving options, including gifts of securities, planned giving opportunities, and gifts to endowment. For more information or to make a gift for one of these priority needs, please contact Mike Riley '87, Associate Dean for Alumni Affairs and Development, College of Agriculture and Life Sciences at (607) 255-7635 or mpr2@cornell.edu.



## CALS Annual Fund Needs You

Gifts of all sizes to the CALS Annual Fund provide significant program support. Dean Kathryn Boor is directing Annual Fund donors to support the college's highest academic priorities including unmet undergraduate scholarship need, start-up costs for newly hired faculty, and internships for undergraduates. Your gift at this critical time will provide essential support for our students, faculty, and academic programs.

## Student Assistantship

Student library assistants are to Mann Library what bindings are to books. Mann's student staff members, more than 50 in a typical academic year, play a crucial role in the reliable operation of the library. Fund a student assistantship.  
\$3,000 (Mann Library)

## Field Tripping

Field experience is an essential part of the Viticulture and Enology Program. Support transportation for a class field trip to area wine makers.  
\$2,500 (Viticulture and Enology)

## Save the Bees

Gifts of any size to the Roger Morse Apiculture Lecture and Study Fund will support research to find a cure for colony collapse disorder.  
Any amount (Entomology)

## Tall Order for Bradfield Hall

A quality classroom environment is an important component of the teaching and learning experience. Support basic upgrades to our educational environments in Bradfield Hall.  
\$20,000 (Crop and Soil Sciences)

## Bugs-R-Us

Sponsor Insectapalooza 2011!! This popular open house is one of the premier science outreach events for the College of Agriculture and Life Sciences.  
\$4,500 (Entomology)

## Gator Aid

Diesel gators move people and goods to and from the docks at Appledore Island. Support the purchase and maintenance of this valuable equipment.  
\$14,000 (Shoals Marine Laboratory)

## In a Good Light

Mann Library's permanent display of glass invertebrate sculptures by Rudolf and Leopold Blaschka offers a close-up view of the amazing artistry of this famed 19th century father-son team. Fund the installation of track lighting that puts this extraordinary artwork in the light it deserves.  
\$5,000 (Mann Library)

## Teaching in the Tropics

Ecology and Evolutionary Biology teaches undergraduate and graduate courses in tropical environments including Kenya, Puerto Rico, Florida, and Hawaii. Each requires substantial funding to make it affordable for students.  
\$10,000–\$25,000 (Ecology and Evolutionary Biology)

## Send a Student to Shoals

With 17 credit courses scheduled for SML Summer 2011 and more than 150 applications in hand, 2011 promises to be a terrific summer on Appledore Island.  
\$5,000 per student (Shoals Marine Laboratory)

## Gather the Grapes

Provide funding for a student's transportation for a local grape harvest internship.  
\$500 (Viticulture and Enology)

## Have a Seat

Mann Library's Chats in the Stacks and other public lectures and events draw standing-room-only crowds, great for us but not so comfortable for those on their feet! Fund the purchase of 25 stackable chairs for the library seminar room.  
\$5,000 (Mann Library)

## Display the Big Catch

Spectacular and irreplaceable trophy fishes sketched by Cornell's own Louis Agassiz Fuertes are at risk of falling into disrepair due to inadequate storage. A display case is needed to hold the specimens, which include a 7-foot sturgeon and a 5-foot alligator gar and are used in teaching laboratories.  
\$12,000 (Ecology and Evolutionary Biology)

## Green Wheels for Gardeners

Fund a fuel-efficient, 4WD mini-truck to transport tools, mulch, and plant materials on the narrow pathways of our campus gardens.  
\$10,000 (Cornell Plantations)

## Sustain the Sustainable Interns

Undergrads in the Sustainable Engineering Internship Program bring new thinking to solve practical problems of energy and water conservation at Shoals Marine Laboratory.  
\$10,000 (Shoals Marine Laboratory)

## Just Imagine . . .

Our students are continually envisioning new and creative projects for independent research. Some of these cannot be funded through traditional sources, so we need help to sustain the imaginative thinking of our students.  
\$2,000 to \$25,000 (Ecology and Evolutionary Biology)

## Networking Works

Fund a Viticulture and Enology alumni networking event. Create an opportunity for current students to interact with our wine and grape industry alumni.  
\$1,000 (Viticulture and Enology)

## Support the Entomology Mixer

Sponsor the Cornell Mixer at the annual meeting of the Entomological Society of America—to be held in Reno, Nevada this year—where current students can network with CU alumni.  
\$3,000 (Entomology)



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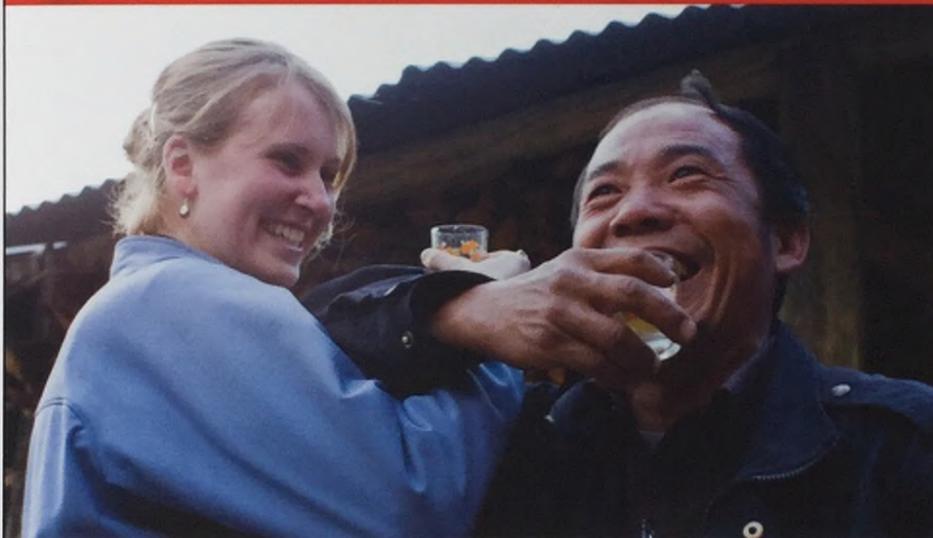
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### Developing Snapshots of the World

For many CALS undergraduate and graduate students, the classroom extends far beyond the Cornell campus. Join them on their journey, through photos taken high in the Himalayas, deep in the forests of Mexico, and in the divergent landscapes of Malawi, Zambia, Patagonia, and Mongolia.

### A Bird's-Eye View of Science

Zip through the trees of Mt. Pleasant's Hoffman Challenge Course in a video capturing the experience of students in Taryn Bauerle's Nature of Plants horticulture class as they core and climb trees to survey the ecosystem from above.

### Techie Tools—To Go!

Get the scoop on the best smartphone apps for farmers, scientists, and the rest of us. We've also gleaned the best pointers about how to leverage social media, from presenters at a marketing conference hosted by the Charles H. Dyson School of Applied Economics and Management.

### Got Milk?

Download Cornell Got Milk? goodies, including a poster of President David Skorton sporting a milk mustache, and weigh in on who you think should be the next Cornell "celebrity" featured.

Catch web exclusives only at [calsnews.cornell.edu](http://calsnews.cornell.edu)  
And don't forget to follow us on Twitter @CornellICALS

## CAPTION CONTEST



This photo is begging for a witty or weird caption. So send us yours! The best entry, determined by the CALS Communications staff, will receive a 32 oz. jug of Cornell maple syrup.

Send submissions by **June 24** to [calsnews@cornell.edu](mailto:calsnews@cornell.edu). Results will be posted on the Cornell College of Agriculture and Life Sciences Alumni Facebook page on July 1.

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