

AGRICULTURE AND LIFE SCIENCES news

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

APRIL 1978

Six Named Liberty Hyde Bailey Professors

Six College professors have been elected Liberty Hyde Bailey Professors by the Cornell University Board of Trustees.

The professorships were established in the College of Agriculture and Life Sciences to recognize faculty who have national and international reputations in agriculture and related sciences. The recommendations were made by Dean W. Keith Kennedy upon the advice of a committee of distinguished faculty members.

Those named were Martin Alexander, Harlan P. Banks, Neal F. Jensen, William T. Keeton, J. Thomas Reid, and Kenneth L. Robinson. In 1976, Charles E. Palm, formerly dean of the College, was the first to be accorded the honor.

Liberty Hyde Bailey was dean of the College from 1903 to 1913. In 1904, he convinced state officials to appropriate funds to establish a New York State College of Agriculture at Cornell. He thus converted a regionally oriented agriculture school into a statutory institution with a much-expanded scope and reputation.

Bailey was also a key figure in elevating the study of horticulture to a science. One of the country's first laboratories for observing, classifying, and experimenting with cultivated plants was organized with his founding of the Bailey Hortorium. He wrote 65 books, edited about 100 more, and was instrumental in devising a system for disseminating practical knowledge about agriculture to farmers.

Professor Martin Alexander of the Department of Agronomy is recognized worldwide for his leadership in the field of soil microbiology and microbial ecology. He is a prolific author and editor, with over 200 articles and two books to his credit.

Among other awards and honors, he was elected a Fellow of both the American Association for the Advancement of Science and the American Society of Agronomy. Alexander holds a joint appointment in the Division of Biological Sciences at Cornell.

Professor Harlan P. Banks, a member of the Division of Biological Sciences, has an international reputation in the field of botanical

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The new Liberty Hyde Bailey Professors, with Dean W. Keith Kennedy (standing). Seated, left to right: Kenneth L. Robinson, Neal F. Jensen, J. Thomas Reid, Martin Alexander, William T. Keeton, Harlan P. Banks.

Neal Jensen: He Tames Wild Grains

If you like cookies, cakes, and ice cream cones, it is highly likely that your life has been affected by the work of Neal F. Jensen. Jensen, recently named Liberty Hyde Bailey Professor of Plant Breeding, is, among other things, responsible for developing new strains of wheat which ultimately make these products more plentiful and delectable.

During Jensen's 32 years on the College faculty, he has been engaged in an intensive research effort to support the grain industry of the Northeast. He has introduced more than 20 varieties of wheat, barley, and oats which have proven superior in New York State and New England. His strains are used worldwide for crossbreeding and are included in the USDA World Collection of Small Grains.

"I have trouble determining what part of plant breeding is science and what part is art," says Jensen, who inhabits a modest office on the fourth floor of Bradford Hall. "In the past few years, I've realized that I've been devoting most of my time to honing my talents to perfect a craft. And I don't know to what extent my successes or failures can be blamed on art or science."

Jensen says he uses his scientific knowledge as the basis for his research. But the art, he maintains, is developing systems. "My greatest personal satisfaction comes from the study of methodology; that is, how to proceed from one step in the breeding process to another."

It takes about 15 years to develop a grain variety. In the planning stages, the parents are chosen with the breeding objective in mind. If, for instance, a strain is wanted that is resistant to a disease like leaf rust, then the parents are selected from a stock that is immune. They are then mated in single crosses.

The hybrid seeds, which at this stage may number in the hundreds, are then

crossed in all possible combinations. These initial steps take about two years, but the process is repeated every year.

"It then takes about four years for the seeds to produce plants that breed true," explains Jensen. The populations are sown in fields; their progress is observed through five generations. This process finally involves separating the lines that perform well from those that do not.

The next stage is known as line evaluation. It consists of testing the hybrids that have survived to this point. "At this juncture, we assess the plants with the objectives we set in the planning stage in mind," Jensen continues. "We look for such things as kernel conformation, yield, disease and insect resistance, and nutritional aspects."

"A superior line worthy of release as a variety is found about once in five years," he says. "From 1951 to 1974 we introduced five superior wheat varieties: Genesee, Avon, Yorkstar, Arrow, and Ticonderoga."

The latest variety of wheat, introduced last year, is named Houser, in honor of the late Professor Henry Houser Love, who was on the College staff for 41 years. He was head of the Department of Plant Breeding and Biometry when he retired in 1949 and is the professor under whom Jensen completed his graduate study.

"The numbers in a breeding project are large," Jensen remarks. "There are millions of plants involved each year. But, we do not waste the many lines that do not become varieties. They are saved and used for parents because of their outstanding qualities. In wheat alone, the number of sources of germplasm in the U.S. collection has reached 34,000 and is increasing at the rate of five percent a year."

After a few years of line evaluation, the variety is entered in regional, national or international nurseries. Within about two years it is released as a variety and goes

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ALS, No Longer A Man's World

If your daughter wants to follow in your footsteps and attend the College of Agriculture and Life Sciences, don't be surprised. This year, about 45 percent of all applicants for admission are female, according to Dr. Leonard W. Feddema, director of admissions.

"Women have historically shied away from the sciences because, until

very recently, any interest they have shown has been discouraged," says Feddema, who speaks regularly in high schools throughout New York State in an effort to acquaint all students, male and female, with the opportunities available at the College.

"By talking to students, I have found that women were not only told it was un lady-like to enter agriculture and related fields, but that there were no career possibilities to speak of. They would have to resign themselves to cleaning test-tubes while men did the 'important' work."

When women ask Feddema about the College of Agriculture and Life Sciences, they are told of the many academic and career programs available. If they have the required qualifications, women are encouraged to apply and study toward degrees in all fields.

As a result, women can now be found in all program areas in the College. In the areas of animal science, food science, the behavioral and social sciences, and the biological sciences, the number of women matriculants actually exceeds that of men. Alumnae are finding jobs from which they have traditionally been excluded, such as county agents and members of government committees.

By and large, women who enter the College of Agriculture and Life Sciences do exceedingly well, according to Feddema. "Men have always had the advantage in agriculture," he says, "because of the popular belief that the field requires lots of physical labor. In view of how women perform academically and professionally, this should present no barrier. As a matter of fact," Feddema concludes, "the only barrier now exists in women's minds."



Greetings!

Dear Alumni, Parents, and Friends:

Welcome to the College of Agriculture and Life Sciences *News*. The mission of the College is "to increase man's understanding of agricultural production, marketing, life sciences, and the environment; to educate citizens for careers and leadership in these areas; and to translate new knowledge into action for the benefit of mankind." We are pursuing these goals through teaching, research, and public service. The future demands that young men and women prepare for the broad spectrum of challenges that lie ahead in agriculture and the biological sciences.

This edition of the *News* is designed to give you a wide exposure to the many activities in which our students and faculty are involved.

It is the purpose of the *News* to inform you about the College of Agriculture and Life Sciences. We hope you will find it exciting and will send us your comments and questions and will suggest areas that might be covered in future issues. Please visit the Campus whenever possible.

Program Areas A Success

The consolidation of the numerous fields of specialization at the College of Agriculture and Life Sciences into program areas has proven a great success over the past six years, according to two College administrators. In 1972, more than 55 individual subjects were assembled into nine groups, each of which contains related spheres of study.

"The many specialties were very cumbersome to administrate," explains Registrar Donald C. Burgett, who has been part of the reorganization since its inception. "The change has made it easier on everyone."

Among the nine program areas are Agricultural and Biological Engineering, which contains such subjects as agricultural engineering and agricultural technology; Applied Economics and Business Technology, including such specialties as agricultural economics and food industry management; Behavioral and Social Sciences, containing education and rural sociology, among other related fields; and Environmental Studies, encompassing subjects from aquatic science to entomology, and horticulture to environmental conservation.

The other program areas are Animal Sciences, Biological Sciences, Food Science, Plant Sciences, and General and Special Programs. The latter group houses the fields of international agriculture, and statistics and biometry. It also includes general studies, a program for students interested in a broad exposure to agriculture and life sciences. They have the opportunity to select courses from any and all of the program areas.

Burgett is quick to emphasize that this consolidation has not done away with the specialties themselves but given students more latitude when they

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Sincerely,

W. Keith Kennedy
W. Keith Kennedy
Dean

choose courses. "Before, freshmen were required to select one of the 56 specialties," he says. "And most freshmen were not sure enough of their interests at that early stage."

J. Robert Cooke, director of resident instruction, points out that the program areas have no administrative functions in and of themselves and were formed mainly for the sake of convenience. He explains, for example, that the admis-

sions office finds it much easier to talk about the College in terms of nine program areas than over 55 specialties. It has also made the faculty advising system more effective by encouraging greater movement among the various subjects in a given field of interest.

"The major advantage of the program areas is communication," Cooke says. "Through this communication, the College has become more efficient."

Professors Named

from page 1 science, and especially paleobotany. He has written one book on paleobotany and has written or been the co-author of more than 100 scientific publications. He was head of the former Department of Botany for nine years.

His awards include a Certificate of Merit from the Botanical Society of America and a Guggenheim Fellowship at Cambridge. He was Honorary Vice President of the XII International Botanical Congress in Leningrad and has received the Chancellor's Award for Excellence in Teaching from the State University of New York.

Former students of Professor Neal F. Jensen of the Department of Plant Breeding and Biometry now occupy leading positions throughout the world. Jensen has developed and introduced more than 20 varieties of high-quality small grains.

He has received the New York Farmers Medal and a Distinguished Service Citation from the New York Agricultural Society. Jensen is a Fellow of the American Society of Agronomy and of the American Association for the Advancement of Science.

Professor William T. Keeton, of the Division of Biological Sciences, is a distinguished teacher, and author of the widely used text, *Biological Science*. He is in demand as a speaker and will be the keynote lecturer at the International Ornithological Congress in Berlin this year.

Grains

from page 1 into commercial production.

The entire breeding process begins each year anew, Jensen emphasizes. In this way, there is a "pipeline" through which new varieties are continually appearing.

In the past, Jensen's research has been aimed mainly at soft winter wheats—the kind used in pastry flour. New York has been primarily a pastry wheat producing state; so he has been trying to meet the needs of its milling industry.

Keeton has been a Schuyler-Gage Fellow and a Professor of Merit. He is an elected member of the American Ornithologists' Union and a Fellow of the American Association for the Advancement of Science. He was chairman of the Section of Neurobiology and Behavior in the Division of Biological Sciences for six years.

Professor J. Thomas Reid of the Department of Animal Science has published more than 235 articles in animal nutrition and energetics, biochemistry, and physiology. He speaks all over the world and, in 1972, delivered the Sir John Hammond Memorial Lecture to the British Society of Animal Production.

One of the most honored scientists in his field, Reid has received a Guggenheim Fellowship, the Nutrition Research Award, the Borden Award of the American Dairy Science Association, and the Morrison Award of the American Society of Animal Science.

Professor Kenneth L. Robinson of the Department of Agricultural Economics is recognized internationally as a leader in his field. He has held visiting professorships in Japan, Australia, Portugal, and Nigeria.

Robinson is co-author of the text *Agricultural Product Prices*, and he has written more than 150 articles for a variety of publications. In 1959 he received the Professor of Merit Award and has been a consultant to the National Science Foundation and the U.S. Department of Agriculture. He also served on the New York Council of Economic Advisers.

In the last ten years, however, he has spent about half of his time developing other wheats that are high in nutritional value. Faced with the increasing need for more high-protein foods, both here and abroad, he is attempting to boost protein levels.

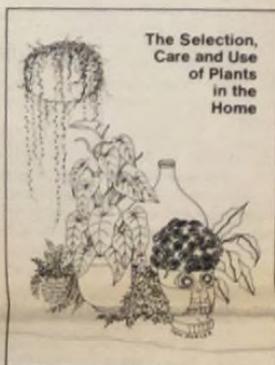
"The purpose of my work is to translate what we know about genetics into the field of plant breeding," says Jensen. "We're always looking for superior grain varieties. I'm happy I've succeeded in keeping good varieties available to the farmer."

Cornell Publishes Bulletin on Houseplants

With flowering and foliage plants, you can put nature to work in decorating your home. They bring nature's beauty indoors. But careful selection, and correct care and placement are essential.

Experienced gardeners as well as beginners who want to grow houseplants will welcome a new publication from Cornell.

Titled "The Selection, Care and Use of Plants in the Home," the bulletin was prepared by Professor Charles C. Fischer and Professor Raymond T. Fox of the College of Agriculture and Life Sciences.



The booklet, illustrated with many drawings and photographs, covers characteristics of popular houseplants, growth requirements, decorative uses, and the care of flowering plants. Topics range from general maintenance and corrective measures for common troubles, to dish gardens and containers for effective display.

Plant selection is made easier, too. Scores of plants are grouped according to their light requirements—direct sunlight, indirect bright light, and low light.

Gardeners will find the section on care of flowering plants especially interesting. It contains suggestions on prolonging the blooming period of many kinds of popular flowering plants. Factors that will make some plants continue to grow and bloom again are discussed, as well.

Information is included on the African violet, azalea, begonia, Christmas cactus and pepper, cyclamen, Easter lily, fuchsia, gardenia, geranium, gloxinia, impatiens, kalanchoe, orchids, and poinsettia.

Copies are available at 75 cents each from Mailing Room A, Building 7, Research Park, Cornell University, Ithaca, N.Y. 14853, or from county Cooperative Extension offices.

"The Selection, Care and Use of Plants in the Home" is also available through the brand-new edition of the *Know-How Catalog*. More information and directions on ordering, page 11.

Green Thumbs Transform Slums in the Big Apple

When you hear of Cooperative Extension, the thing most likely brought to mind is its benefit to rural America. To residents of some of the most poverty-stricken areas of New York City, this is no longer so, thanks to one of its most recent metropolitan projects, the Urban Gardening Program.

The city-wide gardening effort, established this past spring, has made vacant lots, which have nurtured nothing but crime and decay, bloom with tomatoes, lettuce, and corn.

Cooperative Extension was created by an Act of Congress in 1914, to ensure that individuals and families would receive practical information about agriculture and home economics gleaned from research at America's land-grant colleges.

Since Cornell is New York's land-grant university, the College of Agriculture and Life Sciences and the College of Human Ecology are the primary sources of the knowledge shared throughout the State.

The project in Fun City is part of a \$1.5 million federal program to educate low-income urban communities about gardening and nutrition. Other cities affected are Chicago, Houston, Los Angeles, Philadelphia, and Detroit. New York's share is \$500,000.

With this money, a gardening program office was set up in each borough, staffed with specialists in horticulture and nutrition employed by Cornell. Teams of professionals and volunteers supplied urban gardeners with tools, literature, advice, and even a gardening hot-line.

In fact, Cooperative Extension helped in every stage. It provided information on how to obtain the necessary clearance to use vacant lots. The staff gave advice on preparing the plots and the soil, planting and harvesting, and even cooking and preserving. During the summer, students from Cornell and other colleges in the State got into the act.

The existence and purpose of the project was communicated to inner-city dwellers with the co-operation of community organizations, block associations, schools, and religious groups. In addition, media coverage was excellent.

"Several major television stations featured the gardening program on their news broadcasts," says James S. Spero, Cornell representative, New York City. "All major newspapers carried stories and photographs of community groups of youth and adults working in gardens. Several stories were also picked up on the national wire services and used throughout the country."

The reaction of most New Yorkers, even those who did not participate, was good. Most people would just stop and

stare in amazement when they saw "five-foot corn in the middle of a metropolis," says Dan Goldman, a student assistant from the College. Passing truck drivers would yell, "Right on! Tomato power!" as they drove by.

The vandalism that has plagued other such gardening projects was almost absent from this program. Not all the reasons are clear. But it is certain that an increased sense of community purpose and unity was present.

Naomi Barber, a community worker who helped garden a large plot in the South Bronx during the summer blackout, says there was looting and shooting all around, but the garden remained intact.

Actually, there were many tangible and intangible benefits of the Urban Gardening Program. Vegetables were

grown in significant enough quantities that some families did not have to buy fresh greens during the summer.

"In community gardens, youth and adults learned about the process of growing vegetables, gained an appreciation for the cost and effort of providing food, and learned to improve their diets as their gardening efforts motivated them to participate in nutrition education workshops," explains Spero.

"Community cooperation was very much in evidence," he continues, "as individuals and families who had hardly spoken to each other for years, worked together to plan, maintain, and harvest their gardens."

The success of the whole project was perhaps best summed up by one city gardener. "We are growing more than vegetables, we are growing hope."



Dean Kennedy (dark jacket) observes an urban garden on Baltic St. in Brooklyn, N.Y. Also pictured are Professor Robert L. Bruce, Department of Education; Carl F. Gortzig (in shirt-sleeves) Chairman, Department of Floriculture and Ornamental Horticulture; and John Ameroso (in cap) Urban Garden Specialist, Brooklyn, N.Y. In background (from right to left) are Ken Davies, Garden Assistant, Brooklyn; Bill Worth, Plant Science Coordinator, Cooperative Extension; and James Spero, Cornell Representative, New York City.

Sprinkler is the Best Way to Water

With the growing season just getting underway, here are a few tips on watering your garden. Most vegetables are at least 90 percent water; so the daily water requirement is high.

Additional water in the form of irrigation for those gardens that tend to get dry will be well rewarded in terms of better crop quality and yields, says Raymond Sheldrake, Jr., professor of vegetable crops.

A critical time to water the garden is when sweet corn begins to show tassels, and when tomatoes, cucumbers, and summer squash begin to set fruit.

"A dry situation that brings about wilting of plants for four or five days is really murder on tomatoes because such a condition often leads to dry rot or blossom end rot," Sheldrake points out.

The ideal way is to supply a fairly uniform amount of moisture throughout the entire growing season to insure that plants grow at a steady pace.

The best thing to use is a garden sprinkler. Irrigate the garden with about one inch of water. The amount can be measured easily with empty coffee cans placed around the plot. Run the sprinkler until an inch of water collects in the cans.

"You cannot do an effective job of irrigation by standing there with a hose and nozzle, squirting water on the garden," Sheldrake explains. "This rarely does more than wet the leaves and the surface of the soil, and a light sprinkling may do more harm than no water at all."

To be effective, water should reach a depth of five to six inches. A good irrigation such as this will probably suffice for a week to 10 days.

"Leave the coffee cans out in the garden even when the sprinkler is not on to measure the rainfall that has fallen on the garden," Sheldrake suggests. "A vegetable garden should receive at least one inch of rainfall every seven or 10 days at the most. If this doesn't happen, turn on the sprinkler."

If water begins to puddle during irrigation, the sprinkler is putting out water faster than the soil can take it up. So, water the garden slowly, Sheldrake says.

Oh! And another thing. Many gardeners think it is harmful to water when the sun is out. "This is an old-wives tale," says Sheldrake, "and it doesn't really make any difference at all."

Planting Guide

Here's a handy guide for planting your favorite garden vegetables. In each box, the top group of crops can usually be seeded in the early part of the planting period. The groups lower on the list are planted a week or so later.

<p>Early Spring</p> <p>Late March, April, Early May</p>  <p>Asparagus Broccoli Beets Cauliflower Brussels sprouts Early potatoes Salsify</p>	<p>Mid-Spring</p> <p>Mid-May, Early June (after frost)</p>  <p>Snap beans Sweet corn Chard</p> <p>Cucumbers Tomatoes Eggplant Peppers Parsnip</p> <p>Winter squash Summer squash Dill New Zealand spinach Fall potatoes Muskmelons Watermelons Lima beans</p>
<p>Early Summer</p> <p>Mid-June, Early July</p>  <p>Snap beans Sweet corn Chinese cabbage Celery Brussels sprouts Cabbage Carrots Parsley Rutabagas</p> <p>Broccoli Cauliflower Beets Kale</p>	<p>Midsummer</p> <p>Mid-July, Early August</p>  <p>Head lettuce Beets Peas Collards Endive Kohlrabi</p> <p>Leaf lettuce Spinach Mustard</p> <p>Radish</p>

Long Island Research Laboratory Expanded

Cornell's Long Island Vegetable Research Farm at Riverhead, N.Y., and the Ornamentals Laboratory at Farmingdale have merged to form the Long Island Horticultural Research Laboratory at Riverhead.

A new office-laboratory facility, dedicated on November 1, 1977, is firm evidence that the University intends to maintain and expand its technological support of agriculture on Long Island.

The new building cost approximately \$300,000. Local growers and the agricultural industry on Long Island raised \$91,000 to help finance it. The Suffolk County Legislature contributed \$25,000, and \$150,000 was made available by the College of Agriculture and Life Sciences. The balance will be lent by the College.

The new facility is a one-story, wood-frame structure providing 6,000 square feet of floor space for offices and laboratories. The old structure at Riverhead was built in 1931 and failed to meet current research needs and State building codes.

The station maintains 52 acres for a wide range of field experiments involving vegetables, small fruits, grapes, and ornamental crops. There are also six greenhouses and four equipment storage buildings.

Riverhead is staffed with six scientists who specialize in vegetable crops, floriculture and ornamental horticulture, entomology, and plant pathology. An authority in the diseases affecting flowers will soon join them. In addition, a number of students from Cornell and other colleges work there each summer.

The merger of the Riverhead Vegetable Research Farm and the Ornamentals Laboratory in Farmingdale was, in part, made necessary by the eastward movement of commercial nursery and florist enterprises.

"The expansion of research and extension programs at the Riverhead

facility is an expression of optimism by farmers on Long Island and Cornell University for the future of agriculture on Long Island," comments Professor G. Wilbur "Bill" Selleck, superintendent of the laboratory.

Pointing to the enormous market in the New York metropolitan area and other nearby urban centers, Selleck says that he sees an ever-growing demand for a wide variety of high-quality food, ornamentals, flowers, and other agricultural products produced on Long Island.

"The strength of this experiment station lies in its multi-disciplinary approach to the solution of problems plaguing Long Island farmers," says Selleck. "This is a unique advantage to this concentrated growing area because most experiment facilities have research responsibilities beyond those dictated by local agricultural needs."

"Through coordination of research, extension, and agricultural industry on Long Island, it is expected that a strong and viable agricultural industry will continue to contribute significantly to the economy of Long Island."

Suffolk County has 60,000 acres of productive farmland and an annual farm income of more than \$80 million, making it the State's leading agricultural county. It produces about 50 percent of the State's potatoes and ranks first in nursery crops, flowers, and sod production.

Although potatoes and other vegetables are still important income-producing crops, the future seems to point to greater development of the ornamental horticulture and greenhouse industries.

Suffolk also leads the State in population growth. The county population (now at 1.25 million) is increasing at a rate of 40,000 persons a year. Despite rapid urbanization and a decrease in farm acreage, the county has maintained its prominence in agriculture.

This is due, in no small measure, to the practical application of the research conducted at the Riverhead and Farmingdale laboratories, Cornell, and the agricultural experiment stations at Ithaca and Geneva.

Research is continuing on many fronts. Recent studies on the placement of nitrogen fertilizer have shown that some commercial fertilizer application rates can be reduced while maintaining high crop yields.

Studies focusing on nitrogen fertilization of turfgrasses on sod farms, home lawns, golf courses, and parks are also in progress. The results from these studies should help Long Islanders combat nitrate build-up in the groundwater, the Island's main source of drinking water.

Scientists are experimenting with hydroponic culture — growing crops without soil. Plants are grown with nutrients added to the water.

Sometimes referred to as soilless farming or water culture, this system is being investigated in hopes of lowering

the production costs of certain greenhouse crops. Hydroponic culture has been used experimentally in growing tomatoes, lettuce, and other vegetables, as well as gourds and flowers.

Recent interest in grapes, particularly those varieties used in making wine, has led to the experimental planting of 28 strains. The adaptability of leading European grapes will be evaluated.

Cornell specialists believe Long Island to be a favorable environment for grape production because of the light, sandy soils, mild winters, and a longer growing season than that in Upstate New York.

Suffolk County Cooperative Extension seeks to share the knowledge gained from research with Long Island growers. Extension personnel not only report findings, but participate in many research projects at Riverhead, as well. Experiments done in Ithaca and Geneva also contribute significantly to the Suffolk County Extension programs.

Boyce Thompson Institute Nears Completion

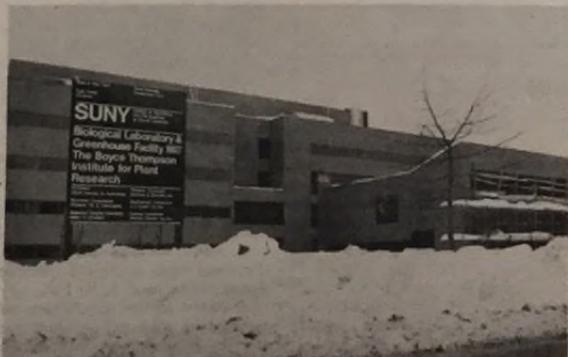
The new building that will bring the Boyce Thompson Institute for Plant Research to Ithaca is nearing completion. The \$8.5 million facility was begun in the fall of 1976 and will be ready for occupancy this summer.

The Institute was located in Yonkers, New York; but because of overcrowding, the directors were forced to seek another location. Cornell invited the Institute to build on the Ithaca campus, and the N.Y.S. Legislature approved funding for constructing the new facility. The architects, Ulrich Franzen and Associates of New York City also de-

signed Cornell's Emerson and Bradfield Halls, and the Veterinary Research Tower.

"The Boyce Thompson Institute will operate as a separate entity," says Joseph F. Metz, Jr., director of planning and facilities for the College of Agriculture and Life Sciences. "But it will become an integral part of Cornell."

The Boyce Thompson Institute is known internationally for its research in such fields as regulation of plant growth, causes of plant diseases, chemical and biological control of pests, and the effects of air pollution on plants.



Boyce Thompson Institute in final stages of construction. January, 1978.



Manure and Algae Produce Animal Feed

The idea of using manure to produce methane gas is beginning to catch on. Now, it turns out, this procedure has even greater value, since it can yield a high-grade animal feed as well, reports Wilson G. Pond, professor of animal science.

A blue-green alga, *Arthrospira platensis*, has been found to grow rapidly in the residue of swine waste following methane production. It has a very high protein content and, when fed to laboratory rats, was discovered to be as good a source of protein as soy beans.

The alga has a 55- to 60-percent protein content, as compared to corn with 10 percent and wheat with 12 to 15 percent. It is also high in lysine and tryptophan, two amino acids necessary for growth and survival, which are present at low levels in most plants.

The research leading up to this discovery was done by Po Chung, working under Pond's guidance. Chemist Earl F. Walker and Professor John Kingsbury also worked on the project.

Chung is now director of the livestock research program for the Agency for International Development-Joint Commission on Rural Reconstruction in Taipei.

Chung and Pond grew the algae in a simple bottomless wooden frame lined with polyethylene sheeting resting on a table top. They found the best growth was obtained when the swine waste was allowed to ferment for 10 days and was then dripped into the framed structure which held a water mixture of the waste and the algae. Artificial light was used for photosynthesis.

The algae grow quickly. Based on the experimental data, 20 to 40 tons per acre per year could be produced, measured on a dry-matter basis. By comparison, corn yields three tons of dry matter per acre.

The research is continuing outdoors in sunlight. Manure from other animal species is also being tested.

The algae can be fed to animals in the same form in which it is produced, it can be ensiled, or it can be spread to dry, especially in tropical areas, according to Pond. Processing requires little land and, therefore, does not compete with crop space.

The potential of this alga as a source of high-protein feed is great because it grows rapidly on an abundant waste product using only the sun as an energy source.

Year in Mexico— A Fulfilling Adventure

by PETER J. JOHNSON
Animal Science, '78

During my freshman year at Cornell I decided to apply for the position open to one Cornell Agriculture student per year, to study in Mexico during his or her junior year. I had always wanted to learn another language, meet and live with people of a different culture, and just be on my own for a while.

After the initial selection process, the College Exchange Program Committee conducted several private interviews to decide who would be the one to go. I was fortunate enough to be the student chosen. So, I began to prepare for my year in Mexico, which was to be the first time I was completely on my own in a strange country where most people do not speak English.

I can only think of good adjectives like "fantastic," "excellent," and "very enlightening," to describe my feelings about my year in Mexico. I loved it there.

I arrived in Monterrey, Mexico, at the end of June 1976, not knowing how to converse in Spanish very well and knowing no one in the city. These two facts did not scare me. I looked on the coming year as a great personal challenge.

I took an intensive Spanish summer course for five weeks (35 hours per week) but found that I really could not speak Spanish well until August, when regular classes began and I mixed in with all the Mexicans. Everyone was friendly and within a short time I had many close friends.

I was quickly carried into the mainstream of Mexican culture because I put the restriction on myself that, while in Mexico, I would speak only in Spanish. After a while, the language became so natural that I was thinking in it as well. Many times I was successful in passing myself off as a Mexican because of my fluency.

The university where I was studying, El Instituto Tecnológico y de Estudios Superiores de Monterrey, has a very strong agricultural program. My animal science labs consisted of many field trips to farms and ranches, continually exposing me to agriculture on a working level, not just a theoretical one. Of course, everything was in Spanish.

My dairy cattle class once took a weekend field trip to Torreón, one of the largest dairy centers in Mexico. We found many dairy operations, from small enterprises with as few as 35 head of cattle, all the way up to a 900-head herd.

For my dairy cattle lab, we were put in charge of 32 of the University's animals and were expected to care for them as if we were the farmers who owned them. Identification, brucellosis testing, dehorning, and palpation to detect pregnancies or abnormalities were our principal duties. In addition, we vaccinated against brucellosis, calculated the relative value of each cow, and tested for mastitis.

One of my friends had to take blood samples from 80 cows and steers for his thesis work. He taught me the easiest way to get blood from the jugular vein and the necessary safety precautions,

International Agriculture at Cornell

by L. W. ZUIDEMA
Assistant Director, Program
in International Agriculture

The College's focus on agricultural and rural development in the Third World was organized in 1963 with the establishment of what is now called the Program in International Agriculture. At that time, the Director of International Agriculture, Kenneth L. Turk, worked with the faculty to develop an on-campus program for students interested in the agriculture of the developing regions of the world.

In the 15 years since its inception, this project has continued to grow in response to changing circumstances and educational directions. Now it encompasses a wide range of teaching, research, and extension activities.

Today, it is possible for ALS students to choose from more than 40 courses dealing with international agriculture and rural development. Several seminar series, films and special short courses help students informed about current issues and developments abroad, particularly in Third World countries where problems are often serious and complex.

Those working towards advanced degrees can find many research opportunities by participation in research projects in international agriculture already in existence. There are also new projects being established with international and national research organizations in the developing countries. Last year, about 60 College graduate students gathered data for their dissertations in Third World nations.

A portion of the research effort at the College of Agriculture and Life Sciences is also devoted to problems relating to the agriculture of the developing world. Organizations funding this research include the U.S. Agency for International Development (AID), the National Science Foundation, and the Ford and Rockefeller foundations. United Nations agencies, The World Bank, foreign governments, and international agriculture research centers also contribute.

Recently, the College has had major research commitments in the areas of tropical soils, diseases and pests, plant breeding for crops grown in the tropics, water resources management, technical change and income distribution, and nutrition in developing countries.

Interdisciplinary research efforts are receiving increased attention. Last

since we were dealing with many cattle crossbred with the zebu, a feisty tropical species with excellent resistance to tropical temperatures and diseases.

I have seen the gamut of Mexican livestock production operations, from the poorest and lowliest all the way up to the richest and most elegant.

I made it a point to talk with the peasant farmers as much as possible. One weekend a few friends and I stayed at a deserted semi-run-down ranch. Directly outside the grounds was an "ejido." An "ejido" consists of a group of families (in this case about 40) that form a cohesive unit or town and devote themselves to cooperative farming. I talked with some of the "ejidatarios" and came to understand some of the basic problems that confront them.

The more I saw ranches and did practical work, the more I knew that I loved that kind of life.

One of my goals, to travel and see as much of Mexico as possible, I am happy to say, was fulfilled. I took advantage of every opportunity to travel.



year, six students from six disciplines completed their Ph.D. degrees after working together at CIMMYT, the International Maize and Wheat Improvement Center in Mexico, on separate studies dealing with corn varieties suitable for farmers in the tropics.

This year, an interdisciplinary group of several faculty and graduate students is developing a research project, in cooperation with the Inter-American Institute for Agricultural Sciences, which will focus on methods of meeting the needs of small farmers in the mountainous regions of Ecuador.

Recent federal legislation holds much promise for an increase in funding for research projects which will benefit farmers in the developing world. Title XII of the Foreign Assistance Act, passed in 1975, sets an auspicious new relationship between major American agricultural universities and U.S. AID. Funds are now becoming available for collaborative research between U.S. universities and institutions abroad and for increasing the internal capacity of our institutions to serve international agriculture and rural development.

Apart from the broadening effect on faculty and students at Cornell, some of our international research has helped agriculture in New York State and the U.S. in general. Disease- and insect-resistant genetic materials from abroad have been incorporated into newly released varieties of potatoes, corn, and beans.

Other benefits include the development and application to New York State of new methodologies in soil research, the enhancement of rural development research, and the development of food processing techniques.

In order to help students and the general public acquire a better understanding of the world food situation, the Pro-

gram in International Agriculture has recently been expanded through a three-year grant from the U.S. Office of Education, HEW. A Center for the Analysis of World Food Issues (CAWFI) has been established. This serves to improve our study opportunities on campus and to initiate an outreach program dealing with the international food situation.

Currently, CAWFI is assisting several small liberal arts colleges in the area with their courses dealing with world famine. To widen this effort, discussion papers will be published this summer for the use of schools and community groups.

Recently, a Cornell speakers' bureau on world food issues was established. A brochure containing information on 35 members of the College faculty who are willing to speak to individuals and groups is now available. A complementary outreach activity of the College is the Program on Food Policy in Cooperative Extension.

The Program in International Agriculture seeks to broaden the understanding of both faculty and students through instruction and research. It also strives to share its findings beyond the borders of the University. Constant efforts are made to provide a stimulating environment for students who will make important decisions regarding food, one of our basic needs.

More information about any of the projects of the Program in International Agriculture is available through the Program in International Agriculture, 252 Roberts Hall.

them three shipments of Cooperative Extension bulletins.

My year abroad has definitely aided in my development as a person. It has opened and expanded my ideas and thoughts from the secure campus of Cornell to an insecure world of poverty, suffering, and hope. I believe I now have a better understanding of and appreciation for some of this hemisphere's major problems, and I hold an optimistic outlook for their resolution.

EDITOR'S NOTE:

Peter Johnson went to Mexico as part of the Overseas Academic Program of the College of Agriculture and Life Sciences. The program offers opportunities for a broadened education to about 12 students per year. There are two exchange programs with universities in Mexico and Sweden. Also, students may study at the University of Reading in England and the University of Dublin in Ireland. Credit received for academic work may be transferred to meet graduation requirements at Cornell.



Chicken hotdogs and frozen French toast are easy to find in most any supermarket. And, if some people at the Department of Food Science have their way, Seafood Crispiers and Sloppy Jonahs will be just as common on your grocer's shelf.

Since 1960, a research team headed by Robert C. Baker, professor of food science, has been trying to find ways to help the poultry industry meet the needs of today's consumer, while attempting to cut down on waste. More recently, they have directed a lot of their energy toward the seafood trade, which throws away thousands of tons of nutritious "trash" fish each year.

It all started almost 20 years ago when Baker, Lawrence B. Darrah, June Darfler, and Emma Mulnix were asked by former Dean Charles Palm and Dr. Robert Young to help the ailing poultry industry. Farmers were getting low prices. Innovations were needed to increase consumption and thus cause greater demand.

"A quick survey in Syracuse, New York, told me that we as an industry were not giving the consumers what they wanted," says Baker, who has been the mastermind behind Cornell's internationally-known advances in this aspect of food science. "I found that the problem was a lack of new poultry products that would give consumers the convenience they wanted."

At that time the red-meat industry's push toward convenience foods was well underway. This was crippling poultry marketers, who were still concentrating on selling whole chickens and eggs.

"I have often heard that the red-meat industry doesn't make that much money on steaks and roasts," Baker says, "but they find convenience products very lucrative." One of the big problems with which he was faced was trying to find ways to use chicken in these products instead of red meat.

By 1968, Food Science had developed 38 new poultry meat and egg products and had test-marketed 23 of these. Cornell was not the only university that worked in this area. But by means of a joint effort with Dana Goodrich, professor of marketing, it was—and still is—the only one to bring its research from the laboratories of academia to the supermarket shelf.

Goodrich has the packages designed

and sets up a test-marketing strategy. The foods are sold under the name of Cayuga Brand, with recipes included. "To the extent we are able to measure consumer response, commercial interests have better information when deciding whether to manufacture the product," Goodrich explains.

Baker's staff now maintains a mailing list whose members in the poultry industry regularly receive information about the new products and processes developed by the Department of Food Science. There are over 1,000 businesses, large and small, in the United States and over 350 in both Canada and Great Britain. Other countries that receive this information include Germany, France, Italy, Spain, Israel, Greece, Australia, and Japan.

The poultry industry was not always receptive to Baker's work. The feeling was that the consumer would not accept chicken in products that were universally associated with red meat.

"We had people say that chicken and hotdogs just don't go together," Baker says. "In fact, to some, it was downright nauseating. Today this doesn't appear to be true. I hear many consumers here in Ithaca say they purchase chicken franks because they are low in fat and easy to digest."

Many large food manufacturers were also against Baker's efforts. They felt that Cornell should confine itself to research and not get involved in product development. But Baker likens his projects to those in many other areas of agriculture. "When we come up with a new animal feed, nobody resents it. So why should people get that way when, instead of feed, we develop food?"

In addition to giving a shot in the arm to the poultry industry, these foods cut down on waste. The ingredients include parts that used to be thrown away, such as necks and backs.

As a result of the determination and ingenuity of Baker and others working with him, chicken hotdogs are now being manufactured by 57 different companies. Other such chicken products are common fare at lunch and delicatessen counters all over the country. Chicken sticks, chicken salami and baloney, and chicken rolls and loaves are just a few for which Cornell can take credit. Baker is holding high hopes for the next product—chicken ham.

Along with his research into the uses

of chicken meat, Baker has concerned himself with making eggs a convenience food. In the mid-1940s, annual egg consumption was over 400 eggs per capita. A few years ago it was measured at less than 300.

Baker admits that the reputation eggs have for high cholesterol is responsible for some of the decline. But part of the blame must be placed on the lack of convenience items, he says.

In that same Syracuse, New York, survey, 1,000 people were asked why they were eating fewer eggs. The most popular answer was that they did not have the time to prepare them, and that was back in 1960. In addition, mothers stated that their children didn't like eggs or that each wanted eggs prepared in a different way.

"In my opinion," Baker says, "the real cause for the drop in egg consumption in the United States was the dropping of a hearty breakfast. Many of us can remember when you just couldn't start the day without two eggs. So, without breakfast, industry was hurt. Also, people were missing the nutritional value of eggs."

One of the first products that Baker and his team introduced was frozen French toast. "All the consumer had to do was remove the toast from the package and drop it in the toaster for one minute. The product sold well at both the retail and institutional levels."

Omelets were also successful. Because labor costs in restaurants are so high, the price of cutting up peppers, onions and ham is prohibitive. Baker found a way to blend all these ingredients with eggs and put them in a package.

He has also introduced egg pizza, which substitutes eggs for pastry; Hard Cooked Egg Rolls, which eliminate the need to cook and peel hard-boiled eggs; Tren, a drink of eggs mixed with apple juice; and even Hi-Pro cookies, which have all the nutritional value of eggs, but can be put in children's lunch boxes.

The newest aspect of Baker's research is seafood. Fish is a highly nutritious food that is low in fat and takes less energy to harvest than red meats, or even grain.

The Select Committee on Nutrition and Human Needs of the U.S. Senate has set as one of its dietary goals to "decrease the consumption of [red] meats and increase the consumption of poultry and fish."

One avenue which, until recently, went unexplored is the use of so-called "trash" fish. Now, due largely to a grant by New York's Sea Grant Institute, the Department of Food Science has introduced several foods using these species, and there are more in the offing.

There are a number of reasons these "underutilized species" of fish have gone untapped, according to Baker. "For one thing, some have names that automatically put up a psychological barrier. If you tell people they're eating sucker, crappies, and cancer fish, they're not going to be overly enthusiastic."

Perhaps the main reason is that some of the fish have too many bones, or bones that are not easily removed. But with the invention of de-boning devices for fish, this is no longer a problem. Fish is fed under pressure into machines that push it against tiny holes.



Steps in processing Hard Cooked Egg Rolls.

They let the flesh come through, but retain the material that is not edible. Similar machines, incidentally, have been used by Baker in his processing of poultry.

One product that has been test-marketed in Ithaca stores is Seafood Chowder. It is available in both New England and Manhattan styles.

"It contains 28 percent underutilized species, 10 percent minced from scallops, which are normally thrown away, and 35 percent waste juices from the clam industry," Baker says.

Another product of "trash" fish is Frozen Mince Fish. This contains sucker taken from Lake Superior. Department of Food Science researchers test-marketed it in six supermarkets in Rochester, New York, and found that consumers were receptive. Over an 11-week period from December 1976 to February 1977 sales showed a surprising stability and even increased in each of the last four weeks.

"We are a hamburger society," says Joe M. Regenstien, assistant professor of food science. "Over 40 percent of all beef sold in America is in the form of hamburger. With products such as the Frozen Mince Fish, you can do the same things with fish as you can do with hamburger."

"Our fish products run only 2 percent fat—and that's polyunsaturated," explains Regenstien proudly. "Minced fish products offer a wider range of meal choices to dieters and others concerned about their health. In fact, fish can be used freely in diets of people whose consumption of traditional meats is restricted for medical or religious reasons."

The next new fish product will be called Seafood Crispiers. Baker says they will look just like fried scallops. "We're trying to get the seafood industry off the ground in the use of fish that is usually wasted," he says.

What with increasing concern for the world food supply and the reputation the U.S. has for being the most wasteful country on earth, this research seems ever more important and necessary. Nutritious, wholesome, and good-tasting meals are being made from food that would normally be thrown away.



Cornell Names First William I. Myers Professor

Robert S. Smith, professor of farm finance, has been named the first William I. Myers Professor of Agricultural Finance by the Cornell University Board of Trustees.

This new endowed chair in the College of Agriculture and Life Sciences is a memorial to the former dean and faculty member William I. Myers, who developed the concept of the Farm Credit Bank System.

Myers's ideas laid the foundation for the legislation that created the Cooperative Farm Credit System. He was appointed the second governor of the

Farm Credit Administration by President Roosevelt. He also advised Presidents Truman and Eisenhower, several New York State governors, the State Legislature, and numerous commissions, committees, foundations, and businesses in the field of agricultural finance.

Indeed, funds for the endowed professorship were contributed by many of the organizations served by Myers, including foundations, businesses, and financial institutions concerned with agriculture, as well as faculty, alumni, and friends of the former dean. Fundraising efforts for the W. I. Myers Professorship are still underway.

It is hoped that the holders of this new professorship will continue the spirit of Dean Myers's work, to seek innovative means of serving agriculture in the field of finance.

Robert S. Smith, who has been a leader in agriculture for more than 35 years, will now devote his time to research and teaching in the field of finance. He will continue as a consultant to the Farm Credit Banks of Springfield, Mass., as well.

Smith received his B.S., M.S., and Ph.D. degrees from Cornell. After completing his graduate studies, he joined the College faculty.

In 1960, Smith went to Israel for one year as a farm management adviser to the Israeli Ministry of Agriculture and Israeli Extension Service. Six years later he received a Foundation for

Economic Education Fellowship for study at the Bank of America in San Francisco, and in 1968, he spent six months in Iran as an adviser to the nation's Agricultural Development Fund.

The Farm Credit Banks of Springfield honored Smith for his expertise in farm credit management, farm financial planning, and tax management by giving him their first Agricultural Counselor Award in 1965.

The Internal Revenue Service has presented him a Public Service Award

"for his outstanding contribution in informing the taxpaying public and contributing to public understanding of Internal Revenue Laws."

In addition to his research and extension work, Smith has a reputation as an exceptional classroom teacher. He has taught courses in farm finance, personal finance management, and tax management. He was given the Professor of Merit Award by the College's 1972 senior class, for outstanding performance as a teacher and adviser.

College Plans Two New Buildings

New York State has allocated \$1.5 million to the College of Agriculture and Life Sciences for the architectural planning of two new buildings to be located on the Quad. The new structures will have a total of over 120,000 square feet of floor space.

The first building should be ready for occupancy by 1983, according to Joseph F. Metz, Jr., director of planning and facilities. The projected cost for both is approximately \$14 million.

The facilities will house the departments now in Roberts Hall, East Roberts Hall, and Stone, Comstock, and Caldwell. These buildings were all constructed in the early part of this century and no longer meet the health and safety standards set by the Office of

Safety and Health Administration.

To be located on the west end of the Quad, the first building will contain the College's administrative offices and the Departments of Communication Arts, Education, and Media Services. In addition, biology classrooms and labs will be included.

The blueprints will not show traditional rows of individual offices. Instead, the interior design will consist of large rooms with movable partitions.

"This will provide us with the flexibility of adjusting space as our needs change," says Metz. "It should also cut down on renovation costs."

The second building will house Entomology and Landscape Architecture.



Robert S. Smith

Waste Not — Want Not

by R. E. KRAUSS

N.Y.S. Agricultural Experiment Station, Geneva, N.Y.

Since 1882 the Geneva Agricultural Experiment Station has been in existence to promote agriculture through scientific investigation. In 1923 it became an integral part of Cornell University and is now known throughout the world as one of the leading horticultural research institutes.

The Station's primary assignment is to conduct scientific investigations relative to the very large and lucrative fruit and vegetable processing industry in New York State.

There are about 65 full-time scientists on the staff, plus 275 additional employees. The operating budget of the Station is approximately \$5 million annually, the bulk of which is provided by the State through its appropriation to the College of Agriculture and Life Sciences.

One example of the type of research that is vital to the processing industry may well illustrate how the Station responds to the needs of its constituency.

Sauerkraut is a major food product in New York. In fact, 40 percent of the sauerkraut consumed in the United States is produced in the three counties of Ontario, Yates, and Wayne, all of which are in the Geneva area.

Because kraut cabbage is more than 90 percent water by weight, there is a tremendous amount of liquid waste produced during processing. A relatively small sauerkraut manufacturing plant produces waste that is equivalent to that produced by a small city with a population of 15,000.

Both food processors in New York and elsewhere, and scientists at the Geneva Station, have been studying this problem for a number of years. A plant breeder in the Department of Seed and Vegetable Sciences here has been able to develop a new variety of cab-

bage that has a much higher solids content.

This one improvement has markedly reduced the amount of liquid effluent produced by processors. It has also increased the amount of sauerkraut that can be produced from the same tonnage of cabbage by 20 percent.

Even the growers have benefited from this research in a unique way. Because of the higher solids content of the cabbage, it is much less susceptible to freezing, thus extending the optimum harvest period significantly.

Commercial seed for the new Hi-Dri cabbage is currently available and is expected to be used by many growers in the future. Incidentally, the quality of the finished sauerkraut is equal to, or better than, that made from the traditional varieties of cabbage.

An entirely different, but equally successful approach to the same problem has been made by a member of the Station's Department of Food Science and Technology. A young microbiologist has discovered a particular yeast that has the ability to essentially neutralize the strength of the liquid effluent.

When this yeast is added to the sauerkraut brine, it can go through municipal sewage systems with no problems. Several plants are now either using or considering using this unique process.

There are also potential long-range benefits from this innovation. When the yeast is used, the resulting by-product is very high in protein. It is entirely conceivable that this material could be adapted for animal feed, which would mean an additional savings to another segment of New York agriculture.

These are just two examples of the types of research being conducted in Geneva. There are actually more than 200 active research projects, many of which deal with the immediate problems confronting growers, processors, and consumers. There is, however, considerable basic research that will lay the foundation for practical adaptation in the future.

At the northern tip of beautiful Seneca Lake in Geneva, N.Y. lies the New York State Agricultural Experiment Station.



A Look at the College's Minority Program

by DR. DONALD C. GRAHAM

The Minority Education Program, formerly the Committee on Special Education Projects (COSEP), was begun about 15 years ago to provide minority students greater access to an education at Cornell. It was decentralized in 1976, placing control of the Program in the hands of the faculty and administration of the individual schools and colleges.

With this change has come an increase in personnel and services for minority students in the colleges.

The Minority Program Office at the College of Agriculture and Life Sciences provides academic advising and tutorial assistance for approximately 160 students, about 50 percent of whom are enrolled in the biological and animal sciences, with aspirations toward medicine, dentistry, or veterinary medicine. Agricultural Economics has the next largest number of students.

As I am mainly responsible for graduate student programs, the Office also has a full-time minority counselor for undergraduate projects. Yvette Anderson is serving temporarily in this position while Linda D. Jones is on leave for graduate study.

The minority counselor and nine student advisers provide academic support services necessary for aiding minority students in achieving satisfactory progress toward graduation. In this connection, tutorial programs exist in several courses for our freshman and upper division students.

The freshman-level tutorials are conducted by the Learning Skills Center of the University-wide Minority Education Program Office, whereas the upper division tutorials are provided in the College.

The staff in the College's Minority Program Office participates in the recruitment/admissions process by visiting high schools, college nights, etc., talking with potential freshmen, and reviewing the submitted admissions

application materials.

Students in the minority program are making good academic progress. In the 1977 fall semester, 71 percent of our students had term averages of 2.00 or above; only five percent had averages below 1.00.

The minority graduate student enrollment was 28 in the fall, down from 38 the previous year. Unfortunately, the attrition rate has been high for personal and financial reasons. Minority students still do not have ready access to department graduate assistantships.

A stepped-up recruiting effort to enroll more graduate students has been undertaken. This is part of the College's overall program of affirmative action, which is designed to increase the minority staff and the number of minority graduates so that the pool of eligible professionals will be enlarged.

Several years ago the College began an adjunct professor program. It involves bringing Black professors from predominantly Black schools to Cornell for several weeks during a two-year period.

The purpose is to increase visibility and provide role models for Black and other minority students and to assist the College in its recruitment of graduate students.

Thus, the College is increasing its commitment to minority students. We invite the alumni and all others who have an interest in this effort to assist us in finding and supporting these students. Any input will be welcomed!

EDITOR'S NOTE:

In 1971 Dr. Graham joined the College faculty as its first Black member. He has recently been promoted to Associate Professor in the Department of Food Science. In 1976 he was named Assistant Director of the Office of Resident Instruction, to be in charge of the minority program. Graham spends 50 percent of his time in this position, while continuing his professional duties.

ALS Sponsors Professional Improvement Programs

by HELEN L. WARDEBERG
Associate Director
Office of Resident Instruction

chat on values in education and teaching. Twelve assistant professors completed the program and were awarded certificates.

In late August 1977, Dr. Brown conducted a three-day seminar for new teaching assistants. The College of Agriculture and Life Sciences employs about 300 teaching assistants to help professors teach 800 courses to some 3,000 undergraduates and 1,000 graduate students.

Seminars were conducted by faculty in education and communication arts on learning theory, planning for teaching, the use of visuals, and methods of evaluation. A panel of professors representing several departments taught students varied "tricks of the trade" which have proven effective. Also taking part was a panel of teaching assistants who have received awards in the past year for outstanding performance.

The fall session was repeated in January 1978, for those unable to attend in August. A total of 50 teaching assistants received certificates for completing the course.

Two new in-service programs were developed during the fall semester of 1977 by the Office of Resident Instruction, under the direction of associate director Earl Brown.

In early January a program for new assistant professors was conducted in the Statler Inn on campus. Sessions focused on the importance and improvement of teaching. Topics included planning and organizing courses, methods of teaching, and evaluation of students, courses, and instructors.

Manned displays, demonstrations, and individual instruction were available to participants in an effort to acquaint them with such new teaching aids as computer-assisted instruction and video devices.

At the opening dinner, Dean Kennedy addressed the group on the importance of teaching. On the final evening, President Rhodes gave a short fireside

ALS Placement Office Helps Job Seekers

Graduates of the College of Agriculture and Life Sciences have a better chance of getting a job than those of many other colleges, according to Robert R. Hopkins, who was recently appointed director of the ALS Office of Career Planning and Placement.

"Students receive a combination of education and training here," he says. "Academic education makes you a better person. Training makes you employable."

Hopkins's office is charged with preparing students for the job market and coordinating efforts to put job seekers in touch with prospective employers.

He maintains that there are basically enough jobs to go around and that there is a low level of unemployment among College alumni. "Of course there are always people who, for any number of reasons, are not successful at their first stab at getting a job," Hopkins says. "For some it is harder than others. But we have found our methods generally fruitful."

Among the many Placement Office programs available to undergraduates, graduate students, and alumni is the "Candidates Available Listing," which is sent regularly to employers such as corporations and government agencies. It consists mainly of resume summaries, which are coded for anonymity and grouped by the nine program areas.

Also, a listing of current job opportunities is compiled and sent to job seekers about 10 times a year. It contains an index of all job descriptions in the Office. "This represents our efforts to compile information about positions that would be consistent with the interests of students and alumni," Hopkins remarks. "It is sent to everyone on our mailing list."

The Placement Office has a career library that holds detailed descriptions of immediate job openings and has information on methods and materials that may be useful in finding a job. Hopkins is quick to emphasize that all of these services are available to alumni who may already be employed but wish to make a change.

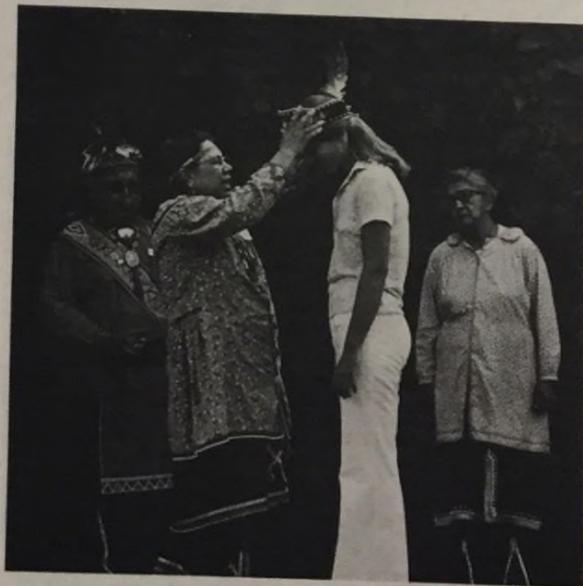
The "Transition Workshop" is another way the Placement Office gives career guidance. It is a three-hour course "which seeks to bridge the gap between the academic world and the world of employment," explains Hopkins, who teaches it himself. "The 'Workshop' represents an effort to cultivate an awareness of what a career is and what employer expectations are."

"In class, we try to increase sophistication toward job hunting and career establishment," he says. "If students are confident about their quest for a job, recruiters and employers are impressed."

This not only helps students but helps Cornell as well, Hopkins points out. "It shows businesses that our students have thought seriously about an occupation and have a direction mapped out. This says something about the quality of students here and also makes industry inclined to come back again when there are more openings to fill."

Another recent program sponsored by the Placement Office is called "Contact." During the summer and during intersession, students have the opportunity to explore careers by working with an alumnus/a or other friend of the University. The participants' interests are matched and students go "on-location" to get practical exposure to their fields.

In the past, students have gone to farms, research institutions, and government agencies. They have even worked for TV stations and professional journals. Hopkins is eager to attract more professionals to help accommodate a growing student enthusiasm for this project.



Tina Milburn Honored by Iroquois Confederacy

Tina Milburn (second from right) was recognized as an honorary member of the Iroquois Confederacy at the 1977 New York State fair for her work to replenish the population of bald eagles in New York State. Participating in the ceremony are (from left) Chief Edison Mt. Pleasant, Virginia Snow and Ruth Mt. Pleasant.

For more information about any of the programs and services of the Office of Placement and Career Planning, write care of Robert R. Hopkins, 16 Roberts Hall.

Faculty Advisers Aim for Personal Guidance

Any student entering the College of Agriculture and Life Sciences is at one time or another confused by the more than 800 courses offered. In the early '60s, a faculty advising system was developed in guiding students individually in their academic programs, career aspirations, and in some cases, in solving problems of personal adjustment.

The nine program areas of the College form the backbone of the system. These are further divided into the fields of specialization. Faculty members are enlisted on a voluntary basis to advise students who have interests similar to their own.

"Honesty is the key to success in the advising program," says George J. Conneman, professor of agricultural economics. Conneman has been one of the most active participants in advising since the program began.

He feels it is easy for an advising program to degenerate into a device for turning out signed registration forms. This has not happened here because faculty members are not required to take part, but advise "because they want to."

"I make it my business to remember every student's name from the first time we meet," says Conneman, who received the Professor of Merit Award from the senior class in 1975. "I'm always striving for continued personal contact. Students must feel they can come in any time to talk. Once they are convinced that I have an interest, they usually develop enough confidence to call on me regularly."

After students are admitted, they are assigned faculty advisers by the chairman of the curriculum committee of each program area. They may, however, choose new advisers if their goals and interests change.

Advisers are not required to take on a

set number of students but are assigned as many as they can accommodate comfortably and effectively. This is another reason for the system's success, since strenuous demands on the faculty are avoided.

"There is an average of 30 students per adviser," Conneman says. "But the number can go as low as five or as high as 65. I usually have about 35. But some students require more of my time than others."

He says he recommends a broad education for his undergraduate advisees. "If they take courses such as public speaking or English composition, it can help in their current academic pursuits and aid them in their future endeavors."

"Instead of insisting that a student take a given course, I try to present him or her with a challenge," he says. "I also try to show how certain courses will relate to a career."

Each adviser is given a copy of the "Handbook for Advisers" from the Office of Resident Instruction. This frequently-revised book contains a wealth of information about the various departments, resources, and course offerings. By using it, faculty members are able to advise students about aspects of the College with which they may not be familiar. "In addition," says Conneman, "we have a good grapevine among faculty members."

"Faculty advising not only helps students, but pays off for Cornell as well," Conneman explains. "An alumnus' opinion of Cornell depends on the impression he had while he was here."

"Many of our students become leaders in their fields. Their attitudes will generate enthusiasm for the College throughout agriculture and may lead to increased prestige and financial support."

Honorary Society Expands Services

Ho-Nun-De-Kah, the undergraduate honorary society of the College of Agriculture and Life Sciences, is enjoying renewed popularity. Along with the unrest and dissent of the late '60s and early '70s came an apathy that forced Ho-Nun-De-Kah to become largely ceremonial in its function. This is changing now, but not at the expense of the rigid academic standards required for membership.

Recently, Ho-Nun-De-Kah has been seeking to expand its role from that of an elite academic club to an organization that serves the entire student body. "It has now become more than an honorary," says Steven Carter, president. "It is an active group of people concerned with life at Cornell."

One of the most successful activities now sponsored by Ho-Nun-De-Kah is its tutoring program. Each member is asked to tutor one course free of charge to students needing additional help. "During the first few weeks things are kind of slow, but after that first exam, the phone really starts ringing," says Carter, who has developed his own major called Environmental Health. He studies health problems caused by "environmental manipulation."

Ho-Nun-De-Kah's newest project is a publication known as the "Cope Booklet." Its purpose is to evaluate courses for students who want information not found in catalog descriptions. The "Cope Booklet" advises students as to the number of reading and writing assignments they will be expected to complete, as well as the number of exams. It also provides course evaluations by students.

The translation of the Indian phrase Ho-Nun-De-Kah is "Keepers of the Sacred Corn Council Fire." When the

clans of the Six Indian Nations held council in the territory around Ithaca, a secret council of farmers was also convened. Here, it is said, the fine points of corn growing were discussed and passed on to new chiefs. It was in this spirit of education and enlightenment that Ho-Nun-De-Kah was founded in 1929 by Professor James E. Rice, Professor O. W. Smith, and Samuel Levering '30, an undergraduate.

There are many traditional activities in which Ho-Nun-De-Kah engages. It coordinates the election, by the senior class, of the Professor of Merit, an award that is presented each year to the professor who is the most outstanding teacher and adviser. It also organizes a barbecue each fall which is attended by freshmen, new transfer students, and advisers.

One of Ho-Nun-De-Kah's main concerns is to make adjustment to life at Cornell as easy as possible, explains Carter. "In a school as large as ALS," he says, "there is always the problem of a lack of personal contact. Ho-Nun-De-Kah is trying to break that barrier. It is most important that students have an organization they can turn to for personal attention."

Mini-Course in Career Planning Introduced

The problem of establishing a career or finding a good job is receiving more and more attention. Students are not just worried about finding employment. They are also often confused by the many fields from which they must choose.

The College of Agriculture and Life Sciences is addressing this issue squarely through its Office of Career Planning and Placement. But research recently completed in the College's Department of Education seeks to treat the question at an earlier stage of the game.

Under the direction of Joan R. Egner, professor of educational administration, the Department has devised a mini-course aimed at high school students. Its purpose is to help them make intelligent decisions about careers.

Research has shown that just telling students about career options is not enough. It is important to give them a system for evaluating their own abilities, interests, and personality traits, so that they can make wise but flexible choices.

Students are first told of the myriad career options open to them — from farming to nuclear physics. They are then guided in evaluating these possibilities in terms of their talents and available information about the jobs. The course then helps the students assess the likely consequences of the decisions they have made.

Assisted by Dorothy J. Jackson, now associate director of the Higher Educa-

tion Resource Service at the University of Pennsylvania, Egner tested and evaluated the course in 14 New York State high schools located in urban, suburban, and rural areas.

The overall reaction to the program was favorable, with some students even sending notes of appreciation for having the opportunity to participate. The

course had the added benefit of bringing students in closer contact with their guidance counselors while they discussed abilities and aspirations.

The mini-course is now in use in about 12 high schools in New York State, and requests for information about it have come in from states as far away as Texas.

Poor Yields: Don't Blame the Weather

Too often the weather is incorrectly blamed for poor agricultural yields.

Imperfect soil conditions rather than foul weather is the prime factor responsible for poor performance of agricultural lands in northern New York State, says a Cornell researcher. Although little can be done about the weather, there are many methods of improving the soil.

"This means there is new hope that the yields of certain marginal agricultural lands in New York and elsewhere in the United States can be markedly improved," explains Robert F. Lucy, professor of agronomy.

Farm regions in New England, the Midwest, Ontario, and Quebec suffer from a poor reputation similar to that of northern New York.

It is assumed that the regions' climates, which include cold winters and short growing seasons, are the limiting factors in agricultural production.

A careful analysis of the situation in New York's North Country revealed, however, that other conditions were mainly responsible for retarding optimum agricultural output.

Intensive studies of northern New York agriculture were begun after a 1959 research project showed that the future of dairy farms in that region hinged on whether the level of milk production could be raised by providing more high-quality roughage. At that time the area was farmed extensively but rather unprofitably.

Specialists from Cornell, including a team of animal scientists, plant breeders, agricultural engineers, climatologists, agronomists, and economists, found that the moist, cool climate was actually favorable for the production of perennial forages.

It was found, however, that soil drainage had to be improved for the area's farms to realize their newly de-

efined potential.

This involved developing outlets for groundwater and creating grades on croplands for adequate runoff. The Cornell researchers also advised farmers on more effective uses of herbicides, short-season corn varieties, and mechanization.

As a result of this intensive management, yields were improved and more fields were put into cultivation. In 1959, 1,817 acres in northern New York were harvested for grain. In 1974, 16,911 acres of corn were harvested, says Lucy.

"In my opinion, the yield of many acres in the United States could benefit from an improved understanding of climate-soil-crop interactions," says Lucy. "Unfortunately, without a complete understanding of a crop's relationship to its environment, there is a tendency to blame poor performance on the weather."



Faculty in Brief

Honors

JOE P. BAIL, professor of education, was awarded the Honorary American Farmer Degree by the National Future Farmers of America (FFA) at their November 10, 1977 meeting in Kansas City, Mo.

MARLIN G. CLINE, professor of soil science emeritus, was named an honorary member of the American Society of Agronomy.

HAROLD R. CUSHMAN, professor of education, received the Outstanding Service Award of the American Association of Teacher Educators in Agriculture.

WENDELL G. EARLE, professor of agricultural economics, was presented the Professor of Merit Award by Hon-Nun-De-Kah, the agricultural honorary society, on behalf of the 1977 graduating class.

NEAL F. JENSEN, Liberty Hyde Bailey professor of plant breeding, received the DeKalb Crop Science Distinguished Career Award from the Crop Science Society of America.

CHARLES E. PALM, Liberty Hyde Bailey professor of entomology emeritus and former dean, has been made an honorary member of the Entomological Society of America.

LOYD E. POWELL, professor of pomology, was named a Fellow of the American Society for Horticultural Science.

ERNEST F. SCHAUFER, professor of floriculture and ornamental horticulture, received a Distinguished Service Award of the National Association of Extension 4-H Agents.

ROBERT W. SPALDING, was named professor of animal science emeritus by the Cornell University Board of Trustees.

LOWELL D. UHLER, was named professor of biology emeritus by the Cornell University Board of Trustees.

The following faculty members were promoted from associate professor to professor, effective since January 1, 1977:

ROYAL D. COLLE, communication arts

J. ROBERT COOKE, agricultural engineering

EDWARD O. EATON, agricultural engineering

STUART J. EDELSTEIN, biochemistry, molecular and cell biology

JOAN R. EGNER, educational administration

JOHN E. KINSELLA, food science

ROBERT J. LAMBERT, frechand drawing

ARTHUR S. LIEBERMAN, ornamental horticulture

ROBERT G. MOWER, ornamental horticulture

RAY T. OGLESBY, aquatic science

DONALD R. PRICE, agricultural engineering

EDGAR M. RAFFENSPERGER, economic entomology

GERALD E. REHKUGLER, agricultural engineering

ROGER E. SANDSTED, vegetable crops

JOHN W. SHERBON, food chemistry

JAMES R. STOFFER, animal science

The following were promoted from assistant to associate professor:

STEVEN V. BEER, plant pathology

RICHARD N. BOISVERT, agricultural economics

EDDIE W. CUPP, entomology

DONALD C. ELFVING, pomology

WILLIAM E. FRY, plant pathology

DONALD C. GRAHAM, food science

DOUGLAS A. HAITH, agricultural engineering

DAVID A. LEVITSKY, nutritional sciences

PETER L. MARKS, biology

J. KEITH MOFFAT, biochemistry, molecular and cell biology

MANDAYAM V. PARTHASARATHY, genetics, development and physiology

OLEN C. YODER, plant pathology

The following faculty members were promoted from associate professor to professor, effective February 1, 1978.

RALPH L. OBENDORF, agronomy

CHRISTOPHER WILKINSON, entomology

The following faculty are on sabbatic leave for the spring 1978 semester:

J. M. ANDERSON, botany, genetics and development—pursuing research projects at the Jackson Estuarine Laboratory in New Hampshire.

J. P. BAIL, education—studying programs in agricultural and extension education at land-grant institutions in Ohio, Florida, and Pennsylvania.

J. W. BOODLEY, floriculture and ornamental horticulture—completing textbook and working at the Apopka, Florida, Tropical Foliage Plant Research Station.

M. H. DICKSON, seed and vegetable science (Geneva)—observing vegetable research in Australia.

D. C. ELFVING, pomology—pursuing projects at Michigan State University.

R. H. FOOTE, animal science—doing research and auditing courses at the University of California, Davis.

R. T. FOX, floriculture and ornamental horticulture—studying interior landscaping and consumer and public horticulture.

H. A. GEISELMANN, education—studying math, writing, and traveling.

J. W. INGRAM, Bailey Hortorium—revising course and exploring ways to help students improve study habits.

W. K. JORDAN, food science—travel to Washington, D.C., Dominican Republic, and Munich, for Dairy Congress.

J. W. KELLEY, natural resources—evaluating data for statewide survey and visiting several states to learn about natural resources extension programs.

E. V. KOSIKOWSKI, food science—participating in international food development and beginning a book on food fermentation.

R. D. MARTIN, communication arts—travel to institutions offering courses in oral communications and parliamentary procedure.

J. K. MOFFAT, biochemistry, molecular and cell biology—doing work on hormones and physical chemistry at the University of California, San Francisco.

R. R. MORROW, natural resources—improving knowledge of environmental problems in the use of forests in North Carolina, New Orleans, and Georgia.

M. V. PARTHASARATHY, botany, genetics and development—visiting professor in India and travel in France and Switzerland.

W. J. PAUK, education—teaching in Australia or New Zealand.

T. T. POLEMAN, agricultural economics—visiting in Washington, D.C. to study development of agricultural sectors in less-developed countries.

M. SZKOLNIK, plant pathology (Geneva)—doing research and teaching at University of California, Davis.

S. A. WHITE, communication arts—improving knowledge in field of organizational communication and video communication.

R. R. ZALL, food science—with research and development group in the United Kingdom concerning critical dairy research problems.

New department chairmen, as of February 1, 1978, were:

S. EDELSTEIN, biochemistry, molecular and cell biology

N. R. SCOTT, agricultural engineering

New associate professors in the 1977-78 academic year are:

DENNIS GONSALVES, plant pathology (Geneva)

GLENN HAUSFATER, neurobiology and behavior

CHARLES SNIFFEN, animal science

New assistant professors are:

JON CONRAD, agricultural economics

HARVEY HOCH, plant pathology (Geneva)

WILLIAM LESSER, agricultural economics

PAMELA M. LUDFORD, vegetable crops

DAVID SODERLUND, entomology (Geneva)

T. STEENHUIS, agricultural engineering

GERALD WHITE, agricultural economics

The following grant awards were reported since December 5, 1977:

M. ALEXANDER, agronomy—Navy, "Microbial Degradation of Pesticides." \$25,000

S. E. BLOOM, poultry science—Canadian Wildlife Service, "Investigations of Environmental Contaminants in Herring Gulls." \$4,999

A. J. BRAUN, plant pathology, (Geneva)—Sandoz, Geneva Sandoz fungicide grant. \$250

J. M. CAMHI, neurobiology—NIH, "Behavioral Neurophysiology of Insects." \$39,660

L. E. CHASE, animal science—Eli Lilly, "Effect of Monensin on Weight Gain." \$7,031

R. T. CLAUSEN, Wiegand Herbarium—NSF, "Sedum of Mexican Plateau and Adjacent Mountains." \$15,098

J. A. DUNN, education—SED, "Cornell Institute for R&D in Occupational and Continuing Education." \$88,240

S. J. EDELSTEIN, biochemistry—NIH, "Structure and Assembly of Tubulin." \$41,930

T. EISNER, neurobiology—NSF, "Chemical Ecology of Insects." \$70,000

G. R. FINK, genetics—NIH, "Regulation of Histidine Biosynthesis in Yeast." \$49,105

O. D. FORKER, agricultural economics—USDA/ERS, "Economic Evaluation for Water and Related Land Resources Planning and Development." \$7,000

G. HAUSFATER, neurobiology—NIH, "Longitudinal Studies of Primate Sociobiology." \$22,117

R. K. HORST, plant pathology—HEW, "Replication Mechanisms of Small Infectious RNAs." \$32,219

G. W. HUDLER & W. A. SINCLAIR, plant pathology—USDA/Forest Service, "Importance of *Gremmeniella abietina* in N.Y. Christmas Tree Plantations." \$13,000

W. J. JEWELL, agricultural engineering—EPA, "Autoclaved Aerobic Thermophilic Digestion with Air Aeration." \$114,455

W. J. KENDER, pomology (Geneva)—Westinghouse, consulting services. \$141,720

D. J. PAOLILLO, genetics—NSF, "Relationship of Apical Rhythms to the Changes in the Shoot Apex." \$45,000

D. PIMENTEL, entomology—USDA/Forest Service, "Cultural Energy Inputs to the USDA NIMRAS Model, RPA 1980 Assessment." \$17,860

J. W. ROBERTS, biochemistry—NIH, "Gene Control in Infection & Lysogeny by Phage Lambda." \$59,741

E. T. SCHMIDTMANN, entomology—ICI Americas, Inc., "ECTIBAN Pyrethroid Insecticide." \$2,000

N. R. SCOTT, ag. engineering—De Laval Separator Co., "Analysis of Teat Milk Flow of the Dairy Cow." \$7,272

D. E. SPLITTSTOESSER, food science (Geneva)—American Frozen Foods, "Microbiological Survey of Commercial Blanched Frozen Vegetables." \$5,000

R. D. SWEET, vegetable crops—PPG Industries, "Weed Science Research." \$1,000

M. SZKOLNIK, plant pathology (Geneva)—Abbott Laboratories, Geneva Abbott fungicide grant. \$1,000

M. T. VITUM, seed & vegetables (Geneva)—Agway, "Nitrogen Fertilization of Vegetable Crops." \$4,000

L. W. ZUIDEMA, international agriculture—USDA, plan and conduct regional training conference. \$3,500

Alumni Help Restore Campus Beauty

by A. BRADFORD CARRUTH Assistant to the Dean

"My father will be 50 next month. He's a Cornellian, class of '49. My husband and I are also Cornellians. And, along with my brother and sister, we want to honor him with a red oak on the Agriculture and Life Sciences Quadrangle."

She is a young graduate of the College of Agriculture and Life Sciences in landscape architecture. She remembers the buzz of chain saws heard every spring as the giant elms between Warren, Roberts, Comstock, and Mann Library succumbed one by one to Dutch elm disease. Even the Cornell plant pathologists and entomologists could not save them.

There were no more dry, crackling autumn leaves to walk through as the late afternoon sun cast its shadow on the quad. Nor would exam week be the same without being able to lie on the grass and listen to soft breezes rustling the leaves of those majestic trees.

Now, more than 30 new large trees have been planted, including species of maple, oak, ash, locust, and linden. Through the College of Agriculture and Life Sciences Fund and the Alumni Association, individuals, families, and other groups continue to give the enduring gift of trees. Family members, friends, and colleagues are honored and remembered through this on-going project.

The trees will not only contribute to the traditional beauty of the campus but will aid in plant-science teaching programs. Giving trees is just one way in which Cornellians young and old are maintaining contact with the College.

All Cornellians are linked in a collage of common memories—lectures, libraries, football games, spring days, February snowstorms, grueling term papers, sweethearts, walks in the gorge, and lifetime friendships.

This common bond notwithstanding, Cornellians have diverse interests and talents. That would please Ezra Cornell and Andrew Dickson White. They were committed to a philosophy enunciated by Wilhelm von Humboldt and



April '77—Dean Kennedy speaks to members of the Floriculture Club as the first tree (a skyline honey locust) is planted as part of the quad restoration project. Dan Cummings '77 looks on.

elaborated by John Stewart Mill: "The great and leading principle is the absolute and essential importance of human development in its richest diversity."

The many-faceted alumni of the College of Agriculture and Life Sciences are fulfilling the aspirations of Cornell and White by serving their college and university through the Alumni Association and the College of Agriculture and Life Sciences Fund.

Some alumni help acquaint high school students with the various programs of study in the College through the "Open House" held each fall. Others participate in the Student-Alumni Contact Program. One alumna helps some undergraduates explore career opportunities in the sciences by exposing them to the atmosphere of a professional laboratory.

An alumnus who was ill during his

undergraduate years established an emergency student-aid fund in honor of O. W. Smith, former secretary of the College. A doctor of veterinary medicine who spent his junior year in Sweden created a memorial scholarship in his mother's name to aid the Cornell-Swedish exchange program in the College.

To put the diverse interests and commitments of alumni and friends into action, the College of Agriculture and Life Sciences Fund was organized in 1969 with the strong endorsement of

the Alumni Association.

With the able leadership of its first chairman, Joseph P. King '36, along with Myron M. Fuerst '29, and many others, the fund has supported a growing number of scholarships and innovative teaching programs. These programs multiply each year.

Fund-raising efforts are intensified for projects like the W. I. Myers Professorship of Agriculture and Finance and for the quadrangle restoration.

The president of the Alumni Association, Phillip A. Green '64, and the chairman of the Fund, David A. Nagel '49, encourage all parents, alumni, and friends to add their diverse talents and energies to serving the College in the future. You will find your involvement with students, faculty, and alumni most rewarding.

You are heartily invited to visit the campus. Bring your whole family. But if you come in the winter, try to make it between snowstorms!

The Alumni Association and the College of Agriculture and Life Sciences Fund extend their best regards to you and your family.

If you would like to give the gift of a tree as part of the quadrangle restoration, please contact:

A. Bradford Carruth
Cornell University
Roberts Hall
Ithaca, New York 14853

or call:
(607) 256-7651

I would like to join the Alumni Association of the College of Agriculture and Life Sciences. With this membership I will receive a subscription to the *Cornell Countryman* that will examine and illuminate the vast realm of agriculture and life sciences.

Enclosed is my check for \$4 for one-year's membership in the Alumni Association of the New York State College of Agriculture and Life Sciences and my subscription to the *Cornell Countryman*.

Enclosed is my check for \$10 for three-years' membership in the Alumni Association of the New York State College of Agriculture and Life Sciences and my subscription to the *Cornell Countryman*.

Name _____ Class _____

Address _____

Alumni Association
The New York State College
of Agriculture and Life Sciences
205 Roberts Hall, Cornell University
Ithaca, New York 14853

I would like to contribute to the ALS Fund for

Scholarships and innovations in teaching
 W. I. Myers Professorship
 Quadrangle restoration

Total \$ _____

Name _____ Class _____

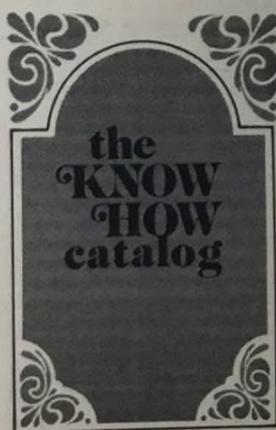
Address _____

College of Agriculture and Life Sciences Fund
The New York State College
of Agriculture and Life Sciences
205 Roberts Hall, Cornell University
Ithaca, New York 14853

New Know-How Catalog

New York State Cooperative Extension has just come out with a new edition of the *Know-How Catalog*. This booklet lists bulletins, leaflets, brochures, packets, and other material from the College of Agriculture and Life Sciences and the College of Human Ecology.

There are thousands of items pertaining to gardening, farming, home maintenance, and ecology, some of which are sure to be of interest to you and your family. All are free or very inexpensive.



Copies of the revised *Know-How Catalog* are available free of charge from:

Mailing Room
7 Research Park
Cornell University
Ithaca, New York 14853

Name _____ Class _____

Address _____



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