

# AGRICULTURE AND LIFE SCIENCES news

A Statutory College of the State University of New York, at Cornell University, Ithaca, NY

MAY 1980

## Foote Elected Chaired Professor

Robert H. Foote, professor of animal psychology in the department of animal science, has been elected Jacob Gould Schurman Professor. The chair, given to only five other professors in the university, provides funds for research to be used at the discretion of the recipient. Professor Foote said he plans to use part of the funds to help send young faculty members and graduate students to academic conferences.

A winner of numerous awards, Foote's major interests are gamete physiology, artificial insemination, and factors affecting fertility and embryonic mortality. He has improved embryo culture techniques for studying factors critical to fertilization and examined steroid imbalances as they affect both sexual behavior and fertility. The results of these studies have appeared in approximately 300 publications.

His course, *Animal Science 220*, is one of the most popular courses in the College. Speculating on its great demand among students he said, "I do what I can to make learning fun. Everything worth doing is worth doing well, and if it's done well, it's fun. I tell my students that if you feel you've made progress, don't judge your B or C grade against another student's A, but compare where you've come from with where you've gone."

In describing his childhood on a farm in Gilead, Connecticut, he said he thinks farms provide important learning experiences. "Growing up in that environment, we learned responsibility. All of us had responsibility for living things. We cared for animals and sorrowed over them when they died. As a result, we had a healthy respect for life." He said that watching this cycle and learning to cope with loss taught him "life had to be lived forward; you can learn from the past, but you should not let the history of your life become a disease."

His career as a scientist was, he said, a combination of fortuitous events and plain hard work. The good luck started with his parents, who set high standards and provided a supportive environment for his studies. Both parents had been teachers (his mother in languages and his father in the sciences) before taking up farming, and they acted as role models for methods of problem solving. "My mother would look at a word I might be having trouble with and would discuss it in terms of its Latin root and say, 'let's pull it apart,' and my father would help me in algebra by breaking down the abstractions into concrete examples I could understand. In this way, Foote was exposed to a methodological way of solving problems early on.

World War II brought experiences and insights that changed his life. He went into the army directly



after graduating from the University of Connecticut in 1943. Just as he was receiving his gold bars at Fort Benning, the army was looking for volunteers to serve in the 442nd combat team, a predominantly Japanese-American military unit. He felt empathy and deep respect for these Nisei Americans, emotions that made him want to pursue and be exposed to as many different types of experiences and people with diverse backgrounds as possible. Despite the tragedies of war this aspect was a very positive experience.

He was wounded several times during the war—in Italy, France, and Germany. He had hoped to be a dairy farmer but concluded that his injuries would make that difficult, and he decided to go to graduate school under the GI bill.

When he went back to the University of Connecticut for advice on where to study animal science, professors said, "In the Northeast—perhaps in the whole country—there is no better place than Cornell." He followed their advice and received the MS in 1947 and the PhD in 1950.

His good luck continued, he said, when he had the good fortune of marrying and having the support of

a devoted wife through many years of long hours and erratic schedules.

In addition to having a strong interest in photography, Foote is a sports fan. He plays tennis and water skiing.

Among the biggest rewards in his work, he said, are seeing the results of his research used in practical applications on farms and watching his former students make their contributions to the field.

He thinks of his students as an extended family and always opens mail from them as enthusiastically as he would from a member of his own family.

It's difficult to see students leave, he said. "The lecture that's hard to finish is the last one, when for the last few minutes I have to maintain composure while knowing it is the final time I will see many of them."



## Delegation Sows Seeds of Cooperation in China

A six-member delegation of Cornell professors went to China in March to explore opportunities in the renewed exchange of programs in agricultural research and education, beginning with plant breeding and plant protection.

The delegation included David L. Call, dean of the College; Milton L. Barnett, professor of rural sociology; Donald W. Barton, director of the State Agricultural Experiment Station at Geneva; Ronald J. Kuhr, associate director of research; Joseph F. Metz Jr., director of international agriculture; and Robert J. Young, chairman of the department of animal science. An informal memorandum of understanding, agreed on by the Cornell group and administrators of the Nanjing (Nanking) Agricultural College, provides for exchange of professors, scholars, graduate students, and plant seeds and material for breeding purposes. Details of the formal agreement are being worked out.

During the three-week visit, the delegation also discussed possible cooperative research activities with the Chinese Ministry of Agriculture, the Academy of Science, the Academy of Agricultural Sciences, and five of seven key agricultural colleges, including Nanjing.

The Chinese presented the Americans with research literature and seeds of corn, wheat, alfalfa, and forage grasses. In turn, the American delegation gave alfalfa, corn, and small grain seeds to scientists in several Chinese institutions. Included in the grains were barley seeds whose lineage goes back to seeds developed in China in the 1920s.

From 1924-1931, there was an educational program between the University of Nanjing and the College that trained Chinese plant breeders and developed better varieties of small grains.

Three groups of Chinese scientists have visited the College since 1979, and there are currently 11 exchange scholars from China at Cornell, including three in Agriculture.



## Agricultural Economics Aids Direct Marketing

Renewed interest in direct farmer-to-consumer selling of fresh produce has sparked a program in the College called direct marketing. The program has evolved into a steady flow of advice and consultation from the department of agricultural economics, active involvement of cooperative extension agents, and an annual conference and trade show.

Ransom Blakeley, senior extension associate in agricultural economics, said the program offers numerous advantages to a wide variety of people. Commercial growers can diversify, reduce marketing costs, and obtain a higher share of the consumer dollar. Consumers get better quality of perishable items, enjoy lower prices for items of comparable quality, and educate children in how food is grown. Small-scale farmers can market the limited volumes they are able to produce, and youth find a new way to earn money and self-esteem.

Direct marketing, according to Brian How, professor of agricultural economics, encompasses sales of fruits and vegetables through stands, U-pick operations, farmers' markets and consumer cooperatives. Minor outlets include gift packaging by fruit growers, home delivery routes, and delivery of produce to campsites.

Department statistics show a surge in the popularity of direct marketing in the state. Emilie Stuhlmueller, research associate, said there were 30 farmers' markets in New York in



1974 and 89 last year. Commercial markets, those with permanent facilities and providing a substantial income for the seller, grew from 847 in 1974 to 1,064 last year.

A direct marketing conference has become a major event of the program. This February the conference drew 370 attendees to Rochester, as well as 40 exhibits for a trade show. Next year the conference will be held in the eastern

part of the state.

Where appropriate, the program ties into existing College programs. A U-pick newsletter, for example, carried many ideas from the division of nutritional sciences on preserving food, a necessity for consumers planning to pick in large quantities. Other departments contribute a variety of information, such as insect control, ice displays, and fruit and vegetable varieties most suitable for

direct sales.

The department also taps the expertise of extension agents who have taken an active interest in direct marketing. They include Joseph Cuniglio, area vegetable agent in Albany County, Francis Dellamano, fruit agent in Oswego, Carol MacNeil, vegetable agent in Ontario, Richard Pease, fruit agent in Western New York, and Frank Wiles, program leader in Tioga.

## Food Executives Bring Real World to Campus

To expose students to the problems they'll eventually face once they enter the profession, the Cornell Food Industry Management Program offers a lecture series featuring food industry executives.

The Julius Hendel Visiting Lecturer series is a \$25,000 memorial donated by the Hendel family. Under its sponsorship, a guest lecturer is selected every 2-3 years for one semester. Because guest lecturers are here longer than just one or two brief lectures, students are able to have more personal contact with them and to ask questions on an ongoing basis.

Previous Julius Hendel Visiting Lecturers include: Lloyd Mosely, retired vice president, the Grand Union Company; Don Gannon, past president, Stop & Shop Supermarkets; John Mugar, chairman and founder, Star Markets; and Herrell DeGraff, past president, the American Meat Institute.

For the spring 1980 semester, Arling C. Hazlett has been chosen the Julius Hendel Visiting Lecturer. He is conducting a special seminar in food industry management, drawing on his background and experience as an executive. Hazlett has served as president of P&C Markets in Syracuse and was president of Eberhard Foods in Grand Rapids, Michigan.

He received a bachelor's degree from Alfred University in business administration in 1949 and a master's degree in agricultural economics from Pennsylvania State University in 1950. Following graduation, he worked as an extension economist with the University of Maine, where he was involved in improving the marketing of Maine produce, with an emphasis on potatoes, lettuce, and blueberries.

Hazlett and his wife, Jane, have been active in civic and church activities and share the vice presidency of the Syracuse University Parents Association. He has been chairman of the Board of Trustees of the First Universalist Church of Syracuse and a member of the Boy Scouts of America Council in Syracuse. The Hazletts have five children ranging in age from 21 to 28.

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## How College Selects Students

Although many schools around the country are suffering declining enrollments, the College is fortunate: it has 4 or 5 applications for every spot available, a ratio relatively constant in recent years.

Leonard W. Feddema, director of admissions, said that while a number of schools may have to close their doors in the next decade, he doesn't think the College will be affected adversely by the smaller pool of students, because top quality education will always be in demand.

With the uncertain economy, young people have become increasingly career conscious and interested in courses that will give them practical, as well as liberal arts, training. The College has traditionally provided both, and this fact is apparently not lost on high school students.

What, in this competitive process, does the admissions office look for in making its selections?

According to Feddema, the best indicator of how a student will perform is his or her high school transcript. Individuals who have developed successful study habits and attitudes in high school will most likely do well at college. If the student ranks among the top five in his or her class academically, that is another good predictor of performance in a competitive environment. Less reliable predictors are SAT scores: they have a 0.6 correlation with success in college.

The admissions staff doesn't look so much for number of extra-

curricular activities, but rather their significance to the student and the quality of commitment the activity reveals. When a student was class council president, did she inspire her classmates to accomplish their common goals? If a particular student lives in the city, yet was sufficiently interested in crop production to have worked and lived for three summers on a farm, this would show determination, a clear vision of what he wanted to do with his life, and an ability to plan.

Feddema said, "In reading applications, we're looking for those signs that make a candidate distinctive—not better, but distinctive."

He said that undergraduate education at the college is not only what comes from books or from college programs but also from the students themselves, what they give to each other.

Therefore, it is interesting to have, for example, an oboe player, an athlete, and someone interested almost solely in research in close proximity. They will all learn through exposure to each other's worlds and viewpoints.

"When selecting candidates," he said, "we're keeping in mind enrichment for the total student population."

Students from Ithaca College, Wells, and other schools often come to visit the College, said Feddema, because "this place is interesting, the kids here have spunk."



# Student Profile: *Cindy Cabral*

When Cindy Cabral transferred here two years ago, she was surprised to find there hadn't been a livestock show for over a decade. She had shown animals in competition at her former college, the Stockbridge School of Agriculture (University of Massachusetts), had enjoyed it, and decided that she and her friends should revive the show here.

Until the late 60s, the livestock show was put on by the Roundup Club, a student group that had interests in a range of animals. Eventually the group split, forming separate clubs in dairy cows and horses.

Cabral's idea was greeted with enthusiasm and encouragement by one of her animal science professors, Roger Natzke, who had been involved in the event when he was an undergraduate in Wisconsin.

She next passed the word to students, but at the first meeting last fall, only six people appeared. Undaunted, she and other interested students put up 350 posters around campus to advertise the effort. They also divided among themselves calls to 97 student advisers—each of whom advises half a dozen freshmen and transfer students—to tell them about the idea.

The Livestock Show Committee, made up of undergraduates, was formed to help plan the event. The students included Diane Kilmer, Lynn Conway, Tina Barney, Bill Powell-Smith, Fred Richards, Ron Mazzarella, Rob Snider, Sheila Fox, Al Stammers, Penny Manning, and Phil Coombe.

Forty-four people showed up for the next meeting, and by the early February meeting, the process had snowballed, and 120 students attended.

In the meantime, Cabral and her friends had made a concerted effort to locate funding. They went to Dean Call, who liked the idea and sent them to see Glenn MacMillen, assistant to the dean for alumni affairs, and William Gurowitz, vice president of campus affairs, both of whom provided funds. (Call and MacMillen were members of the Roundup Club when they were undergraduates here.)

The Cornell Student Horsemen's Association donated money for tack, and various branches of Agway donated contestant numbers, show canes, and snaps for lead shanks. The students made rope halters and bought clippers and brushes with money from donations.

The animals—39 dairy heifers, 16 beef heifers, 18 sheep, 14 swine, 17 horses, and 12 poultry—came from Cornell.

For three weeks before the April 19 show, students took turns feeding and cleaning their charges. The animals were housed for the occasion at the Old Teaching Barn behind Morrison Hall.

Cindy points out that the show was not one in which the conformation of animals is judged, but rather, "fitting and showmanship." Fitting refers to how well the animal has been groomed (the look should be neat but not like fresh from the barber), and showmanship to whether the handler has control and is showing the animal to best advantage. For example, if a cow has a weak loin, the contestant should be aware of that and gently position the animal in a way to minimize the defect.

In the case of poultry, a bird that has been handled often and with care will be gregarious and enjoy human contact, whereas one that cowers will be evidence that bird and contestant haven't seen much of each other lately, or at least, not on the right terms.

The show also had tug-of-war contests and hand milking contests, and at noon, a baby animal parade. In the parade, the students dressed themselves and the animals in outlandish costumes.

There were concession stands run by John Clark and the Dairy Science

Club, a pig roast later in the day that Phil Coombe—the initiator of the current livestock club—was in charge of. (Both Clark and Coombe are undergraduates.) There was also a square dance in the judging pavilion.

Cabral is very happy about not only this year's event, but the momentum, which she thinks will enable the show to continue in subsequent years.

Her career goal is one that she has had for many years: to own and run her own dairy farm, preferably in New England.

Her interest in animals and farming started in childhood. Her father was director of housekeeping for the Massachusetts Correctional Institute in Bridgewater, and on its grounds was a state-owned farm that inmates took care of. She was anxious to help take care of the cows, and from the second grade on, she did.

For seven summers, she worked on horse farms, and while in college, she worked on dairy farms.

She graduates this May and has accepted a position with Agway as a farm consultant.



## Census Follow-up

To assist Cooperative Extension agencies in the use of demographic data from the 1980 Census of Population and Housing, the Cornell Population Information Program (CPIP) has been established.

Based in the department of rural sociology, the program will enable extension staffs to use data for planning and carrying out educational services. It is an affiliate of the State Data Center within the State Department of Commerce. Interdisciplinary in nature, it draws on knowledge from faculty members in this College and in the College of Human Ecology.

The CPIP will provide information through a newsletter sent to approximately 700 Cooperative Extension staff members, will survey the needs of residents for specific services, and will establish a library containing demographic materials.

During any given year, extension agencies make over six million direct and several million indirect contacts with New York residents. Educational programs are related to health and nutrition, human development, agricultural production, consumer economics, and government leadership training. With a broad range of clientele and programs, Extension must continually evaluate needs of residents and the delivery of services.

One of the most used Extension services is the Expanded Food and Nutrition Education Program (EFNEP). Using census figures, staff members will be able to estimate the number of families within a county who need and are interested in receiving information. The data might reveal, for example, that Hispanic groups in a particular area are not adequately served because there has been insufficient publicity. EFNEP can then increase its efforts to make itself known and to reach out to those not yet served.

Other information to be derived from the census figures includes where people live in relation to their workplaces. This would enable local governments to analyze transportation needs for such services as public transit to rural areas.

The program has two staff members and may expand to encompass research and teaching. They are James C. Preston, associate professor in the department of rural sociology and part-time director of the program, and Warren A. Brown, an extension population specialist.



# New Program for Rural Schools

The Rural Schools Program (RSP) was started in October 1979 to meet the needs of rural school districts in areas including curriculum, school-community relations, and funding as expressed in a statewide conference held in October 1978 sponsored by the Council on Rural Education.

The College provides housing and partial support for RSP, with the major portion of the funding coming from a \$200 membership fee paid by local rural schools and BOCES districts. The program also receives support from the Council on Rural Education, an organization of state educational and agricultural groups. On suggestion from a Council Advisory Group, the College agreed to provide liaison and coordination for this extension program directed by William H. Deming, under the leadership of Professor Joe P. Bail, chairman of the education department.

As the percentage of school expenditures funded by the state dropped during the past decade, the local property owner has been faced with a substantial tax increase. This

has resulted in rejections of school budgets and a reduction in quality of educational programs across the state.

Rural schools are hit particularly hard by this financial pinch for several reasons. In the area of transportation aid, the formula discriminates against rural schools that provide district-owned transportation. In urban areas where districts contract for busing with private concerns, state reimbursement is provided at a flat 90 percent of total expenses.

However, rural, district-owned transportation service is subject to non-reimbursable expenses including fringe benefits, garage expenses, limitation on mileage, salaries of supervisors, certain repairs, insurance, and operational costs. An additional 7 percent limitation on annual increased transportation costs also places unfair burden on the rural district. The RSP office is endeavoring to have legislation enacted to provide parity for all school districts.

Rural school districts also are

subject to loss of state aid for operations because inequitable assessment practices often provide misleading information concerning district wealth. This "paper wealth" phenomenon makes a district appear more affluent than it is and results in a decrease in the state aid ratio and state funding. Suggestions to alleviate this situation include the revision of assessment procedures and implementing an additional source of revenue for schools such as income or sales tax.

Of special importance to rural districts are BOCES (Board of Cooperative Educational Services) programs that enable several districts to share educational services such as vocational programs, special education, in-service training, and communications. Again, the limitation of state support for salaries of BOCES employees has been disadvantageous to local districts involved in sharing services. Whereas the state ceiling for aid on BOCES salaries remains at \$9,500, the average statewide salary for teachers

greatly exceeds this amount. Rural school districts are required to assume full costs of salaries that exceed the ceiling. The RSP office is striving to have this ceiling lifted.

The RSP attempts to assist rural school districts in developing policy alternatives at the state and national level; to provide information and expertise in dealing with staffing, curriculum, and school-community problems; to conduct surveys of schools to see where help is needed; to conduct regional or state conferences to publicize concerns of rural schools and to receive comments from interested state residents.

With approximately one-third of its school population in rural areas, New York State has the third largest rural population in the nation. It is no surprise the RSP program has generated interest and support statewide. To date, 112 school districts (out of 327) have enrolled in the program, and a number of others have expressed intent to join the program.

## Cornell Brightens Winter Olympics

Raymond T. Fox, professor of floriculture in the department of floriculture and ornamental horticulture, and six floriculture students won honorary Olympic medals for their participation in the Lake Placid Winter Olympics. The students are Thomas Breiten, '80, Cooperstown, NY; Barbara Redder, '80, Pine Bush, NY; Matt Horn, '80, New City, NY; Elaine Schuler, '80, Whitestone, NY; Steven Malsch, '80 Newark Valley, NY; and Gary Keever, graduate student, Rock Hill, SC.

Fox, a nationally recognized expert in floral arrangements, directed the work of the students.

As the land-grant college for New York State, the College had been asked to provide student volunteers to help with floral displays and decorations.

The students' floral artwork adorned such areas as ice rinks, stadium, athletes' lounges, arena entrances, and offices of Olympic officials.

The students went to Lake Placid in three teams. Matt Horn and Steven Malsch went as the first team and constructed frames for flower decorations for the opening ceremonies in the stadium near Whiteface Mountain. The decorations featured two 30-foot sections of flowers, seven feet high, and looked,

said one student, "like a rainbow of yellow, white, and blue flowers, with red pine foliage as a filler."

During the second week, students on the scene were Barbara Redder and Elaine Schuler. They designed and maintained hanging baskets of fresh flowers.

They also made a number of presentation bouquets for medal winners. The bouquets included flowers from Israel, Holland, the U.S., and South America, as well as an olive branch from a grove near the site of the original Olympiad in Greece. Student Barbara Redder said, "The bouquets represented truly an international symbol."

Staying on through the end of the 13th Winter Games were Gary Keever and Thomas Breiten, who maintained flower decorations in the ice arenas and made presentation bouquets for the medalists.

One arrangement Professor Fox created was a bouquet presented to the Queen of Sweden when she arrived at Lake Placid.

Fox said the students enjoyed the opportunity to decorate the Olympic facilities and were pleased about the whole project. He said, "It is one thing to do a small-scale decoration, but . . . an event like the Olympics cannot be created in a classroom."

## Graduate Program in Toxicology

Toxicology once focused almost exclusively on the effects of chemicals on humans or other mammals and was considered primarily a branch of the medical sciences.

The science has broadened to include studies of the adverse effects of chemicals on living organisms and to assess the probability of their occurrence. It has become more comprehensive as a direct result of the increasing reliance on all types of synthetic chemicals such as drugs, pesticides, food additives, and industrial substances. The rate at which these chemicals have been released into our environment has increased dramatically.

The heightened concern of the public and legislators has increased the need for toxicologists to make evaluations of potential and existing hazards. In response, a Ph.D. pro-

gram in toxicology, with emphasis on environmental toxicology, has been proposed by the College and is currently under review by the State Education Department.

Previously, the College offered a master's degree in toxicology. The new program would establish a doctorate major in the field and significantly expand and strengthen the toxicology curriculum.

The program is in the process of accepting students. It will be a collaborative endeavor involving the College, the Cornell Agricultural Experiment Station at Geneva, the Veterinary School, the College of Human Ecology, and the College of Arts and Sciences.

Director of the program is Christopher Wilkinson, professor of insecticide chemistry and toxicology.

## Dear Alumni of CALS:

There were those of us who, on graduation, felt a sense of great relief to have successfully completed our degrees at Cornell. Some of us bid farewell to Cornell with tears in our eyes. Many have never nor will ever say good-bye to Cornell. Most of us matriculated in full recognition of the fact that the quality of education we would enjoy was second to none. We can hold our heads high knowing that we have graduated from the most respected college of agricultural studies in the world.

Our Alumni Association is the mechanism that assures us continued involvement in college programs and activities. In keeping with the top-flight education that Cornell provides, the CALS Alumni Association strives to enhance the educational experience. With a current membership of 3,585, the CALS Alumni Association continues to grow both in numbers and in breadth of involvement in CALS affairs.

A major thrust of the CALS Alumni Association has been to promote grass-roots alumni involvement through our recently adopted "district" concept. From two to four

county areas are joined to form a district that is represented by a single District Director on the CALS Alumni Association Board of Directors. The pipeline for meaningful exchange between the various components is then firmly in place.

The kinds of programs the Alumni Association participates in are a credit to Cornell. From sponsoring alumni get-togethers in all districts to hosting the College Open House for high school juniors and seniors, the Association gets involved. Graduate placement assistance and the recognition of outstanding students and faculty are also vital roles our Association fills. And these are but a few of many activities and sponsored events we take part in.

I would like to extend an invitation to you to join these efforts. I welcome your involvement, and I want to hear your comments and advice. I encourage you to become involved; be part of the largest alumni association on campus.

There are those of us who will never say good-bye to Cornell.

Sincerely,

Anita D. Wright '75  
President  
CALS Alumni Association



Olympic medal winners (left to right) include Professor Raymond Fox and, in back row, Matt Horn, Steve Malsch and Tom Breiten; front row, Gary Keever, Barbara Redder, and Elaine Schuler.





## Three Views on Energy

Fuel shortages and an uncertain economy are likely to make the 1980s a painful decade. That is the consensus of three specialists on energy and the economy in the College. They are Robert J. Kalter, professor of resource economics and former director of Federal Leasing Programs, U.S. Department of Energy; Donald R. Price, professor of agricultural engineering and director of the intercollege energy programs; and Max E. Brunk, professor of marketing.



**Max E. Brunk:**

"At the present time, something near 25 percent of personal disposable income goes for debt servicing (interest). While debt creation is inflationary, the ever-increasing burden of servicing it is deflationary." Thus, when interest burdens can no longer be assumed, inflation will go no further, and Americans will then have to endure a series of unpleasant consequences that will, however, signal a return to "an honest dollar."

Those consequences include a decrease in purchasing due to loss of credit, followed by a decrease in prices, but also an increase in unemployment. Because creditors will seek to reclaim their money, forced bankruptcies will increase.

He foresees further increases in

the growth of short-term credit as prices continue to rise relative to income.

In his view, most governmental actions have tended to make credit easy to obtain, thereby fueling inflation.

Asserting that it is politically advantageous for government to create inflation, he said that because of the graduated income tax, "inflation provides government with substantial increases in tax revenue without having to suffer the political embarrassment of raising taxes."

He favors allowing free-market forces to increase fuel prices. "I'm not at all sure that those trading a depletable product like oil, for U.S. dollars that have a solid record of depreciation, have such a hot deal after all. The reason that energy is scarce today is that it has been and continues to be too cheap."

Brunk criticized those who make the energy crisis a scapegoat for our unsound fiscal policies. In terms of a gallon of gas, he said, wages and prices are not too different from those of 10 years ago.

"In the past dozen years, we have raised the minimum wage from \$1 to \$3.10, and the price of gas has skyrocketed from 33 cents to a dollar."

The best way to prepare for the difficult anticipated deflationary period would be to liquidate debts at today's favorable prices, rather than to increase new debts by further expansion.

**Robert J. Kalter:**

"During the 1980s, energy prices will increase more than the general inflation, fuel shortages will become a fact of life, and economic as well as national-security uncertainty will increase sharply."

The country's painful passage through the next decade might be cushioned, he suggested, by five short-term proposals, several of which would allow market forces, rather than governmental regulatory action, to determine how oil is



distributed within the country. These proposals include immediate decontrol of oil prices, an immediate increase of \$1 per gallon in gasoline taxes, and a suspension of environmental quality regulations until "a more suitable time," so that oil-fired plants can be converted into coal-burning plants.

The auto industry, by making fuel-efficient cars more difficult to obtain than necessary, is "at least as much a villain as the oil industry," in keeping the costs of driving high. "The auto sector has a great deal of control over gasoline consumption per mile driven."

Other short-term proposals he makes are to develop a major program to convert biomass into ethanol for gasohol and to undertake a massive conservation effort initiated at the local level using such organizations as Cooperative Extension.

**Donald Price:**

"The longer we wait, the more trouble we get ourselves into, in terms of our dependence on foreign oil," and the best immediate way of coping with the situation is to have a gasoline rationing plan.

"If we let it be rationed by high prices imposed on us by OPEC, then we lose control over when, what, and how we deal with the energy

crisis. External forces then take the control away from us."

The energy crisis, in his view, is precipitated by three factors: First, the availability of oil is controlled primarily by the OPEC cartel. Second, the oil import bill for 1979 was a record high of \$65 billion, compared to \$3 billion in 1972, causing serious financial problems for the U.S. Finally, the U.S. has found itself in a vulnerable political position because of its continued dependence on foreign oil.

"We are very vulnerable to blackmail opportunities," he said. "The oil-rich countries will be relentless in terms of what they charge for oil, recognizing that Americans will pay almost anything they ask."

Favoring deregulation of domestic oil prices, he said that windfall profit taxes should be used for, among other things, development of alternative methods for using energy resources not in short supply, such as coal.

Among conservation measures that could be taken now, is to switch many power plants to coal and to step up efforts to convert coal into gas and liquid fuel.







*Sea Grant specialists work for coastal communities, here along the Great Lakes, to avoid the ravages of erosion.*

## Sea Grant Serves Coastline

In New York State there are over 2,400 miles of coastline, along which 15.5 million people live. The coastal zone borders 28 counties, 112 towns, 103 villages, 25 cities, and 4 Indian reservations. This results in diverse, sometimes conflicting, interests and viewpoints about how best to use the natural resources.

In addition, people wanting either to preserve or use these areas wisely, whether they are private landowners, businesses, or local governments, have found it hard to wade through massive amounts of information and red tape.

A new state and federal program, Sea Grant, helps people in this effort. Administered in the state by the College and the State University, it tries to facilitate communication and cooperation among coastal users, providing information about the potential influence of various decisions.

When information is lacking, Sea Grant provides funds to university faculty members for research on issues such as offshore mining, dredge disposal, erosion control, commercial fisheries, coastal tourism, and marine education. This information is then made available through the Sea Grant extension program to individuals, civic and educational groups, industry, and local government.

Erosion is a major problem, both in loss of property and loss of shores. Residential development is a substantial contributor to erosion, as sand dunes and other protective, natural shields are altered. Nassau and Suffolk counties, for example, with only 0.6 percent of the nation's shoreline, account for over 10 percent of its critical erosion areas. Yearly economic loss from that erosion is approximately \$14 million.

In urban areas, decaying waterfronts represent a tremendous resource for economic development projects. The revitalization of these areas is one of the most effective



*The fascinating process of fish painting gives youngsters more understanding of the world they live in. Some may go on to careers in marine areas.*

means of encouraging economic development without consuming valuable suburban and rural open space.

Water quality needs to be ensured through greater monitoring and public awareness, whether in protecting commercial salmon fishing from the effects of Mirex, PCBs, and dioxin, or providing contingency plans in case of spills from offshore oil and gas exploration.

As popular fish species have become more scarce and consequently more costly, food scientists, with support from Sea Grant and other agencies, have been looking for economical alternatives such as convenience foods from underused species and increased production of fish through innovative techniques.

Another interest of the program is minority populations in urban areas. Faced with frustration and little to look forward to, children can develop hostility toward themselves and their environment. Marine education can serve as a catalyst to admit them to the learning process. By having the natural environment come alive, the children can connect to a larger pattern and develop a heightened sense of self and of belonging.

Among the general accomplishments the Sea Grant program has made so far:

- \* Helped Lake Ontario homeowners devise protective structures to prevent coastal erosion.
- \* Assisted New York City's East River communities in applying for redevelopment funds and in formulating a proposal for a marina on the Lower East Side.
- \* Helped a tourism industry along the St. Lawrence River survey tourists about how to improve its service.
- \* Organized workshops and individual conferences to help commercial fishermen obtain loans to modernize or replace vessels.





*Solar greenhouse (shown here under construction) has potential for commercial and hobby users.*

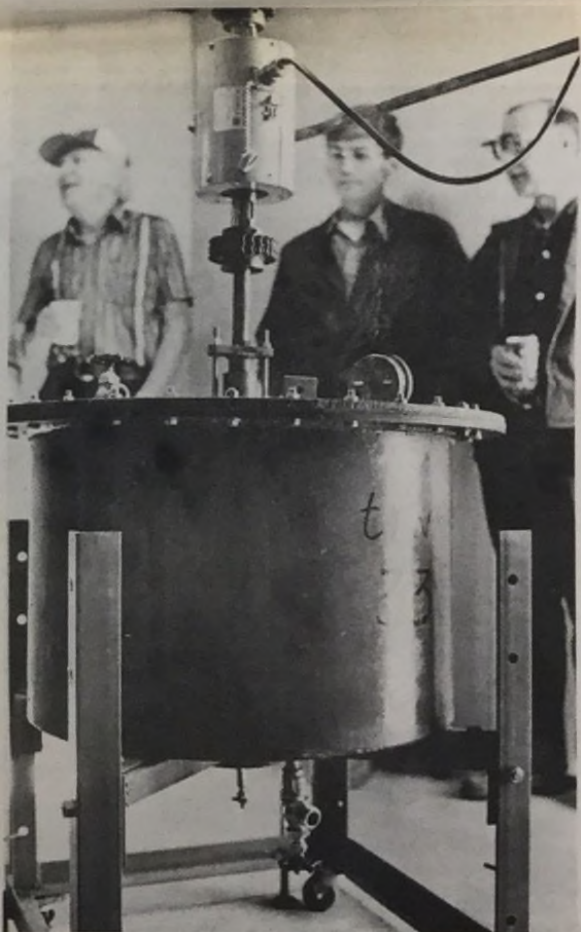
## Energy Open House in April



*Insulated blanket conserves heat in commercial greenhouses.*



*Visitors view digester that converts manure to methane.*



*The business end of a wind turbine designed to heat water by agitating it with wind power.*



# Research Aims to Protect Environment while Serving Farmer and Homeowner

## IPM

For decades, insects have repeatedly adapted to chemicals intended to eradicate them, and it has become increasingly apparent that these chemicals have a harmful effect on the chain of life. A change in strategy to control pests has therefore become necessary.

Approximately 10 years ago, the process of integrated pest management (IPM) began to gain acceptance. IPM uses a combination of chemical, cultural, genetic, and biological methods for economical pest control with minimum effect on the environment.

Central to IPM is constant observation of the environment, watching for such relationships as those between weather changes and the populations of a particular pest.

It depends heavily on participation of climatologists, ecologists, systems scientists, economists, as well as scientists from disciplines such as entomology, weed science, plant pathology, nematology, and vertebrate control.

Most of these disciplines were consulted in 1977 when the College first formed a committee to coordinate pest management programs and to determine what additions are needed to the curriculum. Now before the faculty is a proposal that a graduate specialization be included under the Master of Professional Studies in Agriculture program.

Two central components of the IPM program are weather and computers. An agricultural weather network of volunteer observers across the state is being developed by a subcommittee headed by Robert Seem, plant pathologist, and information collected by the volunteers will be relayed by computer to any IPM program.

In addition to gathering and distributing weather information, the computer stores and retrieves massive amounts of other IPM data. For example, daily or weekly observations might be made in a specific

field about the number of insect eggs per leaf, the accumulated soil temperature, amount of rainfall, and the number of lesions per root. Taking the data and forming a predictive model will enable a course of action: a chemical spray is needed immediately, for example, or the predator population is sufficient to keep the pests under control. The coordination of these computer activities is under the direction of James Tette.

IPM programs have resulted in considerable savings in chemical costs to farmers across the country.

Pine vole damage in apple orchards is a current problem being studied under a \$240,000 grant from the U.S. Department of the Interior.

A mouselike rodent, the pine vole is attacking apple trees, causing economic loss to growers. It chews the bark off roots of trees, which eventually die from inability to absorb water and nutrients.

The challenge is that although the vole is indigenous to the whole state, it is attacking trees en masse only in the Hudson Valley. Therefore, it would appear that there has been a dramatic shift in the balance between the vole and its environment.

Researchers are carefully examining the orchard floor to see what soil conditions are and the types of vegetation, as well as observing the predator population. The weasel, a natural predator, has virtually disappeared as civilization has encroached on its habitat.

A preliminary observation has been that these orchard floors are kept manicured, and it may be that the removal of coarse grasses, and other natural impediments, has made it an especially attractive environment for the animal. Weighing economy and environment, the analysts will have to separate the aggravation from the vole versus its actual economic damage. This will entail looking at vole-related losses in dollar values and comparing them to those caused by, for example, poor fruit packing and handling,

factors that often don't cause the same degree of concern but are nevertheless costly.

## WATER RESOURCES

The Center for Environmental Research established an extension program in water resources to develop a number of initiatives, some to be applied statewide, others to be used in specific locales, such as Cortland County or Long Island.

The program is now actively assisting the Nassau-Suffolk regional planning board to improve drinking water in the area. Homeowners there traditionally use large amounts of fertilizer on their lawns, and nitrates from the fertilizers have entered the water supply. Nitrates are also a major cause of contamination in the Cortland County water supply.

On Long Island, potato farmers have used the pesticide Temik to control the Colorado potato beetle and the golden nematode, and this chemical has found its way into the groundwater and streams. Currently, there is no satisfactory pesticide substitute for Temik. In the case of the golden nematode, the College has just received added funds to continue research on breeding plants that are resistant to the insect, thus potentially bypassing pesticides. Two \$65,000 grants were received from the federal government, one from the Department of Agricultural Research and the other from the Animal and Plant Health Inspection Service, and a \$28,000 grant from the NYS Department of Agriculture and Markets. Additional funding of \$32,000 has been provided by the College.

This effort will involve the collaboration of College plant pathologists and plant breeders, and scientists from the federal government.

## Acid Rain

The problems of acid rain are growing, and the Center for Environmental Research continues to emphasize this topic in research and extension projects.

The principal cause of acid rain and snow is the release of sulfur and nitrogen oxides by the burning of fossil fuels such as coal. Because acid precipitation has a variety of harmful effects on plant and animal life, efforts have been made to reduce the emission of these oxides.

Results of earlier acid precipitation studies supported by the Center have had a major impact, both governmentally and scientifically. Regulatory agencies of the state, the Department of Environmental Conservation, the Adirondack Park Agency, and the State Assembly, have requested results of the research. Concern is also being expressed at the national level, and Professor Gene Likens helped to prepare a briefing on the problem for the Council on Environmental Quality.

Studying its effects on fish, Professor Dwight Webster is performing research on the development of acid-resistant trout under a grant from the NYS Department of Environmental Conservation.

Results of numerous studies were

presented in March in Norway at the international conference on the ecological impact of acid precipitation. Carl Schofield, senior research associate in natural resources, chaired the conference.

Researchers have found that how a stream responds chemically to sudden influxes of acid precipitation depends to a considerable degree upon the types of bedrock in its watershed. Information from these studies can be used in selecting sites, for example, for conventional power plants that contribute to the acidity problem.

## LAND USE

### Sludge

In New York City alone, the projected daily output of sludge—sediment from sewage—will be 4.5 million gallons by 1985. There is a possibility of using sludge for fertilizer, but it would require 20,000 acres of agricultural land to handle a thickness of two inches of sludge.

Spurred by pollution control legislation and the gradual outlawing of dumping sewage into oceans, sludge management is receiving greater attention at both federal and state levels.

The College is confronting this problem through a task force of specialists from agricultural engineering, agronomy, food science, horticulture, and veterinary medicine.

Professor Raymond C. Loehr, who serves as chairman of the group, said the objectives of the task force are to increase the College's research and activities on sludge management, especially as related to its application to land, and to work with state agencies for a sound management strategy for the state.

"Land represents a tremendous resource for the state and obviously must be used wisely," he said. "It is for this reason that the College is applying the expertise of its faculty and staff and its facilities to the thorough study of this important problem."

Ironically, the more thorough job a treatment plant does in removing solid materials and pollutants from sewage to make the remaining liquid pure before releasing it to waterways, the more concentrated the remaining sludge will be in contaminants.

All of the same elements in food—nitrogen, phosphorus, potassium, iron, calcium, and sodium—are found in sludge.

It also contains microorganisms, both beneficial and harmful, as well as heavy metals and organic chemicals from such sources as industries, stores, street runoff, research laboratories, photocopiers, and homes. Some, such as cadmium, lead, zinc, nickel, mercury, and copper, can be harmful.

Professor Loehr said that regardless of the method of disposal, "each option will involve some environmental risks, and it is impossible to reduce all risks to zero."

### Agricultural Water Management

Over 40 percent of agricultural land in the state is poorly drained, thus reducing its suitability for crops. These are not wetlands, but



IPM courses emphasize knowledge useful in practice, such as in diagnosis of disease.



low areas in fields that collect water.

It is estimated that with proper management, approximately 250,000 acres of land could be put into crop production within 10 years in the counties of Lewis, Jefferson, St. Lawrence, Franklin, Clinton and Essex.

These six counties are the focus of a research and extension program under the direction of Fred Swader, professor of agronomy.

By analyzing a farmer's land, an extension agent can advise on whether to re-contour the trouble areas or use drain tiles and help design the layout of either approach. In the six counties where this work is under way, milk production has been increased by 11 percent in 10 years.

Because of the heavy demand from farmers, the program needs to be expanded to include additional staff members and services.

#### Resource Information Lab

A resource information laboratory, under the direction of Professor Ernest Hardy, is making available detailed maps of land for use by faculty members, students, the public, and government agencies. Among the types of information the maps supply are the location of water courses, underground geology, and locations of previous landfills in the state.

The information will help avert such situations as now exist at the Love Canal (a dumping site of chemicals in the Niagara Falls area), both by showing where water sources are so that people won't locate dumping sites near them, and in alerting people to the existence of previous landfills so that development in those areas can be avoided.

#### Energy

Members of the department of agricultural engineering recently submitted a paper to the College's Advisory Council summarizing energy projects that the department has conducted. The Council represents higher education, state government, mass media, private foundations, medicine, biology, farming, and agricultural science and technology. Several projects discussed here appeared in an Energy Open House held April 26.

#### Anaerobic Fermentation

Anaerobic fermentation is a biological process in which complex organic substances are liquefied and converted to acids by a group of bacteria called "acid formers." These acids then are converted to methane and carbon dioxide by a second group of bacteria called "methane formers."

This process operates well with a wide variety of municipal and industrial wastes. Only recently has it been viewed as a potential energy system having wide application in the conversion of municipal, industrial, and agricultural organic residues to useful fuels.

Currently, the agricultural engineering department is involved in the development of a three-year study, directed at designing a low-cost fermentor system to use agricultural crop residues (wheat straw and corn stalks) for the production of methane.

The other major portion of the project is the operation of two full-scale (65-cow) anaerobic digesters using dairy manure to produce methane. These fermentors are lo-

cated at the Cornell Animal Science Teaching and Research Center near Harford, NY, about 17 miles from campus.

Participants in the project are William J. Jewell, Jeff Chandler, Steve Dell'Orto, Ken Fanfoni, Deborah Jackson, Randolph Kabrick, and Tony Natale.

#### Producer Gas

Producer gas, also called "wood gas" or "generator gas," is a low-energy, combustible gas produced in the reduction of organic fuels. Wood, charcoal, peat, coke, corn cobs, and other organic materials can be used. The resulting gas contains approximately 130 btu per cubic foot, compared to approximately 1,000 btu per cubic foot for natural gas.

The objectives of a current project under the direction of Professor Wesley W. Gunkel and Nick Sigmiris are to investigate use of waste products common to the Northeast to produce low-energy gas.

A series of tests in both up-draft and down-draft gasifiers, using wood chips, was conducted. The maximum heat value was 151 btu per cubic foot and the burner net efficiency was between 85 percent and 90 percent for most of the tests.

In the tests using charcoal, the maximum heat value was 117 btu per cubic foot and the burner net efficiency was 73.6 percent. According to the researchers, the use of steam could improve this rate.

#### Energy Efficient Window Treatments

In a typically insulated house, roughly 25 percent to 50 percent of the heat generated by a residential space heater is lost through windows. The problem becomes more acute in "passive solar" houses with large areas of glass. In the northeast, these windows should be covered at night to minimize heat loss.

Gwen Cukierski conducted research on various window treatments to determine which were the most effective in retaining heat.

Window treatments included draperies, roller shades, roman shades, venetian blinds, and shutters. Some had relatively poor performance; a roller shade, for example, had an R value (resistance to heat flow) of 1.33. In contrast, a specially designed bi-fold shutter made with 2" fiberglass insulation board had an R value of 6.16.

#### Solar Greenhouse Project

Among the goals of this project, led by Professor Louis D. Albright, are development of an insulated thermal blanket for nighttime use in greenhouses; increased passive solar effect in greenhouses; and new ways for growers to analyze the most economical ways of heating.

The thermal blanket, made of four layers of foil-covered cloth separated by air spaces, provided good energy savings, and a version using five layers saved at least 80 percent on night heating costs.

A commercial firm plans to start marketing the blanket within the year. The cost, installed, is \$2.25 per square foot. The calculated payback is 2.5 years based on today's fuel costs.

Much of the development work has been carried out by Anthony Donahue and James Farrell.

#### Waste Heat for Greenhouse Heating

An air-supported greenhouse, 100'

x40', was run on waste heat from industrial and other sources, and the results were monitored. The project was directed by David Stipanuk and Charles Solat.

The greenhouse is supported by 0.3 to 0.6 inches (water columns) of air pressure. Its perimeter is a buried concrete footing. On top of this is an aluminum channel fastened to the footing by bolts, which are in turn fastened to cables extending over the top of the greenhouse. The cables, sewn between the panels of the material that covers the building, serve as the major load-carrying portion of the structure.

One of the advantages of this building is that it allows large acreage to be covered without cluttering the inside with supporting members.

Waste heat requires the extraction of heat from water at temperatures from 80 degrees to 100 degrees Fahrenheit. Among the methods that can be used are a porous concrete

floor with buried plastic heating pipes, use of evaporative pads with heated water, and fan/coil unit heaters.

#### Wind-Powered Water Heating

The main concentration of the project is to see how wind energy is converted into hot water.

The rotating wind turbine extracts power from the wind and delivers mechanical power through a drive shaft. This shaft is coupled to an energy conversion tank in which a rotating propeller agitates water, and—by friction of water against water—heat is produced.

Since monitored operation began in July 1979, the wind turbine and energy unit have extracted nearly 20 percent of the wind energy available. This energy output is, on average, one fifth the electrical consumption in a typical non-electrically heated home.

## ALS Fund Boasts Good Year

One gift of over \$1 million and two others over \$100,000 have made this the best year yet for the College's Fund Advisory Committee. Private support of the College's scholarships, activities, and programs have become increasingly important in the past few years, and the number of friends and alumni are also increasing.

The Fund Advisory Committee was originally formed as a standing committee of the College's Alumni Association. It is still an Alumni Association committee but operates autonomously. David Nagel, 77 Passaic Avenue, Passaic, NJ 07055, and John Hoff, 121 North Post Oak Lane, Houston, TX 77024, are currently co-chairmen.

It was originally conceived to raise money for scholarships. Now ten years later, the College boasts endowed scholarship assets of over \$1.25 million. Last year over 400 ALS undergraduates and graduate students received over a quarter million dollars in scholarships.

Initially, the Fund was established to support scholarships and innovative teaching programs of the faculty. These remain of paramount

importance and are the object of the annual fund-raising solicitation of the College. Special projects, such as the W.I. Myers Professorship and the Ag Quad Beautification are pursued with as much vigor as possible—they enhance the teaching, research, and public service programs of the College.

Cooperative efforts with regional university development are particularly helpful. ALS alumni can and are contacting development personnel to learn ways they can enhance the position of the College.

One of the highest priority needs of the College is assistantships for graduate students. An increased number of graduate students are forced to hunt for the best offer. An attractive program backed with a lucrative stipend will help ALS continue recruit the best graduate students.

Further information about the ALS Fund can be obtained by contacting the Office of Development and Alumni Affairs, 242 Roberts Hall.

Glenn MacMillen

## Foundation Continues Support

Research on apples, cherries, and other fruits at the university has been given a boost by a \$50,000 gift from the Cohn Foundation of Sodus, New York.

The gift, to be made annually for the next five years, will strengthen work that has been under way at the farm for a number of years, both before and since 1961 when it was bequeathed to the College by Herman Cohn.

Consisting of 285 acres—approximately 200 acres of apples, 25 acres of cherries, and 15 acres of pears—the farm is located along Lake Ontario in a major fruit-producing area.

Used by researchers from both the College and the New York State Agricultural Experiment Station at Geneva, the farm has enabled scientists to study problems related to large commercial farms.

As early as 1945, research was carried out on the farm. One early breakthrough made there was the

control of cherry yellows disease, which affects tart cherries, weakening trees and causing considerable economic loss to farmers.

The Cohn farm has been used extensively for studies of pests, and one of the results has been the control of apple scab and mildew. Also, a catching frame that was devised by College agricultural engineers for use with mechanical harvesters for collecting fruit has been adopted by commercial growers.

Currently, all phases of growth management of apple and cherry orchards are being studied, including evaluation of various scion and rootstock combinations, planting systems, pruning, fertilizing, irrigating, disease and insect control, and use of growth regulators.

As a result of these studies, growers will have additional control over growth and flowering of trees, as well as quantity, size, and in the case of apples, color of fruit produced.



# Short Days Lengthen Pea Life

Senescence — those processes preceding the death of an organism — is being studied in the garden pea. In an unusual line of peas known as G2, the genetically programmed events of senescence can be staved off by an environmental change.

In 1968 G.A. Marx, a plant breeder and geneticist at the Agricultural Experiment Station at Geneva, announced the development of the G2 line. Since 1973, Peter J. Davies and other botanists at the College have been investigating how senescence in this strain is affected by changes in day length.

When grown under short days and long nights, pod development in the

G2 peas — unlike in other varieties — does not lead to death of the plants. Stems and leaves continue to grow, and further flowering and fruiting occur. When the plants are moved to long days and short nights, they lose their advantage and behave like typical peas.

In a series of experiments, Davies and his research team have been able to correlate the continued growth and reproduction of G2 peas in short days with the presence of a plant hormone produced only under these conditions.

The researchers have found that a certain gibberellin, one of the large group of gibberellin hormones that

affect plant growth, is found at its highest levels in the leaves of G2 plants under short day conditions. In the long days, when the plants senesce after fruiting, the leaves possess little of it. The gibberellin is only found in very low levels in standard garden peas.

In long days, when the G2 leaves show only traces of the senescence inhibitor, the plants can be prevented from deteriorating and dying by removing their pods. Yet during short days, fruiting does not deter continued plant growth. This growth of the plant, even though the days are short and there is therefore less photosynthesis, indicates that the

developing pods do not rob nutrients from the rest of the plant.

Using radioactive tracers, Davies and one of his students, Thomas J. Gianfagna, have discovered organic acids in the growing tip that appear to have originated in the fruits. They are now trying to learn whether these substances actually cause the growing tip to senesce and die.

By using an organism in which hereditary influences on this deterioration can be modified by environment, Davies and his co-workers are making a contribution toward understanding how the longevity of all living things is controlled.

## Faculty Profile: Ward Tingey

Ward M. Tingey, assistant professor of entomology, has been researching the effects on insects of a wild potato species that has repellent or defensive properties. These potato plants do not produce tubers, so cannot be used for food purposes unless they are crossed with a cultivated one that does.

The effort to produce hybrids of these wild and cultivated potatoes is being led by Robert L. Plaisted, professor of plant breeding, and his co-workers.

The wild potato species (*Solanum berthaultii*), which grows in Bolivia, has on the surface of its leaves trichomes, hairlike structures with a cluster of lobes at the tips. When an insect lands on one of these, the lobes burst open, mix with air, and exude sticky chemicals. Insects — specifically potato leaf hoppers, aphids, flea beetles, spider mites, and thrips — get the sticky chemicals on their feet, are effectively grounded, and die. Two of the insects, the potato leaf hopper and the aphid, also are susceptible to having their mouth parts immobilized from contact with the chemicals, causing rapid death.

Another part of the project, in cooperation with Dr. Peter Gregory, a biochemist with the Department of Plant Breeding, involves the study of steroid glycosides, a group of chemicals unique to the potato that are able to repel certain insects. In the varieties possessing these substances, the insects that are repelled include the Colorado potato beetle and the potato leaf hopper.

One obstacle in the research is that in plants where the glycosides occur, not only the leaves but also the tubers contain the toxicants, thus making them dangerous for consumption. The goal is to explore the development of varieties containing toxicants in the leaves but not harmful levels of them in the tuber. If successful, the resultant varieties could reduce the quantity of pesticides needed.

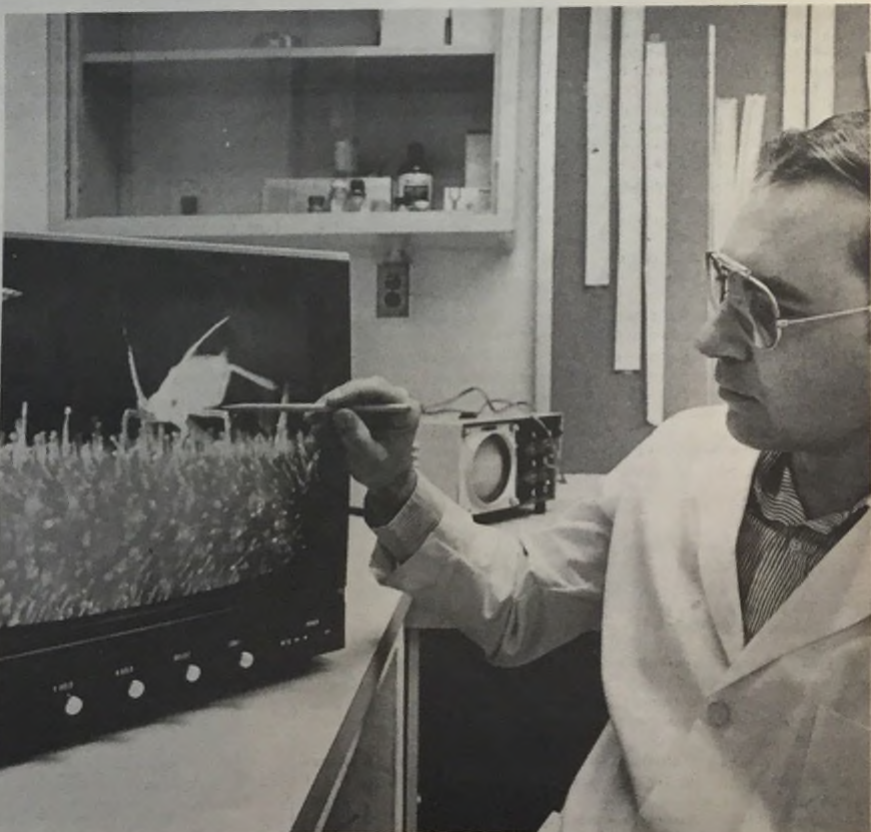
The research is being supported by the International Potato Center in Lima, Peru, and the U.S. Department of Agriculture.

Tingey's areas of special interest are economic entomology, physical and chemical plant defense strategies, and the integrated management of potato insect pests.

In the extension aspect of his work, he is involved in field evaluation of insecticides and other practices for potato insect control, providing advice to growers in the state, and visiting farms to monitor insect populations and assess their damage.

Tingey received a B.S. degree in zoology in 1966 and a master's degree in entomology in 1968, both from Brigham Young University, and a Ph.D. in entomology from the University of Arizona in 1972.

He will become an associate professor of entomology July 1.



Ward Tingey uses television monitor, hooked to microscope, to show entrapment of green peach aphid by wild potato. Lobes in closeup photo burst open when insect lands, trapping insect with sticky chemical. Hybrids from cultivated and wild potatoes are being researched at the College.



In Spring the Ag Quad blossoms with students.



## New CALS Publications

From de-bugging your home to keeping your farm accounts, Cornell has hundreds of publications to give you succinct information. The free *Know How Catalog* lists titles written by Agriculture and Life Sciences professors and Cooperative Extension staff. Free flyers have lists of available publications on certain topics such as "Inflation," "Energy," "Landscaping," "Vegetable Gardening," "Fruit Growing," and "Preserving the Harvest."

New publications from Agriculture and Life Sciences:

**ROCK GARDENS** (IB 159—\$3) by Jerry Stites and Professor Robert Mower has 50 color plates of rock garden plants, types of rock gardens, design, site selection, construction, use of shrubs, outcropping, drainage, tips on maintenance and plant propagation.

**A GUIDE TO SAFE PEST CONTROL AROUND THE HOME**

(S 74—\$2.50) according to the *New York Times* is a "booklet to order." Revised and updated with new color illustrations aiding identification of common pest and disease problems indoors and out.

**THE HOME FRUIT PLANTING** (IB 156—\$2) by John Tomkins and Gene Oberly. Even if your fruit trees, bushes, brambles, or vines are planted, the care tips are invaluable.

**FIELD CROPS HANDBOOK** has it all under one cover: soil characteristics, yields, drainage, fertility, weed identification, and control. Photos, charts, tables, and drawings take the guesswork out of field crops profitability. \$3.

**BURNING WOOD** (NE 191—\$1). More than 18,000 people ordered this publication in 1979 compared to about 5,000 in 1978.

The quality of environment affects everyone. Two new Cornell Cooperative Extension publications UN-

**DERSTANDING FOREST ECO-SYSTEMS** (L-5-13—\$2) and **MANAGING SMALL WOODLANDS FOR WILDLIFE** (IB 157—\$1.50) are now available.

In 1979 there were more than 10,000 requests for the **CORNELL FARM ACCOUNT BOOK** (\$1.50). A new publication from Ag Econ is **INSURANCE FOR THE FARM BUSINESS** (IB 167—\$1.25) by Gary Rice and Robert Smith. Property, liability, motor vehicle, and crop insurances are covered in detail with tips to help you make sound decisions.

The publication charge includes shipping. Order from Distribution Center, 7 Research Park, Cornell University, Ithaca, NY 14850. Make checks payable to Cornell University. Catalogs should be ordered directly from the Distribution Center. Please enclose a self-addressed envelope.

Cooperative Extension offices in New York State also carry the publications.

## CORRECTION

John Seeley, despite what we said last fall, is far from retired. He says he has lots of energy and lots of work to do as professor of floriculture in the plant science building. His service to the floriculture industry covers 37 years. Before coming to Cornell, Seeley spent seven years at Pennsylvania State University. Two years of his work during World War II were as an agronomist for a U.S. Department of Agriculture golden-rod rubber project in Georgia and in the rubber laboratory at the Wright Aeronautical Company in New Jersey. Cornell is fortunate to have benefited from his work here since 1941.

## Alumni Reunion Breakfast — June 14, 1980

The CALS Alumni Association will sponsor the Annual Reunion Breakfast again this year. It will be held on Saturday, June 14, at 7:45 a.m. at North Campus Dining. President Anita (Decker) Wright '75 has announced that in addition to the annual meeting of the Association, we will honor our retiring faculty members.

Dean David L. Call will briefly recap some highlights, activities, and special events at our College for the past year. Others will receive awards and recognition.

The annual Alumni Association meeting, traditionally very short, will include election of new officers and directors. All alumni and friends are invited.

Please return the attached coupon if you plan to attend.

Mr. MacMillen:

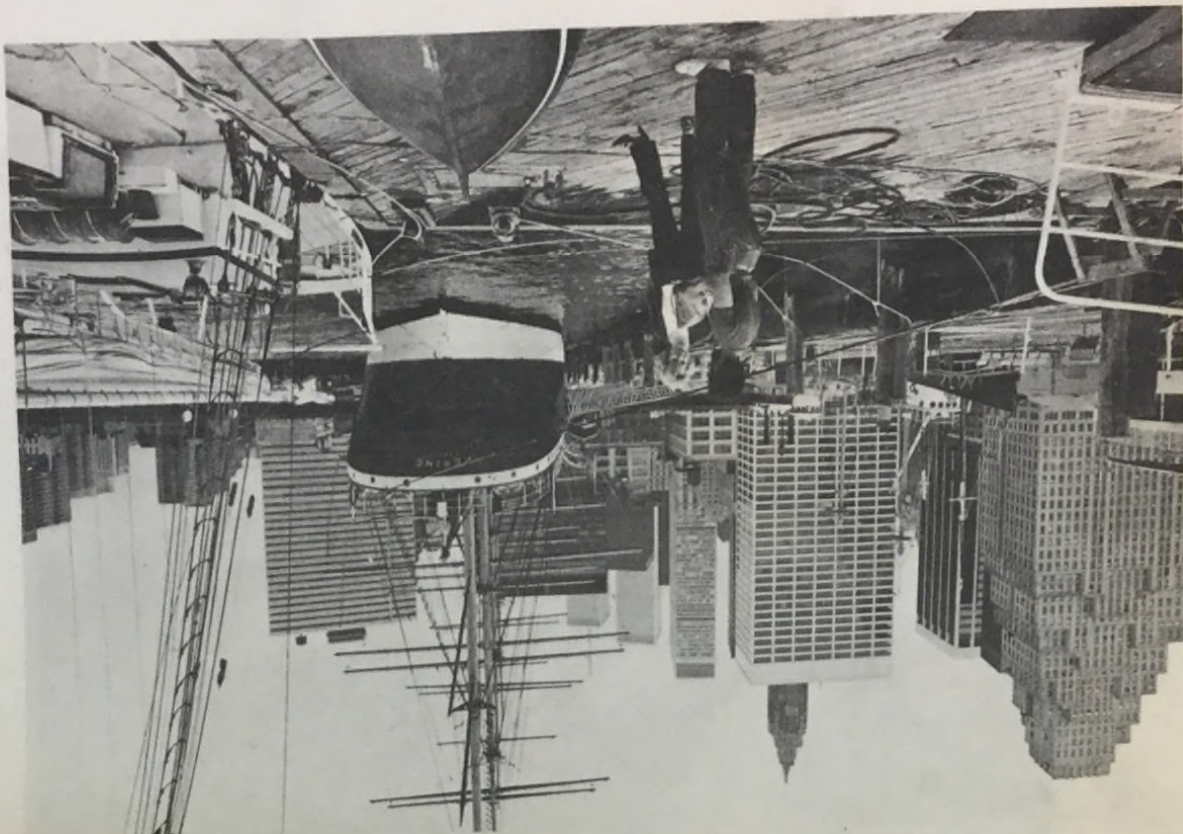
( ) YES I plan to attend the annual meeting of our Alumni Association.

Please reserve \_\_\_\_\_ places. I understand the cost, yet undetermined, will be less than \$5.

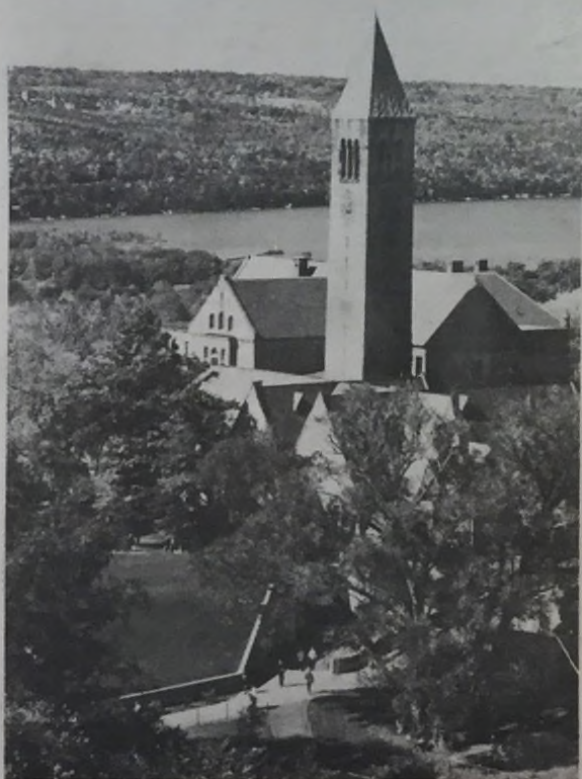
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New York City waterfront is one of the state's coastline areas served by the Sea Grant Program. Story on page 6.



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