

# College of Agriculture and Life Sciences

## NEWS

Spring 2008



## People and Technology

### Computer-Mediated Communication



Cornell University

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Applying Tree-Fruit Genomics  
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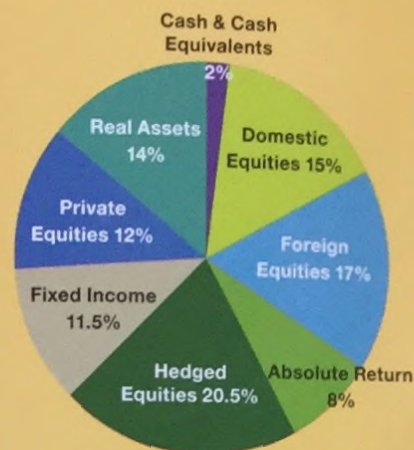


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# Message from the Dean

## The Legacy of Ray Wu, Scientist Beyond Measure

Over the course of more than a century, an impressive array of outstanding faculty members have made CALS their academic home. Even among such illustrious company, however, certain figures have stood out, putting enduring stamps not only on their institution or fields but on their eras. For example, I think of Liberty Hyde Bailey, our college's founding dean; George Warren, who founded what is now our nationally fourth-ranked Undergraduate Business Program in the Department of Applied Economics and

Management; and Rollins Emerson, the pioneering professor of plant breeding and genetics who mentored Nobelists Barbara McClintock '23, MS '25, PhD '27, and George Beadle, PhD '30. There have been other greats since then, a number of whom are still in our midst. But I would like to single out one extraordinary human being who recently passed from our presence into history: Ray Wu.

As a scientist, Ray Wu, the Liberty Hyde Bailey Professor of Molecular Biology and Genetics, has long been known as a pioneer of molecular biology. He developed the first method for sequencing DNA and some of the fundamental tools for DNA cloning. His 1970 strategy, though improved upon as technology has advanced, still underlies the sequencing of an ever-growing number of entire genomes of plants, animals, and microbes.

In the midst of this stellar rise as a basic scientist, Ray decided to change course and apply his mastery of genetics and biotechnology to global hunger—and again he pushed the frontiers. In 1988 his group was one of the first to succeed in producing transgenic rice plants. In 1996 he published a method for the production of drought- and salt-tolerant rice plants that is expected to increase the yield of major cereal crop plants in the developing world by as much as 30 percent by 2025.

Ray Wu's humanity was as remarkable as his scientific grasp. This was evident not just in the redirection of his career but in his devoted efforts to foster scientific cooperation between the United States and China and Taiwan. In addition to accompanying Cornell President Hunter Rawlings on trips to China and serving as a prominent scientific advisor to both countries, Ray brought hundreds of top Chinese students to this country under the auspices of the China–United States Biochemistry and Molecular Biology Examination and Application program, which he founded.

These scientists and others repaid his kindness by establishing the Ray Wu Society to promote advances in the life sciences. This very influential group, which recently expanded to become the Chinese Biological Investigators Society, is co-sponsoring a memorial symposium to be held October 3–9 on the Ithaca campus. Details are available at [www.mbg.cornell.edu/memorial](http://www.mbg.cornell.edu/memorial).

Ray's contributions were also financial. He used hundreds of thousands of dollars in royalty income from his patents to establish the Ray Wu Graduate Award in the Department of Molecular Biology and Genetics, an act of generosity that addresses one of Cornell's greatest needs.

In his pursuit of vitally important knowledge, in his embrace of cross-cultural understanding and collaboration, and in his wholehearted devotion to training others to carry his efforts forward, Ray was at once an exemplar and a not-uncommon type within the CALS community, where so many dedicate themselves every day to developing leaders and improving lives. I am very proud to have known him as a colleague.

—Susan A. Henry, PhD,

The Ronald P. Lynch Dean of Agriculture and Life Sciences



In February, Dean Susan A. Henry signed a Memorandum of Understanding with C. Ramasamy (left), Vice-Chancellor of Tamil Nadu Agricultural University (TNAU), in Coimbatore, India, to establish a dual-degree program in food science at Cornell and TNAU. It is the first such program between a land-grant university in the United States and an agricultural university in India.

## College of Agriculture and Life Sciences

### NEWS

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# Short Reports

## Cornell Professor Writes Biography of George Warren, Adviser to FDR

A new biography, *George F. Warren: Farm Economist* (Cornell University) by Bernard "Bud" F. Stanton '49, professor emeritus of agricultural economics, tells the story of George F. Warren (1874–1938), a key economic adviser to President Franklin D. Roosevelt and an international leader in developing the field of farm management in the early 20th century—and namesake of Cornell's Warren Hall.

Stanton, who retired in 1992, served on the Cornell faculty for 39 years and was chair of the Department of Agricultural Economics in the 1970s.

He begins the biography with Warren's formative roots as a farm boy, student, and teacher in Nebraska. He follows Warren as he moves to Cornell in 1902 to complete his graduate study with Liberty Hyde Bailey. He became a member of the Cornell faculty in 1906 and head in 1907 of the department that has evolved into today's Applied Economics and Management.

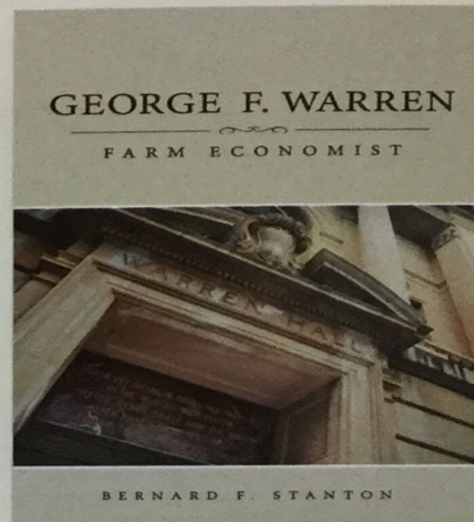
Warren was a revered teacher of agricultural economics, a popular speaker, and a prolific researcher whose work influenced state and national policy. His work had a profound influence on the importance of economics to farm management and the development of farm management as a field of study. He played a leadership role in Cornell's College of Agriculture as it was growing in size and importance.

Stanton traces Warren's work as a national leader in farm price analysis in the 1920s and 1930s. Warren became a trusted economic advisor to FDR during his years as governor of New York (1929–1932), a role Warren continued when FDR became U.S. president in 1933. As a result of Warren's accomplishments and citizenship, FDR funded the construction of Warren Hall, which was completed in 1932.

Warren died in 1938 from liver cancer.

The biography may be ordered online at [aem.cornell.edu/news/warren.htm](http://aem.cornell.edu/news/warren.htm).

Susan Lang



## Undergraduates Visit Alumni in Boston

Twenty-nine Cornell students (freshman to seniors from both CALS and Arts and Sciences) spent the last few days of their winter vacation in Boston. The students met with nearly 50 Cornell alumni from varied careers and industries—graduate students to science journalists to biotech researchers, and more. Students discovered new career options and made great connections for the future.

The students listened to three panels—one focused on the medical field, another on young

alumni, and another on science-writing, marketing, and editing. They visited Reed Elsevier, publisher of *New Scientist Magazine* and *Cell*; Novartis, a pharmaceutical company; Harvard University, to speak with graduate and medical students; the Broad Institute, a research center; and Genzyme Corporation, a biotech firm.

"I didn't realize that Boston and Cambridge are packed full of opportunities to learn about and that people there conduct cutting-edge scientific studies," says Kate Allen, a senior

biological sciences major. "In true Cornell fashion, every alum was open about their experiences and willing to answer any question."

Dale Porter '95, PhD '01, who works in Oncology Drug Discovery at Novartis, says, "It was great to see students being proactive about career exploration in the biomedical sciences. The students were very engaged, and everyone enjoyed the visit."

"Students were encouraged to apply for internships at many of the companies we visited. I would not be surprised if a few of them ended up in Boston this summer," says Sharon Detzer '88, CALS senior director of alumni affairs and development. She was one of several CALS staff members who accompanied the students; others included: Laurie Gillespie, senior associate director, CALS Career Development Office; Jennifer Drumluk, director of business partnerships; Jeff McCaffrey, assistant director of advising and research; Wendy Aquadro, associate director of advising; and Bonnie Comella, director of advising.

Samantha Wickham '08





## Cornell Patents Its First Ornamental Plant



Courtesy of Mark Bridgen

This new *Alstroemeria* ornamental, Mauve Majesty, was developed by Mark Bridgen, Cornell professor of horticulture.

**M**auve Majesty is one cool lily look-alike. This new pinkish-purple ornamental flower, just patented by Cornell, can last for two weeks in a vase, but when left in the garden it blooms all summer long in the cooler northern states until the first

hard freeze in the fall. This new hybrid of the Inca lily (*Alstroemeria*) was developed by Mark Bridgen, Cornell professor of horticulture and director of the Department of Horticulture's Long Island Horticultural Research and Extension Center. The hybrid is the first orna-

mental plant patented by Cornell, according to Richard Cahoon, PhD '99, associate director of patents and technology at Cornell's Technology Transfer Office.

The flower is a non-fragrant perennial that is set apart by its lavender-lilac color (which is adorned with dark speckling and a creamy yellow throat), its strong, upright flower stems, and its winter hardiness. In greenhouses, the new hybrid never goes dormant and grows year-round.

It is also one of the first in its color class to be hardy to zone 6 of the U.S. Department of Agriculture Plant Hardiness Zone Map (coasts of Massachusetts, Connecticut, Rhode Island, New York, northern New Jersey, and much of the Midwest) and often to many parts of zone 5 (which includes western Massachusetts, mid-state New York, northern Pennsylvania, Ohio, Indiana, Illinois, much of Michigan, southern Iowa and Nebraska, northern Missouri and Kansas, and eastern Colorado).

"*Alstroemeria* flowers, native to South America, are the fifth most popular cut flower in the United States," says Bridgen, who was recently awarded the 2008 Herbert Medal from the International Bulb Society for meritorious achievement in advancing knowledge of bulbous plants.

The hybrid, which botanically is not a lily, took five years to develop, which included testing and growing it in large enough quantities to sell. It is now widely available through nurseries and mail-order catalogs.

Susan Lang

## CALS-led Team Creates Blueprints for Measuring Carbon Footprint

**C**arbon sequestration expert Tim Fahey, professor, Department of Natural Resources, has joined with a team of regional experts to create an online database for communities throughout the Northeast to use in assessing—and reducing—their "carbon footprints."

Using a previously released study of Tompkins County as a model, the Carbon Science Links Project is assessing carbon budgets in key demographic areas of the Northeast and developing an online database to give public policy officials tools for land-use management and community mitigation practices.

Car emissions and heat and power from fossil fuels are the biggest contributors to greenhouse gas emissions, which scientists believe are causing atmospheric changes leading to global warming. But there are also elements

that offset carbon emissions, including forested lands, because trees absorb carbon and emit oxygen. The project aims to help local community planners better understand their county's carbon budget—how much does the county emit into the atmosphere, how much does it sequester, and what can be done to improve the balance?

Tompkins County, for example, could reduce its carbon footprint by two-thirds by better managing existing natural resources and technologies and by investing in proven renewable-energy sources, says Fahey, who led a team of Cornell experts in a study of the county's carbon budget.

"Once officials understand their carbon budget and can readily see the potential for mitigation, then there is a hope of affecting public policy and attitudes," says Fahey.

The Carbon Science Links Project is developing mitigation plans for diverse counties in the Northeast, including urban and suburban landscapes such as those in one Baltimore county, and less populated, wilderness-rich areas, such as Coos County in northern New Hampshire. The diverse assessment sites will allow the researchers to build a database that can be used by community planners to input their own specific demographics—such as population, housing, commerce, and transportation networks—to develop an analysis and mitigation strategy, including potential costs.

Lauren Chambliss



## 2007: A Tough Year To Be a Bee

Beginning in the winter of 2006, beekeepers in New York and elsewhere in the United States began to experience the unexplained die-off of entire colonies of their honey bees. By spring 2007, large numbers of hives across dozens of states had been devastated by a puzzling new syndrome termed colony collapse disorder, or CCD. The disorder is characterized by the rapid disappearance of most of the adult worker bees from the hive. Honey aside, it seems that life for the migratory commercial honey bee and her keeper may not be any sweeter in 2008.

With 90 crop varieties and \$8 billion to \$12 billion in agricultural crops dependent on commercial pollination annually (\$200 million in New



York state), scientists are focusing efforts to uncover the cause of CCD.

While no single culprit has yet been identified, many scientists believe the disorder may be the result of several factors working in concert. Numerous researchers in Europe, where similar losses are occurring, suspect an intestinal parasite, *Nosema ceranae*, as the primary source. While recent evidence confirms the presence of this parasite in the United States, other studies suggest that the root cause may be viral in nature, possibly exacerbated by pesticides.

According to Nicholas Calderone, Cornell entomologist and director of Cornell's Dyce Laboratory for Honey Bee Studies, Cornell researchers are approaching the CCD conundrum by scrutinizing "the effects of pesticides,

particularly neonicotinoids, on several aspects of worker behavior... [and] also examining the effects of these same pesticides on the bee's immune response system to see if they are leaving the bees susceptible to infections."

In addition to their efforts to combat CCD and parasitic mites directly, Calderone says that researchers at Dyce Lab are also taking a preemptive approach to promoting bee health through the development of improved breeding techniques, technologies, and education.

Rob Costello



## Daily Fruit May Prevent Neurodegenerative Diseases

Eating more apples, bananas, and oranges may help stave off such neurodegenerative diseases as Alzheimer's and Parkinson's, suggests a new Cornell study published online in the *Journal of Food Science*.

When Chang Y. "Cy" Lee, Cornell professor and chair of food science and technology at the university's New York State Agricultural Experiment Station in Geneva, N.Y., and South Korean colleagues exposed neurons (nerve cells) to apple, banana, and orange extracts, they found that the fruits' antioxidants—specifically phenolic phytochemicals—prevented oxidative stress-induced toxicity in the neurons.

"Many studies indicate that the brains of Alzheimer's patients are subjected to increased oxidative stress ... and the resulting cellular dysfunctions are widely believed to be responsible for the nerve degeneration in these patients," says Lee.

Lee had reported in 2004 that similar chemicals in apples could protect rat brain cells that were assaulted by oxidative stress in laboratory tests and therefore that apples might help prevent the type of damage that triggers Alzheimer's and Parkinson's diseases.

"Since then, we received many requests asking about the potential benefits of other common fresh fruits in our daily diet, such as oranges or bananas. To answer these questions, we did some additional work," Lee says.

Unpeeled apples, he explains, contain the highest content of protective antioxidants, followed by bananas, then oranges. These foods are the major fruits in Western and Asian diets.

Joe Ogradnick, Cornell University



An apple a day may keep the neurologist at bay.

"Our results suggest that fresh apples, bananas, and oranges in our daily diet, along with other fruits, may protect neuron cells against oxidative stress-induced neurotoxicity and may play an important role in reducing

the risk of neurodegenerative disorders such as Alzheimer's disease," Lee says.

The study was supported by Gyeongsang National University and the Ministry of Agriculture and Forestry, Republic of Korea.

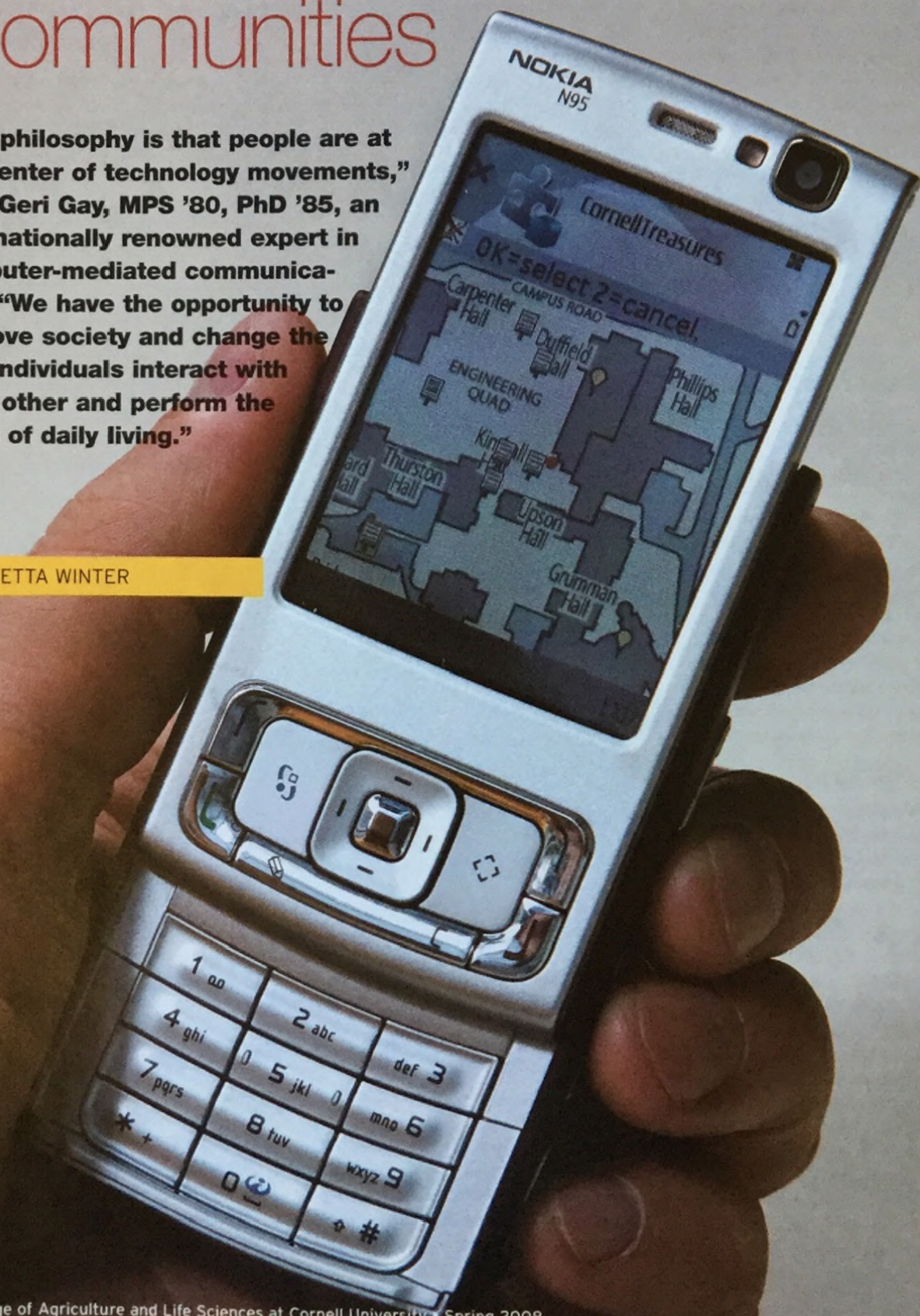
Susan Lang



# Calling All Digital Natives (and Immigrants) into Online Communities

**"Our philosophy is that people are at the center of technology movements," says Geri Gay, MPS '80, PhD '85, an internationally renowned expert in computer-mediated communication. "We have the opportunity to improve society and change the way individuals interact with each other and perform the tasks of daily living."**

BY METTA WINTER





One of those pesky pop-up ads—the kind that Internet users must willfully ignore to focus on the information they went online for in the first place—shows a smartphone with the tag lines: “You can do more when your phone runs Windows. Start doing more.”

It’s with that very goal in mind—to enable the users of mobile communication technologies to do much, much more—that Microsoft and a score of other companies (IBM, Intel, and Google among them, as well as agencies such as the National Aeronautics and Space Administration, National Science Foundation, and National Institutes of Health) spend millions of dollars to back the research of Geri Gay and her collaborators in the Department of Communication. So busy is she that when GM called recently to ask her help in designing more user-friendly interfaces for the navigational and other computer devices in their cars, she had to turn them down. With regret.

“It’s something I just couldn’t take on right now,” explains Gay, the Kenneth J. Bissett Professor, chair of communication department, member of the faculty of Computing and Information Science, and director of the Human-Computer Interaction Laboratory. “When you consider all the research possibilities, it’s like looking at a sky filled with stars.”

Gay plays a leadership role in a dozen or so studies from within three areas: social networks; influence, persuasion, and games; and information-seeking. She and her colleagues use their findings to make recommendations for improving existing software or to design brand-new systems and devices. It’s this design activity that distinguishes Gay’s computer-mediation communication group from other communication research teams around the country.

“Right now people who use cellphones are carrying tiny computers around with them all the time,” Gay explains. “Our mission is to figure out ways to put these computers to use in more ways than just as phones or machines to access information

Jason Koski, University Photography



Geri Gay teaches graduate students about cellphone modeling and visualization.

online—ways that bring people together and make their lives easier.”

### Locator Software and Social Networking

Nokia is among the cellphone manufacturers funding one of Gay’s current studies, titled “Mobile Computing in Public Spaces.” This study, just beginning, examines how the combination of social networking, global positioning systems (GPS), and photo management/sharing software might be used to enrich social interaction and the enjoyment of public spaces.

This spring, about 80 Cornell undergraduates will be given cellphones, and researchers will watch for two to three weeks all the ways in which they use the devices day-to-day.

“We learn so much from young people,” Gay notes. “Since our students grew up with these devices, using them is woven into the very fabric of their lives.”

In the second phase of the study, the test subjects will be asked to try out the new system that Gay’s group is designing. While walking around campus they will be able to view their list of online friends and locate where (in real space) all these

individuals are at that precise moment. That knowledge will facilitate their gathering together at the place closest to where they all happen to be right then—say, the Plantations for a stroll, or a coffee at the Straight (This social networking use of locator software is already commercially up-and-running in 22 American cities.)

Once they’ve gone to campus locations of their choices, the test subjects will be asked to take a few pictures and write a short note about the place—for example, the flowers in bloom in one of the Plantations’ gardens. With this information archived in a central database, others, when standing at the same spot, can view on their own phones the photos and messages of those who’ve been there before. Subsequent visitors can review the existing photos and text information and add more of their own.

“Imagine alumni coming back to Cornell, walking around campus, taking photographs of their favorite spots, and writing their memories about what had happened there in their student days,” Gay explains. “Or photographs of the sequence of the bloom of flowers in the Wild Flower garden, with botanical notes attached.



Then when others walk by, they could access all this information with a couple of key strokes."

Another of Gay's favorite ideas is an X-ray vision-style campus tour in which activities going on inside campus buildings could appear on people's phones as they walk by. Would campus visitors find this enjoyable? Would they use such technology? Gay is curious to find out.

"The way we communicate today is fundamentally different than just a few years ago. We live in a digital culture now, where the virtual and physical worlds are blended. As researchers, the critical questions we must ask are: What has been lost? And what's being gained?" says Gay.

### Intelligent Task Routing to Encourage Community Contributions

A second new study on social networking examines the value of recommender software called SuggestBot that's being made available (in pilot testing) to users of Wikipedia, the community-maintained

online encyclopedia. Wikipedia articles—all 925,000,000, written collaboratively in 253 languages—are the go-to source of information for millions of people. A fundamental premise behind Wikipedia is: the more contributors, the better the article. So it's important to know how to motivate people to volunteer for this task.

**"When you consider all the research possibilities, it's like looking at a sky filled with stars."**

—Geri Gay

As it stands, the vastness of Wikipedia makes it hard for wannabe editors to find articles that they are interested in or know something about. Might SuggestBot help?

SuggestBot is the brainchild of Dan Cosley, an associate visiting professor in the Department of Communication, who created it when he was a PhD candidate in computer science at the University of

Minnesota. In a study titled "SuggestBot: Using Intelligent Task Routing to Help People Find Work in Wikipedia" (in the *Proceedings of the 12th International Conference on Intelligent User Interfaces*, Association for Computing Machinery, 2007), Cosley reports that people are more than four times as likely to edit articles chosen for them based on their previous editing preferences, rather than articles chosen at random (which currently is Wikipedia's mode of enticement).

In the new study, "Using Digital Resources," funded by a Hatch Grant from the U.S. Department of Agriculture, Cosley goes a step further to see if a new version of SuggestBot can increase volunteers' overall editing activity by sending them to a group of targeted pages (known in Wikipedia-speak as "subprojects"), in this case those having to do with agricultural and life science topics. In addition he will make an initial foray into matching individuals with others who are attracted to the same subprojects, suggesting they might want to chat or work collaboratively online.

## Surveillance

"I'm alarmed when I show students in my classes all the information that I can collect about them from a single day of their cellphone use and they just reply: 'Privacy is out the window anyway, so you may as well have it,'" says Geri Gay.

"We've already given up so much of our privacy unknowingly, in bits and pieces, that we're hardly aware of it," explains Gay. She worries particularly about the elderly who are their own unwitting accomplices to email scams and identity theft.

Gay wants people to be savvy users of technology rather than its victims. She encourages people to read and act on privacy policies before divulging personal information on any web site, emphasizing that digital traces are left behind with every move online and that these traces are publicly available.



Gary Hodges/www.jonreils.com

Student researchers and designers at the new 10,000-square-foot Human Computer Interaction (HCI) lab test a new piece of software they designed. With close links to the Information Science Program and the Department of Communication, the HCI lab supports an interdisciplinary research team investigating the social, psychological, and design issues of importance when building multimedia environments that encourage involvement, experimentation, exploration, and collaboration.




"The idea of recommending people, rather than just books to buy or films to watch, has been floating around the research community for a while, so this seems like a good context in which to see if SuggestBot is a system that could serve the purpose," Cosley says.

A hallmark of Cornell's studies in computer-mediation interaction is the use of insights of social science research as the basis for software interface design. Here Cosley is employing two such theories; one that predicts that reducing the amount of effort it takes to do something will increase one's motivation to do it, and a second that states that people are more likely to stay with a group they participate in.

"Figuring out how to design the right recommender interface could make a very powerful contribution to the survival of fledgling online communities," Cosley explains. "We could show that effective computer systems don't have to be limited to selling products, but instead can be used to achieve a common good."

### Campus Aware

- Current iteration runs on Nokia N95 Phones, gifted from Nokia
  - GPS
  - WiFi and 3G data capabilities
  - 5 MegaPixel Camera
  - Large screen enables functional display of campus map and user generated content
- Pilot study using the new campus aware system running on N95s is planned for early spring, 2008





Mobile Research  
Human-Computer Interaction Group  
Cornell University

Map-Based Social Applications

### Campus Aware

- Interactive map display provides users with locations of places with content and alerts users when content for a location near them is available.
- Content can be generated either by administrators of a campus tour (as shown below) or by any signed in user

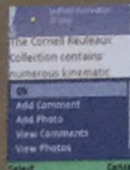
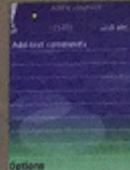

The Cornell Reuleaux Collection contains numerous kinematic mechanisms for rotary and reciprocating engine for both steam and internal combustion, as well as mechanisms for Optinis

Mobile Research  
Human-Computer Interaction Group  
Cornell University

Map-Based Social Applications

### Campus Aware

- At any time, users can add textual comments and photos to the map using the cameras keys and built in high resolution camera.
- Content is immediately displayed on the map and made available to other users.

Research  
Human-Computer Interaction Group  
Cornell University

Map-Based Social Applications

### web urls

Department of Communication:  
[www.comm.cornell.edu](http://www.comm.cornell.edu)

Faculty of Computing and Information Science:  
[www.cis.cornell.edu](http://www.cis.cornell.edu)

Human Computer Interaction Group:  
[www.hci.cornell.edu](http://www.hci.cornell.edu)

These electronic materials are part of the introduction for students to the Mobile Computing in Public Spaces research project.

## Exciting Times in Communication

"We're drowning in our own popularity," says department chair Geri Gay. She is speaking about the influx of students to the Department of Communication, where class enrollments have doubled, tripled, and more in recent years, with rarely a class now taught to less than 100 students. One reason is the new interdisciplinary major in information science that combines the insights of computer science with the social sciences to discover how people and society interact with information. As a virtual major, the curriculum of nearly 50 courses (such as Copyright in the Digital Age, Computing Cultures, and Language and Technology) is taught by 25 faculty members from across campus; half of the department's faculty are among them, mostly a young and enthusiastic group of new hires.

At a time when Cornell is gearing up to replace the nearly 600 faculty members expected to retire in the decade to come, the department is ahead of the curve.

"I'm feeling very optimistic with such an amazing group of people," says Gay. "They are really smart, and a number of them are already operating like senior faculty, bringing in with them grants of a million dollars or more."

Among the new faces in Kennedy Hall and their expertise:

**Jeremy Birnholtz**—online collaboration

**Sahara Byrne**—media and children; health communication

**Susan Fussell**—computer-supported cooperative work

**Tarleton Gillespie**—social policy regarding media and society

**Lee Humphreys, BS '99**—mobile computing and visual communication

**Jeff Niederdeppe**—medical communication

**Poppy McLeod**—role of technology in geographically dispersed work teams

**Connie Yuan**—social networks and organizational communication



Poppy McLeod lectures students.

Jason Koski, University Photography



# Climate Health: CALS Researchers Doctor the Earth

BY LAUREN CHAMBLISS

What a difference a decade makes. Today, the scientific evidence of global climate change is so strong that researchers at the College of Agriculture and Life Sciences have moved beyond convincing people there is a problem to exploring the implications and responding to what some believe could be the single biggest global-scale crisis since the dawn of human existence.





For more than a decade, Cornell scientists have been at the forefront of documenting global climate change and its impact on the living world. Top researchers have monitored, researched, and studied plants, wildlife, weather, ecosystems, and land-use patterns around the globe—from fragile coral reefs in the warm Caribbean seas to North American bird-migration patterns to lilac blooms in New York, in an attempt to understand current climate trends and to contribute to a realistic assessment of the future pace of change.

As a land-grant college, CALS is uniquely positioned to put some of the nation's best minds to work on practical solutions to the challenges of climate change. The goal of land-grant research is to consider problems not just as academic exercises that further knowledge, but to find realistic, applicable solutions workable in the everyday world.

One primary goal of CALS research, education, and outreach on climate change is to provide accurate science-based information so that people can take advantage of opportunities and minimize risk, according to David Wolfe, a professor of horticulture and a leading climate-change expert. Wolfe, and dozens of other faculty, students, and staff in CALS 27 departments are developing strategies and targeting information to help decision-makers, policy planners, community organizers, businesses, farmers, commercial fisheries, and even gardeners and homeowners decipher fact from fiction.

And as forecasts worsen—for instance, the recent news of record low levels of ice in the Arctic region and Greenland—CALS researchers are redoubling their efforts to maximize the human potential to minimize the damage.

"It is true that the Earth's climate is always changing, but in the past half-billion years it has seldom been warmer than it is today, and seldom has the pace of change been this fast," says Wolfe. "During the past 10,000 years, the Earth warmed by about 11 degrees Fahrenheit. Climate models predict that within this century alone our region will warm by another seven to

12 degrees Fahrenheit in a business-as-usual scenario of greenhouse gas emissions."

Cornell climatologists' research shows that the average winter in our region has already moved up the temperature gauge by more than four degrees since 1970. Climate scientists say the likely culprit is

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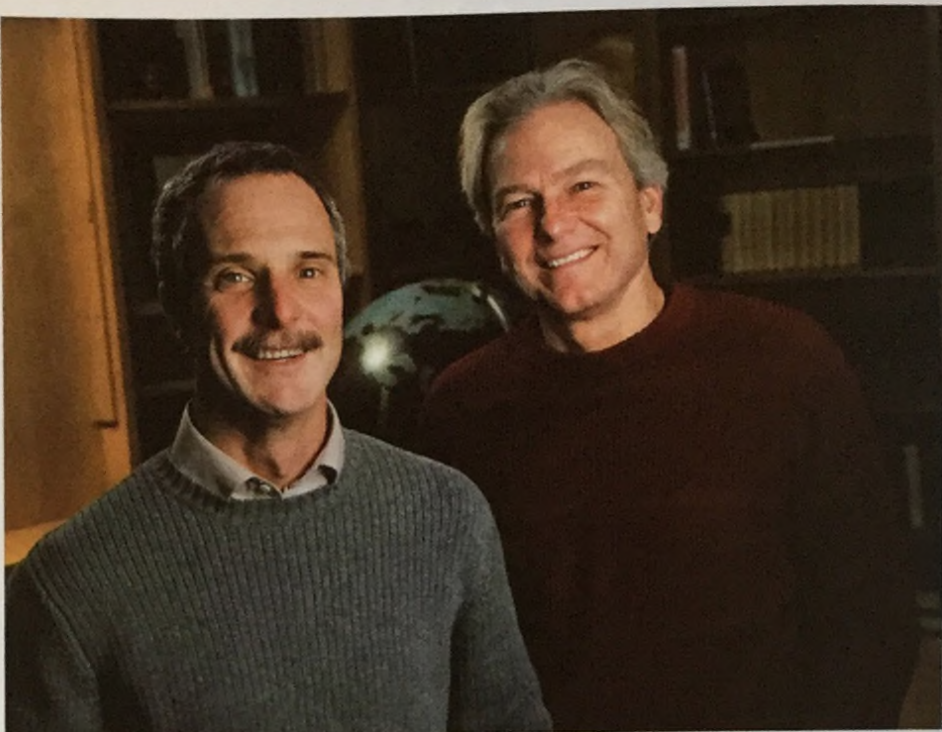
**"It is true that the Earth's climate is always changing, but in the past half-billion years it has seldom been warmer than it is today, and seldom has the pace of change been this fast."**

—David Wolfe

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heat-trapping greenhouse gas emissions, largely carbon dioxide emitted by human activity. Car emissions, heat, and power from "dirty" fossil fuels such as oil and coal are the biggest contributors. Core samples of Arctic ice show that until the Industrial Revolution the concentration of carbon dioxide in the air was relatively static at less than 300 parts per million. In modern times that atmospheric concentration has risen to 377 parts per million. At a level of 450 parts per million, most scientists believe there would be catastrophic results.

Lindsay France, University Photography



Art DeGaetano and David Wolfe are two climate-change experts at CALS.

Not everyone is complaining at the thought of New York's climate potentially warming to North Carolina-like temperatures by the middle of this century, as current models predict. Warm days are greeted with delight by many residents. Some businesses, too, may benefit from predicted changes in temperature. New York's \$6 billion wine industry, for example, could thrive with a longer growing season with less frigid winter temperatures.

Figuring out the potential winners and losers—and creating mitigating strategies to offset the damage to the latter—is no easy task. CALS researchers are using climate projections generated by colleagues to identify core areas of study.

## Water Here, Drought There

Historical trends and model projections suggest an increasing frequency of extreme rainfall events in the Northeast. In coming decades, rainfall in the largest storms may increase by 10 percent or more. Extreme precipitation is linked to both flooding risk and soil erosion.

Under the new leadership of Earth and Atmospheric Sciences Professor Susan Riha, the New York Water Resources Institute (WRI) at Cornell is bringing





(left) Susan Riha directs the New York Water Resources Institute at Cornell. (above) Construction has started on the former power and machinery lab on the east end of the Cornell campus to convert it into the Biofuels Research Laboratory.

## Coral Reefs and Warming

Coral reefs provide but one example of the race against time. A recent study by Drew Harvell, professor of ecology and evolutionary biology, in collaboration with 17 other marine scientists, says these vital ecosystems will not survive the global warming and acidification predicted for later this century without action from world leaders to save them.

"It's vital that the public understands that the lack of sustainability in the world's carbon emissions is causing the rapid loss of coral reefs, the world's most biodiverse marine ecosystem," says Harvell, head of the Coral Disease Research Team, which is part of the international Coral Reef Targeted Research (CRTR) group that wrote a widely quoted study published in *Science* this past December.

The rise of carbon dioxide emissions and the resultant climate warming from the burning of fossil fuels are making oceans warmer and more acidic, which is triggering widespread coral disease and stifling coral growth toward "a tipping point for functional collapse," says Harvell.

In the short term, better management of over-fishing and local stressors may increase resilience of reefs to climate threats, but rising global carbon dioxide emissions will rapidly outstrip the capacity of local coastal managers and policy-makers to maintain the health of these critical ecosystems if the emissions continue unchecked, according to the study.

*Susan Lang*

together faculty, the New York Department of Environmental Conservation, and other research institutions across the state to develop initiatives to assist individuals, businesses, and communities in understanding climate-change impacts on water resources and in building resilience to these changes through sector-specific best practices, engineering standards, and land-use planning.

"Climate models cannot tell us for certain what will happen, but even under the most optimistic scenarios we are going to see more frequent and intense storms together with increased probability of summer drought," says Andrew McDonald '94, MS '98, PhD '03, research coordinator at WRI. "These changes will have adverse consequences for water quality and water supply unless we are adequately prepared. We cannot wait 20 years to adapt to these challenges. It is happening now."

### Decision-making Tools and Data for Agricultural Industries and Policy Planners

Environmental data management is an emerging key resource for citizens, community planners, and agricultural industries—and not just where water is involved. Climatologist Art DeGaetano's strategy for assessment and adaptation involves linking user-friendly models to accurate data and providing accessible, timely information

with user-guided scenarios, including enhanced climate-related monitoring, to inform decision-making. For example, maple sugar producers can estimate the impact on their crops under possible warming scenarios, using the online tool at [www.climateandfarming.org](http://www.climateandfarming.org). DeGaetano and other faculty members are now studying critical agriculture industries for broad-based impact of higher temperatures. Dairy producers, for example, may need to invest in improved cooling systems to keep their cows in peak milk production if hot spells become more commonplace, as is expected. As the nation's second-largest milk producer with \$3.5 billion in milk and product sales, New York's economy depends on a viable dairy business. Manure and nutrient management techniques are also part of the panoply of strategies researchers are beginning to adapt to meet potential climate challenges.

"We need to get the right tools into the hands of the people who need them to make critical decisions," says DeGaetano, director of the Northeast Regional Climate Center. The center serves a 12-state region with funding provided by the National Oceanic and Atmospheric Administration. The staff works with the National Climatic Data Center, state climate offices, and scientists in the Northeast to acquire and disseminate up-to-date climate data and

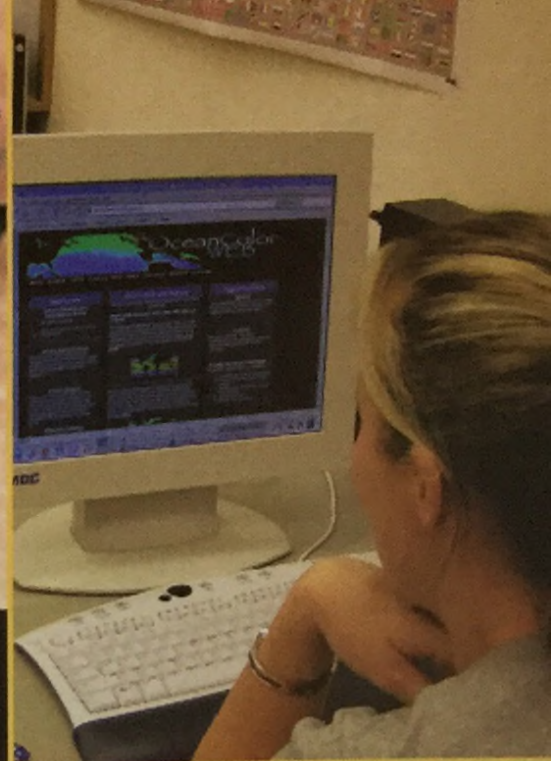




Cornell researchers are studying how grasses might be converted to energy for the biofuels industry.



Entomologists at Cornell are measuring the cold-tolerance limits of such climate-change opportunists as the Asian tiger mosquito.



information to farmers, policymakers and community planners.

### Renewable Energy: Fuel of the Future

The race is on to find viable, carbon-neutral energy resources that will replace the carbon-heavy fossil fuels contributing to greenhouse-gas emissions. Cornell is conducting field trials to develop the most efficient mix of grasses and biomass for the Northeast bioregion. From GIS mapping of the underutilized farm and forest acreage in the state's northeast, to cellular-wall science, to bioengineering and optimizing enzyme mixtures to convert biomass into energy and products, a massive multidisciplinary effort is focusing on creating environmentally sound, new agricultural business from renewable resources.

Biological and Environmental Engineering Professor Larry Walker has received funding from New York to build a state-of-the-art laboratory to help researchers develop new, more efficient methods for converting feedstocks, such as grasses, to ethanol and other consumer products. Plant Biology Professor Jocelyn Rose, meanwhile, is working to unlock the key to plant cell-wall breakdown, a critical step in the process of creating an economically viable—and clean—energy from biosources.

### Bugs: Pests and Pollinators

How pests and pollinators will respond to climate change is an important question for public health officials and agricultural producers. Advance research will give policymakers a roadmap for mitigating possible damage. Invasive species experts are examining which pests might flourish in warmer temperatures, including pests that carry disease or damage crops.

For instance, the Asian tiger mosquito, which transmits viruses that impact human and animal health, has not established a strong presence in New York, in part because of chilly winters. Entomology expert Laura Harrington and others are measuring the limits of cold tolerance for this species in the laboratory and field and using projected temperatures for New York based on global warming estimates, so that the range expansion and relative human disease risk for the state can be estimated and policy adjusted accordingly.

#### web urls

New York Water Resources Institute—  
<http://wri.eas.cornell.edu>

Northeast Regional Climate Center—  
[www.nrcc.cornell.edu](http://www.nrcc.cornell.edu)

National Oceanic and Atmospheric  
Administration—[www.noaa.gov](http://www.noaa.gov)

National Climatic Data Center—  
<http://lwf.ncdc.noaa.gov/oa/ncdc.html>

### Creating Leaders

CALS has pioneered a premier training program in satellite remote sensing that uses an Earth-system approach to space-based observation of oceanic climate change. More than 100 students and professionals worldwide have attended the summer program during its eight years of existence. Ocean ecosystems play a vital role in the global carbon cycle and are an important component of current global climate change research.

Popular undergraduate and graduate courses, such as Climate and Global Warming and State of the Planet, educate and motivate growing numbers of students. Art DeGaetano's Climate and Global Warming course now routinely attracts more than 100 students, compared with fewer than 20 when first offered in 2002.

CALS extension educators, meanwhile, create and update educational programs for K-12 teachers and students to give younger citizens a hands-on approach to understanding a complex topic.

*Lauren Chambliss*



# Fruits of Knowledge

BY JEANNIE GRIFFITH

**Horticultural scientist Susan K. Brown is mining the apple genome for the keys to some revolutionary reconceptions of a long-familiar fruit.**



**A**pple: Read the word, and what do you see? What else but a firm, crisp, juicy, fragrant, sweet-tart red fruit, that iconic stalwart of lunch boxes and crisper drawers across America and throughout many parts of the world? Cornell fruit geneticist Susan Brown sees much more than that. How about an apple with deep red flesh, or skin patterned "like feathers on a bird's back," or almost as much vitamin C as an orange? How about one that doesn't brown when you cut it or go soft in storage, or that tastes like anise, berries, or roses, or that's loaded with cancer-preventive antioxidants?

At the New York State Agricultural Experiment Station (NYSAES) in Geneva, New York, where Brown is the Herman M. Cohn Professor of Horticultural Sciences, these apples already exist, and new possibilities—whether exotic, delicious, kind of weird, or just plain awful (think gasoline, nail-polish remover, or soap)—are literally endless.

### Every Seed Holds a Mystery

Apples are as infinitely variable as the number of seeds they produce the world over, and planting a seed will never produce a tree just like the one it came from. Though a tree confers the same qualities on all the apples it bears, the five to ten seeds inside each of those apples are all unique offspring. "All apples need a pollen parent to set fruit; they can't set fruit themselves," Brown explains, "and the pollen has to come from a tree that's not related genetically. It could be a crabapple. And it's even conceivable that the seeds in an apple will have different pollen parents."

The only way to replicate a desirable apple is to graft a cutting from the tree that produced it onto some sturdy rootstock. The trees that yield the varieties popular with consumers are all clones of solitary originals that, in the old days at least, probably grew by chance in a cider orchard or wilderness. For example, author Michael Pollan relates



Susan Brown shows off one of her new columnar apple trees.



in his book *The Botany of Desire* that the Golden Delicious apple, now grown on five continents, originated on a hillside in Clay County, West Virginia. The tree survived, as something of a roadside attraction, into the 1950s. And Pollan says that a granite monument stands in the orchard in Peru, Iowa, where the Red Delicious, this country's most popular apple, got its accidental and perilous (the farmer kept trying to mow it down) start.

Though chance and intuition will always play a role in the birth of some great apples, creating superior new varieties that will catch on with consumers involves a heavy dose of science. "Many people think that apple breeding means that I sit in my office and think of two good parents, cross them, and hope for the best," says Brown. "There have been some successful breeders who did 'plant 'em and pray,' but what we've done here is use all the latest genetic technologies, which today involves genomics."

## A Century on the Cutting Edge

The apple-breeding program at NYSAES dates back to the early years of the experiment station, which was established 125 years ago. Some of the better-known varieties to come from Geneva research have included the Empire, Macoun,

**"Every year we harvest at least 10,000 seeds. We have 33 acres of seedlings ... and we evaluate them for many characteristics. We're one of the largest programs in the world."**

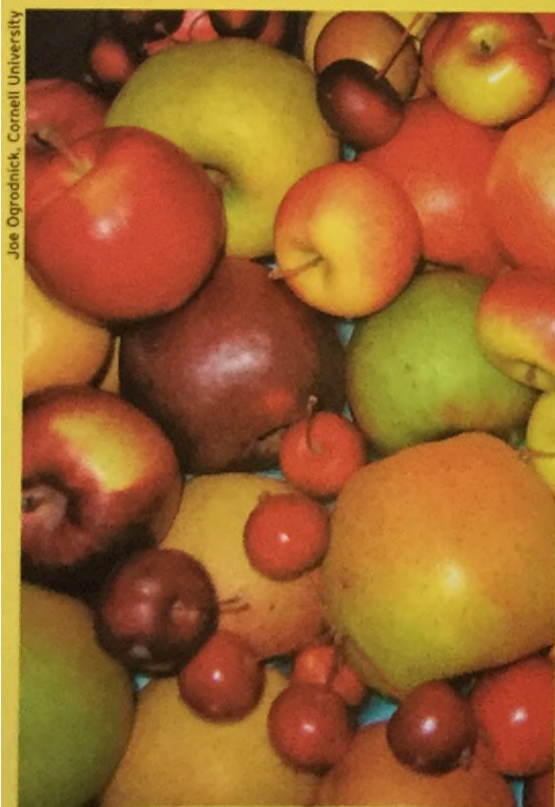
—Susan Brown

Jonagold, and Cortland, which Brown identifies as the first variety to result from a public breeding program, in 1915. "We've named 63 apple cultivars," she says.

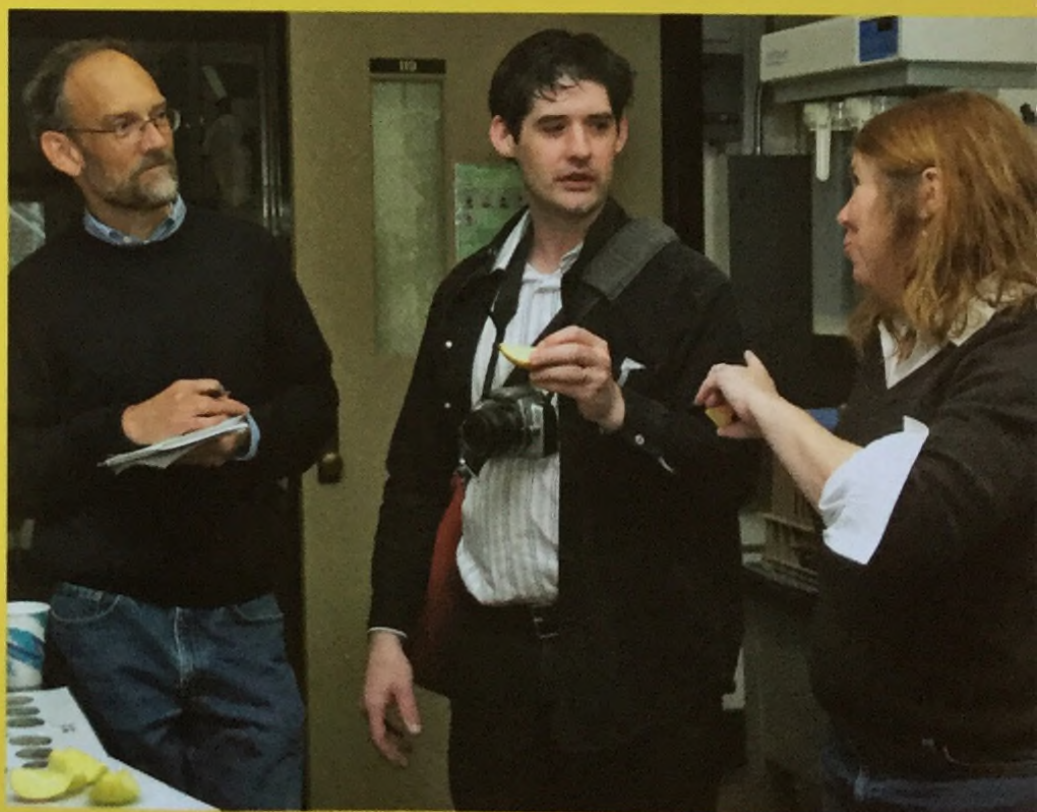
Even with such a vaunted history, Brown saw a need for Cornell to take new directions in apple breeding. "When I came into the program in 1990, I realized that a lot of our varieties were based on McIntosh or Empire because they are ideally suited to our location." But she was concerned about the lack of genetic diversity in commercial apples. "I have really sought to save traits that I think will add to our knowledge of genes and how they can be deployed. The rootstock breeding program also does this."

Brown arrived at Cornell just as revolutionary advances in molecular genetic technology were sparking the CALS-led Genomics Initiative, now known as the New Life Sciences Initiative. The first linkage map of the apple was developed at Cornell in 1994 by Geneva professor Norm Weeden and research support specialist Minou Hemmat, PhD '80. Brown's group collaborated with Hemmat and Weeden

Joe Ogradnick, Cornell University



In Geneva, apple breeders at the New York State Agricultural Experiment Station partner with curators at the USDA-ARS Plant Genetic Resources Unit (PGRU) to preserve and explore the genetic diversity of apple.



Culinary experts Harold McGee (left), author of the highly acclaimed cookbook *On Food and Wine*, and David Arnold of the French Culinary Institute in New York City sample experimental apple varieties in Susan Brown's laboratory at the New York State Agricultural Experiment Station. The chefs spent two days last October visiting with Brown and Phil Forsline, curator of the adjacent USDA-ARS PGRU, to walk the rows of the 50-acre orchard, learn about ancient and future apples, and discuss the apple needs of chefs. In his *New York Times* column, "The Curious Cook" (November 21, 2007), McGee recounted this "fruit tasting of a lifetime." See McGee's column at [www.nytimes.com/2007/11/21/dining/21curi.html](http://www.nytimes.com/2007/11/21/dining/21curi.html).



in the publication of three additional maps, in 1997 and 1998, plus a QTL (quantitative trait loci) study on plant form and development as well as the development of markers for color, scab resistance, and self-incompatibility (the term for the apple's inability to pollinate its own flowers).

"In 1990, there were probably only 28 families of genes," Brown recalls. "A family of genes would be, for example, several genes for scab resistance. We didn't have a lot that we could use to make more efficient what was admittedly a long, expensive process. But now we have genetic markers that we can use. I can show you a small seedling and tell you whether that little seedling, when it grows up, is going to have red or yellow fruit, or have a gene for disease resistance or not. I can get scab resistance without any problem at all."

Many apple researchers, says Brown, are focused on identifying the genes that govern sweetness and acidity. But until many more markers are sorted out, planning crosses to improve flavor must rely on the most basic of techniques—tasting. "You make a cross with an understanding of the genetics of the parents. You can do tests on a seedling, but a lot of the planning of crosses depends on tastings. We taste literally hundreds and hundreds of apples a day, because there is no substitute for that. That's the challenge."

It becomes clear in listening to Brown that, beyond scientific curiosity, she is driven by a strong desire to make the apple business more profitable for the state's 674 growers. She works closely with New York stakeholders, both to find out what improvements they would like to see in apples and to have their help with grower trials of promising new varieties. "We have fruit in grower trials pretty much all throughout New York," she says.

## Branching Out

While breeding new varieties of apples with highly desirable flavor, texture, nutritional content, and other fine qualities is a major goal of Brown's program today, her interest extends beyond breeding great fruit to creating trees that not only produce well but successfully resist multiple insect pests and

pathogens, and do it all while beautifully enhancing a variety of landscapes.

Brown has been given the go-ahead to recruit the first of three new genomicists to the faculty in Geneva. "Our goal is to establish a center in tree fruit genomics," she says. "We have the USDA germplasm repository, with more than 2,000 accessions of apple. We have my breeding program and the rootstock breeding program. The USDA grape group in the next building is a center of excellence in grape genomics. We anticipate that the new positions will establish collaborations with this group."

The new genomics positions are expected to include another expert in antioxidants, to complement the groundbreaking work of professors CY Lee and Rui Hai Liu, PhD '93, and a researcher in the genetics of pest and pathogen resistance. But the first position to be filled is in the genetics of tree architecture.

Apple trees, it turns out, don't have to look like a trunk with upward, out-spreading branches. Brown has fruit-bearing trees that are perfectly columnar, others that weep, and some crosses of these types that are both columnar and weeping. Her favorite type looks like a bush, with dense, upward-thrusting branches of uniform length. "All the branches stop at almost the same point," she notes. "We spend a lot of time pruning trees, trying to bring them down so that growers can get in there with ladders. This could teach us about how branches stop and also how too many branches occur."

Brown's columnar trees vary a great deal in height. "This is only a foot high; it already has an apple on it," she says, pointing to an image on her computer. "So these populations hold promise for understanding the genes involved in flowering fruit and shoot development." And in addition to offering attractive landscaping options, the columnar trees have something else going for them. "There was a drought situation, and you can see that the columnars are nice and healthy," she says, discussing another image, "while the standards aren't." So far she isn't sure how to explain the difference. "We're looking at the root system."

Brown is decidedly excited about beefing up Cornell's tree-fruit genomics program. With so much of the apple's enormous potential yet to explore, she and her colleagues can definitely use the help. "Every year we harvest at least 10,000 seeds. We have 33 acres of seedlings, which is a huge amount, and we have to evaluate them for many characteristics. We're one of the largest programs in the world."

One goal for Brown is to create an apple that can convert a new generation of children to eating fruit. She got an idea about what might work when she put crabapples in her kids' lunches as a joke and they came home raving about how good they were. "Kids like more fully flavored apples with higher acidity—that's how Granny Smith became popular," she says. "My goal is not to get kids to eat crabapples but to develop large varieties that are really powerful. I want to make apples that are really desirable to the younger market, because if they don't eat them now, then they're never going to eat them."

And if they don't eat them, there's no end to what they'll be missing.



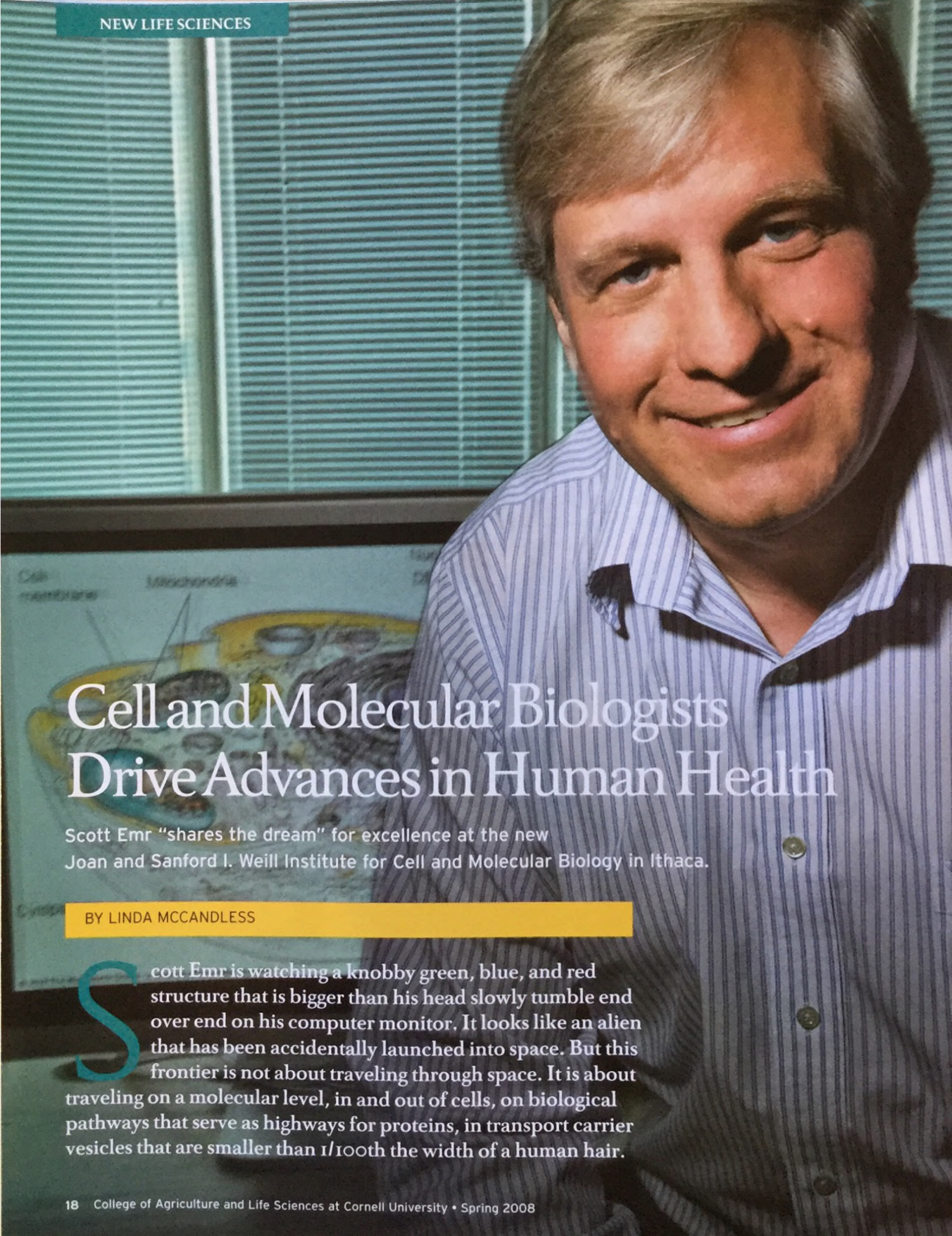
Joe Ogradnick, Cornell University

## web urls

New York State Agricultural Experiment Station: [www.nysaes.cornell.edu](http://www.nysaes.cornell.edu)

Department of Horticultural Sciences: [www.nysaes.cornell.edu/hort/index.html](http://www.nysaes.cornell.edu/hort/index.html)





# Cell and Molecular Biologists Drive Advances in Human Health

Scott Emr “shares the dream” for excellence at the new Joan and Sanford I. Weill Institute for Cell and Molecular Biology in Ithaca.

BY LINDA MCCANDLESS

Scott Emr is watching a knobby green, blue, and red structure that is bigger than his head slowly tumble end over end on his computer monitor. It looks like an alien that has been accidentally launched into space. But this frontier is not about traveling through space. It is about traveling on a molecular level, in and out of cells, on biological pathways that serve as highways for proteins, in transport carrier vesicles that are smaller than 1/100th the width of a human hair.



Research on understanding these transportation systems—and how cells work on a molecular level—has laid the groundwork for recent breakthroughs across the biological sciences, including new ways to understand cancers and viruses like HIV.

Emr is using these three-dimensional crystal structures of protein complexes—called endosomal sorting complex required for transport, or ESCRTs—to explain fundamental processes common to all cells and to answer key questions about cell signaling and molecular dynamics. He believes that interdisciplinary approaches to decoding the mysteries of the cell herald an explosive period of discovery for life sciences.

“Completing the sequence for the human genome represented an enormous step forward in biomedical research,” says Emr, the enthusiastic director of the new Weill Institute for Cell and Molecular Biology at Cornell. “But it was only the beginning.”

Emr is one of 12 new faculty at the Weill Institute who will transform the future.

“The overarching theme for research at the institute will be cell signaling and molecular dynamics,” says Emr. “Scientists will develop and apply approaches and instrumentation needed to characterize the structure, function, and dynamics of the

molecular machines required to keep all cells alive. They will address a wide array of key questions: cell-cycle control, signal transduction, regulation of the cytoskeleton, organelle biogenesis and function, regulation of membrane architecture, and protein quality control.”

**“We wanted a building that will serve as an intellectual and operation magnet for students, faculty, visitors, and alumni.”**

—Steve Kresovich

Scientists at the institute will conduct structural, biochemical, and genetic studies on the tiny molecular machines that direct essential processes in the regulation of cell shape, cell signaling, and cell growth, according to Emr. They will work to analyze the protein products of the approximately 25,000 human genes to determine their function, how they interact with each other, and how these networks of interactions determine the specific functions of cells that make up the tissues and organs of the human body.

“Even though many components have been identified in cells, how they are assembled and regulated is still largely unknown,” says Emr.

Discoveries resulting from this work will lead to understanding the molecular basis for much broader questions in neurobiology, development, immunology, and human disease.

To help the layperson understand what he is doing, Emr likens the job of a cellular mechanic to that of a car mechanic—except “we are looking at ‘automobiles’ without ever having seen one go before,” he says. “We open the hood and decide something important must be going on. At first, we don’t even know that what we are looking at is an engine. When we start tearing it apart systematically, we gradually discover the systems that are making it work and how they interconnect. We isolate the systems, determine their function, and then learn how to manipulate them.”

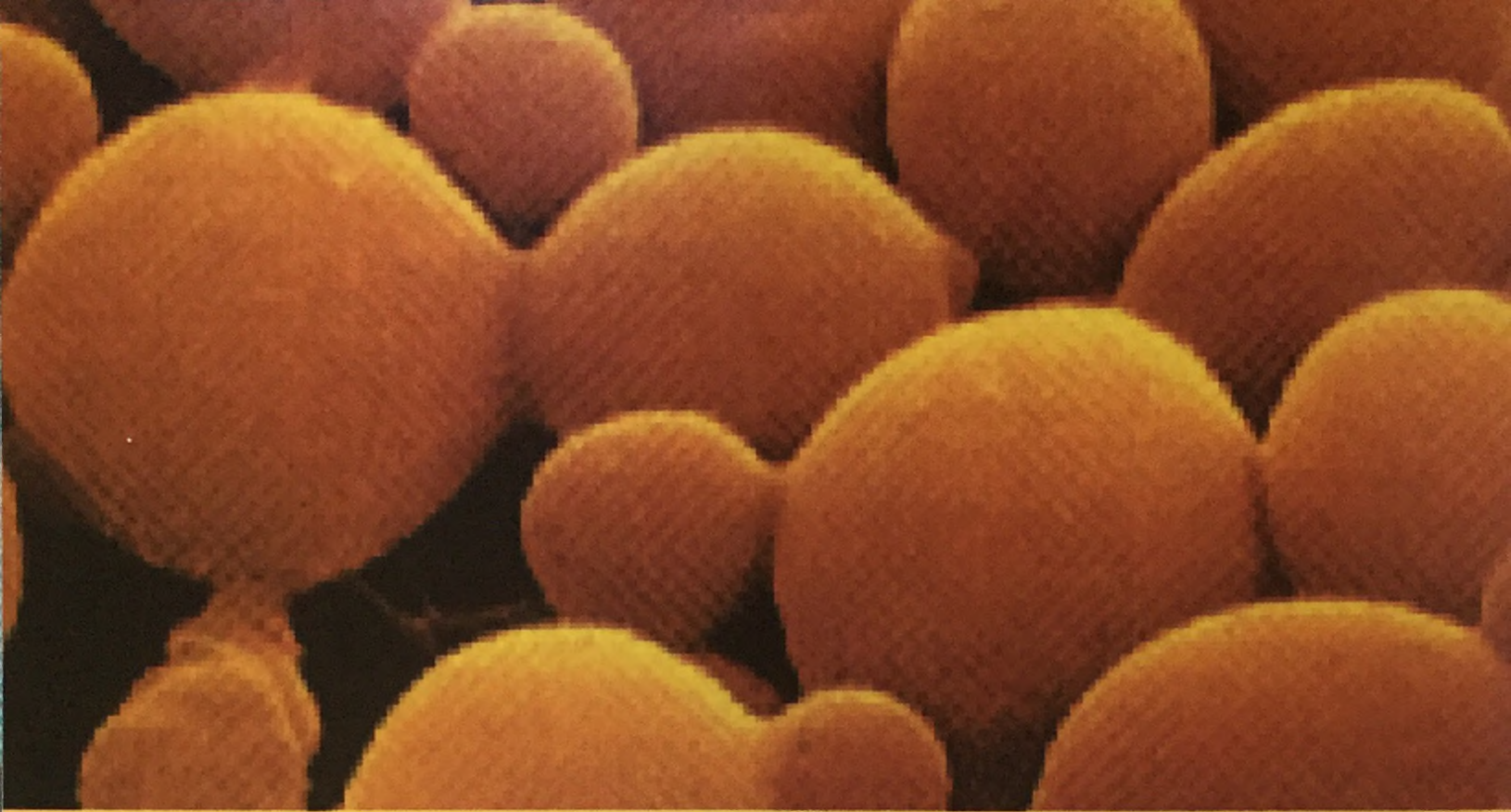
### An Institute for Life Sciences

Emr is passionate about his field and passionate about the opportunity to shape the Weill Institute for future generations of molecular biologists. He characterizes his years studying microbiology and molecular genetics at Harvard, UC Berkeley, and Cal Tech from 1976 to 1991 as “learning to dream.” From 1991 to 2006, when he was professor of cellular and molecular medi-



The \$160 million, 250,000-square-foot Weill Hall, on Tower Road, is slated to open this spring. It will be the centerpiece of Cornell's New Life Sciences Initiative.





## When Yeast is a Model for a Human

Scott Emr works small and thinks big. The Frank H.T. Rhodes Class of '56 Director of the new Joan and Sanford I. Weill Institute of Cell and Molecular Biology uses the genetics of a single-celled model organism to identify the specific molecular pathways that drive basic cell processes.

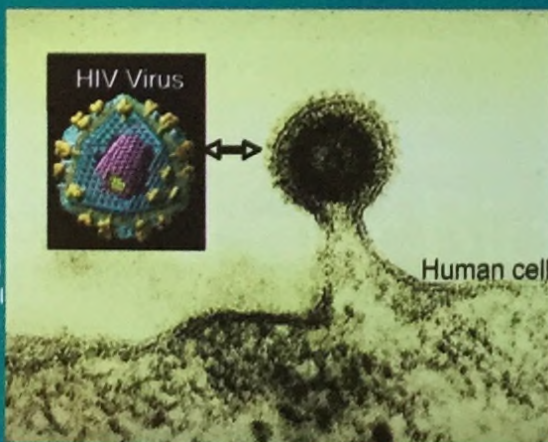
"Model organisms continue to provide the most powerful systems for approaching complex questions," says Emr, whose model of choice happens to be yeast. "Yeast have 6,000 genes, compared to the 25,000 in humans. Most of the 6,000 are also represented in the human genome. This overlap in the genomes—together with the ease

with which yeast can be manipulated in the laboratory, both genetically and biochemically—make yeast an excellent model system to understand complex biological pathways."

Proteins drive many fundamental processes in cells. Emr's explanation of how proteins get in and out of cells, a process called membrane trafficking, has given other scientists an understanding of the specific pathways that drive these basic processes. One set of essential transport factors that the Emr lab has discovered—ESCRT, or endosomal sorting complex required for transport—plays a critical role in a broad range of biological pathways, including antigen presentation during an immune response, viral budding, and receptor down-regulation following growth-factor stimulation and cell division.

For Emr, who was recently elected to the National Academy of Sciences, yeast has been a good model. With it, he has improved the scientific community's understanding of virology, HIV-AIDS, cancer, immunology, development, and neurobiology. His cell-signaling research in yeast could help arrest cancers and HIV infection and has enormous potential to drive advances in human health. Emr's studies may lead to the development of new drug therapies for the treatment of AIDS and other diseases. "When we started out, no one would have anticipated that yeast would provide such fundamental insights into the complex cellular processes of HIV-AIDS and human cancers," he says. "And similar mechanisms may also have applications in animal and plant science."

*Linda McCandless*



(above) Yeast cells, the model system that Scott Emr uses to study complex biological pathways and cell signaling.

cine at University of California, San Diego and an investigator with the Howard Hughes Medical Institute, he says that he was "living the dream." Since March 2007, when he was given the opportunity to shape the new institute of cell and molecular biology at Cornell, Emr says that he has been "sharing the dream."

The Weill Institute is one of the cornerstones of the \$650 million New Life Sciences Initiative at Cornell, and a core component of the \$160 million research building on Tower Road slated for occupancy in the spring of 2008. The goal of the institute is to build a vibrant center of scientific excellence in basic biology integrated with existing programs in chemistry and chemical biology, physics, computational biology, and engineering.

One of Emr's first moves was to appoint Anthony Bretscher, professor of molecular biology and genetics, as the Weill Institute's associate director. Bretscher helped Emr design the institute's space



and is helping with recruitment. Emr and Bretscher bring to an even dozen the total number of faculty at the institute.

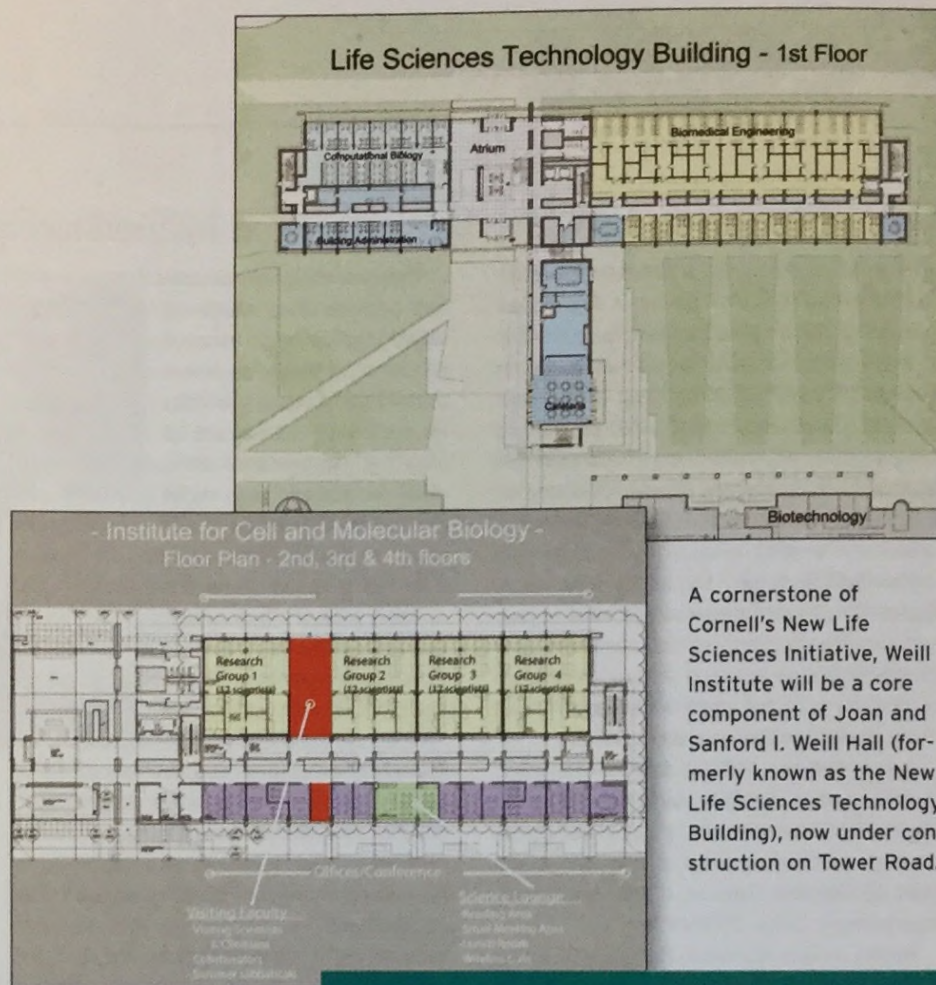
Emr has begun the search for the professors, associate professors, and assistant professors who will form the institute. Ten additional faculty, who will have full academic appointments in the basic science departments to which they will contribute teaching and science, will be hired at the rate of three per year over the next three to four years.

From last fall's first posting in *Science* and certain plant journals, Emr and the search committee received 490 applications—twice the number of applicants expected—for this year's search. "We believe we are getting inquiries from 80 percent of the people looking for these kinds of jobs," says Emr. The attractiveness of the new positions may be, in part, because of the ambitious goals of the new institute and its state-of-the-art facilities.

The College of Agriculture and Life Sciences is committed to hiring six of the 10 additional Weill Institute faculty. In fact, CALS has been responsible for hiring more than half of the 70 new faculty on campus who are working in the new life sciences, the \$650 million initiative launched by Cornell in 2002.

"The field is an extremely competitive one," says Steve Kresovich, vice provost for the new life sciences, and CALS professor of plant breeding. "Scott Emr understands what Cornell needs to do to compete and is committed to bringing top-notch people into the Weill Institute. Our goal is to attract the best scientists by providing endowed professorships wherever possible and offering generous start-up packages that allow new faculty to hit the ground running. At the same time, we want to attract the best graduate students and postdocs by offering graduate student and postdoctoral fellowships. We also want to enhance undergraduate education by offering summer research fellowships."

The institute will occupy three floors in the new research building, recently named the Joan and Sanford I. Weill Hall, with



A cornerstone of Cornell's New Life Sciences Initiative, Weill Institute will be a core component of Joan and Sanford I. Weill Hall (formerly known as the New Life Sciences Technology Building), now under construction on Tower Road.

### web urls

Weill Institute for Cell and Molecular Biology—  
[www.icmb.cornell.edu](http://www.icmb.cornell.edu)

webcam at construction site (M-F, 8 am to 5 pm)—  
[www.pdc.cornell.edu/pdc/eng/stpm/pdc\\_webcam\\_1st-beast.cfm](http://www.pdc.cornell.edu/pdc/eng/stpm/pdc_webcam_1st-beast.cfm)

four research groups per floor on the south end of the building. In addition to the Weill Institute, biomedical engineers will occupy the first floor, and computational biologists and statisticians will occupy part of the first floor on the north side. Nutritional sciences, mouse genetic labs, and a biotech incubator space will fill out the rest of the building. State-of-the-art imaging facilities and other technologies will be shared by scientists across the entire Cornell campus.

"The building will support life sciences

research, education, and outreach over the next 50 years and beyond," says Kresovich. "We wanted a building that will serve as an intellectual and operation magnet for students, faculty, visitors, and alumni. Scott was an incredible catch for us. His vision, focus, enthusiasm, and concern for quality will be great for the institute and great for fulfilling the interdisciplinary mission of the New Life Sciences Initiative."



# People

## Gates Foundation Awards Cornell \$26.8 Million to Fight Wheat Plague

Cornell has announced a \$26.8 million grant from the Bill & Melinda Gates Foundation to launch a broad-based partnership to combat a deadly global wheat disease that poses an enormous threat to food security. The Durable Rust Resistance in Wheat (DRRW) project will bring together 15 institutions to combat the emergence of deadly new variants of stem rust that can spread quickly, reducing healthy wheat to broken, shriveled stems.

The partners will focus on developing improved rust-resistant wheat varieties to protect resource-poor farmers and consumers from catastrophic crop losses in vulnerable regions, particularly India, but also Pakistan, East Africa, China, the Middle East, and North Africa.

Ronnie Coffman, PhD '71, director of international programs at CALS, made the announcement in northwest Mexico, on April 2, at wheat research facilities near Cd. Obregón that are used by the International Maize and Wheat Improvement Center (CIMMYT).

Nobel Laureate Norman E. Borlaug, who spoke at the event, developed the "green revolution" wheats at CIMMYT beginning in the 1940s. World awareness of the highly feared wheat disease is largely due to Borlaug's advocacy.

The virulent new wheat stem rust type identified in Uganda, called Ug99, has escaped Africa and is spreading across the Middle East. Scientists estimate that 90 percent of all wheat varieties around the globe are susceptible to Ug99. More than 50 million small-scale farmers in India rely on wheat for food and income.

The project will enlist the Ethiopian Institute for Agricultural Research (EIAR) and the Kenya Agricultural Research Institute (KARI) to be key research sites to develop new resistant varieties, in collaboration with scientists at three international agricultural research centers, including CIMMYT in Mexico; the International Center for Agricultural Research in the Dry Areas (ICARDA) in Syria; and the International Rice Research Institute (IRRI) in the Philippines. The Food and Agriculture Organization of the United Nations (FAO), and advanced research laboratories in the United States, Canada, China, Australia, and South Africa will also collaborate.



Rick Ward, left, coordinator of the DRRW project, talks with Ravi Singh, center, distinguished professor and wheat breeder at CIMMYT, and Ronnie Coffman, DRRW project director and director of international programs at CALS.

Coffman will direct the consortium of global partners. Rick Ward, previously a wheat breeder with CIMMYT and Michigan State University, has been hired as the project coordinator.

Linda McCandless

## CALS to Build On-Campus Teaching Winery



Janet Charles

(left to right) Liz Foster '76, Dean Susan Henry, and Susan Lynch enjoy a lighter moment at the "Cornell Celebrates New York Wines" gala in New York City on April 2.

Cornell will launch a 2,400-square-foot teaching winery at the Cornell Orchards this fall to enhance the education of tomorrow's enologists and viticulturists. The announcement was made by Susan A. Henry, the Ronald

P. Lynch Dean of Agriculture and Life Sciences, at "Cornell Celebrates New York Wines," a dinner gala and auction held April 2 in New York City to celebrate 100 years of Cornell's partnership with New York's wine industry.

"This is a particularly exciting time for enology and viticulture at Cornell," Henry says. "We are in the midst of building up the program's faculty and research programs, we are in the final stage of approval to offer an undergraduate degree in enology, and we have just received the program's first endowed professorship, the Goichman Family Professorship in Enology."

The teaching winery, now in its design phase, will be funded by the State University of New York and added onto the pomology building that houses the Cornell Orchards store on Rte. 366, in Ithaca. Ramón Mira de Orduña Heidinger, Cornell associate professor of enology, says the facility will have "several temperature-controlled rooms, giving us the ability to efficiently teach winemaking procedures and chemical

and microbiological analyses to students."

Problems and opportunities in the New York wine industry are explored on an almost-daily basis between members of the Cornell Enology Extension Program and grape growers and winemakers in New York.

To keep such a groundbreaking exchange active, the industry does its part donating time and resources, says Peter Saltonstall '75, co-owner of King Ferry Winery and chairman of the New York State Wine and Grape Foundation board of directors. He recently hosted a class of undergraduate students at his vineyard on the east side of Cayuga Lake, for example. "After years of talking about individual enology and viticulture programs, it was only when the first class came to my vineyard that the whole experience began to feel real," he says.

The New York City event was sponsored by Stoutridge Vineyard, Constellation Wines U.S., Antica Napa Valley, Channing Daughters Winery, and Raphael Winery.

Kanika Arora, MPA '07



## David Atkinson '60 Seeds Cornell Sustainability Initiative

David Atkinson '60 is more invested in the success of the Cornell Center for a Sustainable Future (CCSF) than almost anyone.

Atkinson, a member of the CALS Advisory Council and Cornell University Council, not only led the CALS Advisory Council Task Force on Environmental Sustainability and Development, which proposed the creation of the center in 2006, but pledged to donate an annual \$1 million in startup funding for the next three years.

"Cornell has an opportunity to be the leading university in the U.S. when it comes to environmental issues," he wrote in a position paper to the task force two years ago. "Cornell's advantage comes from its strength in many disciplines, and interdisciplinary approaches are required to



address most of these problems," he noted, adding, "A top priority should be to develop the structure and incentives that foster collaboration across the university on environmental issues."

To keep the CCSF "dynamic and visionary," says center director Frank DiSalvo, the John A. Newman Professor of Physical Science, it has been conceived as an academic venture fund with three areas of focus: economic development, environment, and energy. With the close collaboration of academic and external advisory councils and associate directors Christopher Barrett, the Stephen B. and Janice G. Ashley Professor of Applied Economics and Management (economic development); Anurag Agrawal, associate professor of ecology and evolutionary biology (environment); and Sidney Leibovich, the Samuel B. Eckert Professor of Mechanical and Aerospace Engineering (energy), DiSalvo hopes to seed innovative, interdisciplinary approaches to real-world issues of sustainability.

While the university has committed funds for the center's first year of operation, Atkinson's gift will provide bridging and startup funding for center-sponsored research and communications. Those funds will be used to shorten the time needed for new ideas to prove themselves, said DiSalvo, a necessary first step to competing successfully for major public grant funding.

Trustee David Croll '70 also has pledged \$5 million to establish a professorship of sustainable energy systems in the College of Engineering and to fund related programming. The first Croll Professor, Jeffrey Tester of MIT, will join the Department of Chemical and Biochemical Engineering this summer.

"Alumni want us to take a leadership position in the area of sustainability, and they're eager to be involved," says DiSalvo. "We hope that David Atkinson's and David Croll's leadership will inspire many others to step forward."

Jeannie Griffith

## Enology and Viticulture Program Celebrates its First Endowed Professorship

When Larry Goichman '66 was a student at Cornell, he and his friends had a favorite joke about New York wines. "We used to look at the bottle and say, 'It was a good month,'" he recalls with a laugh. As he readily notes, however, New York wines have come a long way since then. "With the help of Cornell research and outreach, New York wines are developing character and taste, and they are being recognized nationally and internationally," he says.

To keep the improvements flowing, Goichman and his wife, Jennifer, have endowed the Goichman Family Professorship of Enology and Viticulture at Cornell's New York State Agricultural Experiment Station (NYSAES) in Geneva. It is the first endowed professorship for Cornell's Enology and Viticulture Program and only the third for the Geneva experiment station, where the Goichmans previously established the Goichman Family Excellence Fund.

"Larry and Jennifer's gift adds great momentum to our Enology and Viticulture Program," says Thomas Burr, professor of plant pathology and NYSAES director. "The breadth of ongoing grape-related research at Cornell spans from applied studies that are directly transferable to the farm and vineyard today to more fundamental investigations on viticulture and enol-

ogy. The Goichman endowment is especially important because it ensures a very significant source of stable funding for answering questions that will have a long-term impact on grape growing and wine production in New York."

Several years after graduating from what is now the fourth-ranked undergraduate business program in the Department of Applied Economics and Management (then Agricultural Economics), Goichman established a successful equipment-leasing business in Stamford, Connecticut. Goichman, who is completing a second term on the CALS Advisory Council, also develops and "repositions" commercial properties with his wife. And he breeds and races Thoroughbreds with names like Willard Straight, Anabel Taylor, Beebe Lake, and Sage Chapel. He recently introduced Susan Henry to her filly namesake, Dean Henry, who is currently training at Aqueduct.

The Goichmans' devotion to Cornell is abundantly evident in their family circle. Son Samuel graduated from CALS in 1998 and received a Cornell MBA in 2006. Daughter Jesse earned MBA and JD degrees from Cornell in 2002 and married Cornellian James S. Eisenberg '96, MPS '02 (real estate), whose Cornellian family includes father Philip, JD '64, brother Douglas '93, and twin brother Joshua '96, JD '00, who



Larry Goichman '66 and his wife, Jennifer, have endowed a professorship of enology and viticulture at Geneva.

married Megan Clark '97, the daughter of J. Thomas Clark '63 and Nancy Williams Clark '62. Jesse and James's three-year-old daughter, Shea Darby, has the choice of "Cornell and Cornell," quips Goichman.

"I've always considered it an honor and a privilege to go to Cornell," he says. "I hope everybody who graduates from Cornell feels a sense of how their lives have been changed and opportunities presented that might never have happened had it not been for those four years. Anything I can do to say thank you to Cornell, that's really what it's all about."

Jeannie Griffith

Janet Charles



# People

## Entrepreneurship Education to Help the World's Poor

**W**orld Food Prize laureate Per Pinstrup-Andersen, the J. Thomas Clark Professor of Entrepreneurship and the H.E. Babcock Professor of Food, Nutrition, and Public Policy, is using an online social entrepreneurial approach to present world food policy materials to students around the world, providing them skills they can use to help alleviate hunger and poverty in their communities.

He is pilot-testing the program with three other U.S. universities—see <http://cip.cornell.edu/gfs>. The educators will learn how to engage students in tackling an issue from various points of view, hashing out policy,

and developing sustainable approaches that address the challenge—such as coping with famine in Ethiopia, allocating irrigation water in Egypt, countering the growing obesity problem in China, or assessing genetically modified food aid in Zambia.

"Entrepreneurship education helps students become leaders, innovators, and creative problem-solvers by teaching them how to apply what they've learned in class to develop practical and sustainable approaches to benefit society," says Pinstrup-Andersen.

*Susan Lang*

## CALS Faculty on CornellCast

[www.cornell.edu/video](http://www.cornell.edu/video)

Numerous video clips featuring CALS faculty and their programs are accessible on the CornellCast webpage. Search by name or topic or browse relevant categories—"Science and Technology," "Health and Medicine," "Education," "Campus Happenings."

## New Cornell Photo Collection: Liberia during WWII

**W**hen George "Doc" Abraham '39 enlisted in the U.S. Army, he was handed a camera and the assignment to document life in Liberia during the war. Much of Abraham's work was not made public until his children, Leanna Landsmann and Darryl Abraham, recently donated his photographs to Cornell University Library's Division of Rare and Manuscript Collections.

The collection documents little-known and controversial aspects of the Army's Africa campaign during World War II—including images depicting camp life in one of the first racially integrated units, customs of Liberians, Army-sponsored brothels, and President Franklin D. Roosevelt's visit to the troops.

The photographs show the lives of 2,100 African-American soldiers and 76 white soldiers in one of the Army's first racially integrated units. The photos show the troops working and relaxing side-by-side. (White soldiers assigned to the unit had to pass a psychological test to determine their ability to get along with people.)

"This collection will enhance Cornell's holdings of Africana materials and will showcase previously unknown details on the integration of African American soldiers in the U.S. Army," says Eric Kofi Acree, director of Cornell's John Henrik Clarke Africana Library. "Photos have a way of telling a story that printed text cannot."

The archive also contains photographs and descriptions about brothels for the soldiers that were staffed with "comfort women" who



were provided medical care by Army doctors to combat sexually transmitted diseases. Abraham and a colleague also took explicit photos of the ritual of female circumcision that he shared long afterward with policymakers in hopes of ending the practice.

"Photo documentation of West Africa from the 1940s is scarce," says Brenda Marston, historian and curator of the library's Human Sexuality Collection. "These materials will

serve as a rich, new resource for researchers."

Abraham and his wife, Katherine (Katy) Mehlenbacher Abraham '43, were "The Green Thumb" duo for six decades on radio and television and in a syndicated newspaper column. The family's donation to Cornell includes more than 1,000 photos, 24 hours of film, and hundreds of negatives from World War II, along with the couple's Green Thumb horticultural collection.

*Ellen Marsh*



## From Cornell Grad to Video Games Guru

In Japan in 1983, Nintendo introduced its first home console. In Ithaca that year, its current president and chief operating officer for North America, Reggie Fils-Aimé, graduated from CALS with a degree in applied economics, now applied economics and management (AEM).

"Studying applied economics at Cornell was a fantastic introduction to the business world," says Fils-Aimé '83, who grew up on Long Island and graduated from Brentwood High School. "But even more important than the papers, projects, and exams were the friends and talented faculty who kept me motivated throughout my undergraduate years. At Nintendo, our mission is to combine personal enrichment with a sense of fun, and I'm grateful to Cornell for giving me plenty of both."

Nintendo's first home console evolved into a product line that includes Super Mario Brothers, hand-held video games, Game Boy, and now Wii. Fils-Aimé's career, meanwhile, unfolded at Procter & Gamble, Pizza Hut, Guinness in the United States, Derby Cycle, Panda Management, and VH1 (where he was senior vice president).

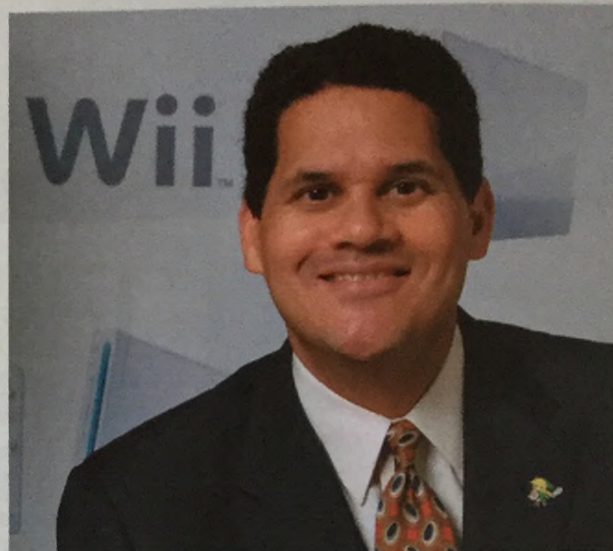
The real fun seems to have begun in 2003

when Fils-Aimé went to work at Nintendo as executive vice president of sales and marketing for the United States, Canada, and Latin America.

He is credited with revamping public relations for Nintendo in North America. And he gained personal notoriety at E3—the Electronic Entertainment Expo, an annual trade show now known as the E3 Media and Business Summit. The opening line of the press conference in 2004 was, "My name is Reggie. I'm about kickin' ass, I'm about takin' names, and we're about makin' games."

With theatrical flourish came a cult following. Gamers called him the "Regginator." His image spread across the web. He was turned into a regular character on a video-games podcast.

In 2006, Fils-Aimé was promoted from sales and marketing executive vice president to president and chief operating officer for



Nintendo of America. He is the first American to hold this position, succeeding Tatsumi Kimishima, who became board chair and chief executive.

Last November, Fils-Aimé spoke to alumni and students at Cornell, providing a behind-the-scenes look into the world of Nintendo.

Carole Stone

## Comparative Ornithologist Named Weiss Presidential Fellow



It is little surprise to those who know him that David "Wink" Winkler, professor of ecology and evolutionary biology and faculty curator of birds, was recently named a 2007 Stephen H. Weiss Presidential Fellow.

The award, given for excellence in teaching and advising undergraduate students and for outstanding efforts to improve instruction

on campus, could not have gone to a more actively engaged professor. In the classroom and lab, Winkler is known for inspiring passion for scholarly pursuits. His colleagues agree that he is a big reason why Cornell is known for producing the largest number of students who go on to graduate school in ecology, evolutionary biology, and behavior.

Winkler's popular ornithology laboratory is unusual in that it includes undergraduates in large-scale projects involving tree swallows and other birds. His research has been nationally recognized as one of the early pieces of evidence of wildlife-behavior changes in response to global climate change. Winkler's data shows that environmentally sensitive swallows have begun laying eggs earlier as their habitat has warmed over the past three decades. His widely published studies include the reproductive biology and dispersal patterns of tree swallows and other birds in Ithaca and California, and his studies have broadened to include all of the

Americas, from Alaska to Argentina.

In the 20 years since he joined the Cornell faculty, Winkler has received consistently high marks for his teaching style and his ability to bring out the best in students. Students in his lab frequently work eight-to-13-hour days during the summer months, often starting before dawn, periodically checking nests, taking blood samples, and performing other lab work. Many cite personal growth as an outcome of their time under his tutelage.

Winkler notes that he encourages independence while at the same time providing support. "I encourage my PhD students to pursue independently conceived and funded research, and I take a stronger hand in guiding the research of MS and BS students in my lab," he says. "Birds are the most natural foundation for our common work. I try to encourage a cohesive and highly interactive lab group, with weekly lab meetings virtually year round."

Lauren Chambliss



## ALUMNI ASSOCIATION PRESIDENT MESSAGE



University Photography



**T**his has been an incredible year for me. Since my election as president last June, I have had the opportunity to speak to and meet with CALS alumni from around the country and world. I am continually astonished by the commitment of our alumni and the pride that they have for the College of Agriculture and Life Sciences. Cornell is a family for our alumni, and we are all proud of the contributions that our alma mater has made to society.

This year, *Newsweek* declared Cornell as the "Hot Ivy." To me, "hot" implies a transient condition, but as alumni we know Cornell has always been a leader in many areas. Our innovative business school and the Enology and Viticulture Program are just two programs that attract media attention. President Skorton has called us "the land-grant university for the world." Cornell will always provide education, outreach, and applied research touching every aspect of life in New York and beyond.

I am impressed by the commitment of our alumni who volunteer their time to ensure that the CALS Alumni Association meets your needs to keep the connection between you and the university fresh, relevant, and enjoyable. This year alone, our board and the professional staff from the Office of Alumni Affairs, Development, and Communications have worked to bring faculty speakers, campus updates, sporting events, and other activities to your district. The alumni association was involved in the Cornell Celebrates New York Wines gala dinner in New York City. The annual reunion breakfast in June is a great way for alumni to reconnect with each other and the college. (See the Reunion Breakfast registration form on page 31.)

All of the programs that we offer are the result of careful planning done years in advance. One major project for our board of directors this year is to formulate a new five-year plan for the CALS Alumni Association. Countless hours have been devoted to developing a plan that is innovative and appealing to a diverse group of our alumni.

Cornell's College of Agriculture (and Life Sciences, as renamed in the 1960s) Alumni Association was founded on February 25, 1909 when Dean Liberty Hyde Bailey presided over a meeting of current and former students gathered to discuss college needs. We are looking forward to the centennial celebration of the Alumni Association in 2009. Throughout the history of the association, our mission has been to promote fellowship and leadership among alumni, students, and faculty and to advance the teaching, research, and extension functions of the college. I am certain that the contributions our alumni will make in the next 100 years will benefit society in many ways.

I hope that each of you will consider how you have benefited from your experiences at Cornell and support the college. Membership in our Alumni Association allows us to sustain the college through programs, scholarships, and activities. If you are not already a member, please join the CALS Alumni Association and reconnect with your Cornell family. As I finish my term as president, I thank you for supporting Cornell, CALS, and our alumni association.

*Mitchell E. Kornet '76, DVM '79*  
2007–2008 CALS Alumni Association President



# ALUMNI NOTES

## 1930s

**Joseph J. Davis '35** of Frederick, Md., is the oldest living Civilian Conservation Corps member in his area. Davis joined the Depression-era program created by Franklin D. Roosevelt in 1934 after graduating with a forestry degree. He still lives near the buildings he helped build, and he established an annual reunion for CCC members in the Frederick area in 2004.

## 1940s

**Edwin W. Markham '42** of Bainbridge Island, Wash., attended his 65th Reunion last June as a member of the Class of '42. While on campus, Ed also met with the Horticulture Department's Undergraduate and Graduate student group, thanks to long-time friend, Professor Bill Miller. Ed recalls that when he was at Cornell as a student, he talked to Liberty Hyde Bailey - thanks to an introduction by his mentor and friend, Professor Ken Post.

**Ernest H. Casseres, MS '46, PhD '52** of Santiago, Chile was pleased to see that the Horticulture club, Hortus Forum, went to his homeland and visited the Ball Seed Company.

## 1950s

**Joe Antognini, PhD '51** of North Charleston, S.C. went on an annual driving trip with his wife, Jean, in May 2007 where they traveled 6,500 miles to California to visit friends and relatives. On their return trip, they stopped in Oklahoma City for their granddaughter's graduation. They will do the same thing this year for their grandson's graduation from the same university.

**William L. Hodges '52** of Lynchburg, V.A., attended his 55th Reunion last June. He left the orchard business in 1972 and went into insurance, retiring in 1996. He started his own promotional items business in 2007 called Gadget Man Items.com. He and his wife, Elisabeth, moved to the Summit Retirement community in 2005.

**George M. Lewis '53** of Lancaster, Pa., is the president of Lititz Improvements, a private group that looks for sound real estate investments that can benefit the community of Lititz, Pa.

**Richard Sawyer, PhD '53** of Raleigh, N.C., is still linked to the International Potato Center and is an adjunct professor at North Carolina State University. He and his wife, Norma, are in good health.

**William W. Pinchbeck '54** of Montpelier, Vt., retired from rose-growing about 5 years ago. His son, Tom '87, is now running the rose farm. While he winters in Montpelier, he summers in Guilford, Conn. He also has been piloting planes again having flown B-25's and Convair T-29's in the USAF.

**Rudolph J.L. Favretti, MS '55** of Storrs Mansfield, Conn., is a landscape architect and taught at University of Connecticut for many years. He recently published the first full-scale biography of Jacob Weidenmann, 19th century landscape architect. Favretti is a Fellow in the American Society of Landscape Architects who specializes in landscape history and preservation. He has authored ten other books on various aspects of landscape design and planning, agricultural history, and local history.

**Kenneth C. Sanderson '55** of Sarasota, Fl., and his wife, Barbara, are in their 10th year of retirement. They traveled to China for 3 weeks in June 2007.

**John Wiebe, MS '53, PhD '55** of Calgary, Alberta, Canada, and his wife, Elsie, have recently moved to a senior's residence village. They still volunteer for several organizations frequently.

**William K. Doerler '56** of Princeton, N.J., retired from his certified landscape architect position in New Jersey. He started Doerler Landscapes in 1964 and now manages a nursery farm in Mercer County, N. J.

**Richard E. Keene '57** of Gilbertsville, N.Y., has been inducted into the National Dairy Shrine and recognized as a 2007 Pioneer during a ceremony at the World Dairy Expo. Keene received national recognition for a lifetime of service to the industry; he is known as a respected dairy producer, dairy cattle judge, community leader, youth volunteer, and family man.

## 1960s

**Ruth Berberian Hanessian '60** of Wash. D.C., is president of the Animal Exchange, a bird-centered pet shop in Rockville, Md., that deals almost exclusively with birds bred in captivity. Her group includes some of the very few bird rescuers in the region who specialize in saving and rehabilitating parrots. Hanessian buys and sells threatened and endangered birds. She is a Gold Circle Dealer in the Maryland Association of Pet Industries.

**Richard James De Risio '67, MS '71** of Santa Ana, Calif., was appointed vice president for Global Regulatory Affairs of Advanced Medical Optics, which develops advanced, life-improving vision technologies for people of all ages. He oversees development and execution of regulatory strategies for the company's products which are sold in more than 70 countries.

**Joseph Foresi Jr., PhD '69** of Springfield, Mass., recently sought re-election as a fourth term school committee member. He currently serves as chairman of the superintendent goals and evaluation subcommittee. Formerly, Foresi held positions including vice president of academic affairs, dean of academic affairs, and professor at various colleges.

## 1970s

**Paul Raymond Bowser '70** of Ithaca, N.Y., has been a professor of aquatic animal medicine at Cornell's College of Veterinary Medicine since 1985. He was recently honored with an Award for Excellence in Faculty Service. In recent years, Dr. Bowser and his lab have been involved with research programs concerning aquatic animal health.

**Andree Nicola McLaughlin '70** of White Plains, N.Y., is Founding Coordinator of the International Cross-Cultural Black Women's Studies Institute, a social justice network founded in London and marking its 21st anniversary in 2008. McLaughlin is also Professor of Women's Studies and First Holder of the Dr. Betty Shabazz Distinguished Chair in Social Justice at Medgar Evers College where the Institute is headquartered.

**John F. Ourada, MS '70** of Salina, Kan., supervises a staff for the federal National Resources Conservation Service. In overseeing conservation project design and giving technical and financial assistance, the service helps private landowner's correct problems and adopt good practices about natural resource use and management.

**Henry "Bud" Nestler '72** of Exton, Penn., works for Princeton Nurseries in Allentown, N.J. He also covers the Metro N.Y. Long Island area for them. Bud is also secretary for the Long Island Nursery and Landscape Association. He and his wife, Emily, have 2 grown children: Laurie and Tim.

**William W. Longwell '73** of Delmar, N.Y., is employed in Wetlands delineation with the Department of Transportation. Longwell enjoys mountaineering and skiing in the Adirondacks and Cascades.

## Membership Form

Membership levels available:

- ☐ 2-yr \$29  
☐ 4-yr \$54  
☐ Lifetime \$350  
☐ \$125 toward 3-yr installment

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\*30% discount for joint memberships only.

Additional gift to ALSAA Fund

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**Mail to:** Office of Alumni Affairs, 274 Roberts Hall, Ithaca, NY 14853-5905

**Gift Membership** to the CALS Alumni Association of the College of Agriculture and Life Sciences at Cornell University (great gift from parents to graduating seniors!)

To: \_\_\_\_\_

From: \_\_\_\_\_

News for Alumni Notes: \_\_\_\_\_



## ALUMNI NOTES

**Jayne McLaughlin '75, MS '76** of Red Hook, N.Y., has been named director of the New York State Parks Taconic Region, which includes Staatsburg State Historic Site. She began her career at state parks in 1978 as an assistant director of the Young Adult Conservation Corps at Allegany State Park.

**Laurie M. Lawrence '75** of Lexington, Ky., will join Lowrie, Lando, and Anastasi LLP, an Intellectual Property law firm. Previously, she worked as a practitioner at Fish and Richardson, a large international firm. Lawrence focuses on patents in biotechnology, molecular biology, and pharmaceuticals. She has counseled many companies in acquiring and divesting intellectual property assets, and has conducted due diligence on many patent portfolios.

**Jon I. Lieberman '75** of Columbia, S.C., assumed the position of General Manager for Government and Strategic Accounts for the America of software company Collexis.

**David E. Aldous, MS '76** of Croydon, Australia retired from the University of Melbourne in July 2007 after 26 years of teaching, research, and outreach in environmental horticulture. He is hoping to continue in consulting, finish another book, and do some fishing in Queensland.

**Suzanna Avena Darby '76** of Great Neck, N.Y., was named chairwoman of the Nassau County Barr Association's Environmental Law Committee. Darby is the environmental law practice co-chairwoman at Garfunkel, Wild and Travis, hopes to implement active education programs and initiate seminars on federal regulations pertaining to environmental laws. She also serves as the editor of the law firm's *Environmental Bulletin*.

**R. Michael Briggs '76** of Penn Yan, N.Y., has been put in charge of USNY Bank in Geneva, N.Y., Capital Bancorp's first community bank in the state. He is a 25-year veteran in banking.

**Patricia Sande Brodowski '76** of Westminster, Md., owns an heirloom garden at the Carroll County Farm Museum. She teaches children how to spin wool and weave, and to make dye from goldenrod and coreopsis from her garden.

**Patricia Rixinger '76** of Berne, N.Y., became the first female director of state hunting and fishing programs under the Division of Fish, Wildlife, and Marine Resources for the Department of Environmental Conservation. As a wetlands expert for more than three decades, she spent the last six years heading the department's Landscape Conservation Section.

**Gordon G. Willard '76** of Lakeland, Fl., is the new head of the Humane Society of Vero Beach and Indian River County. Gordon has 25 years experience in operating animal shelters. For 22 years, he headed up a county-level Animal Protective Foundation in Schenectady, N.Y.

**Paul Allenza '78** of College Park, Md., was recently named the new director of the Biotechnology Research and Education program at the University of Maryland, an initiative dedicated to the research, education, and development of biotechnology products and processes for Maryland companies. Allenza also holds four U.S. patents in bioprocessing, with seven others pending. He has published ten peer-reviewed papers and thirteen abstracts.

**Oscar E. Vizcarra '79** of Gasport, N.Y., started Vizcarra Vineyards with his wife, **Melinda Vizcarra '79**. The two studied fruit sciences at Cornell and moved to Western New York to open Becker Farms, where they still grow fruits and vegetables and offer homemade baked goods. They made fruit wines as a hobby prior to opening the winery.

### 1980s

**Matt Horn '80** of Spring Valley, N.Y., is the president of the American Nursery and Landscape Association Retail Division board and was recently elected to serve as a director on the ANLA board of directors. Horn lectures frequently throughout the country on topics relating to horticulture, water gardening, and landscape design. With his wife, Ronnie, he founded Matterhorn Nursery, Inc. in 1981. They have three children, three golden retrievers, and one cat.

**Harry J. Schwartz, PhD '80** of College Park, Md., works as a plant breeder and professor at the University of Maryland, where he continues a decades-long effort to create the perfect strawberry. Through efforts with his company, Five Aces Breeding, Schwartz has developed strawberries with various flavors such as cinnamon, vanilla, chocolate, and mint. His ultimate goal is to encourage people to eat more fruit.

**Lloyd T. Spencer '80** of Ft. Meyers, Fla., has been appointed to the Board of Directors of Innova Robotics & Automation. With over 23 years of experience in the computer and networking industries, Spencer previously served as vice president of marketing and sales at eQuest Technologies, solutions unit manager at Microsoft, and more.

**Samuel R. Azout '81** of Barranquilla, Colombia, is the leader of the Colombian Joint Venture Partner group that plans to help Payless ShoeSource infiltrate ten stores into the Colombian market. Azout is noted for aiding the steady and marked growth of the retail industry in Colombia.

**Ruth Lynfield '81, MD '85** of St. Paul, Minn., has been appointed the new medical director of Minnesota. Under this position, she serves as state epidemiologist and medical director for infectious disease. She served as acting infectious disease state epidemiologist since March 2007.

**Phebe Clark Mertes '81** of College Station, Texas works part-time as a Linux administrator for a wireless internet provider. She still runs Mertes Internet, an internet hosting and web-design provider. She recently took up mountain biking to stay in shape.

**William Bennett Sanders '81** of Fort Meyers, Fla., is an assistant professor of plant biology at Florida Gulf Coast University. His research interests include plant form and development, with a focus on the growth and development of lichens.

**Desiree C. Elsevier '82** of Sparkill, N.Y., played viola with the Metropolitan Opera Orchestra for many years and was recently named orchestra manager.

**Li-Shar Huang, PhD '82** of El Cerrito, Calif., is a scientist at the Lawrence Berkeley National Lab in Berkeley, California.

**Robert S. Zeigler, PhD '82** of Houston, Texas is director-general of the International Rice Institute, a laboratory trying to concoct hybrid varieties of rice as a way to steady the rising price of the grain and reducing worldwide famine. Zeigler has headed the Institute since 2005.

**Leah A. Houghton '83** of West Tisbury, Mass., is a research associate at Woods Hole Oceanographic Institution on Cape Cod, Mass. Houghton works in the Fish Ecology Lab studying isotope ratios in fish tissue, which brought her two opportunities to take research trips to Antarctica.

**Carla R. Koppell '88** of Wash. D.C., works as director of the Initiative for Inclusive Security, which encourages peace processes. Koppell focuses on programs in Sudan, Iraq, Liberia, and Uganda. Previously, she has served as deputy assistant secretary for international affairs of the U.S. Department of Housing and Urban Development, special assistant to the administrator of the U.S. Agency for International Development, and for the Food and Agriculture Organization of the United Nations.

**Donna Moore '89, MAT '93** of Cobleskill, N.Y., has accepted a position as assistant professor of Agricultural and Extension Education at Virginia Tech, which she will begin in August 2008. Previously, she taught high school agricultural education, worked for the FFA Governing Board as the New York State FFA Executive Secretary, helped secure state-level funding to establish Agricultural Education Outreach (AEO), was employed by Cornell University, and was appointed as State FFA advisor and AEO coordinator, a position she held for just over ten years.

### 1990s

**Beth F. Levine '90, DVM '94** of Dallas, Texas, was recently honored for her research on cell process that could have implications on aging, cancer, infections and neurodegenerative diseases such as Alzheimer's. She is a scientist with the UT Southwestern Medical Center and was honored by the Academy of Medicine, Engineering and Science of Texas as an up-and-coming researcher.

**Jennifer H. McMahon '91** of Niantic, Conn., is a full-time mom of two "dirt-loving" girls. She also works part-time, mainly doing ads for a newspaper at a local garden center.

**Wilson Gondwe, PhD '92** of Malawi retired in 2006 from government and joined the International Institute of Tropical Agriculture (IITA), Nigeria, as coordinator for a horticultural research and development network. He has five children and two granddaughters.

**Geoffrey F. Hess '92** of Longmont, Col., is married to Dr. Stephanie L. Buening. Their daughter, Evelyn Lucille Hess, was born on August 9, 2006.

**Dorcas K. Isutsa, MS '93, PhD '98** is chair of the Department of Horticulture at Edgerton University in Njoro, Kenya. She has a young daughter, Adelaide.

**Matthew G. Scuderi '93** of Fayetteville, N.Y., is an orthopedic surgeon and assistant professor at Upstate Medical University specializing in sports medicine, and a volunteer team physician with the U.S. Ski Team. He and his wife, Anne, have three children.

**Nicholas R. Brown '95** of Fayetteville, Ark., joined the University of Arkansas in October 2007 as pollution prevention coordinator, their first executive assistant for sustainability. The position oversees efforts to increase energy efficiency and to reduce waste and greenhouse gas production on the Fayetteville campus.

**Robin K. Wilson, PhD '95** of Baltimore, Md., is the associate director of the Adult Hydrocephalus Center at Sinai Hospital in Baltimore.

**Jessica L. Somerfeld '96** of Greenwich, Conn., was recently named vice president-corporate actuary with W.R. Berkley Corporation. Jessica joined the company in 2005, serving most recently as vice president, corporate actuary. She has over 11 years of actuarial experience. She is a fellow of the Casualty Actuarial Society and a member of the American Academy of Actuaries.

**Angela M. Kennelly-Bentrim, MPS '96** of Calgary, Alberta, Canada, has been appointed as an account executive in the Calgary office of Hewitt Associates. She takes the job after moving from The Woodlands, Texas, where she held several positions within its internal HR function and consulting practices.

**Craig M. Mitrakul '97** of Wenatchee, Wash., and his wife, Danielle, have two young children. He is a winemaker of two of the region's most acclaimed wineries; Saint Laurent Winery and Ryan Patrick Winery. He says the dual role offers him a rare opportunity to use and grow his talents in different ways.



## ALUMNI NOTES

**Laura Ann Lopez '98** of Staten Island, N.Y., wed Michael Keegan in August 2007. She is currently a legal fellow for a justice of the State Supreme Court in Kings County, N.Y.

**Robert J. Torres, MS '99, PhD '02** of Colton, N.Y., recently published a book as assistant professor of sociology at St. Lawrence University. *Making A Killing: The Political Economy of Animal Rights* combines Marxist political economy with a message of the animal-rights movement.

### 2000s

**Jaime R. Allen '00** of Orlando, Fl., is with Darden Restaurant Group as the director of beverage strategy for Olive Garden. She previously worked at S.C. Johnson & Sons as a senior brand manager.

**Crystal M. Cline '01** of Boston, Mass., wed Craig A. Halbmaier, a graduate of Human Ecology, in September 2007. The wedding took place at Anabel Taylor Chapel at Cornell. Cline will graduate in 2008 from Harvard Business School. She was awarded a Harvard Business School Social Enterprises Summer Fellowship and is currently working with the Clinton Foundation Malaria Program in Tanzania.

**Shemika C. Holder '01, DVM '07** of Elmira, N.Y., joined the staff at Compassionate Companion Care, a veterinary hospital in west Elmira.

**Kim M. Wilczak '01** of Neffsville, Pa., left for Amsterdam this past September to follow her dream of figure skating. A member of the Hershey Figure Skating Club, Wilczak, an amateur skater, was picked for her sense of humor on the ice to tour as a pirate and lost boy around Europe. She left a job in landscape architecture to pursue this "once in a lifetime opportunity."

**Samantha L. Garelick '02** of Los Angeles, Calif., works as a personal chef, caterer, and cooking teacher. After attending culinary school in New York and completing an internship in Chicago, Garelick today combines the restrictions of keeping kosher with the flair and style of California cooking.

**Jonathan D. Lane '02** of Annapolis, Md., married Jessica L. Rockwell on June 23, 2006 at Bethesda Episcopal Church, Saratoga Springs, N.Y. They visited the Amalfi coast in Italy on their honeymoon. He is employed at Manganaro Midatlantic, Beltsville, Md.

**Laura Torres '02** of Landisville, Pa., was promoted by Alcoa to their Lancaster plant as mill manager. She joined Alcoa in 2000, most recently serving as plate mill superintendent.

**Benjamin E. Wolfe '03** of Cambridge, Mass., is working on his PhD in Evolutionary Biology at Harvard University.

**Kris Ann Brady '04** of New York, N.Y., currently works as a senior account executive at Hunter Public Relations. She will be starting graduate school this fall at New York University, where she is planning to receive her MBA in marketing.

**Adriana E. Jauregui '04** of Oakland, Calif., recently started teaching full-time. She refers to the position as a challenging experience, but remains very happy that she became involved with education in the public sector.

**Ashley Brooks Berke '05** of Jenkintown, Pa., has been promoted to public relations manager by the National Constitution Center in Philadelphia. Berke previously served as public relations coordinator, a position she held since June 2005. In addition to continuing her responsibility for media relations for exhibits and programs at the center, she now incorporates planning and strategic responsibilities for the department.

**Emory J. Mort '05** of Mercersburg, Pa., won the men's 5K race at the Syracuse Festival of Races in 14 minutes and 47 seconds. He is a math teacher and track coach at Mercersburg Academy and was invited to the race by fellow teacher and coach, David Grady.

**Kenneth J. Terpening '05** of Albany, N.Y., was married on September 27, 2008 in Schenectady, N.Y., to Jennifer J. LaBarr of Clifton Park, N.Y.

**Susan Shu Chen Liou, PhD '06**, of Brooklyn, N.Y., began working at Agrexco, USA shortly after receiving her PhD. Agrexco USA is an Israeli growers' co-op with eight branches in Europe and the United States, exporting Israeli-grown products.

**Lisa A. Polewczak '06** of Estero, Fl., is the new assistant cucurbits breeder for Syngenta Seeds.

**Jennifer E. Rivera, PhD '06** of East Lansing, Mich., received the 2007 Outstanding Dissertation and Thesis Award from Omicron Tau Theta, the International Honor Society for Career and Technical Education.

**Joseph A. Weiss '06, MPS '07** of Port Crane, N.Y., has joined Pall Engineering in Cortland, N.Y. as an environmental engineer.

**Scott A. Haber '07** of Tenafly, N.J., is currently a visiting scientist in the Department of Ornithology at the American Museum of Natural History in New York City.

**Jacqueline M. Holiday '07** of Rogers, Ariz., is working in brand management for SC Johnson on a scales rotation with the Wal-Mart team.

**Kevin T. Stanton '07** of Bayside, N.Y., recently accepted a position as an executive chef at new restaurant called Sanctuary Tea in New York City. He has appeared publically numerous times, including most recently on "The Martha Stewart Show."

**Mark Paul Weisenborn, MPA '07** of Buffalo, N.Y., graduated from the Army ROTC Leader Development and Assessment Course, also known as "Operation Warrior Forge," at Fort Lewis, Tacoma, Wash. He will be commissioned as a second lieutenant in the Army.



Prepared by  
Lisa Gilbert '11

## Moving?

Stay in touch with your alma mater through uninterrupted delivery of *CALS News* by returning the change-of-address form. Mail to: Cornell University, College of Agriculture and Life Sciences, Office of Alumni Affairs, 274 Roberts Hall, Ithaca, NY 14853-5905.

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Class Year \_\_\_\_\_

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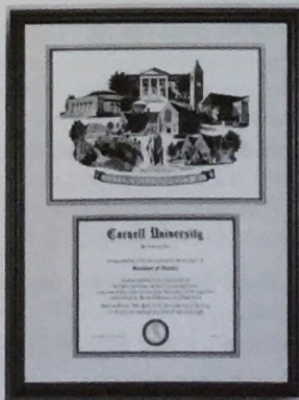
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# Cornell Reunion 2008

Join CALS  
for Reunion  
Weekend  
June 5–8, 2008

## Thursday, June 5

### Tours of the New Mann Library

Lobby, Mann Library, 3:00 and 3:30 PM  
The front doors to the renovated Mann Library are open again! Please join us for half-hour tours of the fabulous new library spaces that have been designed to facilitate creative modern scholarly research and interaction while retaining the beauty of the original Art Deco building.

### Celebrating Wine Lecture and Reception

HEC Auditorium, Goldwin Smith Hall, 4:30 PM–6:30 PM  
Thomas Pinney, wine expert and noted author of *A History of Wine in America: From the Beginnings To Prohibition*, will speak, as part of the exhibition Celebrating the Wine and Grape Archive. (See "All Weekend" activities.)

## Friday, June 6

### Using Handheld Computers for Accessing Information and Making Social Connections in Public Spaces

Herbert F. Johnson Museum of Art, Asian Galleries, 10:00 AM–11:30 AM  
Join Geri Gay, Kenneth J. Bissett Professor and Chair, Department of Communication, to learn how the museum is expanding the way art is presented through innovative uses of technology. Tours with handheld computers engage museum visitors and broaden understanding of individual works in the galleries through the addition of maps, images, music, the spoken word, and web links. This program is in collaboration with the Museum and the Human Computer Interaction group, part of the Department of Communication.

### Investment Technologies and the Competitive Edge

Room 102, Mann Library, 10:00 AM  
Instructor: Baseema Krkoska, Management and Public Policy Librarian  
Students aspiring for careers in the fiercely competitive financial services industry need to set themselves apart by acquiring sophisticated financial technology and analysis skills. This workshop, a collaboration of the library and faculty, will teach the use of tools such as Bloomberg and LehmanLive and provide a close-up look at equity, fixed income and portfolio management research skills.

### Open House in Air-Conditioned Snee Hall

Atrium, Snee Hall, 10:00 AM–2:00 PM  
Visit the Timothy N. Heasley Mineral Museum; see the mastodon exhibit, and view the earthquake seismograph. Enjoy the stroll and self-guided tour through the Engineering Quad Rock Parks.

### All-Alumni Affair, CALS Display

Barton Hall, 11:00 AM–2:00 PM  
Discover what's happening at CALS in classrooms, admissions, career development, and alumni programs.

### Earth and Atmospheric Sciences Display

Barton Hall, 11:00 AM–2:00 PM  
Hands-on exhibits will feature a tornado in a bottle, minerals and fossils, and a seismograph to demonstrate how seismic waves generated by earthquakes are detected. Faculty members and students will answer questions.

### Tours of the New Mann Library

Lobby, Mann Library, 2:00, 2:15, and 2:30 PM  
The front doors to the renovated Mann Library are open again! Please join us for half-hour tours of the fabulous new library spaces that have been designed to facilitate creative modern scholarly research and interaction while retaining the beauty of the original Art Deco building.

### We Grow the Wine Grapes:

#### Exhibit on New York Viniculture Today

Mann Library Lobby, 8 AM–5 PM, M–F, through August 15

In conjunction with the 10th anniversary of the Eastern Wine and Grape Archive being celebrated by the Division of Rare and Manuscript Collections, Mann Library is hosting this exhibit on new developments in New York viniculture. From exciting research developments at Cornell and the New York State Agricultural Experiment Station in Geneva, N.Y. to changes in local landscapes being etched by the thriving wine industry, the exhibit offers a breaking-news update and full-color visual tour of what's happening with New York wine grapes.

### CALS Admissions Information Session

Room 102, Mann Library, 2:30 PM, 255-2036

## Saturday, June 7

### CALS Reunion Breakfast

Trillium, Kennedy Hall, 7:30 AM–8:45 AM  
Enjoy fellowship with Dean Susan Henry, alumni, faculty, and friends of CALS. Mitchell E. Kornet '76, DVM '79, CALS Alumni Association president, will host the association's annual meeting at this event. Reservations required (see next page).

### Kathryn Boor '80: Liberty Hyde Bailey Lecture



"Are You Really Going to Eat That?"  
Exploring the Microbiological Safety of the Food Supply

Call Alumni Auditorium, 9:00 AM–10:00 AM

Boor's research explores how foodborne pathogens are transmitted in the food supply. Her group has developed tools designed to enable early detection of foodborne outbreaks and has been credited by the Centers for Disease Control and the USDA Secretary of Agriculture with helping to limit the extent of illnesses associated with outbreaks, thus saving lives. Boor, chair of the Department of Food Science on the Ithaca campus, directs the Food Safety Laboratory and the Milk Quality Improvement Program.



### Open House in Air-Conditioned Snee Hall

Atrium, Snee Hall, 10:00 AM–2:00 PM

Visit the Timothy N. Heasley Mineral Museum; see the mastodon exhibit, and view the earthquake seismograph. Enjoy the stroll and self-guided tour through the Engineering Quad Rock Parks.

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### Earth and Atmospheric Sciences Display

Barton Hall, 11:00 AM–2:00 PM

Hands-on exhibits will feature a tornado in a bottle, minerals and fossils, and a seismograph to demonstrate how seismic waves generated by earthquakes are detected. Faculty members and students will be on hand to answer questions.

### Plant Biology Alumni Gathering

MacDaniels Room, G37 Plant Science, 11:30 AM–12:30 PM

Join us for light refreshments while visiting with fellow Plant Biology alumni as well as current and former faculty.

### Department of Horticulture's Alumni Gathering

Room 22, Plant Science Building, 11:30 AM–12:30 PM

This gathering will involve the Departments of Vegetable Crops, Pomology, Floriculture, and Ornamental Horticulture. Reminisce about your Cornell days, and share pictures and stories about family and friends. Room 22 will be open on Friday and Saturday to display our "history." Light refreshments.

### Views of Sustainability:

#### Natural Changes, Anthropogenic Changes, and Natural Resources

1120 Snee Hall, 1:00 PM–2:00 PM

Presented by the Department of Earth and Atmospheric Sciences

### Wine Tasting

Trillium, 1:30 PM–3:30 PM

Savor the Flavor of New York State Wines. Sample wines from over a dozen of New York State's finest wineries. All alumni and guests, 21 years of age and older, are welcome.

### Tour of the Paleontological Research Institution (PRI), Museum of the Earth

2:00 PM–4:00 PM (Bus leaves Snee Hall at 1:45 PM.)

Join us on the bus for free admission into the museum. Celebrate the 75th anniversary of PRI, which is affiliated with the Department of Earth and Atmospheric Sciences. See a right-whale skeleton suspended in the atrium, and major transformations of life through the ages displayed through fossils and videos. Observe the seismograph and research by EAS faculty and students. Collect fossils from the Devonian seas of Ithaca. Fun for all ages.

### Allan Hosie Treman '21 Memorial Concert featuring the Hangovers

F.R. Newman Arboretum (Flat Rock Entrance), Plantations, 2:30 PM

### Department of Applied Economics and Management (AEM) Alumni Gathering

Room 102, Mann Library, 3:00 PM–4:30 PM

Join us for light refreshments while finding familiar faces and meeting new ones. Come see how the major has grown from its roots in agricultural economics to a top 10 undergraduate business program.

### Natural Resources Alumni Gathering and Wine Tasting

Breezeway, Fernow/Emerson Hall, 3:00 PM–4:30 PM

Join us for wine tasting and light refreshments and visiting with fellow alumni and former and current professors. Share recollections of your days in Fernow and at field sites. Department Chair

Marianne Krasny will talk about the department and its programs. See displays of historical photos, posters of recent faculty and graduate student projects, and information on programs at the Arnot Teaching and Research Forest.

## All Weekend

### Celebrating the Wine and Grape Archive

Division of Rare and Manuscript Collections, Carl A. Kroch Library (through December)

The exhibition will feature documents, rare books, photographs, and other artifacts from Cornell Library's extensive collections chronicling the history of wine and viticulture.

### Experience the Cornell Plantations

Guided walking tours throughout the weekend: arboretum, botanical garden, and natural areas.

**Register online at [www.cals.cornell.edu/alumni-friends](http://www.cals.cornell.edu/alumni-friends).**

## Breakfast Registration Form

Register online at [www.cals.cornell.edu/alumni-friends](http://www.cals.cornell.edu/alumni-friends).

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 May 29, 2008.

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

**\$16.00** for members of the CALS Alumni Association and each guest.

**\$20.00** for nonmembers and each guest.

Name

(print exactly as to appear on name tag)

Class Year/Major

Address

City

State/Country

Zip/Postal Code

Telephone

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

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Expiration Date

Account #

Signature of Cardholder

Mail to CALS Reunion Breakfast, Cornell University, 274 Roberts Hall, Ithaca, NY 14853-5905; Phone: 607 255-7651; E-mail: [alsaa@cornell.edu](mailto:alsaa@cornell.edu); Fax: 607 254-4690.

**Must be received no later than Thursday, May 29, 2008.**



# End Note

## Hearing Is Believing



Cornell Laboratory of Ornithology



Florida Fish & Wildlife Conservation Commission/NOAA

(left) The "pop-up" is used in the ocean to record sounds of whales and other marine mammals, like those of this northern right whale (right) swimming with her calf.

Beneath the babble of human-generated noise is the soundtrack of the natural world—steady and constant, but only rarely intruding upon our consciousness. But what if we really listened, really tried to understand? This is what the Cornell Lab of Ornithology's Bioacoustics Research Program (BRP) is all about.

To be a good listener in the world's most remote or inhospitable places, you need better ears than the ones that come as standard equipment on the average human. BRP engineers have created remote recording devices called autonomous recording units. They can be programmed to record at specific times of day for up to two weeks at a time. They don't get bored, hungry, or tired. The recording units have been used to listen in on forest elephants in Africa and in the search for the ivory-billed woodpecker in the dense forests of the southeastern United States.

The autonomous recording unit's underwater cousin is the "pop-up," tethered to the ocean floor to record the moans, groans, whistles, and songs of whales and other marine mammals. When the job is done, an acoustic signal tells the device to let go of its anchor and "pop up" to the surface. A more sophisticated version of the pop-up is the moored acoustic buoy, which automatically transmits acoustic data back to the lab for immediate analysis. This technology is being used to monitor critically endangered right whales in the North Atlantic to prevent deadly ship collisions and fishing gear entanglements. Scientists also use the data to study the impact of noise from busy shipping lanes, seabed construction, and military activities on marine mammals. It's feared the rising "acoustic smog" beneath the waves may be interfering with their ability to communicate and to navigate.

Once recordings are downloaded and returned to the Lab of Ornithology, they are turned into sonograms and studied with another BRP invention: sound-analysis software called Raven. There's also a (free!) version for the public called Raven Lite. (Download at [www.birds.cornell.edu/brp](http://www.birds.cornell.edu/brp).)

### Playing Tag

BRP engineers are also working on better ways to monitor and track animals in remote locations, over long distances. They are testing systems of radio-frequency transmitters and receivers that use combinations of sensors, global positioning satellites, and tiny, powerful computer chips. In one system, an array of three or more receivers is set up in a study area, each precisely measuring when the signal from an animal's tag is detected. The receivers "share" their information to pinpoint the position of the animal to within a 200-meter radius. It's much more accurate than the old hand-held antennas that researchers have lugged into the field for the last 60 years.

Another challenge is tracking small animals over long distances, especially birds. Tags currently in use are too heavy for all but the largest species. The BRP mini-tag can be programmed to gather data at specific times, share data with other tags, and transmit only when it gets a signal from a transmitter in range. This saves power and extends the life of the tag. Most importantly for bird studies, the battery can be small. For the first time, scientists would be able to follow the epic night migrations of small songbirds, about which so little is known. The mini-tags are being tested in a pilot study tracking red knots, or *Calidris canutus* (the largest of the "peeps" in North America), flying from Africa to Siberia.

The Bioacoustics Research Program creates the tools needed to listen in on the natural world and keep tabs on its amazing creatures. What engineers and scientists learn can be translated into conservation plans for species struggling to cope in a world dominated by human activity.

Pat Leonard, Cornell Lab of Ornithology

<http://listenforwhales.org/>



# CALS CREATIVE WAYS TO GIVE

Charitable gifts provide essential support for the College of Agriculture and Life Sciences each year. The following examples show opportunities to support the College by addressing tangible needs such as equipment, travel funds, scholarships, furniture, and more.

The CALS Development Office is available to help you explore creative ways to meet your personal and philanthropic goals while making a significant impact on the College. For more information or to make a gift in support of one or more of these priority needs, please contact Mike Riley, Associate Dean for Alumni Affairs, Development, and Communications, College of Agriculture and Life Sciences, at [calsgiving@cornell.edu](mailto:calsgiving@cornell.edu) or (607) 255-7635.

## Dean's Discretionary Fund.

Dean Henry relies greatly upon unrestricted gifts of any amount to meet critical needs and support emerging priorities across the college.

## Wild Chronicles.

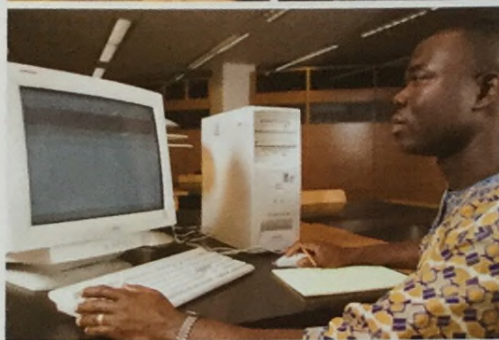
Help Shoals Marine Laboratory and the Cornell Laboratory of Ornithology develop HD multimedia educational products focused on seabird biology and conservation. To be aired by National Geographic. \$8,000 (Shoals Marine Laboratory/Cornell Laboratory of Ornithology)

## We will meet you there!

A 3-day, 2-night trip to Long Island would be an ideal experience for students to gain an appreciation for the scope of vineyard and winery operations in that region of the state. \$5,000 (Horticultural Sciences)

## Coyotes on the air.

Support a 5-year research project by purchasing a Global Positioning System (GPS) collar for a suburban coyote study in Westchester County. \$2,200 (Natural Resources)



## Green is beautiful!

Help the Department of Horticulture purchase plants for students to use as they learn how to beautify the campus grounds. \$2,000 (Horticulture)

## Aim for the big screen.

More and more student projects are going digital, and Mann Library's new Student Expo program needs new technology to showcase work in this medium. Funding for an oversized LCD monitor dedicated to student project displays will give this work the spotlight it deserves. \$5,000 (Mann Library)

## Moving images.

A digital video and two digital still cameras for the department to record student projects, community presentations and workshops, art events, and other ephemera. \$2,200 (Landscape Architecture)

## Wheels for Field Research.

Purchase a minivan or small size pick up truck to support field research on apples, grapes and vegetables. \$18,000 (Horticultural Sciences)

## Here we go again!

Help CALS Admissions upgrade their traveling exhibit for use in recruiting at agricultural events across the country. \$3,000 (CALS Admissions Office)

## Weave it!

Help the Cornell Plantations Education Department teach elementary school children how to weave together straw and other organic material in order to learn about weaving during our plant-based projects, with the purchase of two hand looms. \$300 (Cornell Plantations)

## Lights, Camera!

Install a data project and document camera in a Kennedy Hall communication classroom. \$5,000 (Communication)

## Minority Talent.

Sponsor the student-led orientation program, SUMMIT—Session for Undergraduate Minorities in Management: Investment in Talent. \$500 (Applied Economics and Management)

## On the Road Again!

Purchase an LCD projector for maple producer and forest owner extension education statewide workshops. \$1,200 (Natural Resources)

## Get me there!

Support for an enology student to attend one of the annual meetings of the American Society for Enology and Viticulture or the American Wine Society. \$3,000 (Food Science)

## Let's go wireless.

Install Red Rover on the first floor of Morrison Hall to provide wireless internet access to undergraduate students. \$3,000 (Animal Science)

## What's the Buzz?

New insect display cabinets are needed for teaching and outreach in Comstock Hall. \$6,000 (Entomology)

## A hub of activity!

Help support our graduate and undergraduate students with travel and research funding as they design experiments, analyze data, and publish academic papers. \$3,000 (Communication)



## STAY CONNECTED VIA E-MAIL!

- Are you interested in receiving updates and the latest news from CALS and Cornell?
- Would you like to receive invitations to local alumni events via e-mail?

If so, please send an e-mail to us at [alsaa@cornell.edu](mailto:alsaa@cornell.edu) and we will send you a link to update your e-mail and address information for us.

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Visit the college's new web site at

[www.cals.cornell.edu](http://www.cals.cornell.edu)



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College of Agriculture  
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