

CORNELL Chronicle

Volume 26 Number 42 August 3, 1995

IS YOUR WATER CLEAN?

A Cornell professor urges testing of private wells and septic systems.

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Cornell releases sharp-shinned hawks into the wild

By Blaine P. Friedlander Jr.

Offspring of injured or debilitated sharp-shinned hawks that were raised in captivity at Cornell were released near campus last week. After all, the half-dozen or so "sharpies" chicks were born to be wild.

"We are trying to learn more about breeding this particular species in captivity," said John E. Parks, Cornell associate professor of animal science and director of the Cornell Raptor Program. "They are not an endangered species, but their population appears

to have declined significantly in recent years. We identified the birds that are healthy enough to breed in captivity.

"This is our second year, and in our effort we want to make this as natural as possible," Parks said, noting the Cornell aviary is designed to give captive birds maximum mobility.

But, raising baby sharp-shinned hawks is no easy task.

"I thought it would be a long shot to have success this soon," Parks said. "Our observations will extend to other birds of prey —

such as Cooper's hawks and goshawks." The parents of the baby hawk chicks were brought to Cornell after either being injured or debilitated in the wild.

Parks and his associate, Lucy Newton, worked with many students to assimilate the birds, feed them and generally ensure they were happy and healthy. They recorded information on the birds' behavior and reproductive characteristics.

They found many interesting differences from other birds of prey that were bred in captivity. For example, sharp-shinned hawks

are more timid less and demonstrative than many other species. They also learned that there tends to be some aggression on the part of the females when humans play match-maker and attempt to pair females with males. Parks said that the timing of the bird pairing is important.

Diet also was on the researchers' minds. "We were concerned that the hawks would be difficult to keep healthy, since they feed exclusively on warblers and other small songbirds in the wild. Their diet here was

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Adriana Rovers/University Photography
Carla Càceres, a graduate student in ecology and evolutionary biology, retrieves a sediment core sample from the bottom of Oneida Lake, where copepod eggs have diapaused for decades. The lake is a reference study site for the much-more-polluted Onondaga Lake.

330-year-old eggs are hatching in a science lab

By Roger Segelken

Around the time Europeans settled Newport, R.I., in 1639, tiny egg sacs were settling to the bottom of Rhode Island's Bullhead Pond. The crustacean that produced the eggs, the copepod *Diaptomus sanguineus*, deposited her offspring with the expectation that they would delay hatching until autumn, when predatory fish stopped feeding.

No such luck. Muddy sediment covered the copepod eggs. Then came more mud, year after year, century upon century, depriving the eggs of the light and temperature cues they needed to hatch.

Until Aug. 23, 1990, when Cornell student SCUBA divers retrieved deep-core samples from the pond's muddy

bottom, the eggs were in a kind of suspended animation called diapause (pronounced DYE-a-paws). And when the eggs were moved to the Cornell laboratory of Nelson G. Hairston Jr., professor of ecology and systematics, and exposed to fluorescent "daylight" at 3 degrees C., they hatched into healthy copepod larvae, which, at the appropriate period of their 12-stage life cycle, produced more eggs.

"Being buried for hundreds of years probably isn't part of the organism's strategy," commented Hairston, who reports the study in the August 1995 issue of the journal *Ecology*. "She would have been content if the eggs held off until fall or, if the pond dried up, for a few years until water re-

turned. We are getting a 50 percent hatching rate on eggs more than 300 years old, and we have a few viable eggs that are around 400 years old."

Besides Hairston, the *Ecology* report is authored by Robert A. Van Brunt, a Cornell undergraduate at the time the eggs were collected; Colleen M. Kearns, research support specialist in Cornell's Section of Ecology and Systematics; and Daniel R. Engstrom, professor of biology at the University of Minnesota's Limnological Research Center. The biologists determined the age of the eggs with radioisotope dating of the sediment layers in which they were found.

Adult *D. sanguineus* are near-microscopic, teardrop-shaped organisms with

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CU group plans playground for sight-impaired adults, children

By Susan Lang

Designing a safe and enticing playground for children is challenging, but a Cornell professor and students had a much more daunting task: to develop guidelines for a children's playground at a family camp for sight-impaired adults and their children, some with vision impairments and some without.

Using a variety of multisensory surfaces (wood, rubber, sand, grass, black top, colored tube tunnels, crushed rock), play structures (ropes, steering wheels, pulleys, buckets) and cues to aid with navigation (gongs, buzzers and pipe chimes), the Cornell team developed guidelines for a unique "integrated" playground that allows visually impaired adults to play safely with their children.

"The outdoor play area had to provide a sense of safety for blind or partially blind adults while at the same time be stimulating to children of all ages and abilities, including those with a range of disabilities. It also had to provide the children with a sense of freedom, independence and improved self-concept," said Lorraine Maxwell, assistant professor of design and environmental analysis and an environmental psychologist in the College of Human Ecology.

Maxwell's expertise in children's environments and in children with special needs prepared her for the task of redesigning the outdoor play area at the Vacation Camp for the Blind, located in Rockland County, N.Y., operated by Visions Inc. Services for the Blind.

She worked with students in the architectural programming course taught by Franklin Becker, Cornell professor of human environment relations and facility planning and management.

The students, divided into three teams of three students each, examined issues relating to child development, special needs, the site and the goals for the camp. Very few integrated playgrounds exist, so the students had to identify criteria and find ways in their design to meet them, Maxwell said. After conference calls, a literature review and a site visit, each group developed a program for their final project.

Charity A. Romero Rose, a doctoral stu-

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BRIEFS

■ Part-time study options: With department approval, regular full-time and part-time non-academic employees may enroll in on-campus courses through the School of Continuing Education and Summer Sessions. Tuition will be waived for up to four credits. Classes begin Aug. 31. To register by mail, submit the extramural study application to the Continuing Education Office, B20 Day Hall, by Sept. 8. Applications are available at that office or from the Human Resource Relations and Development Office, 20 Thornwood Drive.

NOTABLES

Jeffrey Engel of Omaha, Neb., a 1995 graduate of Cornell's College of Arts and Sciences, has been awarded a Mellon Fellowship in Humanistic Studies. Engel will use the fellowship, which provides for a year of graduate study, to pursue a Ph.D. in history at the University of Wisconsin. Engel, a history major, was a 1994 Ford Foundation Scholar and a 1993 National Endowment for the Humanities Younger Scholar. In 1992 he received the James E. Rice Award for an Outstanding Research Project from the Cornell Freshman Writing Program. Last year he studied historical geography and Napoleonic era history at Oxford University and joined the Oxford University Union and Debating Society. At Cornell Engel was a staff writer for the *Cornell Political Forum*.

Renee Land of Westchester, Pa., a junior majoring in natural resources, has been awarded the Mutual of Omaha Marlin Perkins Scholarship, which honors the memory of Marlin Perkins, the original host of TV's *Wild Kingdom* and longtime conservationist and advocate for wilderness causes. Scholarship winners are selected on the basis of academic performance and on their wildlife fieldwork projects. Land was selected for the scholarship because of her outstanding work in the physical and natural sciences, and her abilities as a writer and speaker. Land also has field experience, having worked as an intern in wildlife rehabilitation at the Chesapeake Wildlife Sanctuary in Bowie, Md. There she rehabilitated injured and orphaned wildlife for release into the wild and educated the public on wildlife rehabilitation issues.

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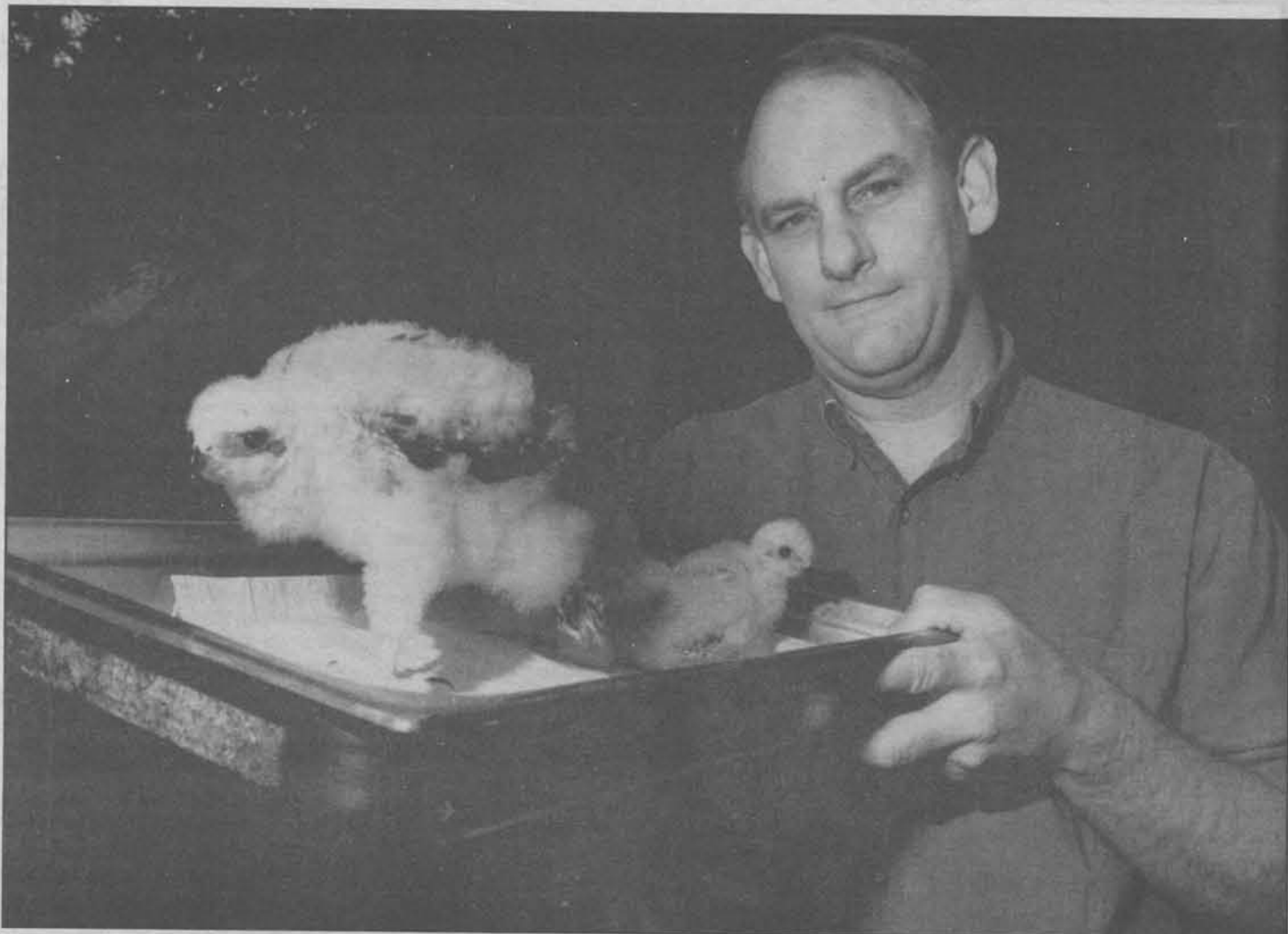
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John E. Parks, associate professor of animal science and director of the Cornell Raptor Program, with baby sharp-shinned hawks. The offspring of injured or debilitated hawks were raised from captivity at Cornell and released last week.

Hawks *continued from page 1*

primarily domestic quail. They seem to provide an excellent diet for the adults and the young hawks," Parks said.

Releasing the birds into the wilds of central New York will pose no danger to people, the researcher said, since the birds are so small (about the size of a blue jay) and tend to prefer habitat away from humanity.

Parks believes the release program was a good opportunity for undergraduates to gain

experience in the captive propagation of a wildlife species. "Students come in with an interest in husbandry of non-traditional species, and this is a great opportunity to learn more about it. This will give them insight into what's required when working with a wildlife species," he said. "Few students receive an opportunity to watch accipiters—fleet forest-dwelling birds such as sharp-shinned hawks and northern goshawks—go from the hatch-

ing stage to release into the wild."

Parks said the only requirement to participate is that the students have avian interests because they are receiving no official academic credit. "In addition to captive breeding, our program includes rehabilitation and public education components," he said. "Hopefully, they will learn to promote the conservation of birds of prey and wildlife in general."

CU breakthrough: Computer model of fabric drape

By Susan Lang

The day that an apparel designer can test the drape of a garment in different fabrics without having to re-cut and re-dress a mannequin or human model is just a few years away, thanks to a computer-aided breakthrough at Cornell.

By developing the first and only true engineering model of fabric drape, Cornell researchers can simulate how drape over a flat surface or a sphere varies depending on the fabric used.

This breakthrough also is a major step forward to the day when a consumer will be able to get a full body scan in an electronic catalog store and view on screen exactly how a garment, made in whatever chosen fabric, would look on his/her body.

The research is published in the June issue of *Textile Research Journal*.

"Fabrics have been difficult to model because they are complex mechanisms of interwoven threads that are themselves mechanisms of twisted fibers," explained Muthu Govindaraj, a textile engineer and

assistant professor of textiles and apparel in Cornell's College of Human Ecology.

"Unlike plastic or metals, that undergo only moderate deformation when force is applied and which wrinkle or buckle when folded, fabrics are much more flexible. They undergo very large deformations when even small forces are applied and bend smoothly in two directions simultaneously."

Fabrics are not "continuous" substances like other sheet materials but are structures made of yarns and fibers. During drape, fabrics are not fully supported. In fact, drape is defined as the deformation of a fabric produced by gravity when only part of the fabric is directly supported.

By considering mechanical characteristics of a fabric, such as its tensile and behavior shear and how the fabric stretches and lengthens in one direction while shortening in the other direction, Govindaraj has succeeded in devising a physically based model of fabric drape. The program for the model runs on the IBM SP2 supercomputer at the Cornell Theory Center. His work is in collaboration with doctoral student Bijian

Chen of China.

This computer model is superior to the current graphic-based models, said Govindaraj, who also directs the Industrial Extension Project in Textiles and Apparel at Cornell, because the graphic-based models do not include the full range of fabric characteristics that the comprehensive engineering-based model does and, therefore, cannot produce an exact simulation.

Govindaraj predicts he will be able to model drape over the more complex terrain of the human body within several years.

Full use of the computer model should help reduce the time it takes to get an apparel design into production, he predicted. Currently, with computer-aided design (CAD) used to create two-dimensional patterns, three-dimensional graphics and the use of Electronic Data Interchange (EDI), this turnaround has been reduced from 66 weeks to about 44 weeks.

The research was supported in part by the U.S. Department of Agriculture through its experiment station in Ithaca and the Cornell Theory Center.

Tour of environmentally friendly farm is Aug. 17

Agriculturalists will have a field day learning to implement sound environmental strategies at the "Sustaining Agriculture in New York State with Agriculture Environmental Planning" tour scheduled for Thursday, Aug. 17, at Table Rock Farm, Castile, N.Y., in Wyoming County.

Farmers, extension agents, farm advisers, environmentalists, agricultural business people as well as employees of local, state and federal conservation agencies are invited to tour Table Rock Farm, which has had a long history of environmental enhancements. In 1994 the 850-cow farm won

the Progressive Forage Producer Award from the New York State Forage and Grassland Council. The farm received the award for its conservation practices, manure management and for being one of the first dairy farms in New York to implement integrated pest management practices.

"Table Rock Farm maintains a unique and positive philosophy regarding environmental management," said Michael Walter, professor and chair of Cornell's Agricultural and Biological Engineering Department.

The tour is funded by the Sustainable Agriculture Research Education Program of

the Northeast Region. It also is sponsored by Cornell Cooperative Extension in cooperation with USDA Natural Resource Conservation Service, New York State Soil and Water Conservation Districts and New York's Department of Agriculture and Markets.

Tour topics include voluntary environmental planning; New York state responsible environmental agricultural proposal; and maintaining farm-neighbor relations.

The \$15 fee includes lunch at Letchworth State Park and bus transportation. For information, contact Bernadine Italiano, 255-0417, or through e-mail at <bji3@cornell.edu>.

Neglected N.Y. wells, septic contaminate drinking water

By Susan Lang

Many homeowners in New York neglect their private wells and wastewater systems and contaminate their drinking water as a result, according to a recent Cornell study.

"Even though many practices needed to maintain private wells and septic systems are relatively simple and inexpensive, they are not being practiced," said Ann Lemley, director of Cornell's Water Quality Program in the College of Human Ecology. "With a small amount of input, private water supplies can be made safe and reliable, yet the majority of people are unaware of how to go about it."

Two years ago Lemley reported that up to one-third of private water supplies tested positive for microbiological contamination, which often indicates the presence of fecal matter. In a more recent study, she found that one major culprit for the contamination was a septic system that was improperly located, poorly designed or inadequately maintained.

Lemley recommends a \$15 water test every two years and pumping of septic systems (about \$150) every three years.

To help consumers better maintain their systems, Lemley helped write the new educational video, *On-Site Sewage Treatment Systems: Keeping Our Water Clean*, which may be purchased or borrowed from any county Cornell Cooperative Extension office.

Lemley said the study of 244 residents in three upstate New York counties, conducted in collaboration with Cornell colleague David Allee, professor of agricultural, resource and managerial economics, revealed the lack of effort residents were putting into their water systems. Only half the sample had ever tested their water or pumped their septic tanks, and at least 22 to 39 percent of the wastewater treatment systems were dangerously close to the water sources.

Some 90 percent of the rural U.S. population relies on private water supplies, Lemley points out. In New York 2.5 million people depend on private drinking water systems, yet these sys-



Robert Barker/University Photography

Professor Ann Lemley, director of Cornell's Water Quality Program, recommends homeowners be vigilant in testing their wells and septic systems.

tems are unregulated. Most of the households with private water systems — about 1.5 million in the Empire State — also have septic systems or similar on-site wastewater treatment systems.

"Many individuals rely on private drinking water systems, yet there are no state programs and few local programs for testing or maintaining records on the quality of rural drinking water in New York state," Lemley pointed out. "Thus, the responsibility rests on the household, yet our studies show that, by and large, most residents are unaware of the need to test and monitor their systems or where to turn for information and help."

If the solids from septic tanks and wastewater treatment systems are not removed every few years, Lemley said, they will either eventually overflow into the drainage field or back up and clog the system. At

that point, the cost of repair could run several thousands of dollars.

If not repaired, the untreated wastewater can contaminate the drinking water, which is particularly threatening to the health of pregnant women, infants, the elderly and the ill.

For information on testing or maintaining private wells and wastewater treatment systems, contact a local health department or Cornell Cooperative Extension.

The 20-minute video, *On-Site Sewage Treatment Systems: Keeping Our Water Clean*, may be ordered from the Resource Center, 7 Cornell Business & Technology Park, Ithaca, NY 14850; phone (607) 255-2090 or fax (607) 255-9946. It may be borrowed free from any county Cornell Cooperative Extension office and from the public libraries in Cayuga and Oswego counties.

Drought could last longer, say climatologists

By Blaine P. Friedlander Jr.

If greater-than-normal rains do not start soon, the long-term drought that the northeastern United States is experiencing could possibly get worse, according to climatologists at the Northeast Regional Climate Center at Cornell. Since February large precipitation deficits have built up at many northeastern locations, and that could detrimentally affect reservoirs, aquifers and wells.

"In places reporting the largest deficits, it is likely to either take several months of greater-than-normal precipitation or unusually heavy rains in a shorter period of time to replenish the water," said Keith Eggleston, climatologist with the center.

Deficits — some approaching 9 inches in some areas like Boston and Philadelphia — have resulted in severe to extreme drought conditions on the Palmer Drought Severity Index. Those areas also include all of New York, Vermont, northeastern Pennsylvania, as well as parts of New Jersey and Maryland, according to the index released July 22, 1995.

"Slightly above normal precipitation over the next month will do little to relieve drought conditions in the Northeast," Eggleston said. August is generally as wet as any other summer month, but the Northeast tends to dry out in the autumn. "An unusually wet August, however, will reduce the deficit by 3 to 4 inches. This will be sufficient to eliminate the deficit entirely in a few locations, primarily along the mid-Atlantic coast."

Eggleston warned that if unusually dry conditions persist, though, deficits would increase by 3 or 4 inches. During the three-month period from August through October, only slightly above normal precipitation will be insufficient to relieve the accumulated deficits that have built up in northeastern cities. There is an equal probability that precipitation during this three-month period will be dry enough for deficits to increase to nearly 14 inches at some locations — notably Boston, Philadelphia, Hartford, Conn., Bridgeport, Conn., and Salisbury, Md. — by the end of October.

Such an outcome would result in very large precipitation deficits being carried into the winter season, which would threaten aquifers, reservoirs and wells, Eggleston said. "Unusually wet conditions over the next three months, however, would greatly reduce or totally eliminate the deficit."

Blight related to cause of Irish potato famine found here, scientists say

By Blaine P. Friedlander Jr.

Two cases of an aggressive fungus related to the kind that caused the great Irish potato famine of the 19th century have been found in the southern tier of New York, Cornell scientists say.

While an integrated approach to managing the disease and dry weather have kept the fungus in check, Cornell plant pathologists believe that the number of late potato blight cases will increase with wetter weather.

The fungal strain found in early July in Steuben County, N.Y., was *Phytophthora infestans* (genotype US-8), said Rosemary Loria, associate professor of plant pathology.

To combat the fungus, the U.S. Environmental Protection Agency has granted commercial growers in New York permission to use fungicides widely used in Europe.

"It is not clear how effective these will be in our situation," Loria said. "This strain of blight is very aggressive. Our best assessment is that these fungicides are not a silver bullet, and growers who use them will still need to monitor their fields and maintain an aggressive fungicide program in order to suppress the blight."

The increased problems with late blight

are caused by new strains of the potato late blight fungus that only recently have been detected in the United States. However, new strains have appeared throughout many locations in the world and have caused increased problems wherever they have been. The new strains are resistant to metalaxyl, previously the most effective fungicide. One

early New York and parts of New England — experienced one of the driest springs on record. From February through June, this has been the driest spring in more than a century.

Last year potato late blight brought severe problems to many commercial potato farms in New York, according to William E. Fry, Cornell professor of plant pathology, who

said. Tomato crops in New Jersey also have been hit by *P. infestans* (genotype US-7).

How to recognize late potato blight? Irregular or circular lesions on the foliage or stems are symptoms of late blight. Young lesions may appear water-soaked. Older lesions can be surrounded by a halo of collapsed tissue that is yellow or brown. Infected tubers may have a discolored reddish-brown granular rot. Sometimes in humid weather, a white fuzz or mildew-like growth appears on the foliage or the stems, which indicates the fungus is producing spores.

In anticipation of the late blight, the EPA had approved last spring two of the "European" fungicides: Acrobat MZ, dimethomorph and mancozeb, manufactured by American Cyanamid, along with Curzate M-8, a DuPont product made with cymoxanil and mancozeb. The third fungicide, propamocarb, commercially known as Tattoo C and made by AgrEvo USA, was approved in early summer.

Commercial growers in New York have received instructions on applying these fungicides by Cornell Cooperative Extension.

"Labels on these fungicides are considered legal documents," Karasevicz said. "Growers must follow the directions exactly, or they will be breaking the law."

'This strain of blight is very aggressive. Our best assessment is that these fungicides are not a silver bullet, and growers who use them will still need to monitor their fields and maintain an aggressive fungicide program in order to suppress the blight.'

— Rosemary Loria

of the new strains — US-8 — is particularly aggressive against potatoes.

"It's a more aggressive blight," said Diane Karasevicz, Cornell plant pathology extension associate. Drought conditions throughout the northeastern United States have actually helped keep the blight at bay, she said.

The Northeast Regional Climate Center at Cornell reports that the Northeast — particu-

warned then that the fungus could decimate some crops in the Northeast. He toured several hard-hit, blighted areas last season when fields of potato crops that were lush one week turned into rotten wastelands the next.

Fry said that cases of *P. infestans* have been reported in Pennsylvania this season. For the first time in many years, it has been found in New Jersey and Delaware, he

Pizza Pop-Ups take prize for 9 food science students

By Linda McCandless

Nine students from Cornell's Food Science Department have developed a new snack food called Pizza Pop-Ups. The students took first place for their invention at the 1995 Fourth Annual Product Development Competition held at the Institute of Food Technologists' annual meeting in Anaheim, Calif., in June. It was the first time Cornell had ever won the competition.

The prototypes are stuffed with cheese, tomato sauce and pepperoni. They require a minute and a half to cook at a medium setting in your average toaster. Fluted edges keep the sauce and cheese from leaking into the toaster. An acetylated monoglyceride barrier between the crust and the sauce is the secret to the crisp texture, and a thick paste-like sauce prevents "squirt out" when the consumer takes that first bite.

"They're healthier than a slice of pizza, lower in fat and crispy, too," said student Michael King, who chaired the development team. Other members of the team were John Brent, Joanne Langdon, Aimee Eopocino, Susan Connel, Aaron Edwards, Lanette Schaffer, Mary Beth Gangloff and Ellen Chamberlain. Chamberlain and King are graduate students at Cornell's Agricultural Experiment Station in Geneva, working in the laboratories of food scientists Andy Rao and Terry Acree.

"Pizza Pop-Ups are about the size of English muffins," said Chamberlain, who, as the team's chemical engineer, was in charge of process design.

The group, an outgrowth of the Food Science Club at Cornell, started meeting last fall to brainstorm new product ideas in anticipation of entering the competition.

"Pizza was a natural," Chamberlain said. "Our initial survey of the local pizza market—a niche that is very easy to identify among students—determined what people wanted in a new pizza product."

"Survey results indicated crispness and convenience were the two primary concerns, so that's what we went for in our toasted product," said King. In general, toasters and ovens give a much crisper product than microwave ovens.

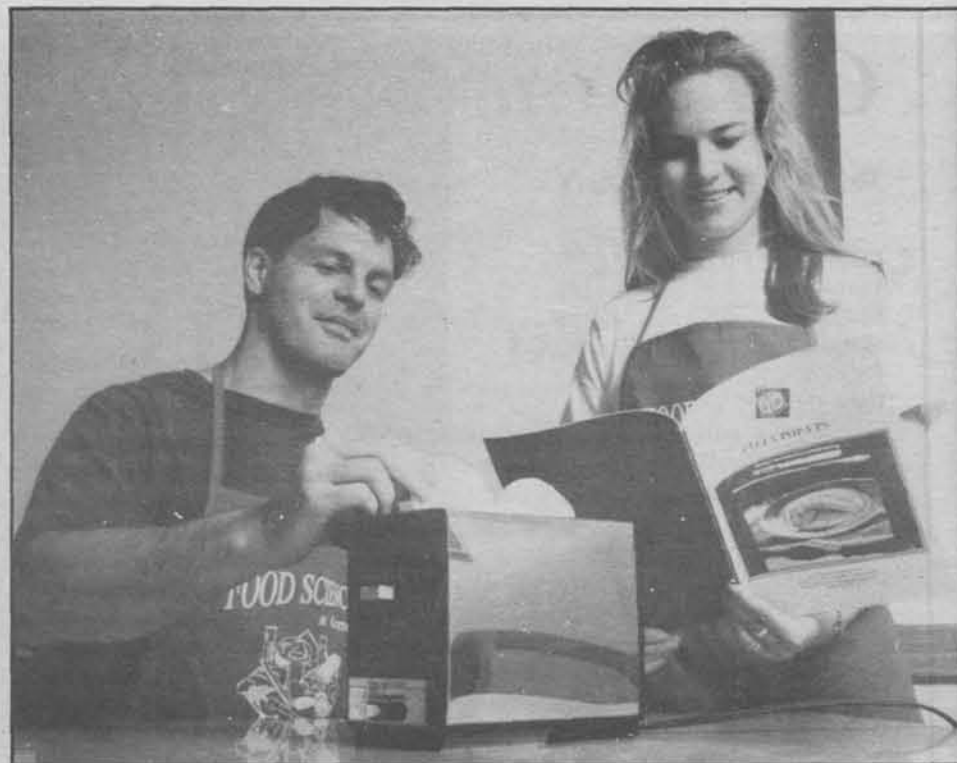
"The purpose of the project is to work together and learn what it really takes to create and optimize a new product concept," King said. "We had to go through all the legwork involved in developing a new food product, including identifying a product, surveying the market, economic and process feasibility studies, food safety evaluation, nutritional analyses, sales and marketing."

The team solved various technical problems in the Pizza Pop-Up concept. In addition to "sauce migration," and developing a moisture barrier between the coated crust disks and the sauce, the team researched toasters. "We relied heavily on a study by Pillsbury that charted thousands of toasters for spring, shape and size for the toaster strudel," King said. "Based on that study, we came up with an optimum weight of 50 grams, an optimum width of half an inch, and an optimum diameter of three and three-quarter inches."

The team also researched packaging and processing design. "We determined what and how many processing machines were needed, how much they would cost, and how fast the line would run, in conjunction with a market analysis to determine market share, and a complete balance sheet and income statement," King said.

Based on their research, students said it would take a well-established food company \$4.6 million to capitalize and start producing Pizza Pop-Ups and that it would take six months before the product was ready to market as a snack, particularly targeted at single people and children. Estimated retail cost is \$2.69 for 8, which is well below a comparable microwave product.

"The competition is a relatively new one



K.Colton/NYS Ag. Expt.Sta./Cornell

Michael King and Ellen Chamberlain, graduate students at Cornell's Agricultural Experiment Station in Geneva, with Pizza Pop-Ups, a new snack food they developed recently with their classmates. The students won first prize for Pizza Pop-Ups at a competition sponsored in June by the Institute of Food Technologists.

for IFT," said Peter Salmon, an industry analyst with The Food Network, an Ithaca-based consulting firm that helped sponsor the team. "These kinds of competitions encourage students to do what they will most likely be doing when they get out in industry, which is product development. Pizza Pop-Ups is a very well-thought-out concept; I wouldn't be surprised if someone does pick it up."

The Pizza Pop-Up poster and presentation generated substantial enthusiasm among food industry representatives who attended the Anaheim meeting. But the Cornell team is not particularly interested in the product's investment potential.

"Mostly, it was a good learning experience," Chamberlain said. "It was interesting to combine people with various backgrounds in nutrition, business, food science and engineering to come up with a new product."

The team performed prototype development and taste-tests out of Chamberlain's kitchen on a toaster her mother had received as a wedding present. "In college, you eat a lot of pizza," she noted. "We all had a lot of experience with the product we were making."

Faculty advisers to the team included Joseph Hotchkiss, associate professor of food science; Dennis Miller, professor of food science; Syd Rizvi, professor of food science; and Dick Wittink, the Henrietta Johnson Louis Professor of Management. Joe Regenstein, professor of food science, helped coordinate mock product defenses.

The other six finalists in 1995 included product development proposals for: Cherry Stout Beer, Pastabilities, Fabulous Frozen Fruity Cookie Dough, Ecstasy (chocolate covered fruit) and Pea Pleasers (a yellow-pea based tortilla chip).

Geneva schoolchildren develop green thumbs by growing apple trees

By Linda McCandless

The only thing separating Allisan Augustine and the rest of her team from a college degree was 13 more years of schooling, one Bud Graft Data Sheet and the height of the grafted apple slips they were trying to measure with a ruler.

"You start at the dirt and measure up to the growing point," she said, gently fingering the green leaves. "Hey, mine's growing good!"

Augustine is one of more than 200 fourth graders at North Street and West Street Elementary Schools in Geneva who participated in a "Make an Apple Tree" project coordinated by the staff at the USDA/ARS Plant Genetic Resources Unit (PGRU) at Cornell's Agricultural Experiment Station in Geneva.

PGRU maintains the national apple collection. As part of their community outreach efforts during the last three years, they have been familiarizing local elementary school students with the conservation of genetic resources by helping them produce apple trees. Guided by PGRU staff members James R. McFerson, Phil L. Forsline and Susan M. Sheffer, each student produces two apple trees, using two techniques: asexual (clonal) grafting and sowing seed (sexual propagation).

"The project is conducted in several phases over the course of a year and a half," said Forsline, who is the apple curator/horticulturist at PGRU. "In the fall the students and teachers visit the labs, greenhouses, seed cleaning and storage facilities, and farms at the station. They meet the PGRU staff and become familiar with our activities by harvesting apples from the over 2,500 different varieties in the PGRU orchards."

Phase 2 takes place in the winter, when the PGRU staff conducts four hourlong



K.Colton/NYS Ag. Expt.Sta./Cornell

Susan M. Sheffer, center, a science technician at the Agricultural Experiment Station in Geneva, shows students from North Street School how their apple tree projects are doing. The students participated in the "Make an Apple Tree" project this spring.

sessions with the students at school. They discuss the biology of the apple, run taste tests on three apple cultivars, and then divide the classes into six teams of four students per team. Each student is given a potted apple rootstock that looks like nothing more than a stick. Then the three horticulturists help the students graft two buds from one of four different varieties—either a fruiting type or an ornamental apple—onto the rootstock.

Fourth-grader Anthony Torres explained how it was done. "First we slit the trunk in two places and then slid a piece of stick into the graft and held it on with a rubber band.

We also had to label our trees and fill out a data sheet."

At the same time, the students sowed two seeds to produce a seedling tree.

All trees were placed on sunny window sills in black "conetainers" for seven weeks. Students watered the trees three times a week and recorded data on the growth of the grafts and the seedlings. After the fourth session, students said "goodbye until next year," and the "conetainers" were carried back to PGRU for a year's worth of growth in the greenhouses.

On or near Arbor Day 1996, Phase 3 will begin when the PGRU staff returns the grafted

and seedling trees to the students, who will then be fifth graders, and their parents. Students will take the trees home to plant in their yard. The trees should begin to fruit by the time the students are in high school.

"We hope they will be able to recognize their clone and report on the characteristics of their 'mystery' apple tree," said Forsline. The PGRU staff hopes this long-term, hands-on project may stimulate the students' interest in science and understanding of agriculture.

"Working with the horticulturists from the Experiment Station makes a really nice partnership between the kids and people at work in the community," said Becky Addona, who is the elementary enrichment program coordinator. "All the kids in the grade get to participate in this exciting hands-on science project—not just a select few."

The teachers also were excited about the science project, saying it worked wonderfully with other classroom activities. Fourth-grade teacher Judy Simmers, whose class has participated in the project for two years, explained, "Growing apple trees involves metric measurement, math skills, language art skills, record-keeping, follow-through and small motor skills. Not only were Phil, Susan and Jim fun for the children to work with, but they were good role models for boys and girls who may one day want to pursue careers in science or agriculture."

Augustine, John O'Brien, William Hunt and Calisha Singleton do not know what they want to be when they grow up, but by comparing data sheets, they did know that Augustine's 8.5 centimeter grafted Empire apple was the biggest tree in the classroom. "Mine's going to catch up," said O'Brien, with one eye closed, as he stretched the tiny Empire apple branch to its full height along the plastic ruler. "As soon as it's spring, it's going to grow right up to the sky."

Cornell employees, students go for the gold at Games

By Ericka Taylor and Ann Caton

When she's not working as a duplication machine operator at Cornell, Kelley Foster most likely can be found at one of the area bowling alleys practicing a sport she's played for almost two decades. Lately the practice sessions have been more intense as Foster readied herself for competition in the Empire State Games, which continue through Aug. 6 in Ithaca.

Foster is not alone. Other members of the Cornell staff and many students have dedicated themselves to grueling practice schedules in hopes of bringing home the gold.

Foster represents one of the Central Region's best chances for a gold medal in open bowling. One of New York state's hottest bowlers, Foster became one of only three women in the state to bowl 800 for three games. The impressive feat, which catapulted Foster into bowling's amateur elite, was turned in April 14, 1994, at Ithaca's Bowl-O-Drome.

More recently Foster became the top woman qualifier for the 1995 Central Region team when she fired an average 220 for 16 games during the Empire State



Games qualifying round, held in Syracuse this spring.

Foster, who has bowled for 18 years, hopes to draw on her past performances to medal at her first Empire State Games appearance.

"I think my chances are pretty good," she said, noting that the bowling competition takes place at Ide's Lanes, the site of much of Foster's league play. "To win it's going to take good, steady play. I'll have to throw around 200 in order to medal," said Foster, who maintains a 199 average.

In addition, Foster noted that the winner will have to make her spares. "There will be a lot of strikes thrown, no doubt, but the competition is going to come down to who hits their spares."

Foster will compete in team, singles, mixed doubles and trio matches. Foster and the Central Region's bowling team takes to the lanes at Ide's today at 1 p.m. and Friday at 10:45 p.m.

Tim Redden, assistant dean for public affairs at the College of Veterinary Medicine, is coaching the Central Region's judo squad for the third consecutive year and predicts good things for his team.

"We have a few stronger players in the men's division this year; the women's division has always been strong, and one of its players has a good chance of winning a gold medal," noted Redden, who serves as adviser to the Cornell Judo Club. Last year under Redden's tutelage, the Central Region team netted five medals in the Empire State Games.

The team has been practicing twice a week for the last several months, requiring members to travel from all areas of central New York to the Cornell campus. "Our team is made up of good athletes, all very committed to giving it their best."

Aside from coach Redden, team members from Cornell include Bill Meyers, physical education instructor, Igor Desyatnikov '96 and Igor Shnaper '97.

Judo competition begins Friday at 10 a.m. in Teagle Hall on campus.

A Cornell alumna and three students will team up in



Adriana Rovers/University Photography
Tim Redden, assistant dean for public affairs at the College of Veterinary Medicine, will coach the Central Region's judo team for the third consecutive year.



Frank DiMeo/University Photography
Junior Julie Stumbo, an agricultural economics major, is a member of the Central Region's women's soccer team.

the Empire State Games soccer competition.

Amy Snow, B.S. '93, M.A. '94, is returning to her alma mater to participate in the Games for the fourth time. The soccer player took a silver medal with her team in 1988. Snow, who spent last year teaching seventh grade in Cortland, believes the Central Region soccer team has the "makings for a really great team. It's just a matter of things coming together."

Another team member is Julie Stumbo '97. The agricultural economics major is no novice to the Games. She has run track in the competition and played in the open soccer division last year. Stumbo has played soccer for seven years and said she is



Charles Harrington/University Photography
Kelley Foster, a duplication machine operator, is one of the Central Region's best chances for a gold medal in bowling.

"improving, getting ready and having a great time" in preparation for this year's challenge. She thinks the team has "a lot of promise, a lot of talent and the desire" to perform well in the event.

Also suiting up for the Central Region's soccer team are Leanna House '98, a statistics and biology major in the College of Agriculture and Life Sciences, who has played soccer for 12 years, and Kristen McKeown '98, daughter of John McKeown, director of business operations at the Johnson Graduate School of Management and chairman of Cornell's Empire State Games committee. The Arts and Sciences student has played the sport for eleven years.

Shuttle Buses

• Ithaca College (Textor Hall) to Cornell (Field House) and CU to IC

Thursday-Saturday: Every 15 minutes, 6 a.m.-11:40 p.m.; Sunday: Every 20 minutes, 6:30 a.m.-4:30 p.m.

• Cornell Campus Shuttles (from Barton Hall):

To North Campus

Thursday-Saturday: Every 15 minutes, 6 a.m.-11:45 p.m.; Sunday: Every 15 minutes, 6 a.m.-4 p.m.

To West Campus

Thursday-Saturday: Every 20 minutes, 6 a.m.-11:40 p.m.; Sunday: Every 20 minutes, 6 a.m.-4 p.m.

Parking plans for Empire State Games

On Aug. 3 through 6, the parking garage, the Field House metered lot, South Morrison, Lynah-Teagle, South Lynah and all Kite Hill parking will be reserved for Empire State Games officials and spectators. Those areas will be closed to faculty, staff and students.

Employees who hold F, G and H permits may park in any legal spot on campus, regardless of its letter designation. K, FF and SF permits will be valid in all O areas.

With as many as 60 events taking place simultaneously at various sites in the area, including Cornell and Ithaca College, there will be numerous shuttle

buses moving the participants from place to place. In order to accommodate traffic, Campus Road - from Garden Avenue to Wing Drive - will be closed to all but buses, service vehicles and individuals with Empire State Games parking permits. Campus Road will be closed between 7 a.m. and 6 p.m. Thursday, Friday and Saturday.

If you are interested in attending the games, Empire State Games parking permits are available for \$3 a day or \$10 for the entire event.

Permits can be purchased at the Transportation Office at 255-4600, at the parking and information booths, and at the games.

'Coming out' to parents is difficult for gay youths

By Susan Lang

Although many gay and lesbian youths report that disclosing their sexual orientation to parents is frightening and extremely difficult, it is a necessary process if they are ever to feel close to their parents, according to a new Cornell study.

"This process of disclosing one's same-sex identity also is crucial for mental health," said Ritch Savin-Williams, a clinical psychologist and professor of human development and family studies in Cornell's College of Human Ecology.

Keeping sexual orientation a secret can be very stressful, Savin-Williams said, and can result in youths feeling isolated, as if they belong nowhere and have no base of support.

These experiences can have profound repercussions for self-acceptance and self-rejection that evolve during later adolescence. When they share their sexual orienta-

'Disclosure is a gift from their child because of the importance the parents and their relationship have in the child's life.'

— Ritch Savin-Williams

tion, which is a profound and central aspect of their lives, it helps them develop a sense of authenticity and wholeness, he said.

In a study of 96 gay Cornell students, the average age at which the young men disclosed their sexual orientation to a family member was 19.5 years, Savin-Williams found. Some, however, were "out" to their parents while in junior and senior high school. On average, these men had their first homosexual experience at age 14 and their first heterosexual experience at 15.5 years, although about half the young men had not had heterosexual sex. They first labeled themselves as gay or bisexual at age 17 and had their first romantic same-sex relationship at age 19. This labeling occurred as young as 9 years, and one youth had a gay romantic relationship in fifth grade.

"Typically, their first positive feelings about being gay tended to emerge two to three years after their self-label while at college," said Savin-Williams, an expert on issues concerning gay, lesbian and bisexual youths.

Savin-Williams presented the findings of

his study June 3 at the Lesbian, Gay and Bisexual Identities and the Family Conference at Pennsylvania State University. Savin-Williams also is the editor of the first college text on lesbians, gays and bisexuals, *The Lives of Lesbians, Gays and Bisexuals: Children to Adults*, co-edited with Kenneth M. Cohen and available this month.

In his study, almost 80 percent of the gay or bisexual Cornell students first told a friend about their sexual orientation; one-third had not yet told their mothers; and more than half had not disclosed their same-sex attractions to their fathers. No youth first disclosed to his father. Siblings generally were told before parents and were usually supportive.

"Although many of these young men thought their fathers would react very negatively, the reactions of the parents were usually the same," Savin-Williams said.

Parental reactions ranged from unconditional support to cutting off financial aid until the child went through conversion therapy. Most, however, expressed a moderate level of distress followed by support.

Although Savin-Williams does not yet have data on lesbian students, graduate student Lisa Diamond is collecting data on the sexual identification process among bisexual and lesbian women. Previous studies suggest that girls follow the same basic patterns as boys, and Diamond's research will challenge this assumption.

As a clinical psychologist with more than 15 years' experience working with gay, lesbian and bisexual youths, Savin-Williams said these youths could benefit by their parents accepting as truth the following:

- Same-sex attractions are as natural as heterosexuality.
- Sexual orientation is not a choice.
- A child's sexual orientation cannot be changed, and any attempt at conversion is made at a high cost: the youth's alienation and dispiritedness.
- Parents are not to "blame" for their offspring's homoerotic desires, and no one pattern emerges in the kinds of families that produce a lesbian, bisexual or gay child.
- The most important message that all parents should deliver to their child is unconditional love.

"Following the child's self-disclosure, parents need to understand that the lesbian, bisexual or gay person before them is the same person who stood before them just minutes earlier. Only now, parents know the child better, more completely. This is an honor, not a disgrace," Savin-Williams concluded.



Charles Harrington/University Photography

Graduate student Charity A. Romero Rose, left, discusses plans for a playground for the sight-impaired with Lorraine E. Maxwell, assistant professor of design and environmental analysis and an environmental psychologist in Cornell's College of Human Ecology, at a playground outside Martha Van Rensselaer Hall.

Playground *continued from page 1*

dent from Buffalo in Cornell's Department of Design and Environmental Analysis, integrated the three documents into a final design program that was submitted to Visions Inc. The playground will be built as soon as adequate funding is available.

Maxwell is the first person to take an extension role in facilities planning and management at Cornell. Her mission is to educate consumers on facilities planning before they meet with architects. Recently Maxwell wrote a Cornell Cooperative Ex-

tension brochure called *The Physical Environment of a Child Care Center: What Parents Should Know*.

Her other projects include studying an integrated classroom for preschoolers, determining how the children use the physical environment and how their use of the environment affects their development and how children use play equipment, with an eye on how to redesign equipment to make it more flexible and encourage children's imaginative play.

330-year-old eggs *continued from page 1*

long antennae and smaller swimming and feeding appendages. Others of their genus are found throughout the world, often in temporary ponds that periodically dry up. *D. sanguineus* are named for their reddish color; for varieties that have not evolved to become less colorful, that brightness is a liability when fish are feeding.

In previous studies, Hairston solved the mystery of why *D. sanguineus* usually hatch in the fall when no egg-laying adults are around. The adults who leave the fall-hatching eggs have long since died of old age, which for these copepods is a few days or weeks (or months in ideal laboratory conditions). Had the eggs hatched in the spring, the brightly colored young would have been easy pickings for fish.

So *D. sanguineus* evolved diapausing eggs, which can delay further development until conditions are right. A variety of other organisms with brief lives as reproductive adults — from bacteria and fungi to certain protozoa, plant seeds and insects — have the same trick, Hairston noted. But organisms with long adult lives (and other chances to reproduce if this year's "crop" fails) do not diapause. Individual lobsters can reproduce for 80 years, and oaks make fresh acorns each year for decades.



Adriana Rovers/University Photography

An egg-filled column of mud from the bottom of Oneida Lake is examined at Cornell's Shackleton Point Biological Field Station by, from left, Kristen Holeck, research technician at the station; Professor Nelson Hairston; Meghan Fellows, senior ecology student; and Carla Cáceres, graduate student.

That 17th-century copepod was trying to ensure the perpetuation of her genes when she made a deposit in an egg "bank," the Cornell biologist said. Egg bank research aims to understand the rate and trajectory of

lakes' recovery from human impact, including pollution and the introduction of non-native fish species.

"When we attempt to return a lake to its original state, we have to ask where the

recolonizing organisms will come from," he said. "When there are several billion living eggs and cysts at the bottom, that lake's sediments will almost certainly be the most important source."

Hairston's Cornell laboratory has just received a three-year, \$350,000 grant from the National Science Foundation and Environmental Protection Agency to study the repopulation question in one of the most-polluted bodies of water in North America, Onondaga Lake. The biologists are currently studying copepods in a nearby, less-impacted "reference" lake, Oneida Lake.

Although sometimes out of sight, the copepods are hardly an endangered species. Copepod egg densities in mud are estimated to be around 50,000 per square meter, Hairston said, so a small lake like Bullhead Pond probably has some 6 billion living eggs, sitting on the bottom waiting to hatch. The larger Oneida Lake may have 10 trillion.

Perhaps it was a summer storm that covered the Bullhead Pond eggs with sediment. A burrowing turtle in the 1700s might have exposed the eggs, but it didn't. Neither did a falling tree in the 1800s nor a 20th-century boat anchor.

Then along came a biologist who knew how to wake a sleeping egg.

Milk ads beef up bottom line, study shows

By Blaine P. Friedlander Jr.

Milk may do the body good, but generic advertising keeps dairy farms healthy by beefing up the bottom line, according to a study released at Cornell.

"It's clear that dairy farmers benefit from the presence of the National Dairy Promotion and Research Board (NDPRB). Generic advertising of milk impacts farm prices and producer revenue in a positive way," said Harry M. Kaiser, Cornell associate professor of agricultural economics. "Taxpayers also benefit because government purchases of dairy products are significantly lower."

Kaiser's study, "An Analysis of Generic Dairy Promotion in the United States," was funded and published by the National Institute for Commodity Promotion Research and Evaluation (NICPRE). Kaiser is co-director of NICPRE.

Many people may be familiar with the generic milk campaigns sponsored by the NDPRB. For example, its new "Milk, Help Yourself" campaign replaced "Milk. It Does the Body Good." The board also helps sponsor the dancing snacks, which show up on evening television urging viewers to "Let's go out to the kitchen..."

Dairy farmers are receiving a relatively high return on their investment from advertising, Kaiser learned. He also found that dairy producers could earn more money by investing more in fluid milk advertising and less in dairy product advertising. "The reason for this is dairy farmers receive a higher price for milk made into fluid products, rather than for milk made into manufactured products," he said.

For every 100 pounds of milk marketed in the United States, dairy farmers pay a mandatory 15 cents to finance a demand-expansion program. These assessments — which can top \$200 million annually — are guided by the Dairy and Tobacco Adjustment Act of 1983. Its purpose: increase milk demand, improve dairy farmer income and reduce the surplus milk purchased by the federal government. So far, that strategy has worked.

Kaiser's economic models show that between 1984 and 1993 the presence of the NDPRB resulted in a 1.2 percent increase in fluid milk demand and a 14.3 percent increase in the retail fluid milk price.

Generic milk advertising also showed positive impacts on other dairy products. For example, butter's demand rose 1.4 percent and a 3.8 percent higher retail price. While Kaiser's analysis showed a reduction in government purchases of butter and cheese, there were no increases in wholesale prices of butter and cheese due to the NDPRB.

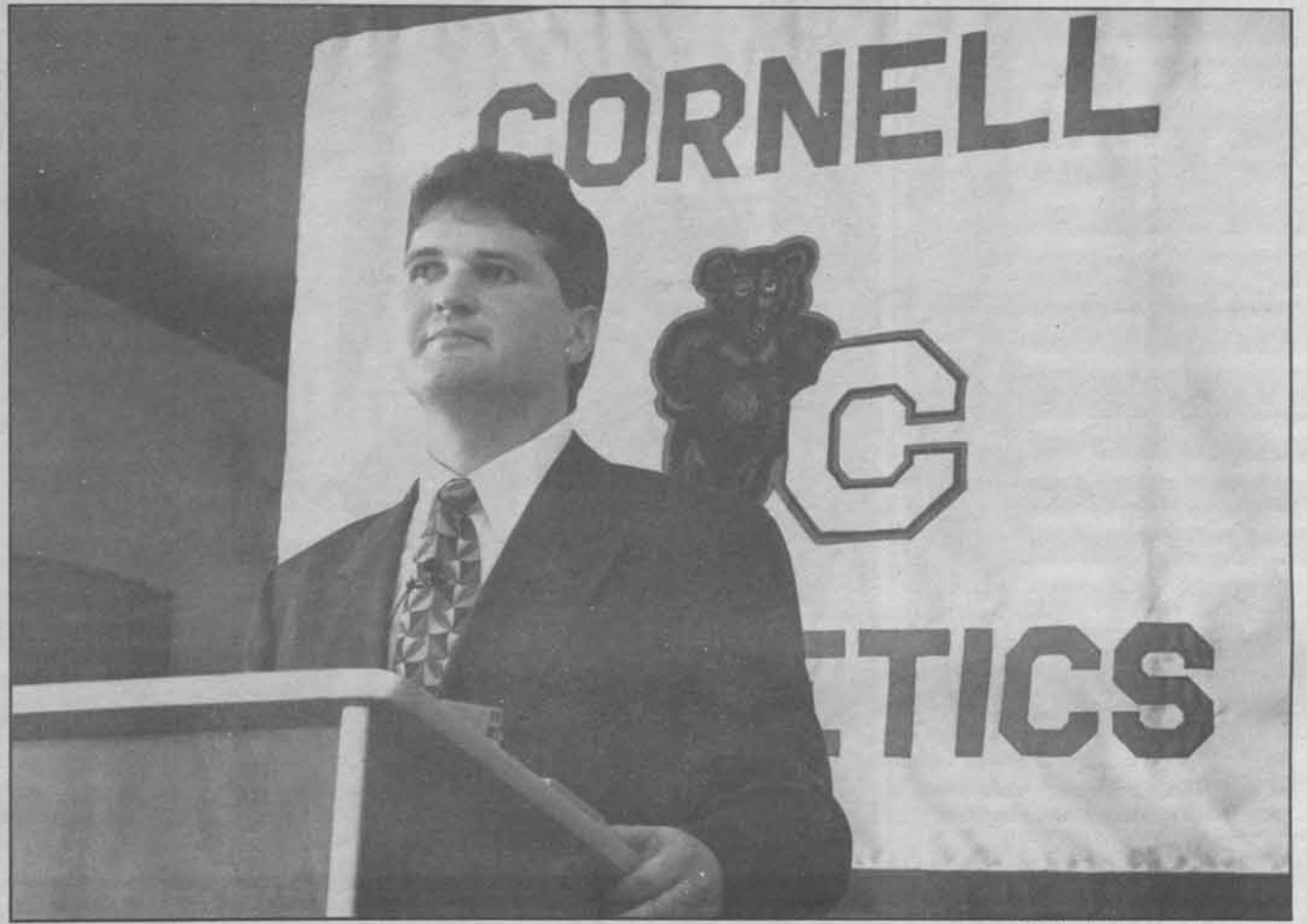
Of all the dairy products available to be promoted, fluid milk is the one which moves the most when it is directly connected with advertising. "It had the highest response to generic advertising of any of the other dairy products," Kaiser said.

The prices of other dairy products also rose when generic advertising generated consumer interest, but the increases were not as dramatic as fluid milk. In contrast, prices for retail frozen dairy products increased by a meager 2 percent, cheese by 4 percent and butter by 2.8 percent.

"The results from the models indicate that farmers benefit from higher generic advertising levels, but the rate of increase diminished as generic advertising levels were increased," Kaiser said.

For copies of the study, "An Analysis of Generic Dairy Promotion in the United States," write to Harry Kaiser, Associate Professor, 346 Warren Hall, Cornell, Ithaca, NY 14853-7801, or call (607) 255-1598.

The ice man cometh



Frank DiMeo/University Photography

Mike Schafer '86 is introduced to the media as Cornell's new varsity men's hockey coach at a press conference last week. Schafer told reporters that his priority next season will be to have home ice for the ECAC playoffs. He also said he expects Cornell to beat Harvard next year. Prior to his Cornell appointment, Schafer served as assistant hockey coach at Western Michigan University.

Industry voices support for Experiment Station

By Linda McCandless

Cornell's Food Venture Center (FVC) at the Agricultural Experiment Station in Geneva received support from members of the New York state food industry during the recent budget battles in Albany.

"Seneca Foods and General Foods all have received valuable technical assistance from the FVC at Geneva in bringing food products and processes to market," said Jim Hunter, director of the Agricultural Experiment Station. "The FVC helps strengthen the New York economy. But the future of assistance like this is at risk because of the loss of faculty and staff due to state budget cuts."

The FVC, a program of the Food Science and Technology Department at Geneva, was officially opened in 1988. Directed by Don Downing, professor of food processing, the FVC was designed to provide guidance to state residents seeking to introduce new food products and processes to the marketplace. Guidance ranges from expertise in food safety issues, government regulations, sensory evaluation, product development and resource networking in such crucial areas as packaging, labeling and marketing to analytical services and scale-up facilities in the station's 10,000 square-foot pilot plant.

"Many inquiries come from existing farm-based businesses that want to increase their income by marketing value-added products," said Downing, who is scheduled to retire at the end of August. "In addition, many inquirers buy raw materials from farmers' markets and in turn sell their value-added products back through the farmers' markets. Some of them are referred to us by New York's food licensing agency, the Department of Ag and Markets."

Letters in support of the FVC came from companies big and small, rural and urban. They came from food industry giants like Nabisco, Seneca Foods, General Foods, Hanover and Bison, from individuals who have spent lifetimes in the food industry in New York, and from smaller ventures like Winter Sun, Glenora, La Cucina di Parillo, Neiman's Kosher Fish Market and the Shung Kee Food Co., among others. Postmarks reflect urban centers like New York, Rochester and Albany; smaller cities like Cortland, Amsterdam and Spring Valley;

and rural towns like Hurley, Lake Placid and Dundee, among others.

"Without restoration of some of the expertise and assistance provided by [FVC's] retiring staff members, companies such as ours will be deprived of one of the truly best resources we have had in order to stay current and competitive," said Thomas A. Gibson, director of technical services for Seneca Foods Corp., a multimillion dollar New York state-based food company, which recently underwent a \$72 million expansion by acquiring six additional food processing plants.

"Historically, the Cornell faculty have contributed enormously to the fundamental base of knowledge that has been a major basis

'Historically, the Cornell faculty have contributed enormously to the fundamental base of knowledge that has been a major basis for the success of the U.S. food industry.'

— Gilbert A. Leveille

for the success of the U.S. food industry," wrote Gilbert A. Leveille, vice president of research and technical services for Nabisco.

Dave Moore, corporate quality assurance manager at Indian Summer, with operations in Lyndonville, Sodus and Medina, noted, "As a result of the advice I have received [from the FS&T department at the station], I have been able to redirect my efforts to prevent this quality defect from reoccurring, at a potential savings of \$40,000 per year."

Joel Frank, program director for the Argus Community's New Leaf Program, helps provide job training for 170 formerly homeless men and women in the South Bronx. In April the program received a license to market its homemade vinegar to support its operations by selling directly to customers at Green Markets in New York City. "Dr. Downing was extraordinarily helpful in guiding us in the proper notation of our vinegar process so we could gain licensed approval from Ag & Markets," Frank said.

"I do not think it was the intent of the voters in this last election to make it more difficult for New York companies to do business in New York," Seneca Foods' Gibson said.

"These testimonials and many more demonstrate the economic benefits that come from fostering a partnership between the food industry and faculty and staff in the university," Hunter said. "Surely the voters — and agribusiness — expect the state to fund programs like those at the Geneva Experiment Station that help entrepreneurs and small businesses grow and strengthen the New York economy."

Downing is quick to point out that legislatures in other states recognize the win-win benefits of this partnership and directly support state agribusiness development with dollars. To capitalize on the value-added potential of converting \$3.3 billion worth of agricultural and forestry commodities into approximately \$16.3 billion of retail products (a four-fold multiplier), Mississippi State University recently established a Food and Fiber Center to assist agribusiness start-ups. The Iowa Legislature approved \$3.65 million in grants and loans to create the Value Added Agriculture Products and Processes Financial Assistance Program, to develop innovative products and processes and renewable fuels and by-products. In Oklahoma, groundbreaking for the Food and Agricultural Products Processing Center for Research and Technology was held Nov. 12, 1994, to stimulate the expansion of Oklahoma's value-added processing industry. And, in 1994, \$300,000 in funding was approved by the Georgia Legislature to develop a Food Processing Center at the University of Georgia in Athens.

By contrast, due to the downsizing that has occurred, Hunter feels that food scientists at Cornell have inadequate resources to serve New York's \$20 billion, number one industry — food and agriculture.

"Despite budget constraints, food scientists in Geneva and Ithaca will continue to collaborate with colleagues across departments and programs to solve some of the food industry's thorniest problems, including those in the areas of health and food safety," Hunter said.

CALENDAR

August 3
through
August 10

All items for the Chronicle Calendar should be submitted (typewritten, double spaced) by campus mail, U.S. mail or in person to Chronicle Calendar, Cornell News Service, Village Green, 840 Hanshaw Road.

Notices should be sent to arrive 10 days prior to publication and should include the name and telephone number of a person who can be called if there are questions.

Notices should also include the subheading of the calendar in which the item should appear.

dance

Cornell International Folkdancers

Open to the Cornell community and the general public. All events are free unless otherwise noted. Beginners are welcome; no partners are needed. For information, call Edilia at 387-6547 or Marguerite at 539-7335.

Aug. 6, 7:30 p.m., English dances taught by Marguerite Frongillo; 8:30 p.m., open dancing and requests, Maplewood Community Center.

Israeli Folk Dancing

Thursdays through Aug. 17, 8 to 10 p.m., Maplewood Park Community Center; instruction and request dancing, free and open. For information, call 272-4623.

exhibits

Johnson Art Museum

The Herbert F. Johnson Museum of Art, on the corner of University and Central avenues, is open Tuesday through Sunday from 10 a.m. to 5 p.m. Admission is free. Telephone: 255-6464.

• "Ziet, de dag komt aan: Dutch Landscape Prints and Drawings," through Aug. 6.

• "Ithaca Collects," through Aug. 6. This group of works borrowed from residents of the Ithaca area range from Asian ceramics to contemporary American painting.

• "The Fires of War: Paintings by Susan Crile," through Aug. 13. Crile spent several months in Kuwait after the Persian Gulf War and observed the ecological devastation of that country's burning oil fields. Her large-scale paintings and works on paper capture all the terror and awe of modern warfare and its consequences.

• "Paintings From the Boissier-Leviant-Smithies Collection," through Aug. 27. This collection presents important works by renowned Latin American painters of the late-1940s and 1950s.

• "In Celebration: Women's Rights and Women's Art," through Aug. 27.

• "Light and Shadow: Mezzotints From the 17th Century to the Present," Aug. 8 through Oct. 14.

• "12 O'Clock Sharp": Thursday Noontime Gallery Talks: On Aug. 3, Carolyn Peter, print room assistant, will speak on "In Celebration: Women's Rights and Women's Art."

Cornell Library

"Remembering Cornell" documents the history of Cornell with vintage photographs, memorabilia, original manuscripts and other rare materials. Designed as a walking tour, it is displayed throughout Olin, Kroch, Uris, Mann and other libraries through Sept. 9. A souvenir guide is available.



Sister My Sister, a dramatization of the true story upon which Jean Genet's play *The Maids* is based, makes its Ithaca premiere Aug. 3 at 9:45 p.m. at the Willard Straight Hall Theatre. The film features, from left, Jodhi May, Joely Richardson, Sophie Thursfield and Julie Walters.

films

Films listed are sponsored by Cornell Cinema unless otherwise noted and are open to the public. All films are \$4.50 (\$4 for students), except for Tuesday night Cinema Off-Center (\$2) and Sunday matinees (\$3.50). Films are held in Willard Straight Theatre except where noted.

The Cinema Advisory Board (CAB) has one vacancy for a university staff representative. CAB members attend monthly meetings and are responsible for advising the director about programming, the budget and co-sponsorships. Please call 255-3522 for more information or pick up an application in 104 Willard Straight Hall. Members receive a complimentary pass for two.

Thursday, 8/3

"Circle of Friends" (1995), directed by Pat O'Connor, with Chris O'Donnell, Minnie Driver and Geraldine O'Rawe, 7:30 p.m.

"Sister My Sister" (1994), directed by Nancy Meckler, with Julie Walters, Joely Richardson and Jodhi May, 9:45 p.m.

Friday, 8/4

"Sister My Sister," 7:30 p.m.

"Clerks" (1994), directed by Kevin Smith, with Kevin O'Halloran, Jeff Anderson and Marilyn Ghigliotti, 9:45 p.m.

Saturday, 8/5

"Circle of Friends," 7:30 p.m.

"Clerks," 9:45 p.m.

graduate bulletin

• **Travel:** Conference travel grant applications are due at the Graduate Fellowship and Financial Aid Office, Sage Graduate Center, by Sept. 1 for October conferences. Application forms are available at graduate field offices. Grants for transportation are awarded to registered graduate students invited to present papers.

• **Degree deadline:** Friday, Aug. 25, is the deadline for completing all requirements for an August degree, including submitting the thesis/dissertation to the Graduate School.

• **Study abroad:** Applications for Fulbright grants for study abroad are available for the 1996-97 academic year; contact R. Brashear, director of Graduate Admissions, Sage Graduate Center, 255-3912. Applicants must be U.S. citizens; completed applications are due mid-September.

• **Fall 1995 registration:** Graduate student registration is in the Field House, 9 a.m. to 5 p.m. New students only on Monday, Aug. 28; continuing students with "holds" on Tuesday, Aug. 29. Con-

tinuing students with no "holds" do not need to go to the Field House. Check "Just the Facts" to determine if you have a "hold."

• **Course enrollment:** Course enrollment forms are available in graduate field offices and at Sage Graduate Center. Course enrollment continues through Friday, Sept. 22; return completed form in person to the Graduate School. Students who completed precourse enrollment forms last spring do not need to complete a course enrollment form; if there is a change in their schedule, they should complete a Course Drop and Add form.

• **English test:** The English Placement Test will be held in Hollis Cornell Auditorium, Goldwin Smith Hall, on Monday, Aug. 28, at 9:30 a.m. Entering international students who satisfied the language requirement with a TOEFL score below 600 must take this examination.

music

Summer Sessions

The Lowdown Alligator Jass Band will perform its traditional New Orleans jazz, blues, ragtime, swing and original tunes Aug. 4 at 7:30 p.m. on the Arts Quad. (Rain: Kaufmann Auditorium, Goldwin Smith Hall.)

Department of Music

The Sage Chapel Choir will perform a concert of three *Glorias* on Sunday, Aug. 6, at 2 p.m. in Sage Chapel. The program includes Vivaldi's *Gloria* and Dufay's *Gloria Canon*, both to be performed with an instrumental ensemble, as well as a *Gloria* in Gregorian chant with alternating organ versets by Francois Couperin. Soloists for Vivaldi's *Gloria* will be Kathleen Parkhurst, soprano, and Karen Topp, mezzo-soprano. The organist is George Damp. Choirmaster William Cowdery will conduct this free concert.

Bound for Glory

While renovations take place in the Commons Coffeehouse, the program will feature albums from the studio. Bound for Glory is broadcast Sundays from 8 to 11 p.m. on WVBR 93.5 FM.

religion

Sage Chapel

The Rev. Janet Shortall, assistant director of Cornell United Religious Work, will give the sermon Aug. 6 at 11 a.m. Sage is a non-sectarian chapel that fosters dialogue and exploration with and among the major faith traditions.

African-American

Sundays, 5:30 p.m., Robert Purcell Union.

Baha'i Faith

Fridays, 7 p.m., firesides with speakers, open discussion and refreshments. Meet at the Balch Archway; held in Unit 4 lounge at Balch Hall. Sunday morning prayers and breakfast, 7 a.m.

Catholic

The summer Mass schedule, June 3 through Aug. 20, is: Saturday, 5 p.m., and Sunday, 10 a.m., Anabel Taylor Auditorium. Daily Masses will be announced weekly.

Christian Science

Testimony and discussion every Thursday at 7 p.m., Founders Room, Anabel Taylor Hall.

Episcopal (Anglican)

Sundays, worship and Eucharist, 9:30 a.m., Anabel Taylor Chapel.

Friends (Quakers)

Sundays, 11 a.m., meeting for worship in the Edwards Room of Anabel Taylor Hall. Discussions most weeks at 9:50 a.m., 314 Anabel Taylor Hall.

Jewish

Morning Minyan at Young Israel, 106 West Ave., call 272-5810.

Saturday Services: Orthodox, 9:15 a.m., Edwards Room, ATH; Conservative/Egalitarian, 9:15 a.m., Founders Room, ATH.

Korean Church

Sundays, 1 p.m., chapel, Anabel Taylor Hall.

Latter-day Saints (Mormon)

Discussions on the Book of Mormon: Wednesdays, 7:30 p.m., 314 Anabel Taylor Hall. All are invited to come and discover the religious writings of ancient American cultures.

Sunday services: Cornell Student Branch, 9 a.m., Ithaca ward, 1 p.m. For information, call 272-4520, 257-6835 or 257-1334.

Muslim

Friday Juma' prayer, 1:15 p.m., One World Room, Anabel Taylor Hall. Daily Zuhr, Asr, Maghreb and Isha' prayers at 218 Anabel Taylor Hall.

Sri Satya Sai Baba

Sundays, 10:30 a.m., 319 N. Tioga St. For details call 273-4261 or 533-7172.

Zen Buddhist

Tuesdays, 5 p.m.; Thursdays, 6:45 p.m., chapel, Anabel Taylor Hall.

miscellany

Alcoholics Anonymous

Meetings are open to the public and will be held Monday through Friday at 12:15 p.m. and Saturday evenings at 7 p.m. in Anabel Taylor Hall. For more information call 273-1541.