

ALS NEWS

Agriculture and Life Sciences

December 2001

Global Warming Threatens Sea Life

Rising temperatures in the oceans put right whales, coral, and other animal life at risk for food shortages and new diseases

Drew Harvell (front, right) surveys tagged seafans with undergraduate Laura Petes (center) and graduate student Jessica Ward in the Florida Keys.

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ALS NEWS

Agriculture and Life Sciences

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Global Warming Puts Sea Life at Risk

A delay in funding put Charles Greene in exactly the right place at the right time: hundreds of miles off the coast of Maine where he witnessed the consequences of one of the "most dramatic climate-driven events affecting the Northwest Atlantic during the 20th century," as he puts it. Suffering those consequences was one of the ocean's most alluring animals, the North Atlantic right whale.

Today there are only 300 of those endangered animals left in the world. It has been long recognized that humans brought the right whale to the brink of extinction through whaling and commercial fishing activities. But there may be another, quite different human activity that could have an even greater impact on the remaining whales: the burning of fossil fuels.

Ask Greene, an associate professor in the Department of Earth and Atmospheric Sciences and director of the Center for the Environment's Ocean Resources and Ecosystems Program, what he thinks about global warming and you will get a straightforward answer: it's for real.

"There's clear evidence that in this century, the earth is warming, and there's pretty compelling evidence that the amount of warming is outside what one would expect from natural variations in climate," Greene says.

Greene wanted to try to understand the effects of such global climate change when he applied to participate in the five-year U.S. Global Ocean Ecosystems (GLOBEC) Northwest Atlantic/Georges Bank Program.

When Greene finally got the go-ahead in 1997, he wasn't even thinking about right whales; rather he was looking at a rice-grain-sized crustacean, *Calanus finmarchicus*. This organism is a primary source of food for commercial fish species, especially cod and haddock. Coincidentally, it is also the dietary mainstay of right whales. Without enough *C. finmarchicus*, the whales can't bulk up to prepare for calving or carrying a pregnancy to term.

Greene went out to sea to survey nearly 1,000 square miles of the Gulf of Maine as the chief scientist on five cruises between 1997 and 1999 looking for *C. finmarchicus*. What he saw there—smack in the middle of the sole feeding grounds for right whales—came out of the blue. For no accountable reason, *C. finmarchicus* numbers had plummeted.



A right whale breaches the water.



BIOMAPER: Greene and colleagues have used this state-of-the-art instrument called BIOMAPER II (Bio-Optical Multifrequency Acoustics and Physical Environmental Remote-sensing) in the North Atlantic and Southern Oceans. It is a deep-tow vehicle which collects physical and biological oceanographic data in real time through a fiber-optic tow cable.

"We are sitting out on this huge ocean trying to unravel a puzzle by looking at the data we've collected," he says.

It helped a lot that scientists have been collecting climate data and data on *C. finmarchicus* for the past 50 years. They also have a count of the annual right whale births since 1982. What soon became apparent was that *C. finmarchicus* were abundant when the North Atlantic Oscillation (NAO) Index—which charts naturally occurring variations in atmospheric pressure centers

the numbers of *C. finmarchicus*; the big drop occurred a year later in 1998. Therefore, it took two years before the 1996 drop in the NAO Index had its effects on the *C. finmarchicus* population downstream in the Gulf of Maine. By 1999 the *C. finmarchicus* numbers were climbing back up again. However, because of the right whales' long reproductive cycle, the consequences of this climatic event were not over yet for these marine mammals. In 1999, only one calf was born, worse than anything on

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over the North Atlantic—was predominantly positive. When it became negative, *C. finmarchicus* numbers declined.

In the winter of 1996, the NAO index exhibited its largest drop of the century. This atmospheric phenomenon has a dramatic effect on the complex intermingling of the warm salty waters that move north with the Gulf Stream and the fresh cold waters coming down from the Labrador Sea. Resulting changes in hydrographic properties of the water in the Northwest Atlantic determine whether *C. finmarchicus* live or die. But that takes a while.

In 1997 Greene recorded little change in

record. But in 2001, two years after the abundance of *C. finmarchicus* increased, 30 right whale calves were born, the most recorded since 1982.

Because 2001 was another year when the NAO index was low, nature is giving him a chance to test his ideas.

"Right now we're putting together quantitative estimates of how many calves will be born in 2003 and 2004. Then we'll see how close we are," Greene says. "This is pretty exciting because it's very rare that people can predict into the future what any kind of animal population will do, let alone crea-



Charles Greene was the chief scientist on five cruises that surveyed nearly 1,000 square miles of the Gulf of Maine looking for *C. finmarchicus*, the dietary mainstay of right whales. He found out that, for no accountable reason, *C. finmarchicus* numbers had plummeted.

tures that live out in thousands of square miles of ocean."

Where does all this fit into global warming? Some scientists suggest that greenhouse warming will manifest itself in a way that resembles certain phases of the NAO, Greene explains. If we can understand the NAO's effects on physical oceanography, then that will help us predict how global warming will affect the sea, and in turn, the creatures that live there.

(continued on page 2)

Message from the Dean

Cornell and the College Pull Together to Cope with Sept. 11 Tragedy



Photo by Nicola Kountopoulos

As we conclude another fall semester at Cornell, one can't help but think of the events that occurred near the start of the semester and forever changed all of our lives. The September 11 tragedy touched our Cornell community in many ways. Cornell suffered numerous losses among its alumni and the families and friends of alumni, students, faculty, and staff. It's difficult to imagine the full impact of these horrific events on our Cornell community. I extend my sincere sympathies to everyone in our ALS family.

It has been in these most challenging moments that I have seen how we all pull together to support each other and to move forward. President Hunter R. Rawlings led our campus to respond quickly and with great sensitivity to the tragedy. The university held vigils and memorial convocations to

help us all cope with our grief, and teach-ins and seminars to help us make sense of the tragedy. Faculty members were encouraged to hold classes in order to provide students with an opportunity to come together. The college's Office of Academic Programs provided counseling services and Cornell Cooperative Extension gathered a variety of resources on its "Coping with Tragedy" web site, <http://www.cce.cornell.edu/issues/cceresponds/>.

Many alumni have asked us about an opportunity to help those within the Cornell family who are directly or indirectly affected. The University established two funds to help Cornellians on and off campus cope with the aftermath of the tragedy and to honor alumni who lost their lives in the events.

Given the celebratory nature of our Outstanding Alumni Awards Banquet, there was a clear consensus among the award winners and alumni leaders that we should reschedule the September 14 event. Fortunately, the Statler Hotel had an opening for November 16. Our publication deadlines, however, preclude us from covering the awards banquet in this issue of *ALS News*. Look for banquet photos and more in the April issue.

My husband, Peter, and I enjoyed meeting many interested college stakeholders at alumni events this summer. In August we attended Empire Farm Days in Seneca Falls and then traveled to Saratoga Springs to meet alumni at an event held at the Saratoga Race Track. We went to northern

California in early September, where I had an engaging breakfast discussion with a group of young alumni, learning about their connections to the college and how we might better develop programs to meet their needs and interests. I also met with a panel of biotechnology leaders and found it to be a valuable forum. The trip concluded with a well-attended gathering at the Atlas Peak Winery. Thank you to all of our alumni leaders for organizing these wonderful events and visits.

I commend ALS Alumni Association president Peter Pamkowski for working with the board to begin to explore better ways to build additional alumni programs beyond New York State, including major urban areas. We look forward to your feedback about specific program ideas and locations and how the college can best connect and participate with other alumni networks. Volunteering your time to help the college is an excellent first step toward building a stronger network of ALS alumni throughout the world and among the broad diversities of interests represented by our alumni.

Now more than ever, your involvement with the college is critically important. I invite you to join us in any of the following ways:

- Continue to support each other during this time of uncertainty. We have already come together in this time of great need. Thank you for continuing to show your concern and encouragement to each other and all members of our Cornell community.

- Attend a spring Dean/Alumni Get-Together. I will be traveling to various regions of New York State to meet with alumni and other college stakeholders. I look forward to meeting with you and hearing about your regional issues and perspectives.

- Help us learn more about your program interests beyond New York State. Feel free to contact our ALS Alumni Association and the Public Affairs Office with your interest in volunteering or to let us know about your specific program ideas. The e-mail address is alsaa@cornell.edu or call 607-255-1915.

- Make a gift. The college depends heavily on annual and endowment gifts from alumni to support a wide variety of needs and priorities. Please refer to the development report in this edition of *ALS News* to learn more about how you can support the college with an outright or planned gift.

- Write to me. I welcome your comments and am interested in hearing what is on your mind. You can write to me at Dean's Dialogue, c/o *ALS News*, 276 Roberts Hall, Ithaca, NY 14853.

Susan A. Henry

Susan A. Henry, Ph.D., the Ronald P. Lynch Dean of Agriculture and Life Sciences

Global Warming Puts Sea Life at Risk (continued from page 1)

The year 1998 was an equally important one for Drew Harvell. Instead of riding out winter storms in the North Atlantic, Harvell, an expert in coral reef ecology, scuba dived off the Florida Keys.

One can't help but ask which of this husband-and-wife team made the smartest choice of research topic. Harvell, a professor in the Department of Ecology and Evolutionary Biology, laughs at the question. When she answers it by saying that Greene has it much tougher, she doesn't just mean the weather.

"Coral is such a slow-growing animal that it would take literally thousands of years to replace a decimated reef."

—Drew Harvell

"Pinpointing the effects of the NAO is tough," says Harvell, who chairs a working group on ocean diseases for the federally funded think tank the National Center for Ecological Analysis and Synthesis. "Chuck works in the open ocean; we work nearshore. We work with animals that are attached; his float freely around the ocean."

His animals, however, are healthy. Hers are sick. Research in her lab points toward global warming as a contributing factor in making corals vulnerable to disease. Among the strongest evidence for this position came in 1998 when she, like Greene, witnessed something totally unexpected: a massive keys-wide die-off of the species of gorgonian coral *Briareum asbestinum*. Commonly called a sea whip, this soft coral bleaches white when the waters it lives in get too hot.

"The tropical oceans' temperatures are the highest they have been in thousands of years and a component of this warming



Photo by Drew Harvell

This sea fan, *Gorgonia ventalina*, is infected by *Aspergillus*. Lesions of necrotic tissue are surrounded by a dark halo. In some cases, infected sea fans also have tumors.

is likely due to anthropogenic contributions," Harvell explains. "Many corals are near their thermal maximum, so that in 1998, when a prolonged El Niño (Southern Oscillation) event produced even higher water temperatures, *B. asbestinum* began expelling the brown and purple pigmented algae that live in their tissues, turning stark white."

Many soon died. Harvell, who had been conducting routine annual surveys of coral along the length of the Florida Keys, noticed that many of the bleached corals had holes in them, even dead spots. Suspecting that a disease was involved here, she took tissue samples back to the lab where a colleague, Garriet Smith (University of South Carolina), isolated

and identified an infectious organism, a bacterium called *Scytonema*. To demonstrate that this lesion-causing agent was transmissible, she then grafted some of the diseased tissue onto healthy corals to see if they would get sick. They did.

The event involving sea whips only further confirms what Harvell is finding in her long-term studies of its relative, the sea fan (*Gorgonia ventalina* and *G. flabellum*). At one time, these stunning bright blue coral, which can grow to 3 feet high and 1-1/2 feet across, flourished in the Caribbean, the Bahamas, and the Florida Keys. Now they, too, are dying in some places at a rate of over 20 percent.

Collaborators of Harvell's determined the disease-causing agent—a fungus

called *Aspergillus sydowii*, which had never been reported as a pathogen in the ocean before. (Its close relative, *A. fumigatus*, has long been known as a human pathogen that commonly kills cancer patients.) Further experiments by an honors undergraduate student, Laura Petes, working in Harvell's own lab showed that increasing temperatures give the pathogen a growth advantage. They found that the optimal temperature for the disease to flourish is 90 degrees F, the very same temperature where bleaching is prevalent, showing that corals themselves are overstressed by water that's too warm.

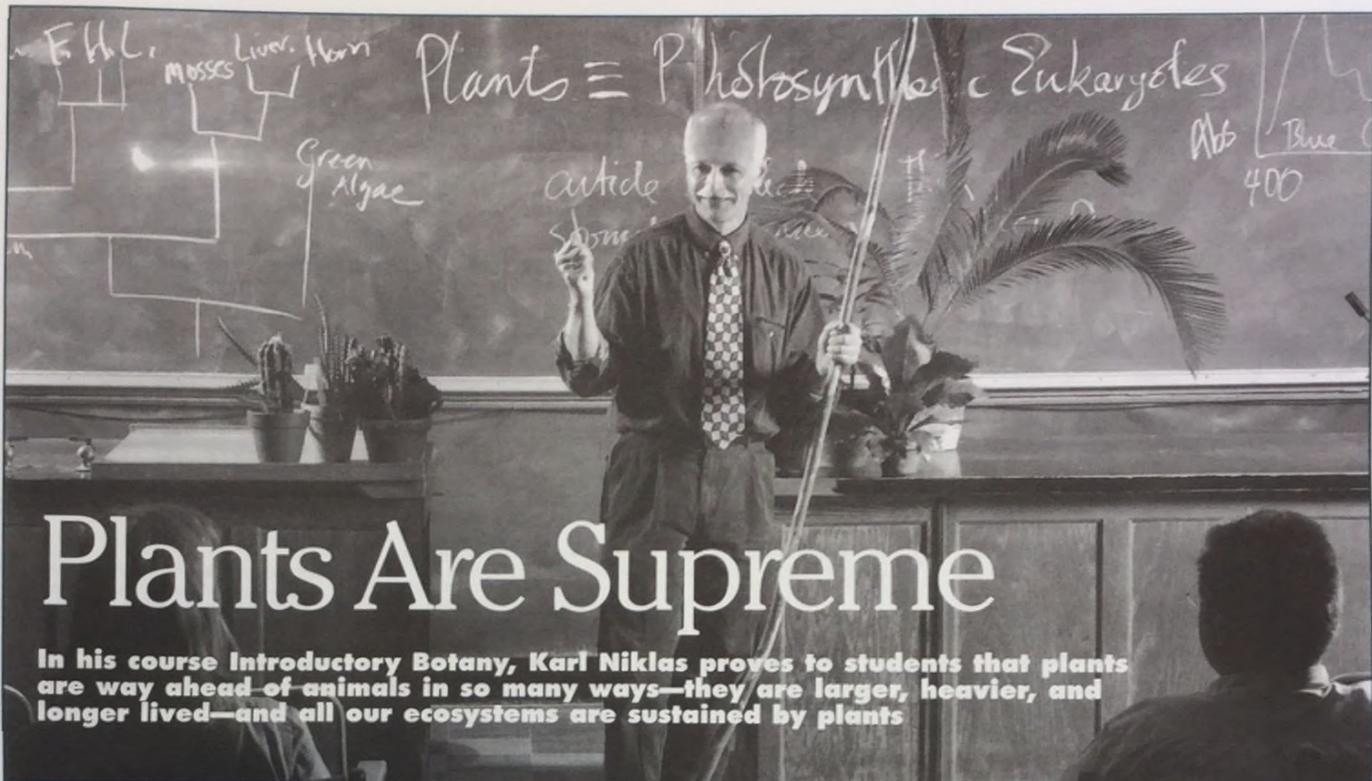
Some of the sea fans Harvell has observed are approximately 60 years old and dying within months of contracting the disease. Some of the corals dying in the 1998 El Niño in Australia were estimated at 700 years old.

During the 1998 event, videos taken from planes flying over the Great Barrier Reef along Australia showed vast areas of white coral covering more than 100 miles. In some areas of the Indian Ocean, up to 95 percent of the white coral died during the same event. Some of this mortality could be caused by opportunistic disease as in Harvell's study, but researchers have only started to investigate links between bleaching and disease-related mortality.

"Coral is such a slow-growing animal that it would take literally thousands of years to replace a decimated reef," Harvell says.

Harvell teaches a special eight-week course called *Tropical Marine Science*, in Mexico, where students participate in a coral reef monitoring survey.

Melita Winter



Plants Are Supreme

In his course *Introductory Botany*, Karl Niklas proves to students that plants are way ahead of animals in so many ways—they are larger, heavier, and longer lived—and all our ecosystems are sustained by plants

EYES WIDE OPEN: Niklas gives students a survey of the plant kingdom to entice them into fields of plant biology. But even if they become doctors or lawyers, they will never walk through a forest or meadow and look at plants in the same way again.

Karl Niklas stood at the crest of a ridge formed thousands of years ago by tons of glacial ice, dipping his fingers into a jumbo-size plastic tub that once held Kraft macaroni and cheese. He apologized.

"When I was younger I would wade out there and get some of the aquatics, but I'm a little old and feeble now, so I've brought some to show you," Niklas tells the 16 undergrads gathered around him alongside the wettest of the five major Ringwood Ponds.

Out of the tub comes his forefinger, covered with *Lemna minor*—one of the smallest flowering plants known to science. Biology, as well as linguistics and engineering majors, lean in close to listen as Niklas holds forth on duckweed. Because it can clone itself by vegetative fragmentation, a single pinhead-sized duckweed plant will green over the surface of a 2-acre pond in just one summer. Because duckweed preferentially absorbs heavy metals dissolved in water, it is used as a tool in environmental clean-ups. And when it is grown on clean water, it may then be dried, compacted, and sold to unwitting gardeners as fake peat moss.

Welcome to Niklas's course, *Introductory Botany*.

This breezy 75-degree afternoon is the third consecutive day of field trips in the 23rd year that Karl Niklas, the Liberty Hyde Bailey Professor of Plant Biology, has been teaching the course. Ever on the lookout for new material, Niklas had opened the first lecture a week before by quoting what he had read on the wall of a men's room in *Plant Science*: "plants rule, animals drool."

"I couldn't express my sentiments better," Niklas had deadpanned before a bunch of students, many who had come because their friends recommended this nonrequired class as a real kick.

In the field, the laboratory, and the classroom, Niklas uses the next 12 weeks to make this point: that—with the exception of thermal vents deep in the ocean floor—the whole world runs on sun power and plant life.

"Most students don't fully appreciate that all ecosystems are based on plant life," Niklas explains. "Plants capture sunlight and convert sunlight into chemical energy, which is the basis of all foods on this planet."

Not only are many students clueless on this point, but most don't even know what a plant is, let alone that we share a common cell structure. So that's where Niklas starts, by defining plants as photosynthetic eukaryotes. (Because we have cells containing nuclei and organelles, we are eukaryotes, too.) Yet what sets plants apart from animals is a supreme self-sufficiency. Unlike us, plants can manufacture their own living substances—carbohydrates, proteins, and lipids—which are produced using water and carbon dioxide in the presence of light and chlorophyll.

Plants are startling in other ways. They can, for example, move. Holding a 9-foot-long branch of *Ailantus altissima* (the tree that grew in Brooklyn, according to the

plant form and function) wants to get across that there is practically nothing in biology that isn't there for a reason. The veins that so artfully decorate a leaf are actually plumbing, a means of transporting food and water into and out of the plant's photosynthetic factory.

"You can get through biology by just memorizing, but that isn't going to give you joy," Niklas says. "The joy comes from understanding the relationship between the way something looks and how it functions."

Take the rhizome. Students first encounter the rhizome during the field trip to Ringwood Ponds. Niklas puts down the plastic tub and directs the group's attention over his left shoulder to the hundreds of brown hot-dog-shaped seed clusters

plants tromp back to the bus, it seems that they have always known this subterranean method of vegetative growth.

At one point the talk turns to bark, to the beautiful horizontal markings that distinguish *Prunus serotina*, the fine-grained hardwood so valued for furniture. These lenticels on the black cherry tree are how the tree breathes!

Niklas was the person who first showed the mechanical function of bark. For hundreds of years conventional wisdom held that this protective outer covering was analogous to human skin, serving as little more than an insulating barrier that keeps unwanted liquids and organisms out and its own fluids in. Turns out bark helps hold the tree up by providing rigidity that also resists twisting in heavy wind. Engineers called upon these same principles when they "invented" the I-beam.

Niklas wasn't popular when his paper "The mechanical role of bark" first appeared in the *American Journal of Botany* in 1999. Such are the discoveries that put fire in teaching.

"Many times our students, because they are at a major research institution, are the first to hear news like this," Niklas points out. "They're in a very privileged place in the world."

Melita Winter

Ever on the lookout for new material, Niklas opened the first lecture by quoting what he had read on the wall of a men's room in Plant Science: "plants rule, animals drool."

famous book), Niklas points overhead to a slide showing the two flagella that *Pandorina* uses to swim toward the light. They can be tiny; in fact, the architecture of a freshwater diatom cell wall is so precise it is used to calibrate the most expensive optical microscopes made. They can be really, really long—the great Pacific kelp grows 50 meters in one year. And they can weigh a lot, too. The trunk alone of a 83-meter-tall redwood, *Sequoia sempervirens*, tops 600 tons.

"Jurassic Park is a bunch of hokey," Niklas scoffs, building his case. "The largest dinosaur that ever existed is believed to have weighed a middling 8 tons!"

Not only are plants bigger than the biggest animals, but longer lived—much longer. Plants were here evolving more than 450 million years ago. And some, like *Pinus longaeva* trees, live more than 5,000 years.

Niklas, who first trained as a mathematician and wrote "the book" on plant biomechanics (using engineering principles to understand the relationship between

swaying in the breeze behind him—*Typha latifolia*. They are, he says, merely the tip of the iceberg, that the masses of leaves and flower stalks are interconnected by very thick horizontal stems that grow in the mucky bottom of the pond and send shoots upward from their sides.

"What you're looking at is most assuredly not more than two individual plants," Niklas vows. "I can say this absolutely because when I began teaching this course 22 years ago, that's all there were. Now they nearly girdle the sunny shoreline."

In the next 90 minutes, as Niklas introduces the vegetative "cast of characters" that have successively colonized first the wet then the dry areas around the ponds, students will hear reference to the rhizomatous growth habit again and again. Fossil remains of horsetails, *Equisetum arvense*, show their rhizomes to be up to 1-1/2 meters in diameter and many kilometers in length! Other plants with these growth habits are the sensitive fern, *Onoclea sensibilis*, and the lycopod, *Lycopodium obscurum*. By the time the stu-

The Dangers of Using Common Names of Plants

Niklas inveighs against learning plants by their common names.

"I don't want you to use common names, not because I'm a mean, nasty old man. I am, but that's not why I'm doing this," he tells students. "Rather, it's because some plants have three or four different common names used in different parts of the world." Take *Acer pensylvanicum* of which Ithaca's famous restaurant Moosewood takes its name. It is also known as striped maple. Not to speak of the fact that there are 150 species of maples in the world.



The Man Behind Soy milk's Success

Winston Lo MS '67 is chairman of Vitasoy International, a food processing company that sells soy milk and soy foods in 26 countries

"As you mature, as time changes, you approach the same things from different angles; and this is what makes life interesting," Lo says.

Every morning Winston Lo MS '67 makes himself a latte. Half coffee. Half soy milk. With it comes the taste of triumph. And of surprise.

For more than 2,000 years, Chinese people have enjoyed the taste and health benefits of foods made from soybeans. When Lo was a child growing up in post-World War II Hong Kong, tofu and cooked and fermented soybeans were main course staples. His father, Lo Kwee Seong, the founder of the food processor Vitasoy International Holding, Ltd., wanted to popularize soy milk as a healthful and economical alternative to dairy milk. He was convinced it could become the "cow of China."

But the first day his father tried to sell it, he could unload a mere nine bottles. The taste left something to be desired.

"While soy milk is very rich in protein and other nutrients, it had a quite unusual, beany taste," says Lo, who, although he had hoped to become a lawyer, joined the family business at the urging of his father who believed the company needed more technical expertise.

When Lo was an undergrad studying food science at the University of Illinois, Keith Steinkraus, a microbiologist at the New York State Agricultural Experiment Station at Geneva who was very taken with soy milk, recruited him as a graduate student.

"The beany taste was a natural consequence of the extraction and oxidation of soy oil," Lo explains. So he spent two years developing a novel, high-yielding process that produced soy milk with a more pleasing taste.

Today soy milk is popular not only as a substitute for milk, but also is a top-selling soft drink in Hong Kong, second only to Coke. And its popularity is spreading around the world: 1-1/2 million individual

containers of Vitasoy soy milk are sold in 26 countries every day.

That the beverage has become so popular outside of Asia is where the surprise comes in.

He spent two years developing a novel, high-yielding process that produced soy milk with a more pleasing taste.

"As you mature, as time changes, you approach the same things from different angles; and this is what makes life interesting," Lo says. He cites exercise as one example. Once an avid marathon runner, Lo now takes pleasure in less vigorous sports such as hiking in Scotland, Europe, and the United States.

"It is a way of appreciating the different facets of how the body changes with age," Lo says.

Soy milk is another.

"We would never have expected the current interest in the health-giving properties of soybeans," says Lo, referring to isoflavon, a plant estrogen. "The Chinese have known for a long time that soybeans contained a substance that revives the liveliness of individuals," Lo says. "They just couldn't pinpoint through science why it is so beneficial."

Advances in our understanding of the effect of diet on disease and longevity have gained favor for what Lo refers to as the "Oriental diet." And one of its mainstays is foods derived from soybeans.

Throughout his career with Vitasoy, first in its product development division and now as chairman, Lo says the person who has most influenced his life is his wife, Jeanette. Together they reared two daughters, Joy '93 and May '97, who they hope will someday join the family business.

"Jeanette has been a most accommodating and understanding person," says Lo of his wife, who returned to her career

as a financial analyst when their daughters came to Cornell. "She has supported me to carry on with what I am doing very effectively."

Melita Winter

Lo's Gifts of Time and Funds Make a Difference to Students

Gene German, professor emeritus in the Department of Applied Economics and Management, is grateful for the time Lo has spent teaching students and opening doors for them. "Winston was a guest speaker in my Food Industry Management Class on several occasions. We used the Vitasoy case study as the basis for discussion. Winston was excellent as a presenter and encouraged questions from the students. His presentation was always one of the highlights of my class," German says.

He goes on: "When I conducted a study of 'Supermarket Development in China' in 1995 with three of my graduate students, we started in Hong Kong where Winston opened many doors for us and helped make the research project a success. He put us in touch with government officials in mainland China as well as key business leaders."

Catheryn Obern, director of international affairs in Cornell's Division of Alumni Affairs and Development, gives these words of praise to Winston Lo's involvement as a volunteer with the university: "Winston Lo is one of those extraordinary volunteers who reminds me that what starts as a good experience as a student at Cornell can grow very naturally into a life-long relationship here. Winston has given himself to Cornell in so many ways. He's given his time and expertise on the Cornell University Council and the Advisory Council for the Institute of Food Science in CALS; he's given as a parent of two Cornell undergraduates, he's given me guidance as I work with alumni in Hong Kong, and he's given financial support for graduate education here."

Richard Durst, chair of the Department of Food Science and Technology at the New York State Agricultural Experiment Station in Geneva, says, "In 1994, Winston Lo established the Vitasoy and Lo Fellowship in Food Science at the Geneva experiment station with a generous endowment, and the interest income from this fund provides support for a graduate student in my department. As Mr. Lo stated when he presented this endowment, 'When I attended Cornell, I was given an assistantship of \$2,000 annually to complete my two-year master's program. . . This is a small token of gratitude for my opportunity to attend Cornell and do research at Geneva on soy milk.' His generosity has assisted several graduate students in receiving their Ph.D. s. Thus, his 'small token' has already had a significant impact on the lives and careers of these outstanding students."

Cornell Agriculturists and Alumni Named to Clinton Advisory Panel

With the 2002 farm bill looming on the congressional horizon, U.S. Senator Hillary Rodham Clinton (D-N.Y.) selected three prominent Cornell agriculturists and several alumni of the College of Agriculture and Life Sciences for her new agricultural advisory group.

The group, which consists of a broad spectrum of leaders in New York farming, was formed to enhance direct contact and communication with the senator's staff about improving agriculture and rural economic development.

Among the 20 advisers are Susan A. Henry, the Ronald P. Lynch Dean of the College of Agriculture and Life Sciences; James E. Hunter, an associate dean of the college and director of the New York State Agricultural Experiment Station in Geneva, N.Y.; and Cathleen Shells '89, director of Cornell's New York FarmNet program.

Cornell alumni in the group include: Jerry Cosgrove '81, of American Farmland Trust; John Fessenden '85, of Northeast Dairy Producers Association; Irwin Davis '64, of the Metropolitan Development Authority; Diane Eggert '79, of Farmers Market Federation of New York; George Lamont '57 of the New York State Apple industry; and New York State Assemblyman Bill Magee '61 (D-111th Dist).

"I want to make certain that our national agriculture policy helps keep New York's farms productive and profitable, our landscape beautiful and open, and our natural resources abundant and protected. The advisory group . . . will help me do just that," Clinton said.

Working with the Clinton staff to assemble the advisory group has been Lee Telega, a senior extension associate in animal science at Cornell who works with the university's Pro-Dairy program. Telega has received a six-month congressional fellowship in Clinton's office.

In addition to examining the economic development of New York's agriculture and its rural communities, the advisory group will identify New York initiatives to be included in the new farm bill. The advisory group also will assist the senator in identifying outreach and research needs of the state's agricultural industry.

At the group's first meeting, Clinton sought information on milk marketing and the dairy compact, farm profitability, and the need for value-added products in New York State.

Blaine P. Friedlander, Jr.

Correction

A headline in the August issue of *ALS News* incorrectly identified Dan Decker's new position. It should have said that Decker is the college's new associate dean and director of the Cornell University Agricultural Experiment Station.

Gene Decoder

For Steven Tanksley, the biggest surprise revealed by genomics research is that all living things have more similarities than differences

If Steven Tanksley had his way, our diet would be a lot wilder. We're not talking about hyped-up chili sauces, but rather fingertip-sized berries that grow abundantly in the Arizona desert. Berries? "Right now the strategy for how people feed themselves relies on the 30 plant species our ancestors gave us fortuitously," says Tanksley of the mere 1/100 of 1 percent of the 300,000 plant species that grow worldwide. "We take this select few and plant them everywhere. Then to make them give us what we want—say a Beefsteak tomato—we spray them so they will be resistant to pests and we modify the environment to their liking."

"We're going to find to our dismay or to our enlightenment that dogs and cats and mice have the same basic abilities—to think and perhaps to have a conscience—just like we do because we've inherited these from a common basis,"

Tanksley says.

Instead, why not capitalize on what thrives naturally right in our own backyards, be that desert or marshland?

That's impossible, you might counter. Didn't it take our ancestors millions of years to domesticate wild plants? Yes, because they didn't know the genetic secret of turning a hard, green, seed-filled berry into a juicy red vegetable big enough to drape over a burger. But Tanksley does.

The road that led him to becoming one of the world's foremost plant geneticists began in his mother's garden, high in the Rocky Mountains. Right from the start, vegetables were what enchanted him.

"When you're a kid, if you're interested in plants, you grow them, look at them, and touch them, but you have no idea that you can set up an experiment—ask a question about how a plant does something and get back an answer," recalls Tanksley, the Liberty Hyde Bailey Professor of Plant Breeding.

That was before he met the exceptionally "weird-looking" barley plant, he says. At the time, Tanksley was a premed major at Colorado State University. Cytogeneticist Takumi Tauchiya chose him (to this day Tanksley doesn't know why) from among 16 other applicants to work in his lab. Tauchiya was trying to figure out what caused the barley to be so misshapen. They ran a series of experiments together and discovered the culprit: a single gene mutation that most likely interfered with photosynthesis.

The process was a real eye-opener, enough to convince Tanksley that he could make a living pursuing a passion-

ate hobby. But what clinched it for this budding research scientist came his first year in grad school when he devised an experiment to figure out which genes encoded a specific enzyme in tomatoes.

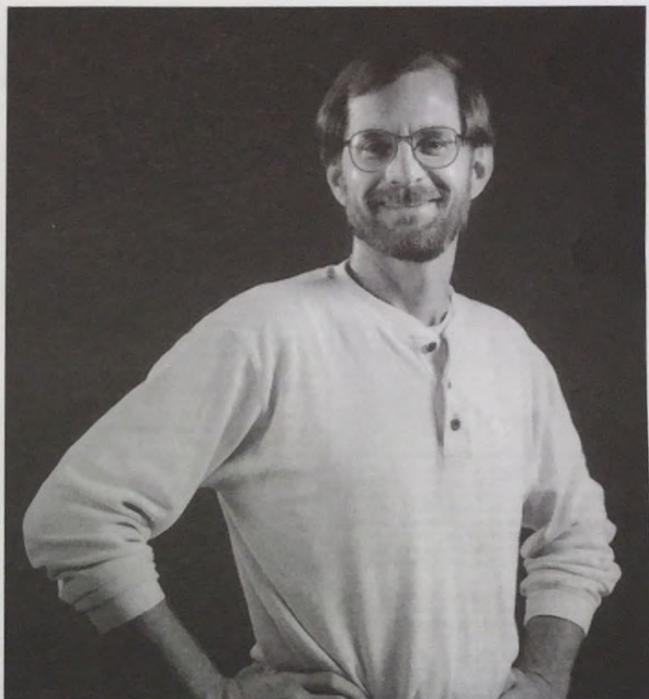
"I remember looking at the patterns on the gel and suddenly realizing that I was the first person to view this knowledge and that I could go and tell other people about it," Tanksley recalls. "Before, I had always read knowledge in books and suddenly here was a book that hadn't been written yet that I could contribute to."

Now we find Tanksley with 150 scientific papers and a 2-inch-thick dossier of press clippings to his credit, all on work related to natural variation in plants and their relationship to their wild ancestors. When it comes to specific questions, Tanksley chooses whoppers, such as what genes are responsible for resistance (a plant's ability to protect itself from insects and diseases) and for domestication (the genetic modifications that transform inedible plant parts into foods humans can consume). Too, he has figured out how breeders—without resorting to genetically modified organisms—can capture useful genes from plants that still grow in the wild.

Along the way there have been many surprises, but one has been a real shocker: that all living things have more commonalities than differences.

Twenty years ago Tanksley was as convinced as the next person that because plant and animal species had evolved so differently, taking a gene from one and putting it in another would be like taking a part from a bicycle and putting it in a Ferrari, and it would screw up the works. But the discovery of techniques for cloning and manipulating genes has proven otherwise. Tanksley's own work in comparative genomics uses the weed, *Arabidopsis*, a small mustard relative for which the DNA sequence has been recently completed, as the model for crop plant genetics.

Earlier it would have been unthinkable that *Arabidopsis* could have anything to do with soybeans, because the plants don't look anything alike nor do they grow in the same places. Likewise, a scientist would have been deemed crazy



WORKING WITH EVOLUTION: Tanksley asks, "Why not take plants that are already adapted to their environments through thousands or millions of years of evolution and have them produce useful foods for humans? Thus, in the next 100 years, we might create a new set of domesticated plants, instead of limiting ourselves to the 30 or so species we now use."

were he or she to predict that the mouse and human genomes are so similar that the rodent would be the species of choice for learning about human disease.

Tanksley predicts that these shared genes among species are going to yield a lot more surprises.

"We're going to find to our dismay or to our enlightenment that dogs and cats and mice have the same basic abilities—to think and perhaps to have a conscience—just like we do because we've inherited these from a common basis," he says. "Our view of life will change from being species centered, especially human centered, to having a more dispersed model of the value of life."

He explains further, "Through millions of years of evolution, nature has fallen back on very old themes. You and I may look different than a chipmunk or a chimpanzee, but basically the same set of themes enable us to see, smell, and think."

These are heady times for a mid-career plant biologist with many an experiment ahead. Tanksley was born in perfect sync with the greatest period of discovery about the life sciences. Most revolutions, he points out, span a century or two, but the genomics revolution will have taken place in just a few decades—beginning with discoveries made during the years while he was in graduate school.

"It's a great privilege," he says, "to be alive at this incredible moment."

Meeta Winter

The Mind Behind the Think Tank

Back in 1997, Ronnie Colfman PhD '71, then the college's director of research, called together 10 faculty members who knew something big was happening in biology and also knew that Cornell wasn't positioned to be in the center of it.

"We wanted to be in the parade, not watching it," Tanksley recalls.

Today Cornell is the leading institution in plant proteomics, which is the basis for understanding how genes, which encode proteins, make plants into what they are. It's just one of many successes of the Cornell Genomics Initiative, for which Tanksley has served as chair and has devoted one-third of his time since 1997.

He's been the strategic thinker as well as the catalyst. He brought bright people together, short cutting red tape and getting the job done.

Yet Tanksley's most outstanding contribution has been a philosophical one in recognizing that the great discoveries can only come through networks of collaborators.

"The model of individuals working in isolation in laboratories separated by departments and colleges worked well when biology was a cottage industry," Tanksley explains. "In those days one person could do everything: manipulate the system, do basic calculations and statistics, and write a paper. No more." Now a plant biologist works with a chemist and a mathematician.

But what about the intuitive part? "There's a lot to scientific reasoning, to deductive reasoning, but at every point there's a spark of intuition," Tanksley says. "It's always been like a replenishing spring, something that guides me."

Meeta Winter

Agriculture and the Life Sciences Are Inextricably Linked

Often people think that there's agriculture and then there's the life sciences, without realizing that what's happening in life sciences now will be a foundation for the agriculture of the future. Steven Tanksley wants it made clear that genomics is not some strictly academic enterprise, but rather it will irrevocably impact all the disciplines in the college.

What's more, the future of the college—where it stands in the world and who it attracts to work and train here—will be hugely impacted by how the university supports the life sciences.

"The life sciences aren't a corruption of agriculture, they are the enabler of what agriculture will be," Tanksley says. "If we're not great in the life sciences, we can't be a great college of agriculture anymore."

For more information on genomics research at Cornell, go to www.genomics.cornell.edu

ALUMNI NOTES

1930s

George L. Richardson '39, MS '41 of Baldwin, N.Y., is retired and writes that a series of strokes over the years have erased years of his memory.

1950s

David M. Rice BS '51, MEAD '60 of Wysox, Pa., is a counselor at the Susquehanna County Career Technology Center. He was the recipient of the ALS Outstanding Alumni Award in 2000.

1960s

Alfred H. Hicks '62, MBA '63 of Westbury, N.Y., received the Gold Medal of Horticulture Award from the New York State Nursery/Landscape Association for his contribution to horticulture. Hicks is the fifth generation of the Hicks family to run Hicks Nurseries. He joined the family business in 1963 and has transformed the nursery into a major garden retail center. He and his wife, Marilyn (A&S '62), have three children and three grandchildren.

James H. Wyche '65 of Toulouge, Miss., has been named interim president at Toulouge College in Jackson, Miss. Wyche previously served as provost at Brown University since 1991.

Earl P. Ainsworth '69 of Princeton, N.J., has been named CEO for an on-line university for agriculture called Norman Borlaug University, named for the winner of the 1970 Nobel Prize and so-called father of the Green Revolution. Ainsworth was the former editor of Farm Journal magazine.

1970s

Richard E. Dunn '70 of Saratoga Springs, N.Y., was elected to the board of directors of United Methodist Health and Housing, the parent corporation of Wesley Health Care Center and its affiliates. Dunn is vice president of Distribution Services for Stewart's Shops and served in the U.S. Army as a captain.

John R. Baylis '71 of Caseville, N.Y., is a retired high school agriculture teacher and runs a small home farm. He and his wife, Judy, spend winters in Leesburg, Fla., and have three children and one grandchild.

Ricke A. Kress '73 of Wisconsin Rapids, Wis., was named president and CEO of Northland

Cranberries, Inc. Kress was previously president of Seneca Foods Corporation in Marion, N.Y.

Peter C. Wakeman '74 of Buffalo, N.Y., recently sold Great Harvest Bread Co., the largest whole-wheat bakery franchising company in the U.S., to a North Carolina-based investment group. Great Harvest Bread Co., which is headquartered in Dillon, Mo., operates 200 franchise stores in 34 states. Wakeman took over a failing bakery and turned it into a successful franchise business.

Ronald Killian MPS '75 of Newton, Mass., is manager of environmental permits and procedures for the Boston Central Artery Tunnel project, the largest public works project in U.S. history. He and his wife, Carol, have two children, Shoshana A&S '98 and Mark.

Michael Gary Stepanovich '76 of Yardley, Penn., has been named president of Environment One Corporation, a manufacturer and provider of products and services for the disposal of residential sanitary waste, as well as detection systems for the protection of high-voltage electric utility equipment.

Heleen Turley '76 of Calistoga, Calif., was listed as one of the "wizards of wine" in a recent issue of Business Week. Turley not only runs a wine consulting firm, but also, with her spouse, John Wetauer, owns a vineyard (Marcassin label) in Sonoma County. The couple also plans to open a winery in the near future.

1980s

Jennifer Abbott MPS '81 of Anchorage, Alaska, is the director of WOMENfund, a program that began in 1994, which offers business training classes to everyone, regardless of gender, looking to start or grow a small business. Abbott is immediate past president of the Cornell Club of Alaska and continues to be an active alumni volunteer.

Rhonda M. Medows '82 of Tallahassee, Fla., is Florida's secretary of the Agency for Health Care Administration, which handles Florida's \$10 billion Medicaid program, regulates 19,000 health care facilities and 32 health maintenance organizations, and handles a wide variety of other health-care related issues.

Alan Sealls '85 of Mobile, Ala., is chief meteorologist at the CBS affiliate, WKRG-TV, in Mobile. He recently completed a series of educational weather videos called *Weather Smart*. This series of 10 videos covers all the facets of weather for grades 3-8.

Christopher J. New '86 of University Park, Pa., was named chief marketing officer and vice president of strategy at Galaxy Nutritional Foods. He previously worked with Tropicana and Mott's USA, a division of Cadbury Schweppes, where he was responsible for the marketing of the company's flagship business.

Steven Z. Hajas '87 of Edgerton, Wis., was appointed president of Knight Financial Products, LLC, the options market-making subsidiary of Knight Trading Group. Hajas previously was with Arbitrage Holdings LLC, a proprietary trading partnership and hedge fund based in Minneapolis and Kessler Asher Clearing, L.P.

Robert C. Fenner '88 of Syracuse, N.Y., is vice president for government banking with USB Bank & Trust. He is also a member of the New York State Government Finance Officers Association and the Association of School Business Officials.

Louis Sachetti '89 of Cortland, N.Y., owns D & L Landscaping and is married with three children.

Faculty Obituaries

Milton Leonard Scott PhD '45, Jacob Gould Schurman Professor of Nutrition Emeritus, died July 11, 2001. He was 86.

Scott was in the Department of Poultry Science and was chair of the department from 1976 to 1979, when he retired. In addition to teaching, he conducted nutrition research, primarily of poultry but also of swine, fish, and humans. His research included studies of pernicious anemia, muscular dystrophy, and many of the essential vitamins.

He wrote four books, contributed chapters for 11 books, and published more than 250 articles in scientific journals and as many in publications for animal feed industries. Scott received 10 awards for Outstanding Research in Nutrition, and was the major professor for more than 50 candidates for PhDs or MS degrees.

Peter L. Steponkus, the Liberty Hyde Bailey Professor of Crop Physiology, died July 14. He was 59.

Steponus rose through the professional ranks at Cornell, starting in 1968 and culminating in his appointment in 1987 as Liberty Hyde Bailey Professor in the former Department of Agronomy, now the Department of Crop and Soil Sciences.

An international authority on environmental stress physiology of plant and animal systems, his research focused on low-temperature biology (cryobiology) for the study of cold acclimation and freezing injury of herbaceous plant species and the development of procedures for the cryopreservation of biological tissues.

Steponus served on numerous editorial boards, held many positions in the Society of Cryobiology, and had been an invited speaker at numerous national and international meetings.

1990s

David N. Armour '92 of New York, N.Y., is executive producer of King World Productions' The Ananda Lewis Show, a new, daily syndicated talk show. Following graduation, Armour began his career as associate producer of Viacom Productions' The Montel Williams' Show, among others.

Christina M. Fineran '92 of Syracuse, N.Y., is starting her first year of a PhD program at Syracuse University's School of Information Studies. Her area of interest is information storage, retrieval, and associated meta data.

Charles L. Parmele '93 of Annapolis, Md., is a pediatrician with Annapolis Pediatrics. Parmele received his MD degree from the University of Pennsylvania in 1997. He completed his pediatric residency at the Children's Hospital in Pittsburgh in 2000, followed by a year as chief resident. He and his wife, Kathy, have a son, Alex.

Gene Bauston MPS '96 of Watkins Glen, N.Y., is the co-founder and campaign director of Farm Sanctuary, a national farm animal protection organization. More information visit www.freefarmanimals.org.

Bridget D. Lowell '96 of Greensboro, N.C., has been named press secretary to Representative David Price (D-N.C.). Lowell previously was a reporter for five years at WXLV-TV in Winston-Salem, N.C. While in college, she spent a semester in D.C. working for CNN.

John Pijanowski MS '96, PhD '99 of Ithaca, N.Y., has been named men's basketball coach at Tompkins Cortland Community College (TCC). While coaching at Schenectady County Community College, he designed and administered a mentoring and tutoring program for the athletic program. The program increased the academic success rate from 14 to 92 percent in one year.

Cynthia S. Ferranto MLA '97 of Washington, D.C., is the owner of a small landscape design practice called Cynthia Ferranto Landscape Design.

Erin Whitty '97 of Beaver Creek, Ohio, received her veterinary degree from Ohio State in June 2001 and practices in her hometown.

Jessica K. Wang '98 of Boynton Beach, Fla., was recently promoted to portfolio manager at Brown Brothers Harriman, a private bank in Palm Beach.

2000s

Jean Louise Benjamin '00 of Cambridge, Mass., completed a client/server development program at Boston University and is now looking for a programming job in the Boston area.

Celia Cameron '00 of Goshen, N.Y., works with Marcus Evans in conference production and is "toying with moving back to Ithaca."

Lauren Sanders '00 of San Francisco, Calif., is a graduate student at the University of San Francisco and works in the Cornell Western Regional Office.

Erica Chatfield '01 of Medford, Mass., is working in molecular pathology at Massachusetts General Hospital, studying breast cancer.

Randall W. Ransom '01 of Edison, N.J., is attending veterinary school.

Natalie J. Walliser '03
Student writer

2001-2002
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Undergrad Research Takes Wing

Butterflies have captivated Akito Kawahara since he was a young boy. Now, as a senior in the college, he is mapping out the evolutionary relationships of snout butterflies. Kawahara is one of many undergraduates in the college who are doing real research.



PURSUIT OF TRUTH: Butterflies' beauty and their four life stages have captured the interest of Akito Kawahara, who is looking at the subtle variations in the wing patterns of snout butterflies to identify species and chart an evolutionary tree.

For Akito Kawahara, it all began with a butterfly net. "When I was about 4 or 5 and living in Japan, my father bought me a butterfly net," Kawahara remembers. "He gave me this net, we went out, and it all started from there. At first I was just running around catching whatever I could catch, and from then on, I got into getting books and trying to look for rare things. I started my own collection, and it went on like that. In high school I decided I wanted to study butterflies professionally, as a career."

Kawahara isn't just catching butterflies now—he's describing them, constructing distribution maps of them, and trying to understand their evolutionary relationships. He's a senior entomology major and through one of the numerous possibilities for undergraduate research opportunities in the college, he's well on his way to establishing that career.

Students immersed in research appreciate the valuable and challenging experiences it brings, and are often able to target their projects to their particular interests.

Kawahara is a senior, but is delaying his graduation so that he can finish his current project, the study of the evolutionary relationships of the snout butterflies.

Why the butterfly?

"It's several things," Kawahara says. "One of them, obviously, is beauty. They're very beautiful and interesting. There's

still a lot unknown about them. It's not just the adult stage that's interesting—they go through four life stages, from the egg to adult, and every stage is very different. I really enjoy rearing them and watching them go through these stages."

Kawahara is using the comparative morphology (differences in physical structure or features) of over 1000 specimens of these butterflies to construct a phylogeny—an evolutionary tree—which will present a hypothesis to explain the geographical distribution of the snout butterflies. The 12 species of the snout butterfly

work was displayed this spring at the Library of Entomology in Comstock Hall.

The number of undergraduate students involved in research with a faculty mentor is growing, says Donald Viands, associate director of academic programs for the College of Agriculture and Life Sciences. He says his rough estimate is that currently between a third and a half of the students do independent research for credit during their time at the college, not including students who gain experience by working for pay on a research project.

Viands says that a broad expanse of

Between a third and a half of the students do independent research for credit during their time at the college, not including students who gain experience by working for pay on a research project.



have distributions that span continents, and some are native to just a few small Pacific islands. The snout butterflies are unique because their labial palpi are projected into extremely long "snouts."

"Basically, there are these 12 species, and nobody knows how they're all related," says Kawahara, who has been looking at subtle variations in the patterns on the wings to identify some species. "If I can come up with an evolutionary tree, I can try to understand how they evolved and how their distribution came about."

Kawahara's faculty research adviser and mentor, entomology professor Quentin Wheeler, adds that Kawahara is also a superb illustrator and young field biologist. In addition, Kawahara photographs butterflies, and an exhibit featuring his

research goes on by students in the college. "We have the social sciences, biological sciences, nutritional sciences—there are just tremendous opportunities."

The benefits of research work to the undergraduates are numerous.

"It gives them experience in what the research process is all about," Viands says. Research experiences also help the students get a feel for whether or not research is something they want to pursue for their own career.

Students interested in research opportunities can pursue research for credit, for pay, or through one of the college's or Cornell's honors programs. In nearly all cases, a student needs to identify a professor who will be a mentor for the research.

A few specialized programs within the

college and Cornell offer additional re-search opportunities to undergraduates.

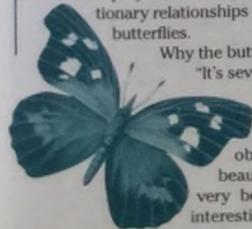
The Cornell Presidential Research Scholars program, a universitywide program, "is really a cream-of-the-crop program," Viands says.

"It's about attracting students who have research experience and who have interest in doing research when they come here." As of spring 2001, there were 73 ALS students who were Cornell Presidential Research Scholars out of a total of about 300 at Cornell.

The research honors program within the college itself is another source of opportunities. Of the nine ALS program areas, each has a committee that runs individual divisions of the program. Most students begin the process by the spring semester of their junior year, finding a mentor to work with and filling out a two-page application. Students need to have a minimum 55 credits at Cornell to get into the program, and they need to have a minimum grade point average of 3.0 going into the program, which they have to maintain to graduate with "distinction with honors."

"All of these programs provide an opportunity for a student to become very familiar with a faculty member; it's also a fantastic resource for recommendations," Viands says.

Joe Wlensky



ALS Development Special Report 2001

New Development Liaison for ALS Alumni Association Board of Directors



Thomas K. "Tom" Jeffers '63 has accepted Dean Susan Henry's invitation to serve as the development liaison to the ALS Alumni Association board of directors. Jeffers brings years of Cornell volunteer experience to this new assignment, both in alumni affairs and development work. He has a long history with the ALS Alumni Association, having served as board secretary from 1996-2000. He has also been the Midwest regional director and served on the Outstanding Alumni Awards Committee. Jeffers is also a current member of the Cornell University Council and was a regional director for the Cornell Alumni Federation. In addition to these activities, he is a member of Cornell's Institute for Food Science.

Under Jeffers's leadership as chair of the Awards Committee, a faculty/staff award was established, and the decision process was refined. More recently, his

input on the Alumni Association's Membership Committee has helped shape policies and set goals that have accounted for continued growth in alumni memberships. He was instrumental in keeping Midwestern ALS alumni connected to the university through events he organized and hosted. Jeffers also has encouraged student involvement with alumni and has helped establish an internship program in the Department of Animal Science with Elanco, where he served as research director until his retirement last year.

Jeffers and his wife, Gretchen, have recently moved back near his childhood home in Skaneateles, N.Y. Not missing a beat, Jeffers has joined the leadership team for District 15, which covers Cayuga, Onondaga, Seneca, and Oswego counties. His Cornell roots now run through three generations. His parents Frederick '32 and Marion '35 are alumni of the college, as are Jeffers's two children, Andrea Jeffers Greaves '93 and Gregory Jeffers '96, MS '98.

Jeffers is currently a courtesy professor in the Department of Animal Science and

works closely with department chair Alan Bell on a number of projects, including a development initiative to raise funds for the renovation of laboratory space in Morrison Hall. Jeffers also meets regularly with students to assist them with career planning.

Jeffers's work with the Department of Animal Science, coupled with his development work with Mann Library, makes him uniquely qualified to understand the important relationship between alumni involvement and giving. He will be working with the Public Affairs staff to strengthen the ties between alumni affairs and development. He will also be working with college departments to create a more consistent, defined approach to funding department needs.

In future issues of *ALS News*, he will be addressing some of the most-asked questions about philanthropy and the importance of giving to the college.

ALS Alumni Make the Call for Cornell

Every year nearly 600 Cornell alumni volunteer to lead annual fund drives on behalf of the university. They serve as regional Tower Club committee members, Reunion campaign volunteers, and regional phonathon callers. These efforts are among the most important in generating unrestricted support for Cornell and its colleges. We would like to salute the 95 ALS alumni (listed below) who undertook leadership roles last year and/or have committed to a role in 2002 (as of September 30, 2001). Thank you!

Claire M. Ackerman '01

Jeffrey A. Akel '96

Charles M. Andala '65

Stephen B. Ashley '62

Florence D. Bank '65

Donald Barnes '43

Frederick L. Battenfeld '70

Marc A. Beaulieu '91

Jennifer G. Berger '91

Jordan S. Berlin '74

Eric D. Bettinger '86

Ruth Z. Bleyer '62

Eather Schiff Bonciarelli '37

Howard Borhan '81

Mark H. Brandt '86

Robert C. Brandt '51

William B. Briggs '76

Richard D. Bulman '56

Leonida M. Burke '74

Karen W. Cartier '94

Jennifer L. Cartwright '01

Robert R. Colbert Jr. '71

Nathan T. Connell '01

Peter H. Coos '69

Katharine E. Costa '01

Thomas L. Cummings '75

Herman C. Demme '50

Alexander Charles Di Bascaglio '97

Carol L. Dorge '75

Elizabeth R. Essner '98

Catherine M. Emler '96

Christina M. Feile '96

Cheryl Parks Francis '76

Edward W. Gallagher '84

Ryan Gallivan '93

Douglas R. Gamble '91

Gordon J. Goetzmann '86

Lawrence W. Goldman '66

Rebekah S. Gordon '00

Mitchell K. Green '87

Scott T. Greene '80

Jermaine Alwa Hector '99

Susan R. Holliday '77

J. Michael Holloway '73

Leslie C. Hulcoop '76

Carl T. Johnson '60

Timothy L. Kane '84

Esther H. Kang '96

Lynn L. Kunev '74

David A. Kurtz '91

Ross P. Lanzalame '77

Trina K. Lee '01

Elizabeth H. Leist '01

Keith F. Lender '91

Gerald P. Linsner '58

Richard M. Lockwood '66

Robert E. Lusk '54

Michael R. Makar '57

Kevin R. Malchoff '74

Anthony Victor Mangaser '97

Ronald M. Mateo '96

Bernard Maysteln '45

Laurey G. Magil '76

Nancy C. Neuman '90

Richard C. Perkins '61

Jamie Platt Lyons '89

Robert M. Quencer '59

Nadia Robertson '01

John D. Roche '81

Celia E. Rodae '81

Carol Bocelle Rosenberger '86

Paul D. Rubacha '72

Joanna L. Samuelson '01

Michael C. Schaller '86

J. David Schmidt '55

Julia M. Schnuck '70

Stephanie S. Schwartz '96

Brian P. Schwinn '86

Paul C. Sellow '80

Meredith Clark Shachoy '91

Steven P. Shaffan '71

Carla B. Smith '96

Susan Maldon Stegack '66

Paul E. Stubbe '51

Jeremiah Tam '56

Hugh H. Ten Hagen '80

David R. Teter '65

Michael A. Troy '81

Andrew J. Wollenstein '86

James D. Ward '90

Marvin M. Wedeen '47

Gordon J. Whiting '87

Janet T. Wixom '81

Todd L. Wolleman '80

Thomas G. Zimmerman '95

Additional alumni are always welcome and needed for these important volunteer roles.

To find out more and join in the fun with the alumni listed above, contact Ben Davis '88 in the ALS Public Affairs office (bpd2@cornell.edu; 607-255-9383).

College of Agriculture and Life Sciences Development Staff

Anne DiGiacomo Benedict '80

Director of Development

Phone: 607-255-7833

E-mail: adb7@cornell.edu

Benjamin P. Davis '88

Associate Director of Development

Phone: 607-255-9383

E-mail: bpd2@cornell.edu

Please feel free to contact Anne or Ben if you have questions or would like to make a gift to the college.

Building the College's Endowment

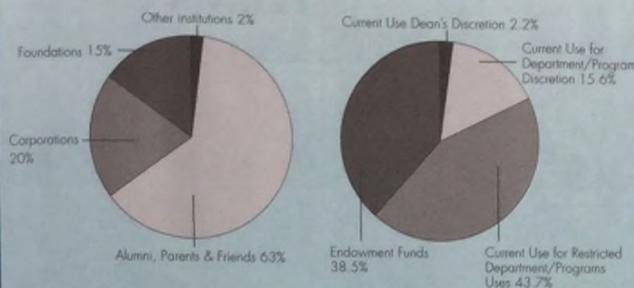
Dean Susan Henry has stated that one of her top priorities is to increase the endowment for the College of Agriculture and Life Sciences, noting that "this is the only way that the college will be able to maintain its ranking as the best in the world." She views the college's funding stream as a "mixed economy model." The college will continue to rely on the state and federal support that is the hallmark of a land grant college. However, as that support has declined over the years and costs have increased, private support from endowment gifts becomes a more critical part of the equation. Looking to the future, the college must build its endowment substantially so that the annual income the endowment generates becomes a significant part of the college's operating budget.

An endowment gift is the best way to secure the future of the college. Since the principal remains intact, in perpetuity, and a portion of the endowment earnings are reinvested, there is an ongoing income stream that keeps pace with inflation. This ensures that any initiative funded with an endowment gift, such as scholarships, programs, and faculty support, will demand less annual budget support from the college, thereby freeing up resources to redirect to other key priorities.

Increasing the college's endowment will address concerns regarding the declining level of federal and state support and will also enable the college to limit the future rate of tuition increases. This is the most certain way to ensure that the College of Agriculture and Life Sciences continues to recruit the best students and faculty and has the ability to support programs at the highest level.

Endowment funds can include professorships, graduate assistantships, undergraduate scholarships, and department program endowments. Endowments can be funded with outright gifts, planned gifts, and commitments made over several years. If you want to know more about endowment giving, contact the development staff in the college's Office of Alumni Affairs and Development.

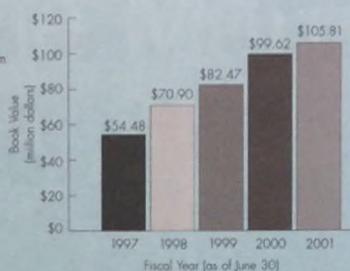
Charitable Gifts to ALS Reach \$16.0 Million in 2000-2001

**Donors to ALS**

While many corporations and foundations generously support our programs, alumni and friends are our largest contributors.

Uses of Gifts to ALS

Many donors direct gifts to endowment or specific college projects and programs. Unrestricted college or department gifts, while smaller, allow the dean to address the most important needs.

**ALS Endowment Fund Totals**

New endowment gifts help provide permanent support for scholarships, programs, and emerging needs.

Gift Planning Can Help You Reach Your Charitable Goals

While outright gifts of cash remain the most popular way to support the College of Agriculture and Life Sciences, an increasing number of alumni and friends are planning gifts using a wide range of assets. Some gifts even allow one or more people to receive an income for their lifetime, with the remainder benefiting the college at a later date.

Gift planning is really about considering one's philanthropic priorities within the context of one's total responsibilities (e.g. family, community), and structuring gifts to most closely meet both sets of objectives. By including Cornell and the college in financial and estate plans, an individual may increase current income and provide future support for areas of the university important to him or her. Often one can make a larger gift than might have been thought possible, while also benefiting personally.

There are a number of tools with tax-advantaged benefits that make this possible. Bequests, life income agreements (trusts and annuities), donor-advised funds, retained-interest agreements, life insurance—all are available to help reach one's goals. Two of the most common tools are highlighted in this issue.

Bequests

Bequests have been the cornerstone of giving at Cornell since the days of Ezra Cornell and A.D. White. Gifts to Cornell and the college through a will, life insurance, or retirement plan designation are simple and popular. Alumni and friends can direct a specific amount, percentage, or the remainder of an estate to the college for unrestricted or specified purposes. Bequests are extremely flexible because they keep all of one's assets available throughout the lifetime and can be changed with ease. Since recent studies indicate 59 percent of adults do not have a will, establishing a charitable bequest directed to the college can also aid the preparation of other important personal estate instructions.

Life insurance policies and retirement plans can also support the college by designating the college as the beneficiary. There are important planning considerations that make these particularly beneficial as charitable gifts; please call the ALS Public Affairs office if you would like additional information or samples of possible bequest language.

Charitable Gift Annuities

Annuities are the most secure of all life income gifts. When one gives cash or securities to establish an annuity, the donor receives fixed annual payments for the rest of his or her life. The rate of return is based on the donor's age at the time the annuity is established. This rate is guaranteed, no matter how long the donor lives or what happens to the economy. Joint annuities can be established at slightly lower rates to provide income for an additional beneficiary.

Cornell University offers charitable gift annuities as a service to its alumni and friends who ultimately want to make a generous gift to Cornell or one of its colleges, but who need income from their investments now. This type of annuity brings the donor secure income at a high rate of return, many tax advantages, and the satisfaction of assisting the mission of the college. A charitable gift annuity can be established at Cornell with a gift of \$10,000 or more.

Many donors on fixed retirement incomes find charitable gift annuities an attractive gift vehicle, particularly when interest rates remain low and the gift is funded with appreciated securities. Despite significant market turbulence, there are many long-term investors with stock that has grown dramatically (see table). And despite the increase in value, many stocks continue to pay very small dividends. Conversely, current charitable gift annuity rates can be three to ten times higher, depending upon the age when payments begin. For more information, contact Associate Director of Development Ben Davis '88, bpd2@cornell.edu, 607-255-9383.

Gift Annuities Turn Long-Term Gains into Current Income and Support for CALS

| | | |
|--|--|-------|
| Many stocks have significant long-term gains . . . | A gift annuity can increase income . . . | |
| S&P 500 10-year return* 268% | AGE | RATE |
| S&P 500 20-year return* 896% | 90+ | 12.0% |
| | 85 | 10.4% |
| Yet generate very low dividends* | 80 | 8.9% |
| Microsoft 0.0% | 75 | 7.9% |
| General Electric 2.1% | 70 | 7.2% |
| Walmart 0.6% | 65 | 6.7% |
| Merck 2.1% | 60 | 6.4% |
| AT&T 0.9% | | |

and make a valuable gift to CALS

*Returns and Rates accurate as of September 30, 2001.

Personal and Charitable Planning under Tax Relief 2001

Earlier this year Congress passed the Economic Growth and Tax Relief Reconciliation Act of 2001. This incredibly broad legislation offers tax savings of various kinds to nearly all tax-paying Americans. The Act also contains some not-so-usual aspects:

- Some provisions are phased in over a number of years.
- Other provisions do not take effect until much later.
- "Sunset" provisions could eliminate all the new tax breaks in 2011 unless re-enacted into law at that time.

Planning Tip: All other considerations equal, decreasing income tax rates increase the value of charitable gifts made in 2001 over any subsequent years. If you are planning a gift to the college soon, you may consider completing the gift by year-end for the most advantageous tax effect.

The new tax act requires a higher degree of planning vigilance for a longer period of time than any previous tax legislation. For those who may be affected by the tax law changes, it is essential to review your estate plan with qualified attorneys and financial planners. We invite you to request a complimentary copy of Cornell's booklet, *Personal and Charitable Planning Under Tax Relief 2001*, by contacting our office.

ALS Planned Giving Committee

One of the highest financial priorities for Dean Susan A. Henry is to build the permanent endowment which supports the College of Agriculture and Life Sciences. A strong endowment enables the college to best respond to emerging needs, economic uncertainty, and unique opportunities. Fortunately, the college has a group of dedicated volunteers who have adopted as their mission to lead and "provide adequate endowment funds which will allow the College of Agriculture and Life Sciences at Cornell the financial support to pursue its mission." With the guidance and direction of the ALS Planned Giving Committee, and support from college staff, hundreds of alumni and friends have helped double the endowment gift value over the past five years (see chart above).

We would like to salute and thank the following volunteers who have served on the ALS Planned Giving Committee this past year: Donald Bay '55, Douglas Brodie '55, Norman Coe '69, Bonnie McGuire Jones, Timothy Moag, David Nolan '49, Robert Ranger '59, Jean Rowley '54, Thomas VanDerzee, Elwyn Voss '64, and John Whittleton '68.

www.cals.cornell.edu/development

ALS Alumni Gatherings



Berrice Potter-Masler '82 (left), ALS Alumni Association district director, and Meg Overstrom '88, Leadership Team member, pose while hosting a family picnic for ALS alumni from Tompkins and Cortland counties on July 29, 2001, in Lansing, N.Y.



Newly appointed ALS Alumni Association District Director Sandra Swartz-Gardner meets with Leadership Team members (l-r) Karl Baker '62, '64 DVM, Jim Bitlner '80, and Nate Herendeen '64 in Lockport, NY.



More than 60 ALS alumni, families, and friends watch the horses run in August at the Saratoga Race Course in Saratoga Springs, N.Y. Dick Jones '71, ALS Alumni Association district director, and his leadership team organized the event.



Nearly 80 alumni and friends attend the annual ALS alumni gathering at Atlas Peak Vineyards Winery in Napa, Calif. The picnic and tour was organized by District Director Ray Borton '53, and hosted by Glenn Salva '76, vice president and general manager of Atlas Peak.

ALS Harvest Festival



Joy '80 and Susan Taylor with daughter Katherine order ice cream from the Cornell Dairy Store cart while visiting the ALS Harvest Festival during Trustee/Council Weekend on October 20.



Latoya Scultz '05 and Joel Salinas '05 enjoy ice cream from the Cornell Dairy Store after helping out during the Trustee/Council Weekend ALS Harvest Festival on the Ag Quad in October.

The Cornell Dairy Store Holiday Gift Boxes

Boxes contain Cornell maple syrup and New York State cheese

- | | |
|--------------------|---------|
| A. Party Pleaser | \$34.99 |
| B. The Entertainer | \$22.50 |
| C. Cornell Sampler | \$16.50 |
| D. Hostess Delight | \$19.99 |

Plus shipping

For a free brochure or to place an order call (607) 255-3272

or

fax (607) 255-1298

The Cornell Dairy Store, Stocking Hall, Ithaca, New York 14853



Cornell Virgin Wool Blankets from Sheep Program

The Cornell Sheep Program is demonstrating how to add value to the bleak price of wool by creating and selling blankets from the wool of Cornell Dorset and Finnsheep breeds and their crosses. These high-quality blankets are great for football games and cold nights and they make excellent graduation, wedding, birthday, and holiday gifts. Each blanket is individually serial-numbered on the Cornell Sheep Program logo label and comes with a certificate of authenticity.

Blankets are available in four sizes:

| Blanket style | Blanket size | Blanket price (including sales tax) |
|---------------|-----------------|-------------------------------------|
| Lap robe | 60 x 48 inches | \$60 |
| Single | 60 x 90 inches | \$85 |
| Double | 72 x 90 inches | \$95 |
| Queen | 78 x 104 inches | \$110 |



Purchase of Cornell Virgin Wool Blankets helps to support the Cornell Sheep Program and the Scholarship Program of the College of Agriculture and Life Sciences with a \$10 donation from the sale of each blanket.

Additional information about the Cornell Sheep Program can be found at our web site at www.ansci.cornell.edu/sheep/sheep.html. Orders for blankets can be placed by writing to Blanket Program, c/o Michelle Cole, 127 Morrison Hall, Cornell University, Ithaca, NY 14853-4801 or by telephone (607-255-7712), fax (607-255-9829), or e-mail (mlc44@cornell.edu).



www.ansci.cornell.edu/sheep/sheep.html

Moving?

Stay in touch with your alma mater through uninterrupted delivery of ALS News by returning the change-of-address form. Mail to Office of Alumni Affairs, College of Agriculture and Life Sciences, Cornell University, 276 Roberts Hall, Ithaca, NY 14853-5905.

Name _____

Class Year _____

I.D. # _____

Alum Faculty Friend

Former Address _____

New Address _____

Phone _____

Homecoming 2001



Bill '55 and Pat Doerler (left), Karen and Bob '76 Kendall, and Jeremy Young '85 formed an ALS New Jersey contingent that attended the all-alumni tailgate during Homecoming 2001.



Visiting the ALS Alumni Association table during their return to campus for their first Homecoming as alumni are (left to right) Dianna Power '01, Leah Hurlgen '01, and Jenny Kelsey '01.

NAADA Conference



ALS Alumni Association officers, ALS Public Affairs staff members, and local alumni attended the all-alumni night during the 26th annual conference of the National Agriculture Alumni and Development Association held in Raleigh, N.C., this past June. Pictured here (l-r) are front row: Dan Boercher '92, Bob Bickford MS '50, Lee Bickford, Nancy Sterling '59 HE, Wanda Clawson, and Sharon Detzer '88. Back row: Ben Davis '88, John Sterling '59, Dick Church '64, Peter Pamkowski '74, Geoff Yates MS '77, Becky Gamble '90, Eric Gamble, and Tim Oank '86.

The ALS Alumni Affairs Office and the ALS Alumni Association wish to broaden our "address book" of alumni e-mails.

- Would you like to receive periodic updates on the college and Cornell in general?
- Would you like invitations and reminders about Cornell events in your area?

Send an e-mail with your name and class year to ALSAA@cornell.edu.

We will add you to the listserv for updates and invitations. As with all alumni information, your e-mail address will be used only for university business.

New ALS Alumni Association District Directors



Sandra Sworts-Gardner '84 of Lockport, N.Y., is the new district director for Erie and Niagara counties, replacing Karl Baker '62, DVM '64. She is employed with the Medina School District as an early intervention specialist. She also serves as a staff development/curriculum resource for the teaching staff. She and her husband, Jim Gardner, have two sons, Dylan and Benjamin. She is also involved in 4H, Cornell Cooperative Extension, Orleans County Junior Miss competition, the Orleans-Niagara Teacher Center Policy Board, and is a church school teacher.



Mason Forrence '69 of Peru, N.Y. is the new district director for Clinton, Essex, Franklin, and Hamilton counties, replacing Geoff Yates '77. Forrence has been associated with his family's 1200-acre apple orchard, Forrence Orchards, Inc., for the past 32 years.

He currently serves as president of the Peru Lions Club. Forrence and his wife, JoAnne, have three children, Katherine, Eric, and Seth '98. Seth is a third-generation Cornellian.

New Public Relations Specialist: Kelvin Tan



Kelvin Tan started Oct. 16 in a newly created public relations position in ALS Public Relations. Originally from Singapore, Tan holds an M.B.A. from Southern Illinois University-Carbondale, a degree in communication from Monash University, Australia,

and a diploma in mass communications from Ngee Ann Polytechnic, Singapore. Tan will assist in the strategic planning, execution, and maintenance of effective public relations efforts for the college, including development of various communication materials, media and stakeholder relations, and program evaluation.

Display Your Diploma Proudly

The ALS Alumni Association is proud to present this distinctive artwork of nationally known artist Robin Lauersdorf.

Carefully researched and meticulously drawn, this highly detailed pencil drawing of Cornell University captures the historic significance and the unique beauty of our campus. It depicts Goldwin Smith Hall, Bailey Auditorium, Willard Straight Hall, McGraw Tower, Uris Library, Beebe Lake Falls, Sage Chapel, and the Ezra Cornell Statue.

- The artwork is reproduced on the finest quality, acid-free, 100 percent rag museum paper
- framed with museum-quality mats and a mahogany frame
- unconditionally guaranteed

Partial proceeds will provide endowment funds for scholarship aid for ALS students and support other student and alumni projects.

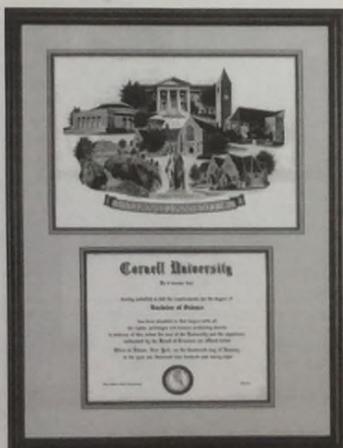
The artwork is available in two forms: a 19" x 25" limited edition signed and numbered print, limited to 500 prints, and a 14" x 19" print. Both sizes are available framed and unframed. The smaller print has also been uniquely framed as a diploma holder.

Consider these benefits of our diploma holder:

- a great college remembrance
- an excellent way to protect, preserve, and display your diploma
- the perfect birthday or graduation gift
- made to easily insert your own diploma so there is no need to send it

To receive a full-color brochure or to place an order please call
Cornell Alumni Artwork

1-800-336-5923



Framed Diploma Holder—\$169

Cornell Will Replace Diplomas Destroyed on Sept. 11

Cornell will replace, without charge, diplomas that were destroyed or damaged in offices at the World Trade Center or Pentagon on Sept. 11. Requests will be accepted only from the graduate (or from a spouse/partner who may have lost a spouse/partner in the WTC or Pentagon). The request must include the following information:

- Name (at time of enrollment) and how it should appear on the diploma
- Date of attendance at Cornell
- Year of graduation
- Degree(s) earned
- Social Security number
- Birth date
- Mailing address—we will require the signature of the graduate (or spouse/partner in the event the graduate is deceased) at time of delivery
- Phone number and/or e-mail address in case of questions

The letter must be signed, and can be faxed to 607-255-6262 or mailed to

David S. Yeh, University Registrar,
Cornell University, 311 Day Hall
Ithaca, NY 14853-2801

If you wish to acknowledge an ALS alumni friend or family member lost in the September 11 tragedies, please send a short announcement for publication in future issues to ALS News, 276 Roberts Hall, Cornell University, Ithaca, NY 14853.

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Senior Associate Dean
William E. Fry PhD '70

Associate Dean
Daniel J. Decker '74, MS '76, PhD '80

Assistant Dean for Public Affairs
Michael P. Kelly J. '87

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ALS NEWS

Agriculture and Life Sciences

December 2001

Global Warming Threatens Sea Life

Rising temperatures in the oceans put right whales, coral, and other animal life at risk for food shortages and new diseases

Drew Harvell (front, right) surveys tagged sealions with undergraduate Laura Petes (center) and graduate student Jessica Ward in the Florida Keys.

CORNELL

Photo courtesy of Kato Cam



Introductory Botany Course Proves Plants Are Supreme



The Man Behind Soy milk's Success



Steven Tanksley Is a Gene Decoder



Undergrad Research Takes Wing



Cornell University
Office of Public Affairs
College of Agriculture and Life Sciences
276 Roberts Hall
Ithaca, New York 14853-5905

Dated Material
December 2001

Calendar 2002

Saturday, January 19

Join fellow ALS alumni for the Cornell vs. Colgate hockey game, pregame reception in Hamilton, N.Y. For further details, contact Bill Davidson '66 at (607) 674-6211 or willdale@ascnet.net.

Friday-Saturday, January 25-26

Join fellow ALS alumni from District 10 (Clinton, Essex, Franklin, Hamilton counties) and District 11 (Jefferson, Lewis, St. Lawrence counties) for Cornell hockey in the North Country, Clarkson, January 25, 7 P.M., and St. Lawrence, January 26, 7 P.M. For further details, contact Mark Kellogg '80 at (315) 686-4379 or Mark_Kellogg@firstpioneer.com.

Saturday, January 26

2002 Pan-Asian New Year Banquet honoring Trustee Martin Tang '70 (Eng.), sponsored by the Cornell Asian Alumni Association at the Peking Restaurant, 100 Park Avenue, New York, N.Y. Proceeds will benefit the CAAA Tradition Fellowship. For further details, contact Barbara Eng '85 at (718) 898-4872 or beng112@aol.com.

Thursday, January 31

Cornell Cooperative Extension Retirees Luncheon,

Plant City, Fla. Keynote speaker, Cathann A. Kress, assistant director of Cooperative Extension for 4-H Youth Development, at the Walden Lake Golf and Country Club. For further details, contact Priscilla Ten Hagen at (352) 666-7138 or (716) 786-3127.

Saturday, February 23

"The History of Agricultural Economics at Cornell." Join ALS and HumEc alumni with keynote speaker, Professor Emeritus Bud Stanton, who will discuss his recent book. For further details, contact Don Robinson '41 at (352) 787-3644.

Saturday, March 2

Join fellow ALS alumni from District 7 (Albany, Rensselaer, Schenectady counties), Cornell vs. Union men's hockey game, Schenectady, N.Y. For further details, contact Dick Jones '71 at (518) 459-8258 or rjones@edgate.com.

Saturday, March 9

District 24 (Mid-Atlantic) outing to the Philadelphia Flower Show, cosponsored by the Cornell Asian Alumni Association and Cornell Club of Greater Philadelphia. For further details, contact Tomoko Marinaga '89 at (301) 907-0806 or tm58@cornell.edu or Debbie Perch '88 at dmp45@cornell.edu.

Friday-Saturday, April 5-6

ALS Alumni Association Committee and board meetings, Ithaca, N.Y. For further details,

contact President Peter Pamkowski '74 at (518) 785-3675 or ppamkowski@aol.com.

Wednesday, April 24

Join ALS alumni from District 20 (Erie and Niagara counties) for a Dean/Alumni Get-Together in Lockport, N.Y., location to be announced. For further details, contact Sandra Swarts-Gardner '84 at (716) 434-7735 or gardnerca@aol.com.

Thursday, April 25

Join ALS alumni from District 21 (Cattaraugus and Chautauque counties) for a Dean/Alumni Get-Together in Western New York, location to be announced. For further details, contact Pete Borziller '71 at (716) 672-4059 or pborzill@netsync.net.

Wednesday, May 29

Join ALS alumni from District 12 (Herkimer, Madison, Oneida counties) for a Dean/Alumni Get-Together in Utica, N.Y., location to be announced. For further details, contact Mollie Pulver '80 at (315) 823-9419 or mollie.pulver@cnbc.com.

Thursday-Sunday, June 6-9

Reunion Weekend

Saturday, June 8

ALS Alumni Association Reunion Breakfast and Annual Meeting, location to be announced.