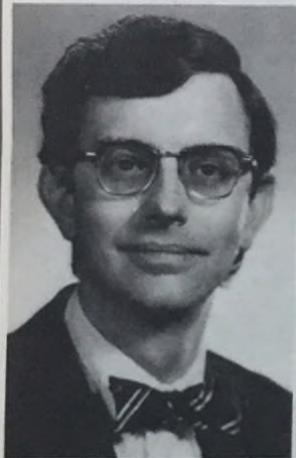


# AGRICULTURE AND LIFE SCIENCES news

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

NOVEMBER 1980



William Tinsley Keeton, a biology professor who was an internationally known authority on bird orientation and migration and the author of a widely used biology textbook, died of heart failure on Sunday, August 17 at his home. He was 47 years old.

Professor Keeton discovered that homing pigeons, long believed to use the sun as their only navigational aid, could navigate equally well under a heavy overcast. Using magnets attached to the pigeons' heads, he also showed that such forces as the earth's magnetic field played a role in the birds' orientation and course selection.

With the assistance of his fellow professors and of biology students, and drawing from laboratory experiments directed by his co-worker, Melvin Kreithen, Keeton played a major role in research that showed ultraviolet and polarized light, barometric pressure changes, and low-frequency sounds unheard by the human ear were seen, felt, and heard by birds. And he reasoned that these factors undoubtedly played a role in the plotting of the birds' voyages.

Bird migration takes place on relatively few nights in each season. In general, a falling barometric reading implies favorable winds for fall migration, and a rising barometer is a sign of wind suitable for northward migration in the spring. If birds can detect changes in barometric pressure while on the ground, they can judge the best time for committing themselves to marathon migration flights.

The ability to sense polarized light (characterized by energy waves all going in one direction) would be a prime navigational aid to birds, since the plane of polarized light in blue sky is related to the position of the sun. The detection of polarization may be used when the sun, which provides compass cues, is obscured by clouds.

Infrasound, sound waves too low to be heard by humans, can be detected by pigeons and may also be a navigational tool. Atmospheric infrasounds can travel long distances, often thousands of miles, without

much reduction in strength. They are produced by wind, thunderstorms, weather fronts, magnetic storms, aurorae, ocean waves, and earthquakes. The detection of these could serve as acoustic and geographic maps.

Keeton's work added evidence to the belief that birds live in an extraordinary sensory world, very different from, and in many ways superior to, our own.

His colleague, Professor Stephen Emlen, said, "When he started his research, people were looking for a single, all-encompassing explanation of bird navigation—the sun—and his work caused a dispersal of this unified theory. A search for all types of cue systems, such as landmarks and polarized light, was begun, and attention was also shifted to the complicated question of how cues could be calibrated to one another."

Emlen, a close friend who worked with Keeton on related research projects for 14 years in the Division of Biological Sciences, said Keeton "took joy from playing detective in his research," and that he "beamed with excitement when he had a new idea. That enthusiasm was contagious," he remarked. "He inspired a lot of people into biology." He added, "Cornell has lost one of its greats."

Melvin Kreithen, research associate and Keeton's co-worker, said, "With his homing pigeon project, he set out to make Cornell the world center for this area of research, and he succeeded. He caused an explosion of

activity."

Keeton published more than 60 papers on the subject of bird navigation and migration. His textbook, *Biological Science*, is considered a classic and is used at more than 800 colleges and universities.

"To understand the impact of his textbook," Kreithen said, "you have to realize that 80 percent of all students taking college biology have used that book. Two generations of biologists have used it. It is the largest-selling textbook Norton every published, and is among the top ten most successful textbooks ever published."

The book, Kreithen continued, "is incredibly clear. He would go into a topic that was someone else's field of expertise, and would, in one paragraph, encapsulate it in a way that was often more clear than the whole body of work in the area. He found the point even when people in the field had missed it. It takes a good, clear head to do that."

Keeton had a heart condition caused by rheumatic fever, which had required two open-heart operations. He appeared not to be handicapped by this condition, however, and conducted most of his research in the field, traveling to hundreds of different sites in his bird navigation research and lecturing on the subject at many foreign universities.

"He could outrun any three of us here," said Kreithen. "There was a feeling of real energy and intensity (Continued on page five)

## ASAS Conference

Returning to its Cornell birthplace, the American Society of Animal Science (ASAS) held its 72nd annual meeting here July 27-30. It was July 28, 1908, when a group of animal nutritionists from 13 states founded the Society. Today, the ASAS has more than 4,000 members and 1,100 student affiliates.

The annual meeting attracted over 2,200 delegates and their families from throughout the United States, Canada, and countries such as Israel, Great Britain, Ireland, South America, Argentina, and Mexico.

Dedicated to the advancement of animal science related to domestic animals such as beef cattle, dairy cows, sheep, swine, and horses, the ASAS has played a large role in shaping America's unrivaled animal industry.

At the conference, nearly 750 research papers were presented on animal behavior, breeding and genetics, nutrition, physiology, pastures and forages, the environment and livestock production, meat science, teaching, Cooperative Extension programs, regulatory agencies, and international agriculture.

The four-day program featured tours of dairy, beef, and swine farms in New York State. A highlight of the conference was a tour of Cornell's Animal Science Teaching and Research Center at nearby Harford, a facility regarded as one of the finest in the nation.

There were also tours of the Agway Research Farm in Fabius, and the Eastern Artificial Insemination Cooperative in Ithaca.

Delegates and their families were hosted by the faculty and staff of the department of animal science. Professor Robert Young, chairman of the department, coordinated the local arrangements.



## EXTRA Section Features Alumni Breakfast Activities

These retired professors were among dozens of College staff and alumni who were honored in June during reunion weekend. A complete listing of recently retired faculty is inside. Those at the breakfast included (left to right) Warren Brannon, Otis Curtis, Edward Foss, Benjamin Clark, Chester Freeman, and Milton Scott.

Four pages of alumni news and activities are included in this issue of ALS News to give you just a hint of what awaits you when you become a member of the College of Agriculture and Life Sciences Alumni Association. Future issues of EXTRA will be mailed only to Association members, so join today.

# Douglas Paine Long-Range Weather Forecaster



Can weather trends be predicted years ahead? If so, is it possible to prepare for weather extremes by stockpiling fuel reserves, by concentrating on the development of particularly hardy crops, and by designing roofs to withstand greater snowloads? Can similar precautionary measures be taken for periods of drought and floods? These are some secondary issues Douglas Paine, associate professor in the Unit of Atmospheric Sciences, considers as he studies climate cycles, sunspots, and the earth's orbital changes.

Paine is predicting that the next four winters will be extremely cold and that the summers will be cooler than normal in the Northeastern U.S. By around 1985, according to his estimate, the cooling trends in summer will gradually reverse. But the winter cooling trend until the end of this century is likely to result in the occasional clustering of severe winters over the next few decades. (In central New York, the normal winter average is 25 degrees Fahrenheit and the normal average for summer is 68°F.)

Paine has come to these conclusions largely through the study and application of two techniques:

the use of a 20-year weighted average of seasonal temperatures and the consideration of maximum and minimum sunspots and their cycles in time.

Paine's weighted average, he believes, gives a better indication of true weather patterns than does a regular average. If, for example, one looks at last winter, which was 4° to 6°F warmer than the previous three, one might conclude that the temperature trend is up. His weighted average, in contrast, shows that last year's relatively snowless winter was merely a brief respite coming amidst a string of severe winters.

Sunspots, which affect the amount of ultraviolet radiation or heat that reaches the earth, influence weather patterns in ways that are not fully understood. Paine, also a consultant to NASA, believes that further research, some to be conducted by NASA in future space missions, will provide a big boost to understanding solar-climate relationships and to predicting weather much farther in advance than is now possible.

Of special concern to Paine, in the event of weather extremes, is that much of our current planning, whether for crop production, snowload stress requirements for roofs, or energy distribution, is based on the utopian climate during the past two centuries. Some signs suggest that we're leaving this relatively pleasant period, at least for a while.

Since 1950, an average of two weeks has been lost from the growing season due to cold weather. Seasons with only 18 weeks of frost-free weather have occurred more than twice as often during the past 30 years than before that date. This 126-day period of frost-free weather does not allow much margin for the 110-day growing season that corn requires. If we could predict with

certainty that we were in for a series of cold winters, Paine asserts, then we could plan accordingly and perhaps develop cold-resistant or quick-bearing crops. Most currently grown crops require a relatively favorable climate. He points out that New York State's grape industry relies on varieties that have never had to withstand severe cold.

The distribution of fuel supplies is also based on uncharacteristically mild winters, Paine said, and a major energy crisis, especially in the heavily consuming northeastern industrialized areas, could occur.

To change crop varieties, construction methods, and fuel distribution would, of course, entail a vast economic commitment. Therefore, at least for the time being, Paine has qualified his projections as an "estimate." An "outlook" would be more definite, and "forecast" more certain still. The next few years, he said, will reveal whether these techniques and predictions are valid.

Douglas Paine's interest in meteorology began at an early age. When his fourth grade classroom was turned into a "community" as an educational exercise, he became the community's weatherman, writing on the blackboard weather forecasts compiled from local news sources. When he was in junior high in Cleveland, Ohio, Paine happily took a summer-long course offered by a local weather forecaster.

While getting his BS and MS degrees from Penn State, his concept of meteorology was greatly expanded through Professor Ed Daniels. Daniels started out as an artist, and, while painting clouds in the South American Andes, became so intrigued with their patterns and grace that he went back to college and got a doctorate in atmospheric sciences. Paine said, "He really made an impression on me of the atmosphere as art."

Paine and Daniels were researchers in Project Springfield, a study of the effects of nuclear bombs on the environment. In the late 1950s and early 1960s, the U.S. and the Soviet Union were testing nuclear bombs in the stratosphere, on the assumptions that it was sufficiently far away and stable to be safe and that the radiation byproducts would harmlessly decay before re-entering our environment. Project Springfield researchers proved that during major storms, the stratosphere mixes with the closer troposphere, thus bringing radioactive debris back to earth. Other researchers found that strontium-90, a component of radiation, was beginning to find its way into the milk supply.

Paine said that the project underscored for him both the "theoretical and direct world applications" of meteorological research.

A forecaster for the Cornell weather service, he is regarded throughout the state, particularly by safety and public officials, as an authoritative source of weather information and forecasts. At the beginning of each winter semester, he is regularly heard on radio and phone-in forecasts, but as the term progresses, his students take on more responsibility reading the monitoring equipment in Bradfield Hall, as well as broadcasting the forecasts.

He has also done research on severe storms, examining the theory that small-scale events such as thunderstorms are triggered by large-scale imbalances in the flow of the atmosphere. A computer system designed to predict severe local storms that he and his graduate students helped develop is now being used by the NASA-Langley (Virginia) severe storms research group for studying squall-line formation. Paine has received funding from agencies such as the National Science Foundation, NASA, and the U.S. Air Force.

## Yellow Jackets: They Have Their Place

Raising yellow jackets to collect venom and studying the behavior patterns of four related species are the objectives of a three-year study at the Dyce Honey Bee Laboratory. The NIH-sponsored project, led by Roger A. Morse, entomology professor and principal investigator, and Kenneth Ross, entomology graduate student, may advance methods in producing antiserum for people allergic to wasp stings.

The method now used by private medical labs to extract venom is to gather colonies of yellow jackets, freeze them, then remove the stingers and glands and grind them. This procedure has a number of disadvantages: foreign matter is ground along with the venom,



*Apiculturist Roger A. Morse (right) and grad student Kenneth G. Ross use this electrical device to collect venom from yellow jackets.*

diluting the product and allowing less quality control; it is an expensive method, requiring that laboratory employees search out colonies in the wild; the nests in the open are usually smaller and therefore less efficient for the purpose than those artificially raised under ideal conditions; and, under natural conditions, wasps die at the end of each season when their food sources disappear (unlike bees, which store honey for the winter).

That weather is a factor in hive

longevity and size is clear, and is one characteristic that may be simulated in a laboratory. In Florida, for example, hives with as many as a million cells have been known to occur. This size nest could produce large, economical quantities of venom.

The current study parallels one done by Morse and a former graduate student Allen W. Burton, in which a closely controlled environment enabled collecting venom from 50,000 to 100,000 honey bees in a period of several hours.

To achieve similar results with yellow jackets, also known as Vespula or vespid wasps, more needs to be known about their biology. Morse and Ross will observe how the different Northeast yellow jacket species choose their nest sites, in which types of sites each species is most successful, and which insects the various wasps prefer as prey.

During 1976 and 1977, most inquiries to entomologists about insect problems among NYS people concerned stings. Of the wasps commonly found around garbage cans, fast food restaurants, and in parks, an immigrant yellow jacket, *Vespula germanica*, represents 80 percent of the wasp population. This species was not known to exist in the US before 1970, and therefore there is little information about its behavior and its natural predators. It is among the species being studied in the project.

To start the colonies currently being observed at the bioclimatic chamber at the Dyce laboratory, Ross

and Robert Matthews, an entomology professor who visited here during sabbatical from the University of Georgia, collected queens flying across the campus or living in people's houses around Ithaca. The colonies started so far seem to reproduce and carry out their activities successfully under laboratory conditions.

The apparatus used to collect venom is a second box that fits inside the nesting box and easily slides out for removing the deposited venom. The machine has electric stainless steel rods that go across the top where the bees stand. Underneath is a layer of thin plastic, such as that used for sandwich wrapping. When the electric current is turned on, the vibrations should cause the wasps—as did the honey bees—to sting, thus releasing the venom that is dropped to the plastic layer. The venom will then be air-dried, frozen for storage, and eventually combined with other ingredients to make the antiserum.

While wasps are generally regarded as pests, they play an important role in controlling insects. They eat flies, mosquitoes, moth larvae, as well as grasshoppers and other insects harmful to agricultural crops.

Aside from generating information about venom extraction, Ross said, the study will disclose details about stages of wasp development—how temperature, day length, light, and type of prey affect development and reproduction; and will provide further insight into the ecology of these important insects.

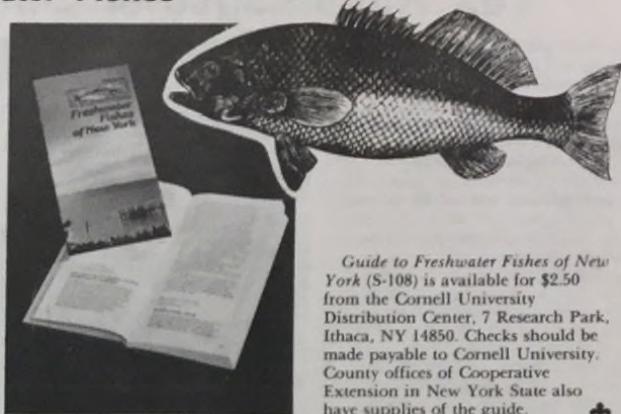
## Guide to Freshwater Fishes

Designed to fit a tacklebox, a hiker's pack, or a pocket, a new guide for identifying fish has just been published. *Guide to Freshwater Fishes of New York* is aimed at beginners and experienced anglers; beginners will appreciate its simplicity, while those with experience will find it a handy refresher.

Quick and accurate identification of a fish can help an angler avoid misinterpreting regulations and potentially violating fish and wildlife laws. The guide also could be a valuable resource for libraries because it includes descriptions and illustrations of more than 100 fish species found in New York State's waterways; most of these are also found in other northeastern states.

Non-technical keys in the 140-page guide rely primarily on colors, patterns and markings, location of fins, and other distinguishing features for easy identification. Other information describes fish habitats and indicates whether a fish is good for sport or for food. A bibliography and an index provide a cross-reference on both common and scientific names.

The Cornell Cooperative Extension publication was written by several members of the department of natural resources—Daniel Decker, research associate, Ronald A. Howard, Jr., extension associate, W. Harry Everhart, professor and department chairman, and John W. Kelley, associate professor and department Extension leader.



*Guide to Freshwater Fishes of New York* (S-108) is available for \$2.50 from the Cornell University Distribution Center, 7 Research Park, Ithaca, NY 14850. Checks should be made payable to Cornell University. County offices of Cooperative Extension in New York State also have supplies of the guide.



## Food Science



At Cornell, as at other universities, the study of food science evolved from commodity departments, such as horticulture and dairy science, and from the problems associated with canning in the early 1900s. Studies of microbiology (spoilage), chemistry (color, flavor), thermal properties (heat transfer, microbial lethality), and engineering (canning materials, scaling of cans) provided the scientific foundation for dealing with problems in food canning processes.

The need to control post-harvest changes in food led scientists to study the biochemical, chemical, and microbiological aspects of fruits, vegetables, and animal products. In combination, these areas formed what is today the highly diversified field called food science and technology.

It wasn't long ago that families produced most of their own food, a nearly full-time occupation for its members. Advances in science and technology reduced the amount of time necessary for food preparation, greatly increased the variety, nutrient retention, and year round availability of foods, increased food safety, and reduced post-harvest losses. With increasing populations, together with diminishing energy, land, and other resources, there is an even greater challenge now facing food scientists to help meet the world's dietary needs.

Food science has been an important part of the curriculum since Cornell's founding, and, because New York is a major milk-producing state, dairy science has always been an important component of the food science curriculum. Dairy processing was established as a separate course in the 1880s, and in 1902, the Department of Dairy Industry was formed. In 1923, the department moved into the newly built Stocking Hall, and a strong program in dairy science was developed in the subsequent decades. A food chemistry course was first offered in the 1950s, and in 1956, a formal program in food science was established; ten years later, the Department of Food Science was formalized.

Research, teaching, and extension

facilities related to food science at Cornell are coordinated and administered by the Institute of Food Science, formed in 1970. This is composed of faculty members of the Department of Food Science located on campus, who conduct research and provide the major portion of the instruction, and of the Department of Food Science and Technology, located in Geneva, which is involved primarily in research on fruit and vegetable processing and relevant aspects of plant biochemistry, fermentation, and nutrition. Several members of the departments of agricultural engineering, animal science, poultry science, pomology, and vegetable crops are members of the Institute through joint appointment, as are faculty members of the Pesticide Residue Laboratory on campus, and the School of Hotel Administration.

The department of food science, located in Stocking Hall, is headed by John E. Kinsella, who also serves as director of the Institute. The department has 22 professors, seven of whom hold joint appointments.

It offers 40 courses in such areas as food, microbiology, chemistry, statistics, engineering, physical chemistry, analytical principles, effects of processing on nutrients, sanitary principles, sensory evaluation, and unit processing. The department has two special programs to give undergraduate students firsthand knowledge of the industry. As part of the Contact Program, students can spend one to two weeks working in the food industry with CALS alumni. The Cooperative Education Program makes possible more in-depth experience with a food company. Under it, a student spends two semesters and a summer as an employee of a company, gaining comprehensive experience by directly observing its functions.

The milk and ice cream processing plant on campus is used for teaching and research and also serves as a place where students can work part-time. At the department's dairy store, students can test the marketing potential of new products and make actual food products themselves.

Because food science is an applied

field, involving a considerable amount of engineering and processing technology, effective teaching requires laboratory facilities similar to those found in industry. The practical aspects of food processing, preservation, packaging, and storage taught in its laboratory should provide a sound transition from school to the students' eventual jobs in industry, government, and education.

One of the finest food science departments in the country, and the only such department in the state, it is looked to nationally as a model exemplifying the highest standards in the field. The food processing industry, one of its constituencies, is the country's largest, employing one-seventh of the total U.S. work force, representing a total retail value of \$18 billion in New York State, and a comparable value nationally of \$240 billion.

To rectify what Kinsella described as "deplorable conditions," plans are under way for a new lab to adjoin Stocking Hall. Beyond handling the increasing student enrollment, the new lab may serve small industries that don't have facilities to carry out their own research. It will also be able to serve a greater number of constituents in extension and public service programs by, for example, giving assistance in training plant personnel, helping develop new food products, and providing guidance on analytical, regulatory, and quality assurance problems.

How does the department help tackle a consumer and industry problem? Extension specialists in the field, who are in close contact with the department, often hear from consumers and businesses about specific concerns, and they relay this information to the department. Faculty members also are consulted regularly by representatives of industry and government seeking solutions to various problems.

One recent example is the Milk Quality Improvement project. Studies showed that in some cases 60-80 percent of commercial milk may not meet the criteria of acceptable quality on the specified sell-by date, and also that people were not consuming milk

in the quantities they once did.

The Milk Promotion Board, a state organization supported by funds provided by member dairy farmers, contacted the department for assistance.

To help analyze and then suggest solutions to the problems, the project will try to establish standard methods for determining quality, identify the principal causes of off-flavors in milk, and determine practical methods for their control that are compatible with energy-efficient processing.

Milk presents a typical dilemma for the food industry because of contradictory consumer expectations. People want fresh tasting milk with a long shelf life so it can be purchased less often. On the other hand, milk—a product never intended for long shelf life—is also expected to be as natural as possible, with little or no intervention.

Food scientists are faced with a biochemical reality in dealing with this: psychotrophs multiply rapidly in refrigerator temperatures, and the longer the milk is refrigerated and the older it is, the greater their numbers. These psychotrophs are responsible for the "gray" taste in milk that is generally found objectionable.

The problem is how to minimize these psychotrophs without shortening shelf life, without altering the taste and nutritional value of milk, and at a cost farmers and consumers can bear.

Six professors in the department are working on this study, providing a cross-pollination of ideas. Their areas of responsibility are: lipids, John Kinsella and William Shipe; processing modifications, Robert Zall; flavor evaluation, Shipe and David Bandler; microbiological aspects, Richard Ledford, Robert Gravani, and Zall; corrective measures, Bandler, Zall, and Shipe, and regulatory aspects, Bandler.

Their findings will be made available through technical journals, extension publications, and the general media, and the final results of the study should eventually become evident in the dairy cases in grocery stores throughout the state.



# Tax Advantages of Land Donations to College

Charitable gifts not only benefit the College and advance research that can be applied to solving world problems but also offer direct monetary benefits to donors. There are a number of possible options those wishing to donate land can consider.

**A farm sale with retained life income**

In this type of gift, the University sells the donated property and uses the net proceeds to establish a trust providing life income to the donors. There are, for this purpose, two types of income trust: one which pays a fixed income (annuity trust); and one which pays a variable income (unitrust). Payout rates for the annuity trust are negotiated between the farm owner and the University. The higher the owner's tax bracket, the greater the benefits will be to that individual.

There are important implications for one's federal tax picture in making donations of land. The owner receives an immediate income tax deduction based on a proportion of the fair market value as determined by federal tax rules and professional appraisal. During the year of the transfer, such deductions can be taken in amounts up to 30 percent of adjusted gross income, with any excess carried over for up to five years.

Because most farm properties represent substantial long-term appreciation and significant tax liability when sold, savings from capital gains tax liability can be an important consideration.

Probate and administrative expenses involved in estates are reduced when farms and other properties are transferred to Cornell prior to a person's death.

Arrangements to give land to Cornell, either during one's lifetime or at the time of estate settlement, reduce the taxable estate.

**Gift of a farm or property with retained life tenancy**

A special provision in federal tax law permits the gift of a personal residence or farm on which a person lives, with full use and responsibility for the property retained by the donor for his or her lifetime, or by the donor and surviving beneficiary.

The main advantage of this type of donation is that a substantial income tax deduction is allowed at the time of the irrevocable gift. The after-tax savings can be spent or invested for future additional income. The charitable deduction is less than the full value of the property, but is frequently as large as the donor can claim within the limitation determined by the percentage of adjusted gross income for the year of the gift.

There are also charitable deductions for estate tax purposes. At the death of a single life tenant or of the survivor of two life tenants, the value of the residence is 100 percent deductible. There is also a partial deduction for the estate of the donor with a surviving beneficiary/tenant. Removal of the property from the estate can reduce final settlement costs.

For the couple seeking income tax, capital gains tax, and estate tax benefits without giving up the pleasure and security of their home, a



gift of property to the College with retained life tenancy may be a good choice.

#### "Bargain sale" of property

The "bargain sale" gift of appreciated long-term property has advantages if the current value of the property exceeds the amount the donor wishes to give and it is not practical or economical to divide the property, donating one part and retaining the other.

This method might involve a parcel of land sold to Cornell at a price significantly below its appraised fair market value, but above its cost basis for tax purposes. The difference between its true value and the price at which it is sold to the University is considered a tax-deductible gift for income tax purposes.

The seller/donor is not taxed on the full appreciation over cost. Only the share of the total paid that is allocated to the sale portion of the transaction is subject to the capital gains tax.

For example, a transaction involving land worth \$100,000 that has a cost basis of \$30,000 and is sold to Cornell for \$40,000, produces the following results. There would be a charitable gift of \$60,000 (\$100,000 fair market value less the sale price of \$40,000) for which the seller/donor receives a 100 percent capital deduction for income tax purposes, usable over a six-year period if needed. Since the selling price represents only 40 percent of the property's true value, only 40 percent (\$28,000) of the \$70,000 in total appreciation is subject to capital gains tax.

A seller/donor should realize from the transaction and tax savings in this case, the original cost plus enough to cover the reduced capital gains tax.

After-tax savings from the charitable reduction will be available to invest for future earnings, with the amount saved dependent on income level.

The seller/donor in a relatively high income tax bracket can conceivably receive as much income from the tax savings as was

previously received from the land—and also make a substantial gift for education.

#### An outright gift

The outright gift of a parcel of land that has appreciated is often the most advantageous method for donors in high income tax brackets with substantial assets other than the gift property. Assuming that the property has been held over 12 months, the outright gift receives the following favorable tax treatment:

An income tax charitable deduction for 100 percent of the fair market value of the property at the time it is transferred by valid deed is allowed.

No capital gains taxes are levied on past appreciation in value, either at the time of the gift, or if and when the University sells the property to gain funds for direct use or for reinvestment.

There is a reduction of the donor's taxable estate, by the value of the gift. The deduction effectively reduces the amount of taxable income, so the higher the donor's taxable income, the greater is the "discount" for the net cost of the gift.

The amount of the charitable deduction that can be used in any one tax year is limited to a percentage of the adjusted gross income for that year, although any unused excess can be carried forward and used for up to five additional years. Thus, the higher the donor's income, the greater the proportion of a large deduction that will be usable.

By reinvesting tax savings to produce higher yields, a donor's total pre-tax income may be maintained or even increased after an outright gift. For example, a donor over the 50 percent tax bracket may have been receiving a 4.0 percent annual return on land worth \$100,000 or \$4,000. Tax savings realized from the \$100,000 charitable deduction should be about \$50,000. Reinvesting this \$50,000 at 8 percent would produce the same income, but with improved stability and diversification.

#### A gift by will

The lifelong farmer who has been "cash poor," putting everything into

equipment, supplies, and more land, may not realize the value of the resulting estate, nor how severe the eventual tax bite will be. One good option might be to have provisions in the will for a charitable donation.

The larger the taxable estate, the greater the "discount" on the net cost of a gift by will. This is because federal estate tax rates are "progressive"—that is, they rise sharply as the size of the estate increases, starting at 30 percent on the lowest amount that is subject to tax, increasing to a maximum of 70 percent. The charitable deduction, however, comes "off the top," removing from the estate the highest-taxed property. There is no limit on the amount of charitable gift deductions.

Depending on the size of the "taxable estate" (total value less final costs and any marital deduction), this charitable deduction and the resulting tax savings can significantly reduce the net cost of the gift, and increase the amount available for purposes desired by the donor.

A gift of property to Cornell by will establishes a 100 percent charitable deduction for federal estate tax purposes.

In general, an unrestricted gift provides the most effective support, allowing the University flexibility to respond to needs not foreseeable at the time the will was drawn and the gift made. This is particularly true when availability of a fund will be deferred for an indefinite period.

A bequest under one's will can consist of almost any type of real property: a personal residence (including a second or "recreational" residence), a farm or ranch, a commercial building, subdivision lots, or an undeveloped parcel of land. A gift can often be an undivided fractional interest rather than the whole property.

The careful allocation of unrestricted gifts and annual income from such endowments is a continuing responsibility of the Board of Trustees at Cornell.

The Office of Development and Alumni Affairs is preparing booklets outlining the tax and other monetary advantages of donations of land. Those wishing to receive these publications, or to receive further information concerning gifts of property, may call or write the Office.

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## Agricultural and Environmental Values

"This is the best course I have taken at Cornell—in challenge, in making me think, in opening a whole range of ideas and possibilities. It is the single course I feel I should not have graduated without taking."

"I only regret that so few are exposed to this material."

"This was an excellent learning experience, encouraging much independent work of individual and group value—and personal self-confidence."

These three quotes, taken from anonymous student evaluations, describe the course, "Religion, Ethics, and the Environment," part of a program in agricultural and environmental values in the department of natural resources. It is taught by Richard Baer, theologian, philosopher, and associate professor in the department.

Before coming to Cornell to establish the program, Baer spent twelve years on the faculty at Earlham College in Indiana. He received his PhD degree from Harvard University and has also studied at Syracuse, Princeton, and the University of Tübingen in Germany.

"The program has been successful," Baer says, "because students want to talk about ethics and questions of professional responsibility." The encouragement of faculty and administrative colleagues throughout the College of Agriculture has also been a key factor, he believes.

An important aspect of the program is that it legitimates the role of the generalist, who looks at a broad range of issues. It examines how the humanities—particularly religion, philosophy, and ethics—help us understand and treat nature. Specific issues dealt with include responsibility to future generations; the implications of environmental programs for minorities, the poor, and for developing nations; and a reverence for being.

Reading assignments for courses in the program cover a broad range of ideas and authors: C.S. Lewis, *The Abolition of Man*; Josef Pieper, *Leisure: The Basis of Culture*; Reinhold Niebuhr, *The Nature and Destiny of Man*; Thomas Merton, *The Way of Chuang Tzu*; and Fred Bosselman, *The Taking Issue*. Students also read selections by philosopher John Passmore, English professor Leo Marx, and biologist Garrett Hardin.

Professor Baer believes that universities have drifted away from teaching the humanities with consequences harmful to the individual and to society. He said the



PhD degree has become almost a misnomer. Many doctors of philosophy in science, for instance, have never taken a single philosophy course and are simply unable to discuss the assumptions, methods, and goals of modern science in a critical and comprehensive manner.

"If the College of Agriculture is going to be part of the University in more than name, it has to deal more consistently with the larger dimensions of culture. Otherwise we will simply become a technical training institute," Baer said.

The values program is being used as a model for planning similar programs in several other states. In addition to associate professor Baer, it is staffed by several part-time teaching assistants, a part-time secretary, and an occasional part-time research assistant. Funding for the program has come mainly from gifts from foundations and individuals. Major grants have been made by the Lilly Endowment, the Rockefeller Brothers Fund, The (Anson L.) Clark Foundation, and the Exxon Education Foundation.

Baer claims that commitment to objective, empirical knowledge gives us control over nature and other people. "It helps us predict, redirect, and manipulate. In the modern world, such knowledge is valuable, indeed indispensable. But it is also dangerous. Our universities are turning out students woefully undereducated in what theologian Bernard Meland terms the 'appreciative consciousness,' which is a more gentle, respectful, intuitive kind of knowing."

The system of checks and balances,

which lets neither the prey, the predator nor any one species gain undue control, has been the ruling harmony of the earth. But the human species, because of its ingenuity, has been able to dominate the planet—but not bypass its laws. The hubris involved in the belief that mankind not only transcends nature but also can ignore it, Baer contends, one of the major underlying problems of the environmental crisis we face today.

By instead regarding nature as intrinsically valuable and not merely as raw material for consumer production, a new and correct sense of modesty about our relation to the world can be achieved. To disregard the holistic qualities of our environment is to rebel against the basic structure and beauty of the world as it is given to us.

Anxiety about death and the diminishment that precedes it are, in Baer's view, among factors responsible for abuse of the environment. When death is no longer perceived as a beginning, as a rite of passage into fuller life, but as a confrontation with permanent nothingness, there comes a greater desire to increase the tempo of life, to manipulate and take more. People feel they must produce and achieve to demonstrate that they exist.

This psychological need to keep growing, to keep producing more energy and things, has stood in the way of assessing the long-range implications of economic activities. To question the ability of technology to improve, perfect, and sanctify "undeveloped" nature is for many near heresy.

The heavy agricultural use of DDT in post-World War II is an example, according to Baer, of our impatience with the messiness of nature and our need to remain in control by tidying up everything in our environment. "By establishing too rigid a control over nature," he said, "we may lose all control."

He does not advocate returning to a primitive standard of living nor repudiating technology altogether. He thinks technology and science have greatly enriched our lives both materially and intellectually, but to continue to benefit from them we will have to proceed more wisely and cautiously than in the past.

He addresses also the question of what environmental progress does to the poor. When an industry incurs extra operating costs from pollution controls, costs are passed on to the consumer. But because the poor, compared to the rich, must spend a disproportionate share of their total income for necessities, the higher cost

of these necessities functions as a regressive tax, similar to the sales tax. For the poor, this is a particularly onerous injustice, because they play a relatively small part in polluting the environment. The residents of East Harlem or the mountain people of Appalachia, because of their low material consumption, have overstrained the environment far less than the over-consuming middle and upper classes.

What Baer is arguing for is balance, along with a hard look at the important things in our lives and the standing that inanimate objects will ultimately be accorded among living entities. He believes that both university and church must change if society is to achieve harmony with the natural environment. Neither institution should focus mainly on what is wrong, but should spend more time thinking positively about how to move forward, how to create a quality environment. It also will require a stronger orientation toward planning, as opposed to problem solving. Problem solving looks to the past, to what went wrong, whereas planning tries to envision what is right, what an alternative future might look like.

This positive attitude and optimism is central to Professor Baer's teaching. Problems are realistically examined, but a balance is achieved by emphasizing the gains made in environmental sensitivity and awareness on the part of the general population, government, and business. There is, throughout Baer's writing and conversation, a feeling of "thanksgiving" of praise for what is.

*There is a passage in the book of Proverbs, he said, that puzzled him because it seemed almost frivolous in describing the creation of the world: When God established the heavens, I [Wisdom] was there.... When He marked out the foundations of the earth, then I was beside Him, like a little child; And I was daily His delight, dancing before Him always, rejoicing in His inhabited world....*

Baer believes the passage means the world was created out of affection and delight; it suggests that the basis of our lives was never intended to be achievement and the necessity of proving ourselves, but joy and appreciation. Contrary to the maxim, "If you're not good for something, you're good for nothing," the Bible is trying to tell us that just the fact we are, is good; being is valuable in itself. As you experience acceptance in your own life, you will learn to accept other existences. Or, as Albert Schweitzer said, "I am life that wants to live among other forms of life that want to live."



William Keeton (continued) was when you were around him. He was particularly energetic when he lectured—he got everyone stirred up." In 1966, he won the Professor of Merit Award from Cornell's graduating seniors in recognition of his outstanding teaching.

He taught the primary introductory biology course at Cornell for nearly 20 years, although he was to begin sharing the responsibility with other professors. Professor Thomas Podleski, chairman of the Section of Neurobiology and Behavior, said, "It's somewhat incorrect to call it the 'Keeton course,' but we still do."

Podleski said that Keeton, who was recently elected to the Board of Trustees at Cornell, served the school "in virtually every conceivable

administrative role." Keeton was a former chairman of the Section of Neurobiology and Behavior. "He was a man of many, many talents," Podleski said.

Professor Keeton was a former member of the governing council of the American Association for the Advancement of Science, and served as consultant to state and federal agencies, including the National Academy of Science, for which he evaluated the safety of Project Seafarer, a special communications system for submarines. He had been an invited lecturer at more than 65 colleges and universities, and at numerous conferences, and was the Keynote Lecturer at the International Ornithological Congress in Berlin in 1978.

He received a bachelor's degree in

zoology from the University of Chicago, a master's degree in entomology from Virginia Polytechnic Institute, and a doctorate in entomology from Cornell.

He was born February 8, 1933 in Roanoke, Virginia, and attended public schools in Lynchburg, Virginia.

Surviving him are his wife, the former Barbara Orcutt; two daughters, Lynn and Nancy, and a son, William, all at home; and his parents, the William Ivy Keetons of Richmond.

Friends and colleagues have established the Keeton Memorial Fund, and donations may be sent to the Section of Neurobiology and Behavior, Langmuir Laboratory, Cornell University, Ithaca, NY 14850.

# Gasohol From Farm Crops

Alcohol from corn and other agricultural crops for use in gasohol could be produced on a large scale five years from now. But its impact on the energy crisis will be relatively small.

This is one major conclusion reached by an eight-member panel of energy experts in a study conducted to help the U.S. Department of Energy (DOE) form policies related to alcohol production. The group, representing universities, industries, and the government, was led by David Pimentel of the College.

Gasohol is a blend of 90 percent gasoline and 10 percent grain alcohol, called ethyl alcohol (ethanol). Wood-derived alcohol, known as methyl alcohol (methanol) can be used in place of ethanol. In both cases, the goal is to save oil by adding alcohol to gasoline.

The panel, the Gasohol Study Group, projects that 800 million gallons of ethanol could be produced from nine million tons of corn and other grains per year. This amount, however, would save only 26,000 barrels of oil per day, which is less than one percent of the total amount of gasoline used in this country. Even this much saving of oil cannot be achieved, the panel contends, unless all current and future alcohol production facilities are fueled by coal, which is abundant, rather than by scarce fuels such as oil or natural gas.

The study focused on the potential benefits of alcohol production from corn and other agricultural crops and on organic wastes (biomass), as well as on the consequences to agriculture, land use, and the environment.

One advantage of using agricultural crops to produce alcohol is that a supply of high-quality liquid fuels can be made available quickly, the panel notes. Farmers themselves can produce ethanol on a small scale, providing them a degree of energy self-sufficiency, the panel says. "Assuming that wood waste is readily available as a distillation fuel, then there would be a net energy gain for small farm operations."

A disadvantage of gasohol production from grain, Professor Pimentel points out, is that

stimulated by high subsidies, it will reduce the amount of grain available for production of meat, milk, and eggs, causing even higher prices for these foods.

Looking ahead, the study group sees forest and agricultural waste materials (collectively referred to as biomass) as a major resource with potential to produce 27 billion gallons of ethanol per year. Because of the relatively low production costs and widespread availability, biomass is expected to be the most important raw material for the production of fuel alcohol in the future.

In one of its recommendations, the panel urges the government to encourage the use of coal, which is the nation's most abundant fossil fuel resource, in order to produce methanol, now used widely for industrial purposes. "This technology has potential for lower production costs than alcohol derived from either grain or biomass and would have less impact on food production and prices."

However, the study group emphasizes that the environmental problems related to coal-produced methanol should be examined more thoroughly and that "the benefit of the lower-cost methanol production should be balanced against any potential environmental risks"— dangers to agricultural and forest lands, air and water pollution, excessive water consumption in water-deficient areas, and destruction of beneficial soil-dwelling organisms.

In other recommendations, the panel considers current investment incentives for alcohol production to be adequate and sees no need for additional incentives. It bases this conclusion on the possibility that lower-cost methanol from coal and ethanol from biomass may become available in large quantities in the next decade.

Summing up his group's findings, Pimentel said "Ethanol production from grain in the foreseeable future can help alleviate the nation's energy crisis a little, but it will not solve the problem."

Other members of the Gasohol Study Group are: Professor Charles Cooney, Massachusetts Institute of Technology; Richard L. Hinman,

vice-president for R&D, Pfizer, Inc. chemical products; Professor William Scheller, University of Nebraska; Thomas E. Stelson, vice-president for research, Georgia Institute of Technology; Professor Jack M. Spurlock, Georgia Institute of Technology; Paul Weisz, director of Mobil Research and Development Corporation; and James Vance of Arlington, Virginia.

Another study, led by researchers from the College and from the Agricultural Research Station at Geneva, also will investigate this issue. The \$195,000 study, funded by New York State's Energy Research and Development Authority and Cornell, will evaluate prospects for distilling ethanol from feedstock produced within the state. Such potential feedstocks as cheese whey, fruit and vegetable processing wastes, and grains will be considered.

The economics of transporting various feedstocks to ethanol-producing plants will be an aspect of the study. Markets for ethanol and its by-products will be assessed, and production technology and equipment will be evaluated. Environmental impact, storage, and waste disposal questions associated with distillation plants will be examined, and the energy requirements of such plants analyzed.

These and other factors, including taxation and zoning considerations, will be weighed when potential sites for plants are evaluated.

Because technology exists for producing ethanol from feedstocks, ethanol production offers an immediate practical means of extending petroleum supplies, said Professor Robert J. Kalter, agricultural economist at Cornell and director of the study.

Other researchers participating are professors Richard N. Boisvert, agricultural economist, and Larry P. Walker, agricultural engineer, also of the College; and professors Anandha M. Rao and Young D. Hang of the department of food science and technology at the Geneva Experiment Station.

If feasibility is shown, Kalter said, plants could begin operating within two years after the start of construction.

Confinement to a wheelchair doesn't mean the end of a person's gardening activities. Nor do public gardens or nature trails need special sections for the handicapped, a practice that in the past has excluded them from the rest of the community.

Two Cornell publications provide information on how to improve access to toolsheds, greenhouses, outdoor plantings, and public gardens, and how to use containers in gardening. They are *Designing Barrier-Free Areas* and *Gardening in Containers*.

Wheelchair gardeners, as other gardeners, can do more work with less effort if their gardens are designed to suit their personal needs and characteristics, according to Robert Kozlowski, Cooperative Extension associate at the College. Greenhouses, toolsheds, and potting sheds can be made accessible by specially designed paths and ramps, notes Kozlowski, a specialist in floriculture and ornamental horticulture.

The gradients and materials of paths, types of tools, size of planting areas, and specific heights of workbenches are illustrated and discussed.

In providing outlines for designing public gardens, *Designing Barrier-Free Areas* devotes a section to inviting visitors to become involved: "Signs should present facts on plant and animal identification, historic sites, ecology, and agricultural practices. They also should involve the visitor by asking questions and directing her/him to feel tree bark, smell a flower, or listen for a bird call. These activities help educate visitors by stimulating their senses and minds."

*Designing Barrier-Free Gardens* is available for \$2 (check or money order) from the Instructional Materials Service, Department of Education, 3 Stone Hall, Cornell University, Ithaca, NY 14853. Single copies of *Gardening in Containers* are available free from Cornell Cooperative Extension, Gardening Department, 111 Broadway, New York, NY 10006.

## Home Study Program in Food Industry Management

Cornell University's Home Study Program in Food Industry Management has reached a milestone: 100,000 students have enrolled to date in the 16-year old program, unique in the nation.

Announcement of the achievement was made in July in San Antonio, TX, at the semi-annual meeting of the program's advisory board, made up of personnel and training directors from twelve food chains in the United States and Canada.

More than 500 companies, including the food chains, manufacturers, and processors, regularly encourage their employees to enroll in the Home Study courses; many businesses require their managers, assistants, and management trainees to take them. Most companies pay part or all the \$40 enrollment fee, which will increase to \$50 on January 1, 1981.

George Hayward, extension associate in the department of agricultural economics, directs the program. He said that students come primarily from the U.S. and Canada, although many work for companies located in Africa, South America,



Australia, and Japan. Recently, more than 200 from Japan have been enrolled.

Courses include economics, math, law, accounting, and customer relations. Management courses provide students with opportunities to focus on general store management skills, as well as specific topics related to activities such as front-end management operations, merchandising, and food warehousing. The newest course, made available last August, is designed to help managers write organized and informative reports.

Each textbook is supplemented by a study guide prepared by staff members at Cornell. The guide

provides students with how-to-study suggestions. "This is important," Hayward explained, "because many who enroll have been away from school for several years."

Tests, based on readings, are graded and returned to students with appropriate personal comments, Hayward added. Each day, the home study office staff handles an average of 200 assignments received from students enrolled in 19 courses. Five new courses will be offered in the next few months.

When students pass the final examination for a course, they receive a completion certificate. Those who have completed five courses also receive a basic honor award; with 10

courses, they are eligible for an intermediate award; and for 15 or more courses completed, an advanced achievement award is presented. Two students also are eligible for the newly developed high achievement award to be granted following completion of twenty courses.

The home study idea for the food industry got started in the early 1960s. Food industry executives approached Wendell Earle, now professor emeritus of marketing at the College, for help in drawing up guidelines for the proposed program. Within two years, the first home study course, "Economics for Business," was offered to all segments of the food industry.

In 1964, Gene German, now assistant professor of marketing in the department of agricultural economics, was asked to put together the staff and to serve as director of the home study unit within the existing Food Industry Management Program. German, who was then a food distribution specialist for Cooperative Extension, with the assistance of a graduate student prepared the study materials for the first course and immediately enrolled 5,000 students.

Describing the benefits of the home study program, Professor German said, "This program lifts the level of awareness in the industry, and at the same time allows individuals to progress and develop at their own speed and at their own location."

# EXTRA

## ALUMNI UPDATE



### Association Honors Retiring Professors

Eight faculty members of the College were honored by the Alumni Association during the breakfast ceremony on June 14. The professors, who retired in the last academic year, were recognized for their contributions to the College over the past 35 years.

They are Carl W. Boothroyd, plant pathology (1949-1980), Warren F. Brannon, animal science (1956-1979), Benjamin E. Clark, seed and vegetable science at the NYS Agricultural Experiment Station at Geneva (1948-1980), Loy V. Crowder, plant breeding and biometry (1963-1979), Otis F. Curtis, pomology and viticulture (1946-1980), Edward W. Foss, agricultural engineering (1949-1980), Chester H. Freeman, communication arts (1945-1980), and Milton L. Scott, poultry science (1946-1979).

Each year the Alumni Association honors retiring professors and presents awards to students for their scholastic achievements. The Association, with over 3,600 members, is the largest alumni organization at Cornell.

## Record-Breaking Year for Donations

The College received \$3,515,000 in private donations for the 1979-80 year—a record-breaker. According to Glenn MacMillen, assistant to the dean for development and alumni affairs, much credit for the spectacular year belongs to two groups: the faculty and the College development committee.

Faculty members make continual contacts with foundations, and other sources of support, seeking funding for their departments and for individual projects.

Alumni who serve on the development committee, he said, convey the College's programs and research needs to businesses and individuals throughout the country. It is evident both faculty and alumni have been highly successful in their efforts. Of the \$3,515,000 total, \$228,000 came from alumni, \$125,000 from bequests, \$995,000 from corporations, \$1,387,000 from foundations, \$458,000 from friends of the College, and \$322,000 in endowment gifts.

What are some ways in which the gift money will be used? For research, instruction, and extension, \$1,550,000 has been allocated. The funds will provide assistance for both basic and applied research and extension programs for New York State agriculture and for worldwide food and production problems, and will provide instructional support to College department programs.

An amount of \$380,000 will be used for annual scholarships, fellowships, assistantships, and the CALS Scholarship Fund. Last year, 400 undergraduate and graduate students received scholarship aid.

Gifts earmarked for special projects total \$380,000. The projects include the Agricultural Leaders' Fund, the W.I. Myers Professorship Chair, the Edgerton Career Teaching Award, the M. L. Scott Graduate Fellowship Fund, the H. P. Banks Fund, the Dairy Cattle Evaluation and Selection Fund, the Minges/Vegetable Crops Assistantship Fund, and the Ag Quad Restoration.

In unrestricted funds, \$1,025,000 have been allocated for minority student support, the Native American Program, the Scholarship Donor Recognition Program, the Round-Up Club Livestock Show, the purchase of special audiovisual equipment and microscopes, and miscellaneous expenditures.

A total of \$400,000 will be spent in support of the International Agriculture program, the Program in Agricultural and Environmental Values, the Plantations, the Wildlife Lecture Series, the Library/W. I. Myers Library Fund, the Cornell Nutrition Conference, and other programs and projects.

An amount yet to be determined will be invested to generate additional income for future needs of the College.

## Agricultural Leaders' Fund

A new endowment, the Agricultural Leaders' Fund, has been established to enable contributions to be made in honor of those who have distinguished themselves in agriculture: alumni, friends, faculty members, and other agricultural leaders.

An unrestricted endowment, it may also become the foundation for a chair similar to the respected Dean W.I. Myers Chair. This would help support research, extension, and teaching programs that are sensitive to agricultural needs.

The names of those recognized by gifts of \$1,000 or more will appear on a permanent plaque outside the dean's office, and their families also will receive a certificate of appreciation acknowledging their important contribution.

The first donation received was a \$100 gift from the Pro-Fac Corporation, Inc., in Rochester, NY in honor of Frank Lonergan. Frank, well-known throughout western New York, was an agricultural correspondent for the Rochester Democrat-Chronicle for many years.

Another donation, for \$5,000 was given in memory of Ed Fallon by the Farm Credit Banks of Springfield, MA. He was a nationally recognized

agricultural leader, a prominent Syracuse, NY businessman, and executive vice-president and chief executive officer of the Syracuse branch of Agway.

Why are private donations, particularly unrestricted gifts, so important? Because, unlike government and foundation grants, they allow the College no-strings-attached freedom to determine what its research efforts will be and what goals it feels are most appropriate to pursue.

Some government grants specify areas to be studied, and these grants are then "put out to bid"—that is, scientists throughout the country apply for the same grant, and the one whose proposal most closely matches or meets the needs of a particular agency receives the funding.

In other university projects, scientists design their own research and then seek funding from foundations and government agencies. But frequently these, too, have restrictions that reduce or impede the effectiveness of the studies.

Grants often do not provide enough time for scientists to carry out their work. Ronald Kuhn, former associate director of research at the

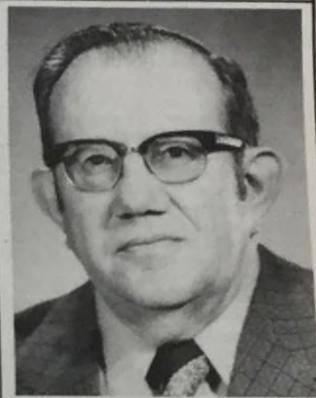
College, said, "Government funding is often short-term—as short as a year—yet it can take 20 years to develop a new variety of wheat or a number of years to devise a new nutrition regime for cattle." This means that there can be interruptions in a research project, sometimes irreversible ones, that may force an area of study to be abandoned.

Private donations can provide the needed interim funding, thus often saving a specific area of research.

In addition, not all funding agencies favor public-interest research. "Some granting agencies," Kuhn said, "prefer theoretical, rather than applied, research, whereas much of the work we do here is aimed directly at helping people in the state."

"A granting agency may not yet recognize the need for a particular study, or they may not be interested in a local problem or one that affects only two or three states in the Northeast."

He said that the most beneficial situation, therefore, is to have a mixture of funding from private, government, and foundation sources to guarantee the existence of a broad base of research.



### Trimberger Scholarship

A scholarship has been established to honor an emeritus professor known for his courses and judging teams on dairy cattle selection.

Friends and former students of George W. Trimberger have contributed \$6,000 so far toward the scholarship. Interest from the fund will be awarded as a scholarship to a student for the first time this fall. Students who would like to receive training in selecting, evaluating, and judging dairy cattle may apply for it.

Trimberger retired from the department of animal science in 1974 after 30 years of teaching, research, and working with dairymen. He is nationally known as a judge of dairy cattle, and 12 of the 24 teams he coached were winners of regional contests at the Eastern States Exposition in Springfield, Massachusetts. Half of his teams placed among the top three in national intercollegiate contests, and seven teams won the national competition.

Along with his coaching activities, he taught courses in dairy production and management to more than 2,600 students and was adviser to 270 undergraduates.

He was recognized for research in the reproductive physiology of dairy cattle, as well as the effects of various levels of concentrate feeding on the composition and yield of milk. In 1975, he received the New York Farmers' Award, which recognized his research and teaching, and his work with dairymen.

During his career, he held two assignments of two years each on the Cornell-Los Banos project at the University of the Philippines' College of Agriculture.

For several years following retirement, he headed a project, sponsored by the U.S. Agency for International Development at Ahmadu Bello University, to develop a faculty and college of veterinary medicine in Zaria, Nigeria.

## Minnie Miller Brown

Minnie Miller Brown, MS '55, has been chosen one of the first two recipients of the Winthrop Rockefeller Award for Distinguished Rural Service.

The \$10,000 award is the most prestigious offered in the United States for rural service, according to Raymond Shafer, former governor of Pennsylvania and chairman of the awards selection board of the National Rural Center. More than 170 nominees from 44 states were considered.

Brown, a Cooperative Extension agent and rural sociologist in North Carolina, and Roman Kettler, an agricultural specialist in South Dakota, received the awards last spring in Washington, DC.

As an advocate for rural people, particularly minorities and women in the South, Brown has carried her message through Extension work. She served as a visiting professor in the department of rural sociology here and since 1976 served as a co-investigator for a Cornell research project, "Black People in Agriculture

and Rural Life in the United States." She also taught at North Carolina State University.

In North Carolina, she trained nutrition aides as part of the Expanded Food and Nutrition Education Program (EFNEP). This education program operates in every state and nearly half of all counties and serves both rural and urban areas. Using nutrition aides who themselves are from low-income families, the program is effective in reaching the neediest families.

Brown served on a national task force that planned the reporting system for EFNEP.

Minnie Brown was raised in a family of ten. Her father was a railroad worker, and the family income was supplemented through a farm-tenancy arrangement on land near their home. Her mother supervised the ten children as they hoed and picked cotton. For their labor, the family earned one-third of the crop revenue.

Her most recent publication, *Black Farmer: The Black Experience in*

*American Agriculture and Rural Life*, of which she is co-author with Dr. Olaf Larson of the College, will be completed later this year. Larson served as chairman of Brown's graduate committee at Cornell in 1954-55. The authors hope the book will be used as a textbook in colleges and universities to provide a sociological and historical perspective on this area.

Discussing Brown's work, Professor Emeritus Larson said, "In her professional leadership role within the North Carolina Cooperative Extension system, she gained wide recognition for her contributions in developing, conducting, and directing statewide educational programs that had a special concern for disadvantaged homemakers and families in rural areas.

Brown earned the BS degree in home economics from Bennett College and the MS degree in rural sociology from Cornell. She has done work toward a doctoral degree in adult education at the University of Chicago.

## Alumni Get-Togethers

By the time this reaches your hands, alumni get-togethers will have been staged for alumni and friends in Jefferson, Lewis, and St. Lawrence counties (November 1) and Saratoga, Warren, and Washington counties (November 6).

Plans for other get-togethers are taking shape for alumni and friends in Albany, Chemung, Putnam, Rensselaer, Rockland, Schenectady, Schuyler, Westchester, and Yates counties. Still others are under consideration, particularly in the western reaches of the state. All Cornell Alumni are encouraged to attend these fun-filled evenings. While the CALS Alumni Association is taking the lead in promoting these events, every effort is being made to coordinate activities with existing Cornell Clubs around the state. Any questions you have should be addressed to James Bays, Public Affairs, 242 Roberts Hall, College of Agriculture and Life Sciences, Cornell University, Ithaca, NY 14853.

## Recent Land Donations



Land is increasingly being donated to the College, a type of donation valuable both in real dollars and because it is central to agricultural research.

Spruce Valley Farm, a 285-acre property near Lake Placid, NY, was donated to the College in August by family members affiliated with the May Louise Lockwood Trust. The donors provided the gift, valued at over \$400,000, in large part because they were impressed by the programs at the Uihlein Farm, donated to the College in the summer of 1979.

This farm may be used as an addition to the multi-faceted research program in the Lake Placid area that, in addition to the Uihlein Farm, includes the Meristem Research Laboratory. Together the two properties represent a major component of potato research in the country. Aside from research on the production of disease-free seed potatoes, the Uihlein Farm projects are studying improved practices of maple syrup production and the control of the black fly.

The Spruce Valley Farm is being considered for studying the productivity of Adirondack Forest soils, the effects of acid rain on the ecology of the Adirondacks, and the processes of forest ecology that affect maturation and nourishment in mixed hardwood-softwood stands.

Plans are under way to convert the large house on the property to a research facility and to provide an endowment to fund the carrying costs of the proposed center.

Dean Call, discussing the College's programs in the Lake Placid area with the Lockwood trustees, said, "These programs and other

intermittent efforts demonstrate Cornell's commitment to studying problems and finding solutions that will benefit Northern New York. All these programs were made possible through private support of citizens who respect this mission-oriented program. Land has been an important component because most of our programs require extensive acreage. Funds to purchase land and facilities like those in Lake Placid are just not available from public sources."

Another gift, a cottage with five acres of valuable shoreline on Lake Champlain and assessed at \$100,000, was given by E. V. Baker, Cornell class of '23. In addition, Baker recently donated a 300-acre farm where he grew up, also located on Lake Champlain.

As in the case of the Spruce Valley Farm, it was in part knowledge of the research programs at the Uihlein Farm that inspired the Lake Champlain property gift. Baker, who attended the Uihlein dedication ceremonies, said he wanted to see his family farm used to benefit agriculture. The College is considering establishing a regional crops research center there.

Hugh M. Kring '41 donated to CALS over 35 acres of land in the town of Oswego, NY and also provided through his estate a donation to Alpha Zeta fraternity.

Dean Call said of all the gifts, "We are extremely pleased that people recognize the quality of our programs and were willing to make substantial gifts of property to support our research, teaching, and extension efforts."

## Outstanding Alumni Awards

Harold L. "Cap" Creal, '21, and Mort Adams, '33, were recognized by the Alumni Association of the College as outstanding alumni during a ceremony here on June 14.

Creal was owner and operator of the David Harum farm in Homer, NY following his graduation. Later, he served as a member of the State Assembly for eleven years, and as supervisor of the Town of Homer and a member of the Cortland Board of Supervisors for seven years.

He was chairman of the State Rural Area Development Commission (1963), president of the NYS Agricultural Society (1954-60), president of the NYS Council of Farm Cooperatives (1959-60), and president of the Cortland County Farm Bureau (1956). He is also a former director of GLF (Grange League Federation, now Agway), New York Artificial Breeders Cooperative, Dairymen's League, and the New York State Fair (1950-55, and 1959).

Creal maintained his ties to the University after his graduation, and in addition to serving on various councils, has been involved in major fund-raising efforts for the College.

Several members of the Creal family have attended Cornell over the years, including his daughter, step-daughter, brother, and nephew.

Mort Adams, now retired on his Killarney Farms in Sodus, NY was president and chief executive officer of Curtice-Burns, Inc., one of the largest processors of fruits and vegetables in the eastern United

States. Following his graduation from Cornell, he was an agricultural agent for Cooperative Extension in Wayne County for ten years. In 1943, he became general manager of Burns Farms, Inc. and vice-president of Alton Canning Company. When Burns Alton merged with Curtice Brothers Co. in 1961, he became executive vice-president, and later secretary-treasurer.

From 1961-1972, Adams was general manager of Pro-Fac, an agricultural cooperative of 500 farmers that he helped organize. Nationally, he was a member of President Lyndon Johnson's national Executive Reserve and a member of the USDA Vegetable Advisory Committee.

His commitment to Cornell has continued over the years. He was a member of the Cornell University Council, the Council Administrative Board, and the Ad Hoc Committee to study Cornell-State relations. He was also an ex-officio member of the University's Board of Trustees, and was president and later member-at-large of the Agricultural Society. As an advocate of the University, he represented Cornell in contacts with business, industry, and the legal profession, and has been involved in capital gift solicitation.

In 1975, the Curtice-Burns Charitable Foundation presented a gift of \$50,000 to Cornell as a tribute to Adams when he retired. Income from the money endows the Morton Adams Scholarship for students in the College.



Displaying their outstanding alumni awards were Mort Adams '33 (left) and Harold ("Cap") Creal '21. Crescence Adams and Marjorie Creal look on.

## Strains

# Awards Mad Alumni Reunion



## Julian Carter



*Julian Carter '37 was presented with a plaque of appreciation at the alumni breakfast for his long years of service to the College and to the Alumni Association.*

Julian M. Carter received a certificate of appreciation from Dean Call and the ALS Alumni Association at last June's alumni reunion. It was given in honor of his over 40 years of leadership in the Association and for his fund-raising efforts. He has been president of the association and is currently its secretary.

Carter was an agricultural education major at Cornell, but the Depression and the war intervened between his undergraduate ('37) and graduate degrees. In 1954, he received an MS degree in education from Cornell.

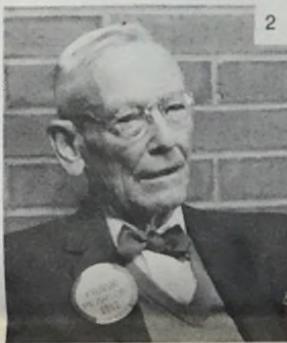
He began his long teaching career in Churchville, NY and then moved to Wellsville, NY, where he taught until 1961. He went on to become a teaching consultant (1961-67) for schools in northern New York State to help establish vocational agricultural programs. From 1967-73 he was the state supervisor for agricultural education in Vermont, and from 1973-78 was the Vermont assistant state director for vocational education and the state's FFA adviser.

It was fun, he said, to be at Cornell when some of the legendary figures were still around. "Liberty Hyde Bailey would come over to our fraternity, Alpha Zeta, to talk and to have dinner. He had long, flowing white hair, unusual in those days, and was tall. I remember he had a pointed chin. He was probably one of the greatest professors at Cornell.

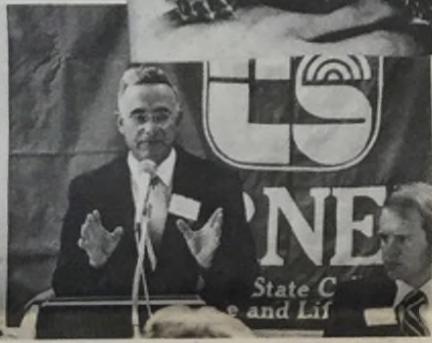
Julian Carter's 25 years of teaching experience obviously hold good memories for him—every time he discusses it, his face brightens—and he especially liked his Future Farmers of America activities.

Following retirement in 1978, Carter and his wife Alberta moved to Ithaca. Despite two major operations within the past year, he continues to be active in the alumni association. He spends time daily re-caning chairs and restoring antique furniture, some of which he makes available for sale. He also collects books on Lincoln and the Civil War period and on railroads.

In the Carter's basement room full of certificates, a grandfather clock he built himself, and his restored cherry tables and caned chairs, he pointed to a painting. The scene is a turn-of-the-century blacksmith barn, the blacksmith, and horses out front with children watching. He said, "I learned most of what I know in exactly that kind of place. I learned there about people, work, and how to swear—all the good stuff."



2



4



5



1. Cliff Luders '38 brings smiles to alumni faces with his jocular remarks about retiring professor Warren Brannon.

2. Frank Pearson '12, PhD '22 was the oldest alumnus to attend. He celebrated his 68th reunion year.

3. William Bigham '48 past president of the Alumni Association, presented nominations for board positions. Dean David Call '54 is on the left and Bruce Wright '75, husband of Association President Anita Wright, is on the right.

4. Louis Edgerton PhD '41, shown here in 1973 with pomology students, was honored during the breakfast for his long years of dedication to teaching Cornell students. The Edgerton Career Teaching Award recognizes other teachers in the applied sciences with a minimum of 25 years of classroom service.

5. Mrs. Max Shaul '42 (left) and her son Richard receive an outstanding alumni award honoring the late Max Shaul '42 from Anita Wright '75, Association president.

Minnie Miller Brown, MS '55, has been chosen one of the first two recipients of the Winthrop Rockefeller Award for Distinguished Rural Service.

The \$10,000 award is the most prestigious offered in the United States for rural service, according to Raymond Shafer, former governor of Pennsylvania and chairman of the awards selection board of the National Rural Center. More than 170 nominees from 44 states were considered.

Brown, a Cooperative Extension agent and rural sociologist in North Carolina, and Roman Kettler, an agricultural specialist in South Dakota, received the awards last spring in Washington, DC.

As an advocate for rural people, particularly minorities and women in the South, Brown has carried her message through Extension work. She served as a visiting professor in the department of rural sociology here and since 1976 served as a co-investigator for a Cornell research project, "Black People in Agriculture

## Recent Lan

### 1980-81 — Development Committee

Myron M. Fuerst '29  
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Edward D. Hill, Jr. '54  
Nashville, TN

John K. Hoff 'Gr.  
Houston, TX

Laing E. Kennedy '63  
Ithaca, NY

Garry B. King '64  
Ithaca, NY

Joseph P. King '36  
Rochester, NY

Robert D. Ladd '45  
Poolesville, MD

Clifford F. Luders '38  
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David A. Nagel '49  
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Gloucester, MA

Charles E. Palm 'Gr.  
Ithaca, NY

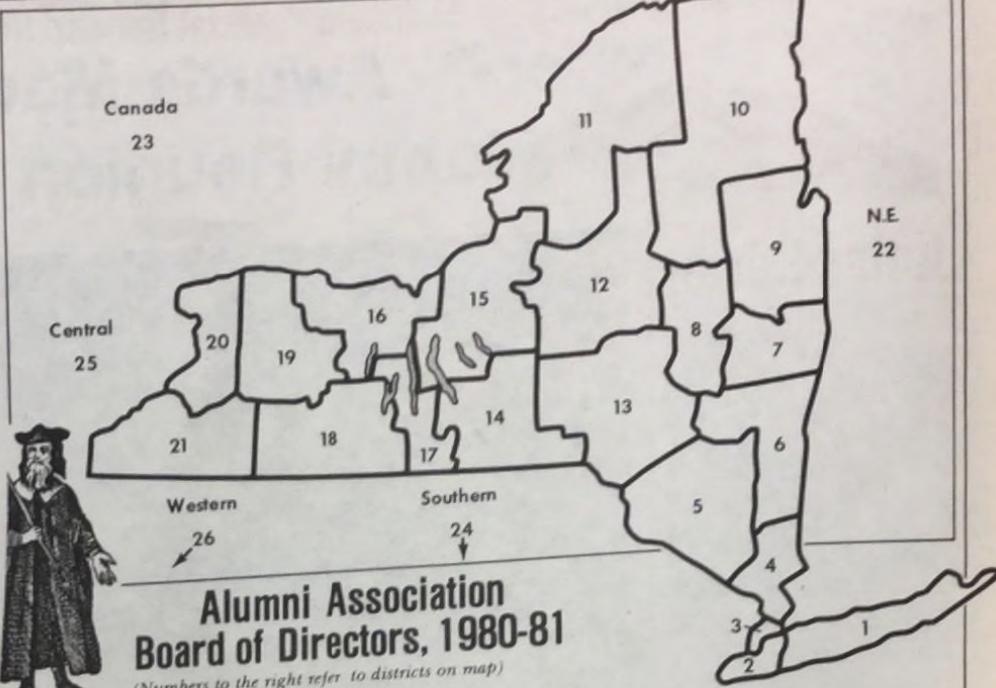
H. Joseph Pendegast, Chairman '38  
Cobleskill, NY

Mr. Jean F. Rowley '54  
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Professor Robert Smith '42  
Ithaca, NY

John J. Sullivan '62  
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Glenn O. MacMillen '54,  
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(Numbers to the right refer to districts on map)

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## Alumni Association Membership Form

Be involved in the largest alumni group at Cornell. Remain a part of your College through district functions or on-campus events. Your membership brings you the *ALS News*...plus the *Alumni Update Extra*. Keep informed. Join the Association today.

Yes, I want to join the hundreds of alumni who are members of the Alumni Association of the College of Agriculture and Life Sciences.

- I am enclosing \$6 for a one-year membership, 1981.
- I am enclosing \$15 for a three-year membership, 1981-83.
- I am enclosing \$100 for a life membership.

Please make your membership check payable to **CALS ALUMNI ASSOCIATION**.

Also, I would like to subscribe to the *Cornell Countryman*.

- I am enclosing \$5 for a one-year subscription, Oct. 1980-81.
- I am enclosing \$9 for a two-year subscription, Oct. 1980-82.

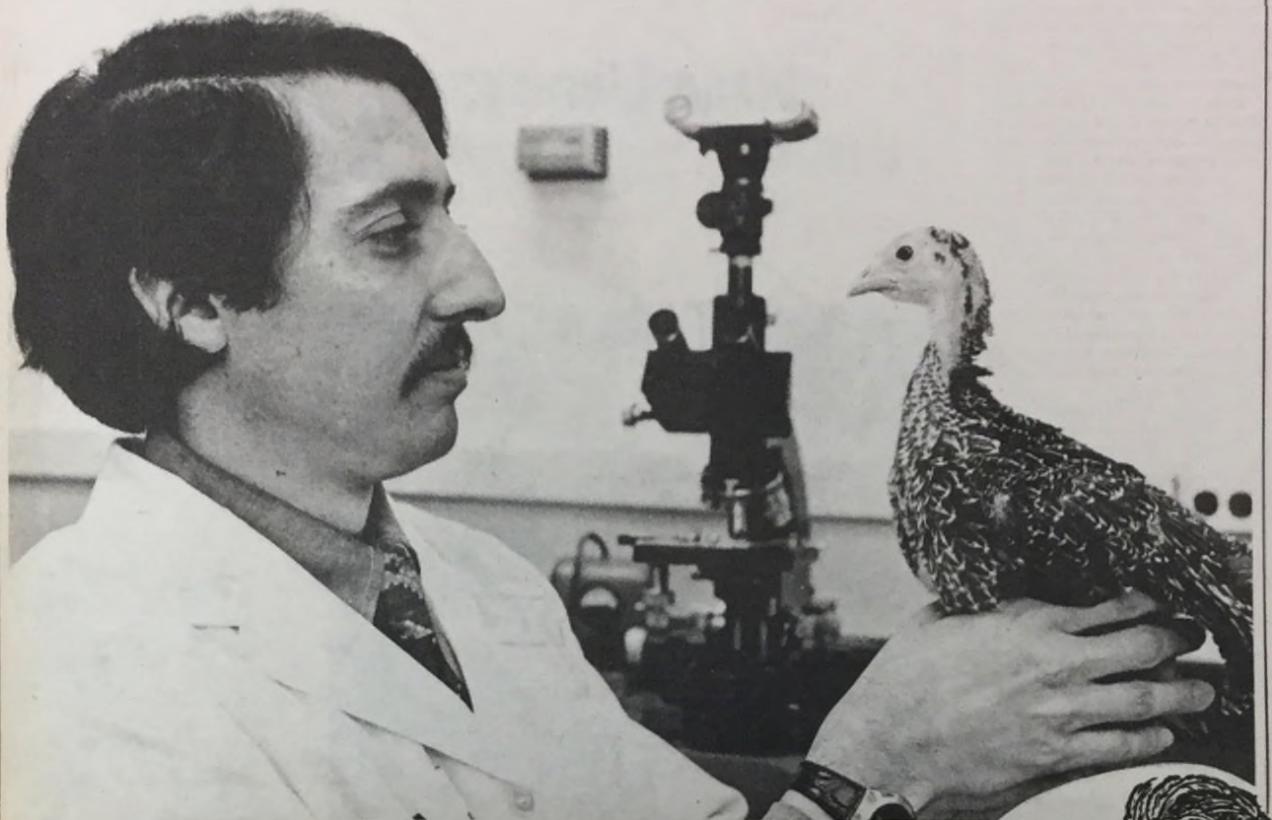
Please make your subscription check payable to **THE CORNELL COUNTRYMAN**.

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## Poultry Science Maintains Special Genetic Strains



The Obese chicken strain, as well as strains C, K, and S, and the Trisomic line, will not only help scientists reduce diseases and increase productivity in poultry but also may unlock doors to the understanding of human diseases. These strains, some dating back to 1935, are selected and maintained by the department of poultry and avian sciences.

Prior to the 1930s, researchers were divided in their opinions about whether genetics or nutrition played a larger role in egg production and disease resistance. Then, professors Frederick Hutt and Randall Cole of the department proved through painstaking trials that genetics was by far the larger factor. Through the subsequent 30 years of selective breeding with crosses of the White Leghorn, they were able to greatly increase the number and size of eggs, the weight of chickens, and to reduce premature mortality, particularly from leukosis, a type of cancer. Professor Robert Baker, department head, said the pioneer geneticists are "responsible for the chicken as we know it today."

Among the strains that Hutt and Cole developed were C, K, and S. A primary research use of these chickens relates to their susceptibility to Marek's Disease, a lymphoid disease cause by DNA-Herpes virus. The K strain has a 99 percent resistance to Marek's Disease, the C strain a 90 percent resistance, while the S has only 10 percent resistance. In addition to its serious consequences to the poultry industry, this disease is similar to Burkitt's Lymphoma, a malignancy that in humans usually appears in the jaw and facial bones.

The strains serve as a quality source of fertile eggs for avian research throughout the country. Because the K x C matings produce the most consistent development of the chicken embryo, these eggs are of value to embryologists for research at medical centers. The strains also provide the bulk of the fertile chicken eggs used by 4-H and Extension education programs within the state.

In children a type of anemia, Congenital Dyserythropoietic Anemia

The Obese chicken strain was developed by Cole and is maintained at only one other location (Vienna, Austria). The poultry and avian sciences department therefore supplies all the United States and much of the world with this strain.

To the untrained eye, the Obese chicken doesn't appear to have a weight problem. The manifestations of disease are subtle, primarily frizzy feathers, along with extra fat—detected through careful physical examination. Obese chickens suffer from a condition called autoimmune thyroiditis, in which their bodies perceive the thyroid as a foreign invader. Only a careful dietary balance keeps these birds alive, one to which thyroxin, a regulatory hormone, must be added because their bodies do not produce it.

This disease closely parallels a human autoimmune disease, Hashimoto's Disease, which occurs in all age groups, but primarily in the 30s or 40s, and much more frequently in women. Requiring lifelong treatment, the symptoms are goiter and, in many cases, hypothyroidism. Medical schools are using the Obese chickens to understand Hashimoto's Disease, as well as other autoimmune disorders.

The Cornell Trisomic line was developed by Stephen Bloom, a cytogeneticist in the department. Originally a spontaneous mutation in a Cornell C-strain hen, these chickens have 79 chromosomes instead of 78, and this extra chromosome carries a gene that produces additional antigens.

"The Trisomic line is one of the most important strains in existence for studying immunogenetic processes," said Rodney Dietert, an immunogeneticist in the department. "This is an excellent model for studying immunity, far better than any mammalian systems that we know, and there is no doubt that Bloom's work in this area will have a tremendous impact," he said. A large demand for this line by researchers is anticipated.

In children a type of anemia, Congenital Dyserythropoietic Anemia

(CDA), is suspected of being a pre-leukemic condition. It often seems to disappear, only to be followed years later by leukemia. The red blood cells of these children are remarkably similar to those of binucleated (*bn*) turkeys. In this genetically caused disorder in turkeys, red blood cells don't divide properly. During normal red blood cell production, spindle fibers attach to chromosomes and pull them apart into two new cells; but in this problem, there aren't enough spindles, the chromosomes aren't pulled apart, and thus the cell is left with two nuclei instead of a new cell. This reduces the total number of red blood cells produced causing anemia. Medical researchers specifically studying CDA, as well as cell biologists studying a variety of diseases, have a special interest in the *bn* turkey. Bloom is currently researching the causes and consequences of this mutation.

Other projects in the department include research by Professor Richard Austin and Emeritus Professor Cole on uric acid and gout. High and low plasma uric birds are being used as a model for research that has direct implications in human medicine for understanding and treating gout.

Using birds from the Cornell K line, Professor Gerald Combs is studying eggshell strength and is looking into such factors as bone metabolism, regulation of calcium levels, and sensitivity to selenium deficiency.

In an immunogenetics research project, Professor Dietert is studying a type of antigen present in developing and newly hatched chickens, absent after sexual maturity, and reappearing in leukemic birds (but not in healthy ones). One issue he is investigating is why developing embryos and malignant tumors have so many common characteristics, particularly their rates of cell metabolism and division.

Such exotic birds as the Red Jungle Fowl and the Araucana chicken are also part of the department's flocks and are favorites of students. The Red Jungle Fowl,



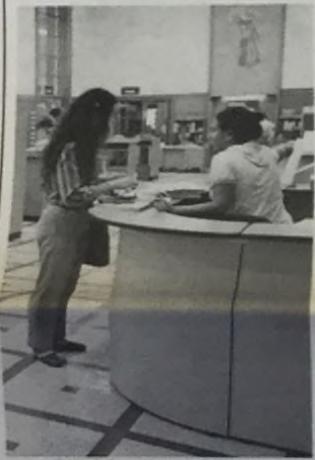
the wild type or ancestral form of modern breeds, has been studied in past years for its low egg productivity. The birds are brown, small, and are more vertical in shape than, for example, the White Leghorn. They are reputed to have a hot temper and sharp spurs.

The Araucana, from South America, is an unusually nice looking bird. Its plumage is a rich fan of chestnut, with pale gray and white feathers in the lower half of its body, and it has a "pea", rather than a single comb. It also—and many think this is the best part—lays pale blue eggs.

A dilemma faces the department: while a number of these strains are critically important in disease and genetics research, they are expensive to maintain. Despite increasing the sales price, the financial return on the eggs sent to researchers at other institutions has not reimbursed costs to maintain the flocks. Dietert said, "We've tried to reduce the flocks to the minimum, just enough to keep a population going. If we were to raise our prices by 500 percent, I doubt these research projects could bear the cost. I've used personal research funds to keep some strains that I am not using in my research because I believe these studies are of critical importance."

Baker said, "If the department were forced to dispose of the strains, it would be an irreversible step. Although in some cases we are not using these strains for research, some time we may need to and would not be able to recreate them." Therefore, he said, the department is very reluctant to end the strains.

## Mann Library



# Growing Resource for Faculty and Students

Mann Library has an outstanding reputation for the quality of services it provides for teaching, research, and extension. In recruiting faculty members and students, the College finds the library to be a persuasive asset.

The library, which also serves users from the U.S. Department of Agriculture and the Boyce Thompson Institute, will be more accessible to the Division of Biological Sciences when the division moves into its new quarters on lower Alumni Field. More users, combined with new research programs and new or expanded courses, result in greatly increased demands for service.

In the past ten years the acquisitions budget, funded primarily by New York State, has doubled. During the same decade, Mann has seen its annual subscription costs quadrupling. Strenuous cut-backs in existing subscriptions and a complete moratorium on new ones have fallen far short of making up for the reduced purchasing power of the acquisitions budget.

As a result, the library has had to curtail its book purchases sharply, adding 5,072 fewer new volumes in 1979-80 than were added in 1968-69, a 36 percent reduction.

A bright spot in the financial picture is a modest increase in endowment income. Eleven endowment funds designated for Mann Library acquisitions provided over \$15,000 in 1979-80, about \$4,700 more than the same eleven generated five years ago. This change reflects one of the benefits of invested endowment funds: they keep pace with overall inflation.

An intangible of donations is the appreciation and honor that comes to those named in the endowment. A gift of \$5,000 or more will establish a named endowment, with the annual income used to purchase books or periodicals subscriptions where most needed, or in any subject of the donor's choice.

Gifts of \$500 or more will produce enough income to purchase at least one book every year in perpetuity. A bookplate recording the donor's name, or another name the donor designates, will be placed in each book. A gift of \$25 or more will be acknowledged with bookplates in the publications that are acquired through the donor's generosity.

For further information, please write or phone:

Adrienne McNair  
University Libraries  
Cornell University  
Ithaca, New York 14853  
(607) 256-3393

Those wishing to make donations may send them to:  
242 Roberts Hall  
Cornell University  
Ithaca, NY 14853

World War II, the state started a building program at the College of Agriculture to alleviate its effects. In 1945, an appropriation of \$1,529,000 was made for the library building. The state waited for the depression, but as the years passed and prosperity continued, pressure mounted to start construction of the buildings that had been funded. In 1949, construction of the library began.

In the fall of 1952, the building, named after Albert Russell Mann, Dean of the College of Agriculture from 1916-1931 and Dean of Home Economics from 1925-1931, opened with a collection of 200,000 volumes.

In 1966, the transfer of 35,000 biological sciences volumes from Olin Library consolidated the life sciences collection in Mann.

Mann stepped into the computer age in 1971 with its first on-line terminal, one of 27 terminals in the eastern half of the United States. It was part of the SUNY Biomedical Communications Network and provided access to the *Index Medicus* data base. Since that time, access to a larger variety of data bases has become available in several libraries across the campus.

As part of its computerized library services, Mann has recently become a member of RLG/RLIN, the Research Libraries Group/Research Libraries Information Network. The network currently comprises 20 large research libraries across the nation and is a member library consortium enabling users at any of the member libraries to retrieve data and

cataloging information from the entire system. Once a desired item is located, a member library can borrow it or obtain a photocopy without charge. Because it is the second largest agricultural library in the country (next to the National Agricultural Library in Beltsville, MD), Mann gets 6,000-7,000 requests a year from other libraries for materials, whereas it borrows only a fraction of that amount.

Mann's collection is strong in all areas of agriculture, particularly in plant sciences. This is primarily the result of Liberty Hyde Bailey's influence in making Cornell the leader in this field and to the fact that his own personal collection was donated to the library.

The Rice Poultry Science Collection and the Phillips Beekeeping Collection are supported by endowments and are considered among the top three or four special collections in these fields in the world.

Started in 1950 by faculty members and students, the Rice Collection was developed in honor of the famed Cornell professor, James E. Rice. The purpose of the \$20,000 gift was to enable the library to keep pace with the best work published in the field of poultry science.

The \$10,000 Phillips Collection was named in honor of Everett F. Phillips, a Cornell professor known throughout the world for his research in apiculture. It was started in 1926 by commercial beekeepers in the state out of gratitude for the College's assistance over the years. Among its

rare books is one written in 1623 that once belonged to the English biographer, literary critic, Lyton Strachey (whose name is still on the inside cover). It's entitled, *The Feminine Monarchie OR The Historie of Bees* and is "written out of experiences by Charles Butler, Magd." (Magd. stands for Magdalene College, part of Oxford.)

Mann's past and current periodicals collections is also extensive. Included are the *Bulletin of Environmental Contamination and Toxicology*, *Psychosomatic Medicine*, *Perceptual and Motor Skills*, and *Biochimica et Biophysica Acta*. Costs of periodicals have followed a familiar trend: they've gone up. In the case of *Biochimica et Biophysica Acta*, for example, a biochemistry and biophysics journal, the annual subscription rate was \$540 in 1971; in 1980, it had jumped to \$2,804.

Higher costs necessitate careful budgeting of the library's acquisitions and its day-to-day management. To help make these decisions, Henry Murphy, head librarian, works with and reports to a number of people and departments including the University librarian, the deans of Agriculture and Human Ecology, the Division of Biological Sciences, the Division of Nutritional Sciences, and the Albany office of the SUNY Director of Library Services.

Of Mann's services, the one most used is the reserve desk: loans there average 1,000 per day during peak times. The reserve record to date occurred one afternoon when 300 items were checked out in one hour.

The reference department is another busy area. Many of the questions the reference staff is asked relate to bibliographic verification, usually references cited in written materials or in class. In addition to providing answers directly, the reference department teaches people how to use the library and familiarizes them with such sources of information as bibliographic abstracts and indexes.

What does the library look forward to in the last part of this century? Expansion, for one thing. Mann Library was designed to allow the east wall to be expanded toward the parking lot when necessary, and the time originally planned for this was 1977. By expanding the stacks 45 feet beyond the present east wall, the library's capacity could be doubled to one million volumes.

A computerized system to replace card catalogs is another coming change. According to Henry Murphy, within the next decade it should be possible to walk into Mann, go to a keyboard and screen, type an author and title or even a general subject of interest, and have appear on the screen all the necessary information, including whether a specific book is on the shelf.

On April 27, 1907, on the hundredth anniversary of Ezra Cornell's birth, two buildings for the College of Agriculture were dedicated. Later to be named Roberts Hall and Stone Hall, the buildings were built by the state, which also appropriated \$200,000 per year in ongoing support.

Director of the College of Agriculture, Liberty Hyde Bailey, said, "This College of Agriculture is not established to serve or magnify Cornell University. It belongs to the people of the State. It will justify its existence only if it serves the people of the State. The farmers of the State have secured it; no amount of academic sentiment would have secured it. Their influence has placed it here. They will keep it close to the ground."

With the completion of Roberts and Stone Halls, the College of Agriculture had its own quarters. A room with 1,350 square feet of floor space in Roberts was designated as the college library, and small reference collections from the director's office, the dairy building, the entomology department, and the Horticultural Lazy Club were brought together in this room. (Despite the name, the Horticultural Lazy Club was not a group dedicated to workless gardening. A group of graduate students and faculty members, led by Bailey, regularly met to have discussions about horticulture.) Moving in 1915 to the basement of Stone, the library in the following 37 years expanded to fill the basement, most of the first floor, and a number of storage locations.

The first formal organization of a library staff was in 1916, when Willard Ellis was appointed head of the library. By the late 1920s, he headed a staff of ten, a number that remained constant until his death in 1946. Professor Whiton Powell, a faculty member in the department of agricultural economics, became head librarian in 1947, serving until his retirement in 1969. He was succeeded by Henry Murphy, who continues as head librarian.

By the 1940s, many independent departmental libraries were flourishing. After the main agricultural collection, the three largest were agricultural economics with about 30,000 volumes; home economics, with 20,000; and entomology, 15,000.

As early as 1920, the administration at the College of Agriculture was concerned about the space limitations of Stone Hall and proposed building a library to house both the University and state college libraries. There was little university-wide support for this proposal, and the College went ahead on its own with plans for a building on the present site.

Fearing a depression would follow

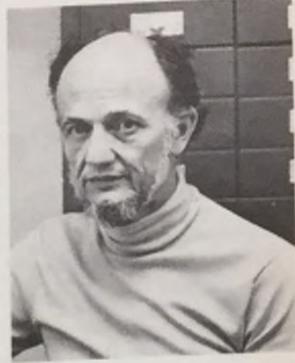


Harlan P. Banks

## National Academy of Sciences



Two professors in the College, Harlan P. Banks (emeritus) and Andre T. Jagendorf, have been elected to the National Academy of Sciences. A paleobotanist, Banks is an internationally recognized authority on the origin and evolution of land plants. Banks was voted the most outstanding professor by the College's graduating class in 1963. Jagendorf, a professor of plant physiology, is noted for his research in the synthesis of ATP (adenosine triphosphate) during photosynthesis in plant cells. He has also worked on protein synthesis by chloroplasts. Election to membership in the academy is considered one of the highest honors that can be accorded an American scientist or engineer. The new members were among 59 chosen by the academy at its 117th annual meeting last spring in Washington, DC. An organization of scientists and engineers dedicated to furthering science for the public welfare, the National Academy serves as official adviser to the federal government in matters of technology and science.



Andre T. Jagendorf

## Ag Districts and Property Taxes

An extension program directed by Kenneth Gardner, senior extension associate in agricultural economics, is assisting the state in reviewing tax rates and other aspects of agricultural districts. It is also, through county extension agents, providing information and guidance to individual farmers.

To be eligible for inclusion in such a district, a farmer must produce at least \$10,000 in agricultural products per year. An individual district must contain a minimum of 500 acres.

The original districts, created under the 1971 Agricultural District Law, came into existence in response to rapid urbanization and its negative effects on farming. In Wayne County, for example, just east of Rochester, NY, 77,000 acres of farmland were lost to urbanization from 1954-1974, according to the U.S. Department of Commerce's Census of Agriculture figures.

Throughout the state, areas that had always been rural were suddenly faced with an influx of suburbs, with the resultant high property taxes caused by demands for public sewer and water service, schools, hospitals, fire protection, and new highways.

There were also problems, such as objections to farm machinery or to animals, that resulted when new residential areas encroached on existing farmlands. The pressures caused by these conflicts often resulted in requests to local zoning boards to create ordinances that inhibited farming, and, in some cases, zoned it out altogether.

A major function of the Agricultural District Law is the creation of assessment ceilings, a method by which farms are assessed at agricultural (rather than land speculation) value. This means the individual farmer pays a lower property tax for agreeing to use his property strictly for agricultural purposes for the following eight years.

Eight-year reviews are required for farms within an agricultural district and those outside a district but receiving agricultural value assessments. In the case of the districts, public hearings are held at county and state levels. If any part is in strong demand for non-farm uses, district boundaries can be modified; where there is little demand for non-farm uses, borders can be enlarged.

Farmers not in a district but receiving agricultural value assessments must commit their land to farming for eight years and each year recommit it for the next eight years. If the land is converted to a non-farm use during that period, owners are subject to a tax penalty. For farms within a district that convert to non-agricultural use, the roll-back taxes cover the preceding five years, the amount each year being the difference between full

taxes and the agricultural value tax.

This year, there were amendments made to the Agricultural District Law allowing landlords to obtain agricultural assessments more easily.

Changes in how assessments are carried out have created further tax relief for farmers. It is possible now for farm parcels to be considered one tax unit, so that barns and miscellaneous buildings or additional land purchased to enlarge a farm, for example, are not taxed at higher, individual rates. To be considered as a consolidated unit, the parcels and buildings have to be owned by one person, be in the same taxing jurisdiction, and be contiguous.

Currently, 24 agricultural districts are undergoing the eight-year review, a situation that keeps Gardner busy. He travels around the state speaking to local and county officials, as well as to legislators in Albany, about the procedures and intentions of the review.

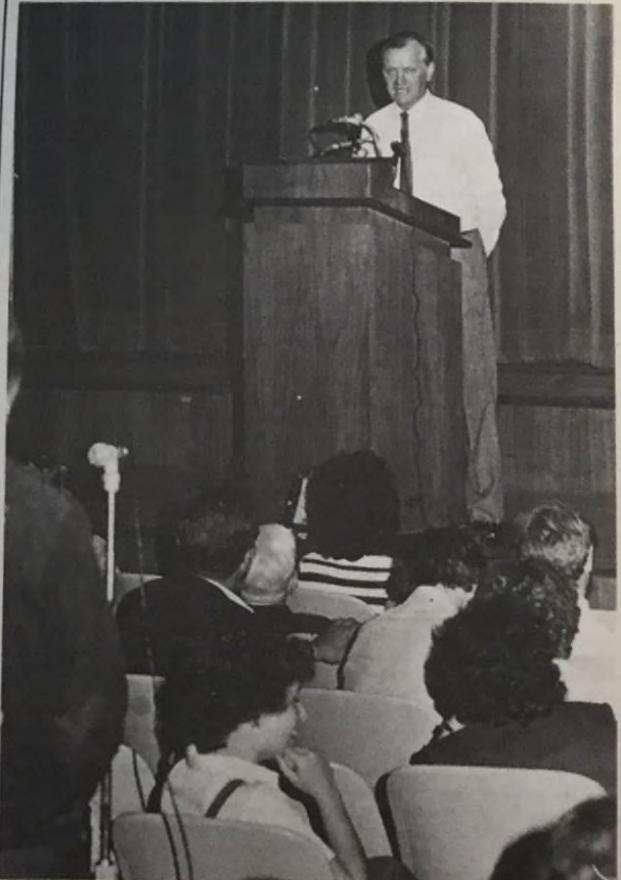
Throughout the year, he is involved in training programs for extension agents, government officials, and farm leaders to help acquaint landowners with provisions of the law. He said that the program he directs "works closely with legislators and their staffs to keep them informed of agriculture around the state, and to give them suggestions on how the law can be refined to maintain a strong agriculture" in the state.

He said that until the mid-1960s, farmers were not participating in the local and state planning processes, but as pressures on farmland increased, farmers realized that they had to become more politically involved. Much of the groundwork for both this realization and for the Agricultural District Law came from the public hearings (the New York State Commission on the Preservation of Agricultural Land) held by governor Nelson Rockefeller in 1966.

A primary finding of that commission was that farmers were not well represented in decisions regarding land use at any level of government within the state. Among the offshoots of those hearings are the Agricultural District Advisory Committee, at the county level, and the Agricultural Resources Commission, an advisory group composed of appointed members from various parts of the state.

Now, according to Gardner, in the 49 counties where there are agricultural districts, farmers are among the most active members of planning boards and town boards.

There are currently more than 6.1 million acres of land in agricultural districts in New York State, with 417 individual districts, and there are individual commitments (of eight years) outside the districts that total several thousand additional acres.



*There's a question from the floor... as U.S. Secretary of Agriculture Robert Bergland conducted a town meeting at Cornell in August. The meeting was sponsored by AgPac, the student leadership organization at the College. Bergland first spoke and then opened the meeting to audience questions, a method he often uses to make it possible for farmers and others interested in agriculture in the state and the nation to air their views.*

## Toxic Chemicals Laboratory

# CORNELL UNIVERSITY POISON PLANT EXPERIMENT PLEASE DO NOT DISTURB



Known since its inception as the Pesticide Residue Laboratory, the research lab now has a new name: the Toxic Chemicals Laboratory. In announcing the change, Dean David Call said, "The new name more accurately reflects the greatly expanded activities and responsibilities of the research facility."

Donald L. Lisk, who has been director of the laboratory since it began in 1956, will continue to direct it. Lisk is a professor in the department of vegetable crops and a specialist in toxicology. Explaining the laboratory's basic role, he said that studies are carried out in cooperation with scientists in other departments across the Cornell campus, other universities, state and federal agencies, and chemical companies.

The laboratory used to be involved primarily in studying the metabolism of insecticides, herbicides, plant growth regulators in dairy cows, and in determining pesticide residues in

food and feed crops. During the past decade, however, the laboratory broadened its activities to include investigations into other classes of toxic materials such as flame retardants, radioactive contaminants, toxic elements, and air and water pollutants.

The laboratory recently studied toxic phosphorus esters used in children's sleepwear, studies that contributed to the chemical's ultimate banning for this use.

More recently, analysis of honey samples collected last summer near the Three Mile Island plant in Pennsylvania and analyzed by the lab, showed no trace of dangerous radioactivity. The nuclear plant had a major accident in March 1979.

The deleterious effects of ozone (generated by power plants, high-voltage lines, and other sources) on plants were investigated in specially designed chambers of the laboratory; chemicals used to protect plants from ozone damage also were studied.

Work is under way on the possible



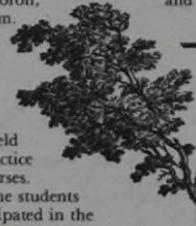
use of waste materials for agriculture and other purposes. Aquatic weeds, for example, have been fed to sheep and pigs to study their acceptance and to gauge possible toxic effects. Waste papers such as newsprint and cardboard have been fed to sheep and cows as a form of cellulose. While animals accept diets containing up to 40 percent of these materials, the buildup in their tissues of lead and PCBs, used in printing inks, poses a problem. Newsprint might be safe to be used as a soil conditioner, however. Lisk said, "Plants grown in soils to which powdered newsprint is added as a soil conditioner do not absorb any appreciable amount of lead."

Fly ash, produced by power plants that use soft coal as a fuel source, has been studied extensively at the Cornell laboratory. Used as a waste material in fields and greenhouses, fly ash increases some of the important trace elements such as selenium, boron, and molybdenum.

These elements are often deficient in soils in the Northeast. Fed to livestock and chickens, fly ash has proved valuable in correcting selenium deficiencies.

Vegetables, fruit, corn, wheat, and hay crops have been grown in field and greenhouse soils to which municipal sewage sludge has been added to determine the safety of this disposal method. Long-term feeding trials involving sheep, swine, and laboratory animals such as mice, rats, and guinea pigs that were fed sludge-grown crops demonstrated that toxic materials (such as cadmium) accumulate in tissues. Changes in liver enzymes and degeneration of liver cells are other side effects of this diet.

Studies conducted by the laboratory over the years have resulted in more than 300 research papers, Lisk noted. The Toxic Chemicals Laboratory is located east of Morrison Hall on upper Tower Road.



## Madrey Farm

younger brother in 1888 at the age of 14 and worked as a musical arranger and piano player. By 1901, he had saved enough money to buy a 25 percent interest in Harms, Inc., musical publishers, and marry 18-year-old Virginia Brill. Several decades later, after publishing the works of Jerome Kern, George Gershwin, John Phillip Sousa, Vincent Youmans, Richard Rogers, and Cole Porter, he sold the business to Warner Bros. for a price reputedly between \$8 million and \$10 million.

Champion cattle and horses, a consuming interest of Virginia Dreyfuss, established the long relationship between the Dreyfusses and the animal science department at the College. Students, led by Professor John Miller, coach of the Cornell livestock judging team from 1936 to 1963, often went to Madrey

Farm on field trips to practice judging horses.

One of the students who participated in the judging was Joseph Pendergast, now chairman of the ALS Development Committee at the College. "I have pleasant memories of our visits there," he said.

"We would have dinner at a very long—from here to the next room—dining table, with Max and Virginia sitting at opposite ends. I remember his asking her to stop talking 'horses' so much, and her saying that he talked of nothing but music for years, now it was her turn. She was a kind person and really knew her business when it came to Guernseys and Percherons."

Max Dreyfuss died in 1964 at the age of 90, and Virginia, in 1976 in

Richard Rogers, Oscar Hammerstein, Jerome Kern, and Oscar Levant played the two grand pianos there until the early hours of the morning. Prize Guernsey cattle and Percheron draft horses were raised on the 400 acre estate. Antiques, Oriental art, and Impressionist paintings were housed in the 15-room, three-story stone castle.

Originally built by the 19th century railroad entrepreneur Daniel Drew, Madrey Farm was purchased by music publisher Max Dreyfuss and his wife Virginia in 1929. Last fall the Brewster, NY, farm was donated to the College anonymously.

Dean David L. Call said, "This is an unusual but highly desirable gift of property to the University. Following discussions with the donors, proceeds from the sale (over a million dollars) will be used to establish a fund for innovative programs in the College."

Dreyfuss, son of a German cattle dealer, went to New York with his

her early 90s. The couple, childless, is survived by a granddaughter, Winnie Portenoy. Winnie Portenoy and her husband, Norman, were key figures in making possible the donation of the farm. Also involved in the long association with the Portenoys were Mort Adams '33, Joseph Pendergast '38, Joseph King '36, Robert Ladd '43, Myron Fuerst '29, and David Younger, former herd manager on the Dreyfuss estate, who has had many years of association with the college.

A large black walnut tree that stood in front of the castle was recently sold for \$11,000 to a wood veneer manufacturing company. Parts of it were saved by the College to be used as paperweights and commemorative plaques for alumni.

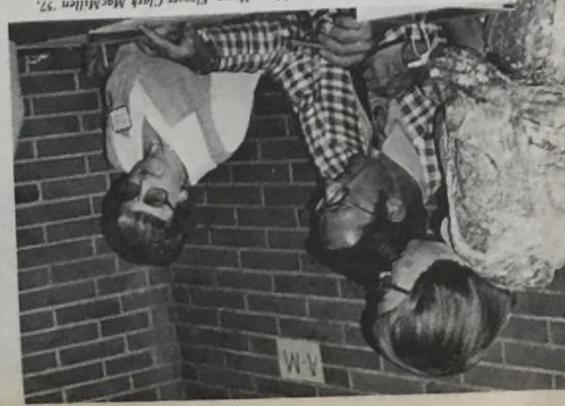
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Below, Dean Laund Call, 41 (center), presents award to Merv Adams, 33, while Anna Wright Lou Martin, 38, and Sherry Norton, 29, keep things moving at the busy registration desk. Alumni help organize successful reunion breakfest. Above, Flotter Craft MacMillan, 37,



## CALS Alumni Calendar

- November**
- 13 or 14 CALS Alumni Association Get-Together, St. Lawrence, Jefferson, and Lewis Counties, Clearview Restaurant, Governor, NY
- 6 CALS Alumni Association Get-Together, Saratoga, Warren, and Washington Counties, Canfield Casino, Saratoga Springs, NY
- 7 Mailing of *ALS News* to all CALS Alumni
- 8 CALS Open House
- 12 CALS Transfer Day
- CALS Alumni Association Get-Together, Erie and Niagara Counties
- 13 or 14 CALS Alumni Association Get-Together, Westchester, Putnam, and Rockland Counties
- December**
- 6 CALS Alumni Association Get-Together, Chautauqua and Cattaraugus Counties
- January
- 23-24 CALS Alumni Association Executive Committee Meeting, Ithaca, NY
- February**
- Mailing of *Alumni Update* to CALS Alumni Association members.
- March**
- 6-7 GALS Alumni Association Board of Directors Meeting, Ithaca, NY
- 10 CALS Alumni Association Get-Together for Rensselaer, Schenectady,
- and Albany Counties joint with Capital District Cornell Club function
- April**
- CALS Development Committee Meeting
- CALS Advisory Council Meeting Ag Pac Day at Willard Straight Hall
- CALS Alumni Association Get-Together for Yates, Schuyler, and Chemung Counties
- May**
- Mailing of *ALS news* to all CALS Alumni
- Commencement Reception - Students/Parents/Faculty
- June**
- Reunion Weekend - CALS Booth
- CALS Alumni Association sponsored Reunion Breakfast and Annual Meeting North Campus Union
- CALS Alumni Association Executive Committee meeting, Ithaca, NY