

# agriculture & life sciences

news

New York State College of Agriculture and Life Sciences  
at Cornell University

April 1986

## Barbara McClintock Inducted into Women's Hall of Fame

**B**arbara McClintock, winner of the 1983 Nobel Prize in medicine, has been inducted into the National Women's Hall of Fame in recognition of her contributions to science.

She was the first woman to win an unshared Nobel Prize in science. The others, both honored for their work in chemistry, were Marie Curie in 1911 and Dorothy Hodgkin in 1964.

McClintock, 83, received the Nobel Prize for her discovery that genes are not fixed but can jump from one spot to another on the chromosomes of a plant and transform future generations of plants produced.

McClintock studied botany and plant genetics at Cornell, receiving a bachelor's degree in 1923, a master's degree in 1925, and a doctorate in 1927. She did her graduate work under Lester W. Sharp, a distinguished cytologist and professor of botany, and was closely associated with the maize genetics group of Rollins A. Emerson, a professor of plant breeding for whom Emerson Hall is named. Three other contemporary members of the group, Charles R. Burnham, George W. Beadle (a Nobel Prize winner), and Marcus M. Rhoades, would also go on to become famous geneticists.

Since first arriving at Cold Spring Harbor Laboratory on Long Island in 1941, where she continues to work, McClintock has been raising maize (Indian corn), crossing varieties and carefully examining the results.

She noticed that parts of the leaves on some seedlings were losing their color, and other parts of the leaves were gaining color.

By 1947, she had concluded that the changes were caused



Barbara McClintock at a 1982 corn genetics conference at Cornell.

when pieces of genetic material rearranged themselves on the corn seedlings. That observation contradicted one of the basic tenets of genetics: that genes are arranged on chromosomes in fixed patterns.

Her discovery was considered scientific heresy, and, as she remarked later, "No one listened to me for years."

In the late 1960s, scientists studying bacteria through modern techniques of molecular biology confirmed the existence of movable genes.

Such genes, called transposons, enhance the ability of organisms to adapt to their environments. When bacteria develop resistance to an antibiotic, for example, genes responsible for that resistance can be passed along—through jumping genes—to other bacteria.

These genes may also be involved in the transformation of normal cells to cancerous ones, in the successful avoidance by parasites of the body's immune defenses, and in a range of evolutionary processes.

Inducted this year into the National Women's Hall of Fame along with McClintock were the 19th-century feminist leaders Lucy Stone, cofounder in 1870 of *The Women's Journal*, and Harriet Beecher Stowe, a writer best known for her antislavery novel *Uncle Tom's Cabin*.

The National Women's Hall of Fame, in Seneca Falls, N.Y., was established in 1979 to honor outstanding American women. Seneca Falls is considered the birthplace of the women's rights movement. It was there, during the famous convention of 1848, that the Declaration of Sentiments calling for women's equality was drafted. Since 1979, 38 women have been inducted into the hall of fame. ■



Robert Gellert '63 (left), Joseph Chuckrow '58, and Chuckrow's wife, Winnie, "Winnie" Chuckrow, chat during the last alumni breakfast.

## Reunion Breakfast Set for June 14

**J**oin other alumni for reunion breakfast, to be held Saturday, June 14, at the Sheraton Conference Center, just north of campus.

Dean David Call will talk about some of the exciting activities taking place at the college, retiring professors will be honored, and new directors of the alumni association will be announced. Gerald Linsner '58 will be master of ceremonies.

For details and reservation, see page 3. ■

## Task Force Sets Wheels in Motion to Aid Farmers in Stress

**T**o ease the economic and emotional stress that many farmers are experiencing, a Cornell task force is compiling a comprehensive set of resources that can be used by Cornell Cooperative Extension personnel in working with farm families. The task force is cochaired by John R. Brake, the W.I. Myers Professor of Agricultural Finance, and Jane W. McGonigal, home economics program leader for Cornell Cooperative Extension.

Although the number of farmers has declined gradually over the past 50 years, there is a new phenomenon: many farmers are being forced out of business in a very short time for reasons beyond their control. These factors include high interest rates, unfavorable international exchange rates, burgeoning agricultural productivity, and little increase in demand for farm products.

Up to 7,200 farms in New York State alone may go under during the next four years.

Farm families are encountering major changes in lifestyle, expectations, and economic and emotional well-being. Children who assumed that they would grow up to work on the family farm must now consider alternatives. Some farm parents are reacting to the gravity of the situation by denying it, refusing to talk about it, feeling responsible for the changes, turning to substance abuse, or becoming depressed.

The task force was established last spring to identify the extent of the problem and resources that would be useful to New York State farm families at risk. The group, a joint effort of the Cornell faculty and Cornell Cooperative Extension staff, also issued a set of recommendations that pointed to additional ways to identify and support families that are confronting major changes in their way of life.

Already, the wheels are in motion. To encourage cooperation with job training professionals, for example, a panel of Cornell faculty members made a presentation to state employment and training staff members statewide to inform them of the problems specific to farm families. A videotape was made of the

panel presentation that highlights the sociological and economic dimensions of the problem both statewide and nationally.

In addition, a fact sheet being compiled will list government employment services that could help dislocated farmers and their families in finding appropriate jobs. Employment experts are working together to make policy recommendations that would clarify employment training services that farmers may access.

The first county task force in the state has been established in Yates County. Consisting of professionals from many fields, the group is working to pool its skills and resources. Its purpose is to train community professionals to deal with the changing situation of farmers and its impact on the local community and farm families, to hone communication skills among all those involved, and to make services and programs readily available to those families that could benefit from them. Task forces in several additional counties, including Delaware, Oneida, Herkimer, Sullivan, and Otsego, are now in operation.

By pooling the skills and resources of professors and other professionals at Cornell and within Cornell Cooperative Extension, ranging from farm business management to communication skills specialists, materials already have been pulled together.

A major in-service educational program is under way to educate and train extension agents about the options and resources available to farm families. One focus of this effort is to encourage and promote communication skills with and among farm families.

Aiding in this goal is a newly established phone line, set up by Cornell Cooperative Extension. The toll-free number for New York State residents, 1-800-547-FARM, "will provide a complete listing of resources in the caller's community," says Professor Brake. "Everyone who calls will receive referral information or a follow-up contact within 24 hours." ■

—Susan S. Lang



## Dean's Corner



### Protecting an Irreplaceable Resource: Cooperative Extension

As this goes to press, Roberts Hall is a busy place. The last few months have seen a number of events take place that have dramatized once again the need to understand and protect the land-grant system.

We recently received word that President Reagan's proposed budget would drastically reduce federal funding for Cooperative Extension. The impact on Cornell of a 69 percent federal cut—close to \$7 million—would be devastating.

When we refer to the land-grant system, we are referring to the tripartite mission of teaching, research, and extension. The federal support for extension has been in place for over 70 years. In fact, Cornell Cooperative Extension this year is celebrating the 75th anniversary of hiring its first extension agent.

We certainly recognize the importance of reducing the federal deficit. Anyone closely related to agriculture these days is aware of the deficit's impact on agriculture. High interest rates, reduced exports, high value of the dollar are all bringing agriculture to its knees. We do feel, however, that the proposed cut in the funding for the extension part of the land-grant system is disproportionate and unwarranted.

In the past several months, events have led us to institute several new programs that again underscore the strength of the land-grant system. The 1985 federal Farm Bill, signed in late December, provided for a dairy farm termination program, popularly referred to as the "Dairy Farm Buy Out." This program authorizes the Secretary of Agriculture to enter into contracts with dairy farmers to pay them to cease production for five years. The law as passed contained no deadline for implementation but emphasized urgency.

Even before the bill was passed, faculty in our Department of Agricultural Economics were working with their counterparts around the country and with officials in the U.S. Department of Agriculture on both the impact of the program and the development of an educational program to assist farmers in making the soundest decisions.

In January our faculty took the leadership, both within the state and nationally, in designing educational materials and in helping to define guidelines for the program and prepare for a massive educational program within the state.

Our timetable called for the guidelines to be firm up by late January, education to take place early in February, and the sign-up completed by March 7. Faculty on campus prepared educational materials, including a computer program, video tape, and other supplements.

During the first week of February our faculty conducted three meetings across the state to "train the trainers." Invited were extension agents, staff of the Agricultural Stabilization and Conservation Service and the Farmer's Home Administration, lawyers, and others in a position to advise farmers.

Immediately following these meetings, every county where dairy farming is an important enterprise started to hold meetings for farmers. These were followed by individual sessions in county extension offices for any farmer who wanted to go over his or her situation in more detail.

As this is being written, although we are only in the middle of the outreach process, over half the dairy farmers in New York—more than 7,000—attended these Cooperative Extension sessions within the counties.

We have greatly facilitated the ability of the farmer to think through a very complex situation. A decision to be a part of this program is a very serious one, because if dairy facilities are "moth-balled" for five years, it is almost a given fact that dairy production will not be resumed.

Questions concerning land use, other possible enterprises, handling current debt and other financial obligations, are highly variable and have to be individualized for each farm.

The system has responded magnificently. Within two months it took a very complex piece of legislation, analyzed the ramifications, and planned and conducted educational programs that have allowed any dairy farmer who wishes to participate to make an informed decision.

I conclude that it would have been impossible to implement a program like this without the land-grant system. It is amazing that the most important part of the system in this case, the extension service, is now proposed for significant reduction.

A second example of the system rising to a challenge is in response to the financial stress that many of our New York farm families are experiencing. Although the situation is not as severe as in the Midwest, we fully expect that within the next three to five years it will become more serious in this state.

Our evidence indicated that the number of farm families in New York undergoing financial stress warranted a new program. In March we established an 800 toll-free number and an information and referral program for farm families. This sounds relatively simple, but when you realize that every phone call must be responded to within 24 to 48 hours, it becomes more complicated.

Again, the program is being integrated so that through county extension offices and a system of part-time farm financial counselors, we will be able to deal with any farm family that wants a neutral adviser or needs help in other ways. Through the extension offices we will be able to refer people to the human services network as well as provide advice in the farm financial area.

As this system goes on line, we have no idea of how great the demand will be for the services, but we stand ready to respond to every request that comes in. This network would not have been possible without Cooperative Extension and without the faculty expertise on campus that is integral to the extension network.

As we continue to attract high-quality students to our educational programs, and as we are increasingly successful in attracting bright, young faculty to fill academic positions, it is equally important that we maintain a strong extension system that will transfer knowledge to the people of New York State.

The system has operated extremely well for the last 75 years and we know it will continue to be a highly effective, responsive method of education for people throughout the state in all walks of life who benefit from the application of this knowledge. ■

—David L. Call



### WANTED FOR ROUNDUP '86

Alumni or professors with unique entertainment talents

Alumni with hot air balloons

Contact Brenda Bleck, (607) 255-7651, in the alumni office.

## agriculture & life sciences

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April 1986

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## \$100,000 Membership Fund Goal Met

With lifetime memberships in the alumni association having reached the \$100,000 goal level last year, interest from the fund is being used annually to support student and teaching activities.

In addition, by vote of the alumni association board of directors at the November 1985 and February 1986 board meetings, lifetime membership fees after January 1, 1986 will be used to meet program and activity needs of the rapidly expanding alumni organization. In recent years, when the fund was new, discretionary income for use by the alumni association was limited, because the membership fees were set aside to establish the endowment.

During 1985, interest from the fund sponsored four \$1,000 freshman scholarships and attendance by 13 students of natural resources professor Harlan B. Brumsted at an international symposium, "Economic and Social Values of the Wildlife Resource," in Syracuse, N.Y. ■

## Faculty-Alumni Involvement Sought

The alumni association is working to increase faculty involvement in alumni affairs. The board has taken several steps toward this goal:

- Revisions are being proposed for association bylaw changes that would include a position for a faculty member on the association's board of directors.
- The Annual Alumni Roundup committee is proposing several possibilities to encourage professors to attend alumni Roundup, September 19-20. Returning alumni report that a major reason for their attendance is a chance to see their former professors.
- Changes in membership criteria are being considered that would allow nonalumni faculty members to join the alumni association. ■



# From the Director of Alumni Affairs

The alumni association board of directors has approved a master plan for coordinators in each state (one-half of the college's 33,000 alumni reside outside New York State); established an honorary alumni council to meet with the board once a year; and added student recruitment as a job of district leadership teams in areas where secondary schools do not exist or need assistance.

During January and February 1986, the board sought suggestions from the president and executive director of the University of Guelph's College of Agriculture alumni association. Board members also recently visited a Purdue University alumni function to keep informed about what makes alumni events succeed.

Our alumni association leadership has expanded to an estimated 500 alumni serving either as district directors, state coordinators, district leadership team members, or county membership recruiters. Eight-month results of their work include a 60 percent growth in membership and close scrutiny and modifications of programs and organizational structure to better serve the expanding alumni base and the college.

A "1985 Accomplishment Report" on the activity of the alumni association has been prepared and is available upon request from the Alumni Affairs Office, 242 Roberts Hall, Ithaca, NY 14853-5901.

New directors have been named by the alumni association board to lead two districts: Donald Grieve (Ph.D. '71) for Canada West, and Douglas Conti '60, for Wayne, Ontario, and Monroe Counties.

Grieve is a professor of animal and poultry science at the University of Guelph in Ontario, and Conti is president of the Conti Packaging Co., Inc. in Rochester, N.Y. ■

—John C. Sterling '59

## News and Notes

Three new scholarship funds were recently started in the college. Completion of the funds is expected in the next few months and will bring the total number of scholarships to 89 and the endowment balance to well over \$2 million. **Harlan B. Brumsted Scholarship.** Late last fall, Anthony Inalcatera, Jr. '76, initiated this scholarship with a gift of \$5,000 and a challenge to friends, family members, and colleagues to bring it to the \$10,000 endowment level. The challenge was accepted and the gifts are still being received. A celebration is scheduled on campus in June, when Tony returns for his 10th reunion, to announce reaching the goal.

He said in the letter accompanying his contribution, "My Cornell degree means a lot to me. Part of the credit for my Cornell education goes to Harlan B. Brumsted. I would like to say thank you to Dr. Brumsted in a way that I know would please him and help others by providing that little extra push that will make a Cornell degree possible."

**Herrell DeGraff Memorial Scholarship.** The recent death of Herrell DeGraff, professor emeritus of agricultural economics, brought an immediate response from his colleagues and friends. Professor DeGraff's children, Sally and Peter, proposed a scholarship in his name. Proceeds from the scholarship endowment will benefit each student "who demonstrates interest, ability, and courage in his or her undertakings."

**W. Keith Kennedy Scholarship Fund.** A recent gift from W. Keith Kennedy established a scholarship designed to encourage research opportunities for worthy undergraduate students. Kennedy is a former dean of the college, professor emeritus of agronomy, and university provost emeritus. Preference in awarding the scholarship will be given to minority students, including American Indians, blacks, and Hispanics. The scholarship will be available in the 1986-87 academic year.

Al Beard '52, vice president of the college's alumni association, just made an unusual gift to the college. He has purchased a life insurance policy, toward which he will make annual payments, and plans to give it to the college. At the end of 10 years, the policy will be paid in full. The college can liquidate it or allow it to increase in value. Its designated beneficiary is the **Stanley W. Warren Teaching Endowment Fund.**

A novel way to make a meaningful gift!

The college development office has moved down the hall from its former location to 261 Roberts. In its new quarters, it is not only the development office, but also a repository for Liberty Hyde Bailey memorabilia and a favorite stopping off place for returning alumni.

Also new is the university telephone system—all new phones, all new phone numbers. You can reach either John Sterling, director of alumni affairs, or me at (607)255-7651.

Do stop by. We welcome the opportunity to meet and greet our alumni and friends. ■

—Glenn O. MacMillen '54  
Assistant to the Dean

## Regional Alumni Get-Togethers Planned

Three get-togethers are coming up for alumni living in several regions of New York State.

On May 16, there will be a dinner at the Lumberyard Restaurant in Perry, N.Y., at 7 P.M. David L. Call, ALS dean, will be the featured speaker. Alumni from Wyoming, Genesee, and Livingston counties are invited. Contact Paul Tilly, (716) 226-2107, for reservations.

Kenneth E. Wing, ALS associate dean, will be the speaker at a dinner on May 15, 6:30 P.M., at the Holiday Inn in Oneonta, N.Y. Otsego, Delaware, and Chenango counties alumni are invited. Reservations should be made through Albert Beard, (607) 547-8072.

Alumni from the colleges of Agriculture and Life Sciences and Human Ecology are coordinating a reception for 2,350 alumni with careers in business on May 21, 5:45-8:30 P.M., at the 60 East Club (60 E. 42nd St.) in Manhattan. Speakers at "Alumni in Business" will be David L. Call, ALS dean; Jerome M. Ziegler, Human Ecology dean; Grace Richardson (M.S. '62, Hum. Ec.), director of consumer affairs at Colgate-Palmolive; and Robert Nagler '50, an entrepreneur who has been involved in industry and banking for the last three decades.

Organizers of the event are Thomas Dyeovich '81, Marya Dalrymple '70, Susan Whiting ('75, Hum. Ec.), Jean Emery, Cornell regional director for the New York City area, Sondi Johnson ('82, Hum. Ec.), and Grace Richardson.

Preregistration is required for the New York City event; contact Thomas Dyeovich, (718) 762-8612, for reservations. ■

## Alumni Breakfast Reservation

All alumni and friends are invited. Reservations are necessary, and tickets will be issued at the door. We're unable to mail tickets in advance.

Mail reservations to **Alumni Association**  
NYS College of Agriculture and Life Sciences  
Cornell University  
242 Roberts Hall  
Ithaca, NY 14853-5901

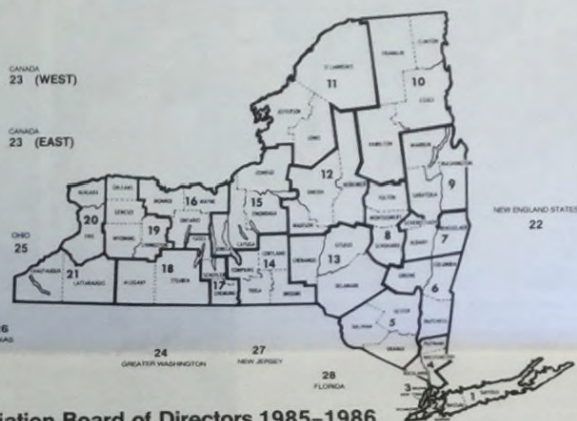
Enclosed is my check for \_\_\_\_\_ reservations at \$10.00 each (payable to ALS Alumni Association) for the reunion breakfast and annual meeting on Saturday, June 14.

Name \_\_\_\_\_ Class \_\_\_\_\_

Address \_\_\_\_\_

Guest \_\_\_\_\_ Class \_\_\_\_\_

Guest \_\_\_\_\_ Class \_\_\_\_\_



## Alumni Association Board of Directors 1985-1986

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(716) 792-9235

Jane Longley-Cook '69 (District 22)  
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Aileen Merriam '60 (District 23E)  
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(613) 692-4455

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(201) 891-8199

Sandi Leigh '84 (Florida)  
Plantation, Fla.  
(305) 792-6651



# Quick Takes

Alumnae enjoy dinner during a membership kickoff for District 3 (Manhattan, Bronx, Richmond, N.Y.). From left to right: Christine Oaklander '82, Joann Dalton '76, and Marya Dalrymple '70, district director.



Dean David Call with ALS Ambassadors (from left to right) Nancy M. Abrams '86, Albany, N.Y., Leslie A. Rosh '87, New City, N.Y., Curt P. VanTassel '86, Millbrook, N.Y., and Karen N. Clifford '87, Mahopac, N.Y. The students were recognized during an alumni association board meeting for their help with alumni programs, including membership drives and Roundup.



New district directors Douglas Conli '60, left (Honeoye, N.Y., District 16) and Catherine Butts '81 (Peru, N.Y., District 10) are welcomed to an alumni association board meeting by association president Gerald Linsner '58.



Richard A. Church '64 (standing), coordinator of admissions for the college, talks to prospective students and their parents during the annual open house held jointly with the colleges of Human Ecology and Veterinary Medicine.

Thomas Turpin (far left), president of the alumni association of Purdue University's agriculture college, is crowned an honorary member of the Cornell ALS alumni association by Gerald Linsner '58, alumni association president. The event was Purdue's "Fish Fry Follies," attended by 2,000 Purdue agriculture alumni. Looking on (from left to right) are ALS alumni Henry Wadsworth '56, George Becker '47, Albert Beard '52, Christopher Nichols '81, Andrew Piscione '65, and Robert Taylor '56. Wadsworth, Becker, Nichols, and Taylor are affiliated with Purdue.



## Stay in touch with your college by joining the alumni association

2-year membership—\$15      Lifetime membership—\$200  
(or pay \$70 year/3 years)

Please make checks payable to  
ALS Alumni Association  
242 Roberts Hall  
Ithaca, NY 14853

Name \_\_\_\_\_ Year \_\_\_\_\_

Name at graduation, if different \_\_\_\_\_

Street \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Personal notes (use additional paper, if necessary):

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

## Calendar

### April 29

Get-together, District 9 (Warren, Saratoga, Washington counties); Saratoga Cooperative Extension Center, Ballston Spa, N.Y.; speaker, Prof. Edward Oyer, director International Agriculture Program; contact Jane Wait (see list of district directors, p. 3).

### May 6

Get-together, District 19 (Wyoming, Genesee, Livingston counties), Lumber Yard Restaurant, Perry, N.Y., 7 P.M.; Dean David Call, speaker.

### May 8

Alumni Fair, a new event; college alumni offices at Cornell to have booths, display alumni membership materials for Cornell University seniors; Willard Straight Hall.

### May 15

Get-together, District 13 (Otsego, Delaware, Chenango counties); Holiday Inn, Oneonta; Kenneth Wing, associate dean, speaker.

### May 21

ALS and Human Ecology alumni in marketing, public relations, communications, 5-7 P.M.; Districts 2 & 3 (Bronx, New York, Richmond, Queens, Kings), New York City; contact Marya Dalrymple (212) 505-2255 or Thomas Dyeivich (718) 762-8612

### May 30

Senior Barbecue (tentative date)

### June 1

Commencement

### June 6-7

75th celebration of "Partners in Extension"; contact Lucinda Noble, director, Cornell Cooperative Extension, (607) 255-2116.

### June 13

New alumni association director orientation, 3 P.M., Sheraton Inn, Ithaca.

### June 14

Alumni Association annual meeting and reunion breakfast (see story p. 3).

### Aug. 12-14

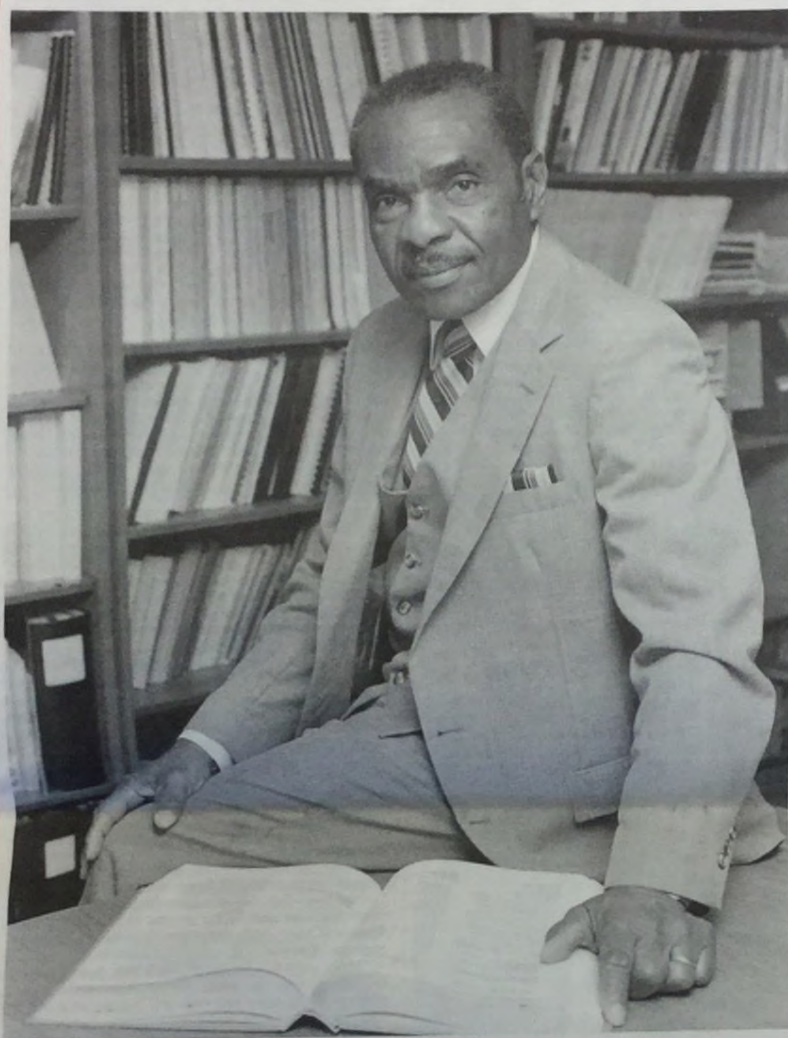
Empire Farm Days, Pompey, N.Y.

### Sept. 20

Alumni Roundup—entertainment, C.U. football, special surprises; contact Albert Beard, chairman (see list of district directors, p. 3); details to appear in July News.



# From Humble Beginnings to a Deanship



## Geneva Site of National Germplasm Repository

**T**he National Clonal Germplasm Repository, a living library of apple and grape genes for plant breeders and biotechnologists, was dedicated this spring at the New York State Agricultural Experiment Station in Geneva.

Dedication of the \$1 million facility signals a long-term commitment by the station and the U.S. Department of Agriculture (USDA) to improving horticultural crops and continuing advances in science through the preservation of germplasm, according to the repository's curator, Philip Forsline.

Germplasm, the reproductive cells that carry plants' hereditary traits, will be maintained in orchards, vineyards, and indoor growing facilities. The basic mission of the repository is to establish a collection of clonally (asexually) propagated grapes and apples from national and international sources.

Researchers using the repository will evaluate germplasm to determine identity, trueness-to-type, insect and disease resistance, and other characteristics. The ultimate aim of the program is to provide disease-free germplasm for breeding and other research and development programs.

The repository covers 8,000 square feet, including greenhouses and screenhouses, a growth chamber room, laboratories, and office space.

In addition, a long-term lease with the station guarantees the repository the use of 50 acres of land for maintaining, in a living state, its collection of apples and grapes.

The Geneva repository is the sole apple collection in the national germplasm program. Its holdings will include a portion of the USDA's national grape collection, mainly American grape varieties. The USDA's European grape-variety collection will be located in Davis, Calif.

Maintaining a complete collection of clonally propagated plants is vital to the continuation of fruit breeding improvements, Forsline says. He notes that although many state experiment stations have collections, they have lacked consistent funding, resulting in the loss of valuable germplasm.

Dedication of the Geneva facility marks the third of eight fruit repositories to be established as part of the national plant germplasm system. They are sponsored by the USDA's Agricultural Research Service and the Cooperative State Research Service's state experiment stations.

Staff members of the Geneva repository will work with station researchers to carry out the repository's goals, which are closely related to those of the station. As part of the College of Agriculture and Life Sciences, the Geneva experiment station is charged with promoting, through scientific investigations, New York State's fruit and vegetable industries.

The reputation and research programs of some 65 faculty members at the station were important considerations in selecting the repository site, Forsline says. The group of scientists is well known internationally, he adds, and will provide advice on which apple and grape varieties should be maintained and how they should be preserved.

Nearly 1,000 varieties of apples have been maintained in the orchards of the Geneva campus for use as parent material in breeding programs. Vineyards, with hundreds of grape varieties, also are part of the 700 acres of farmland used for experiments at the station.

During its 104-year history, the Geneva station has introduced 222 new varieties of fruit, including 59 varieties of apples and 49 varieties of grapes. ■

**R**oland Norman grew up in a family of seven children on a small farm in Piquette, Mississippi. The eight-acre farm was used mainly for raising the family's food, and most of the Norman income came from the father's meager earnings as a lumberjack.

Despite modest circumstances and segregated Mississippi schools, Norman went to college—getting B.S. ('48), M.S. ('53), and Ph.D. ('55) degrees in animal husbandry from Cornell—and is today dean of the School of Agriculture and Home Economics at Tennessee State University (TSU) in Nashville.

He succeeded, Norman says, because of the faith placed in him, first, by his older brother, and, later, by Cornell professors. His brother, James, was a teacher and principal at a high school in nearby Waynesboro when Roland was entering high school, and he took him under his wing. (James had financed his own education at the all-black Alcorn State University in Mississippi with a football scholarship and part-time work.) Roland lived with him and attended his high school, getting homework help and a room of his own to study in.

After attending Alcorn State University in his freshman and sophomore years, Roland Norman entered the U.S. Coast Guard for three years during World War II. His Coast Guard service made him eligible for the G.I. Bill, which paid full college tuition for veterans. "There isn't enough that can be said about how much good that bill did for this country," he says, in enabling thousands of poor World War II veterans to go to college. Norman decided to finish his degree at Cornell and to pursue graduate studies here.

"The president of Tennessee State University, Walter S. Davis, a friend of my brother, had gone to Cornell (M.S. '33, Ph.D. '41). I admired him and wanted to follow in his footsteps."

Norman was accepted at Cornell and assigned to live in the veteran dorm on campus. But when his train arrived at the Lehigh Valley station in Ithaca, he glanced at a newsstand and saw the *Ithaca Journal* headline: "Fire Destroys Veteran Dorm."

Barton Hall was hastily readied as temporary housing for the veterans. Norman walked into Barton, saw the wall-to-wall people, and decided there was much to be said for a private room.

He remembered the black porter he had seen at the train station and went back down to ask him if he knew of anyplace he could live. The porter, Lonzo Brown, thought for a moment and said he could live with his wife and him at their Cleveland Avenue home. For the six years Norman attended Cornell, he lived with Lonzo and Nanette as one of the family. "It was a perfect setting for studying, quiet and pleasant."

Although his tuition was paid, Norman worked to pay for his room and board, waiting tables "at just about all the places in town that had tables to wait," including the Ithaca Hotel and Zink's, a popular Aurora Street hangout for Cornell and Ithaca College students. Both the hotel and Zink's have since been torn down.

His best friends at Cornell were David Nagel ('49) and the late Pat King ('49). The three frequented the Straight, Normandy, and College Spa, and would cram for tests at Nagel's apartment or Wing Hall, where the animal husbandry department was then housed.

Norman's mentor was the late John P. Willman, professor of animal husbandry. Within minutes of their introduction, Norman recalls, Willman said, "If there's ever anything you need, come to me." And he meant it; he was like a father to me." The late TSU president, Walter S. Davis, had also studied under Willman.

After finishing his doctorate, Norman accepted a position as professor of animal science at Tennessee State. He became acting dean of the School of Agriculture and Home Economics in 1978 and has been dean since 1980. Norman is also acting director of the university's Cooperative State Research Service, a federally funded research program.

As head of the program, he travels extensively nationally and abroad, including to such countries as Swaziland, where TSU and Penn State have an agricultural research project to raise Swazi farmers' standard of living.

Norman and his wife, Naomi, a nurse, have two children: Chandra, a graduate student in communications at the University of Maryland and a former Miss Tennessee State; and Roland Bernard, a TSU graduate who is a quality control supervisor at the Keystone Corporation in Nashville.

The most gratifying part of his career, Norman says, is "having my former students excel in their professions. Many of them are successful veterinarians, doctors, executives, and researchers. They visit and call, tell me how much their education has meant to them. It makes me feel like I've made a contribution."

"What they got from me, I got from others, particularly those at Cornell. It has come full circle." ■



## Research Briefs

**F**or more information about the following studies, write to the researchers in care of the departments listed, Cornell University, Ithaca, NY 14853.

The praying mantis—cherished by gardeners for its consumption of insect pests and by generations of schoolchildren who have hatched the intriguing bug from eggs—was always thought to be deaf. Now, Cornell neurobiologists David D. Hager and Ronald R. Hoy have discovered that the lanky green insect has a single, sensitive ear in the center of its body. The ear may be useful in two functions of great importance to the insect: avoiding predators and courting a mate. Yager and Hoy reported their findings in the Feb. 14, 1986 issue of *Science*. (Section of Neurobiology and Behavior)

Sucker, hake, surimi, and pollock may sound unappetizing, but food scientists have transformed these fish into gourmet dishes, such as seafood crepes, seafood quiche, seafood newburg, and fish spreads. "About 70 percent of all fish are underutilized," says Robert C. Baker, who developed the convenience products. "They have such ugly names that consumers aren't attracted to them. Yet they are just as tasty and nutritious, if not more so, than the more popular fish species." (Dept. of Poultry and Avian Sciences)

Cornell researchers will soon start testing groundwater systems in New York State for pesticide residues. To be conducted for the State Department of Environmental Conservation, the study will focus on 60 different pesticides to determine which ones enter and persist in water. "We will be looking for those chemicals that are highly water soluble, mobile through the soils, and long lived," says hydrologist Mark Walker, who is directing the two-year project. (Center for Environmental Research)

In a new approach to wastewater treatment, researchers are using green plants to take pollutants out of sewage. The plant-

based sewage treatment system is capable of doing as good a job as the conventional chemical treatment at about half the cost, according to agricultural engineer William J. Jewell. Plants are grown in gutterlike troughs, and a thin film of sewage is directed to flow through the plant roots. The plants' massive root systems pick up the pollutants faster than do conventional treatment plants. Called the "nutrient film technique," the Cornell system represents a breakthrough in wastewater treatment, says Jewell. (Dept. of Agricultural Engineering)

An electronic device, "Passive Electronic Activity Monitor," capable of detecting estrus in dairy cows, has been developed. The device can reduce long calving intervals, resulting in greater profits for dairy farmers, says developer Norman R. Scott, agricultural engineer and director of research for the college. The accuracy of the new system is at least 70 percent higher than existing detection methods. (Office of Research)

The long-standing conflict between landowners in the Adirondack Park in New York State and the regulatory Adirondack Park Agency is continuing but mellowing, says Charles C. Geisler, a rural sociologist. In a study to gauge the attitudes of landowners, Geisler found that how an Adirondacker feels about the agency depends primarily on whether the person is a permanent or seasonal resident. Permanent residents are far more reluctant to accept land-use planning, in part because they have not been exposed to it all their lives but also because they perceive it as running contrary to their immediate economic interests. In contrast, the nonpermanent residents—many of them urbanites and suburbanites—are used to such planning and welcome it as a protection of the amenities they value. Geisler predicts that the opposition to regional land-use planning will fade now that increasing numbers of seasonal residents are taking up permanent residence in the area. (Dept. of Rural Sociology)

Farmers in New York and other northern states might someday

cash in on a new oilseed crop that thrives better in colder climates than most oilseed plant varieties. In cooperation with the State Department of Agriculture and Markets, Cornell researchers are testing canola seeds, which produce a vegetable oil similar to soybean oil. "We're trying to learn about the crop so that we can give sound advice to farmers who are thinking of growing it," says agronomist Madison J. Wright. (Dept. of Agronomy)

Teachers have low beginning salaries, but their salaries compare favorably in the long run with those of other professionals, conclude Prof. David H. Monk and graduate student Stephen L. Jacobson. In their recently completed study examining the distribution of salary increments between veteran and beginning teachers, they found that "back-loading"—small increments at the beginning of careers and steep pay increases several years later—were a more common salary pattern in education than in any other profession they examined. Monk and Jacobson suggest that beginning salaries be raised to attract people into the teaching profession who would otherwise enter more lucrative careers. (Dept. of Education)

Two fatty acids in fish oil have been identified that may be effective in reducing clotting tendencies in blood and thus in lowering the risk of cardiovascular disease. The identification was made in laboratory experiments using rats. John E. Kinsella, the Liberty Hyde Bailey Professor of Food Chemistry, who made the identification, is trying to determine how much fish oil should be consumed to make a difference for health. He predicts that prescribing fish oils may someday become a medically accepted practice. (Dept. of Food Science)

## Roll Call for 4-H Alumni



**D**o you recognize this symbol? More than 40 million Americans do. One of every seven Americans was once a member of 4-H. We in New York State would like to know how many of the College of Agriculture and Life Sciences alumni are also 4-H alumni. Please take a moment to fill out the information form. Thank you for joining us in the search for 4-H alumni and supporters. ■

—Gerald H. Hill  
Executive Director  
4-H Foundation  
Cornell Cooperative Extension

- ☐ I was a member of 4-H in \_\_\_\_\_  
(state and county)
- ☐ I was a member during the years \_\_\_\_\_
- ☐ I am serving or have served as a volunteer 4-H leader during the years \_\_\_\_\_
- ☐ My children are or were members of 4-H
- ☐ I would like information on 4-H programs

Name \_\_\_\_\_  
(include maiden name)

Address \_\_\_\_\_

Phone \_\_\_\_\_

Occupation \_\_\_\_\_

Employer \_\_\_\_\_

Remarks \_\_\_\_\_

Thank you

## An Alumnus Recalls 4-H



**T**hirty years ago, Kenneth E. Wing, ('58, M.Ed. '60, Ph.D. '66) associate dean of the college, was initiated into 4-H on what he calls "The Day the Muffins Fell."

The muffin project, Wing's first culinary venture, was a memorable experience. "I was so excited about taking those muffins out that I didn't read the instructions and overmixed the batter. I felt mighty foolish in front of my friends: the muffins would have made wonderful paperweights."

During his six years as a 4-H member, Wing lived through many other minor failures, and he says the ability to learn from mistakes in a supportive environment is the most valuable benefit he got from the club. "You only learn through direct experience; skill and confidence are built through doing, not watching."

Through the muffin incident, Wing learned the value of reading directions, but similar "trials" were to follow. "I had given what I thought was a magnificent demonstration on determining the quality of eggs in a regional 4-H contest. Then one of the judges asked me a simple question, how much one large egg weighed. My mind went blank. I had just said that a dozen large eggs weighed 24 ounces, and I couldn't even divide 24 by 12. But of course I survived the embarrassment, and the incident helped me learn to think on my feet."

For another 4-H project, Wing grew and displayed his own flowers, an experience that made him realize gender roles were confining. "At first, I felt silly with my displays of flowers at the county fair. But I found out you could do anything you wanted to. Not only could boys show flowers, but girls could show cows. You learn that there is a job to be done, and anyone can do it."

Ability and attitude are practically inseparable, he learned. "If you set your mind to something and try hard enough, you'll succeed."

Wing had his share of successes. "One of my proudest moments was when I won the 1954 New York State Poultry Judging Championship. It felt good to have that kind of specialized knowledge."

In the three decades since he joined 4-H, Wing has stayed involved with it, more recently at Cornell where he often gives talks to visiting 4-H members.

"4-H is Cornell in action because Cornell Cooperative Extension is the parent organization of 4-H in New York State. Its information sources are the Cornell extension specialists, and most of the 4-H agents were trained here, so there tends to be a strong allegiance among 4-H members to Cornell."

Wing notes that 4-H continues to give kids the same experiences it did when he was growing up on a dairy farm in Wyoming County, while broadening its appeal to offer more programs for people living in cities and suburbs.

"Ninety percent of the people aren't farm based, and 4-H isn't just animals and plants. Bicycle safety is the biggest program in the state, and there are popular programs in conservation, computers, health, and nutrition."

"4-H has changed as society has changed, but it maintains its tradition of fostering a sense of pride, achievement, and self-worth." ■

—Susan Redick '88

## AgPAC Will Become AgCouncil

**A**gPAC, the college's student-run Positive Action Council, is changing its structure and name.

To be known as the AgCouncil, the organization will have a set of official positions to which people will be elected by the undergraduate student body of the college.

The seven elected officials will be a president, a secretary-treasurer, a communications coordinator, two special events coordinators, a program coordinator, and an administration-faculty relations coordinator.

These officers will work with others to improve and expand events such as AgDay and Country Fair, as well as to revive services such as the student adviser and foreign exchange programs and to initiate new activities. ■



New York Times columnist Jane Brody '62 says to lose weight, people should adopt the lifestyle nature intended: a high carbohydrate diet combined with plenty of physical exercise.

Brody is testimony to the formula's success. Twenty years ago, she was 40 pounds overweight, a result of continual dieting.

"I had been a compulsive dieter, which turned me into a compulsive eater. I just got fatter and fatter. I skipped breakfast, skimped on lunch, ate dinner and couldn't stop.

"I decided that if I were going to be fat, at least I could be healthy." She started eating three balanced meals a day. To her surprise, she lost 7 pounds in a month, and in 2 years, 33 more. Today, at 44, the 5-foot-tall Brody weighs just 106 pounds.

The eating approach she used—lots of complex carbohydrates such as potatoes, rice, whole grains, vegetables, fruits, beans, and pasta—is described in her newest book, *Jane Brody's Good Food Book: Living the High-Carbohydrate Way*. It's an endorsement of what nutritionists have been saying for years about the futility of lopsided dieting.

"Complex carbohydrates are the only group of foods not associated with long-term health risks," Brody says. "They're filling, so people tend to eat fewer high-calorie foods such as meat, fat, and sugar."

"A 5-ounce potato, for example, has only 100 calories; 5 ounces of steak has anywhere from 390 to 550 calories; and 5 ounces of hard cheese, 500 calories."

Contrary to popular opinion, Brody points out, it isn't necessary to eat large quantities of meat to satisfy protein requirements. "A man whose ideal weight is 170, for instance, needs 60 grams of protein a day. He can get this by eating a 3-ounce pork chop, one-half cup of cottage cheese, and 3 ounces of tuna."

And there's anatomical evidence, she says, that humans weren't meant to be heavy meat eaters. "Human teeth are structured more for grinding, like those of herbivorous cattle, than for tearing meat, like the teeth of carnivorous cats and dogs."

Cutting back on meat intake not only reduces calorie intake, but also fat intake. People require only one tablespoon of fat a day from vegetable sources, Brody notes, but the average American consumes 8 tablespoons, mostly from animal sources.

The diet outlined in her book is neither Spartan nor frustrating, she says. Her husband, theater lyricist Richard Engquist, and twin 16-year-old sons, Erik and Lorin, converted several years ago with scarcely a complaint. Richard lost 30 pounds, and Erik and Lorin "are far from being fast-food, sugar, or salt freaks."

Her family spent two years helping her test—and clean up after—nearly 600 recipes she originally submitted for the book, out of which she included 380.

The recipes, although low in fat, sugar, and salt, don't sacrifice taste for prudence; there's a liberal use of spices and interesting food combinations. Many are modified classics; many others are simplified versions of exotic international dishes.

While Brody advocates a diet low in junk food and processed food, she thinks it's counterproductive to be rigid. "In an otherwise healthy diet, there's room for an occasional candy bar or potato chip."

"A change in eating habits shouldn't be a personal revolution, which would only inspire a counterrevolution. By changing just one meal a week, by the end of a year a person can have changed enough meals to feel very differently about food."

Changing eating habits is only part of the battle. "I don't think anyone can be healthy, whatever they eat, if they aren't getting enough exercise. A sedentary lifestyle is damaging both physically and mentally."

Among the benefits of exercise, she says, is a decrease in stress and an increase in a person's metabolic rate so that calorie burn-off is accelerated—up to 15 hours after exercising.

In her own case, Brody says, daily exercise has helped her take frustrations in stride and shaved an hour off her sleep time. She goes to bed at around 11:30 at night and gets up at 5 in the morning without the aid of an alarm clock.

Even when Brody was working the equivalent of two full-time jobs while writing the book, she stuck to her exercise regimen: running, biking, or cross-country skiing (in a park) for 45 minutes every morning, swimming a half mile each night at a neighborhood YMCA or synagogue, playing tennis 3 times a week, and occasionally ice skating.

She manages to pack that much in a day by not having many empty minutes. Meals are often cooked in batches and frozen for later use. Breakfast, or parts of it, is typically made the night before, when she is too tired to write or read anymore. Except for an occasional special program, TV is avoided.

Her New York Times articles are transmitted electronically through one of three computers in her home. The telecommuting makes it possible for her to commute to the Times Manhattan building only twice a week (to pick up mail and phone messages) from her home, a townhouse in the historic Park Slope section of Brooklyn.

Most of the interviewing for her personal health column is done by phone, and she turns to a "massive filing system" for background information.

Brody, a biochemistry major at Cornell and a student writer and editor for the *Cornell Countryman*, has been a science writer with the *Times* since 1965. After graduating from Cornell, she went to the University of Wisconsin, where she earned a master's degree in science writing. She was a writer for the *Minneapolis Tribune* for two years before joining the *New York Times*. ■

## Don't Count Calories: Carbohydrate Those Pounds Off



Jane Brody serves multigrain pancakes with an assortment of fresh fruit toppings.

Carol Halebian

## State's Wildlife Fund Supports Cornell Projects

New York State's Return a Gift to Wildlife program is providing more than \$324,700 for seven wildlife research projects at Cornell.

Statewide, \$2.4 million will support 45 projects, according to Henry G. Williams, commissioner of the Department of Environmental Conservation.

Six of the seven funded projects at Cornell are through the Laboratory of Ornithology:

- Breeding bird atlas: \$73,000 to publish the results of a six-year study; the hard-cover atlas maps the distribution of all breeding birds of New York State; 232 species have been confirmed as breeding residents.

- Peregrine falcon restoration: \$60,000 to fund one of the latest phases of the program in New York State, which was started by Cornell researchers in 1970.

- Raccoons on Long Island: \$26,500 to study the biology and behavior of suburban raccoon populations to determine how they interact with people and wildlife: to be done at

Seaview National Wildlife Refuge, part of the U. S. Fish and Wildlife Service, in cooperation with the New York State Department of Environmental Conservation.

- Population studies of breeding birds in New York State: \$22,000 to analyze data collected since 1966 to identify trends in breeding bird populations.

- Terns and piping plovers on Long Island: \$14,000 to support management plans for the common, least, and roseate terns and piping plovers, which are endangered or threatened species in the state; Seaview.

- Suburban deer: \$20,600 to complete a study of the deer population on Long Island, Seaview.

Also receiving funding was the College of Veterinary Medicine, with a grant of \$108,600 to study fish abnormalities associated with chemical toxicants.

Under the Return a Gift to Wildlife program, now in its fourth year, New York State residents can make tax-deductible donations to the fund when filing their state tax forms. ■



## Faculty News

**Peter Palukaitis**, assistant professor of plant pathology, has received a McKnight Award for Individual Research Projects in Plant Biology. The national award, one of 10 given this year, is for \$35,000 per year for three years. It places no restrictions on how the money is to be spent and thus encourages more creative research than is possible through most grants. Palukaitis will use the award to study the molecular biology of plant stress and disease resistance.

**William F. Rochow**, a USDA plant virologist and a professor of plant pathology, received the prestigious 1985 Ruth Allen Award from the American Phytopathological Society for his contributions to plant pathology. During the past three decades, Rochow has focused his work on the complex interplay between virus strains, aphid species that transmit these viruses, and plant hosts.

**David J. Allee**, professor of resource economics, is the recipient of the 1985 American Water Resources Association Icko Iben Award. The award, named for a cofounder of this national organization, recognizes people who have promoted communication among the various disciplines concerned with water resource problems.

**Roger D. Way**, professor emeritus of pomology and viticulture at the Geneva experiment station, has received the coveted Golden Apple Award from the Western New York Apple Growers Association and the New York Cherry Growers Association. The award is given to people who have made a significant contribution to the state's fruit industry. Way, who continues to work at the station, is an internationally recognized fruit researcher. Among the apple cultivars he has introduced are Empire, Jonagold, and Jonamac.

**Lynn H. Irwin**, associate professor of agricultural engineering, and **Bruce Brower**, a Cornell Cooperative Extension associate in rural sociology, are the recipients of 1986 awards from Epsilon Sigma Phi, the national honorary fraternity of Cooperative Extension. Irwin received the award on behalf of Cornell's Local Roads Program, which he directs. He and his team were recognized for teaching road engineering, construction, and maintenance techniques to highway and public-works officials in the state. Brower was cited for his projects that teach computer skills to extension agents.

**Martin Alexander**, soil microbiologist and microbial ecologist, recently headed the 10-member U.S. Environmental Protection Agency (EPA) Study Group on genetically engineered microorganisms. The group recommended that the EPA develop tests for evaluating the ability of genetically altered organisms to survive, multiply, transfer their genetic material to naturally occurring organisms, or spread from the initial release site. Alexander is the Liberty Hyde Bailey Professor of Soil Science.

**James E. Hunter**, associate professor of plant pathology, has been named acting director of the New York State Agricultural Experiment Station at Geneva. The appointment is effective March through August of this year or until a permanent director is selected following a national search. He succeeds Lamartine F. Hood, who is leaving the station to become dean of the College of Agriculture at the Pennsylvania State University. ■

## Fund Honors a Legendary Professor: Stanley Warren



Prof. Stanley Warren (front) leads a field trip for one of his classes in 1949.

A group of Stanley Warren's former students wanted to pay tribute to him and have started the Stanley W. Warren Teaching Endowment Fund. Warren, professor emeritus of farm management, is a legendary figure at the college. His popularity as an enthusiastic, down-to-earth teacher ensured that his classes were overflowing. In his four decades on the faculty, he taught 7,349 students in farm management and 1,438 in farm appraisal.

Although the fund has been in existence for less than a year, it has already attracted \$170,000 in contributions and pledges. The goal for the fund is \$250,000. Alumni who give \$1,000 or more will automatically become members of the Stan Warren Appreciation Society, which has its first meeting during Roundup weekend next September. The fund will be used to support undergraduate teaching programs in farm and business management. Income from it will be used to:

- Fund innovative learning experiences, both on and off campus, in management and appraisal courses;
- Provide teaching aids, classroom equipment, and course materials for management teaching;
- Support management and appraisal seminars, visiting lecturers, and exchange programs with other institutions, with emphasis on the interests of undergraduates;
- Provide awards to graduate students who have demonstrated excellence as researchers or as teaching assistants in management.

Receiving priority from the endowment will be field trips to farms throughout the country. Warren considers field trips indispensable to an education, and he frequently took his students on trips to update New York farms for a first-hand view of farm management.

"You have to remember that you are teaching students, not

subjects," Warren says. "I realized that my students would be doing jobs that had not yet been invented. Given that fact, I taught them principles rather than specific 'how-to' details."

"You can't, of course, teach principles in a vacuum. That's why we went on field trips. The object was to illustrate the use of those principles. I don't think you can learn a principle without seeing it in use."

Many of his students went on to become bankers, farmers, agribusiness executives, economists, and professors. Two he remembers well are working on campus—David L. Call, dean of the college, and George Conneman, director of instruction at the college.

In addition to teaching Cornell students, Warren taught New York State residents, traveling across the state to give talks to farmers as part of his Cooperative Extension work. Warren, who received his bachelor's degree from the college in 1927 and his doctorate in 1931, gave his first such talk in 1930 while a graduate assistant. From 1946 until his retirement in 1972, he taught management courses at the Bankers School of Agriculture, a one-week program for agricultural bankers that is still offered by the college.

Serving on the fund-raising committee are Robert S. Smith (chair) '42, the William I. Myers Professor of Agricultural Finance Emeritus; Norman Allen '44; Robert W. Bitz '52; Donald D. Cahoon, Jr. '59; Richard C. Call '52; Philip D. Gellert '58; Phillip A. Green '64; Richard Popp '61; Robert D. Sears '62; Bernard F. Stanton '49; Harris Wilcox '43; Stuart E. Young '71; and W. Barlow Ware '47.

For more information, contact Glenn O. MacMillen, Office of Alumni Affairs and Development, 161 Roberts Hall, Cornell University, Ithaca, NY 14853. ■

## Deaths

### Herrell F. DeGraff

Herrell F. DeGraff, 77, professor emeritus of agricultural economics, died Jan. 4, 1986, at Tompkins Community Hospital. DeGraff, who joined the faculty in 1941, was the first H.E. Babcock Memorial Professor of Food Economics in the Graduate School of Nutrition.

Professor DeGraff received bachelor's (1937) and doctoral (1941) degrees in agricultural economics from Cornell.

In 1941, DeGraff was elected executive vice president of the American Meat Institute in Chicago and president the following year, a post he held until his retirement in 1973. While at the institute, he served as chair of the College of Agriculture and Life Sciences advisory council. After his retirement, he returned to the college as a senior fellow in the food science department.

He is survived by a son, Peter H. DeGraff of Ithaca; a daughter, Sara K. DeGraff of Durham, N.C.; a brother, Henry L. DeGraff of Springfield, Va.; a sister, Rowena Wallace of Rolla, Mo.; two grandsons and several nieces, nephews, and cousins. His wife, Gladys Pool DeGraff, died in 1979.

Memorial donations may be made to the Herrell F. DeGraff Memorial Scholarship in care of Office of Special Projects, Sage House, 512 E. State Street, Ithaca, NY 14850.

### Leo C. Norris

Leo C. Norris, a nationally known poultry nutrition expert and professor emeritus of poultry husbandry and nutrition, died Feb. 3, 1986, in Lawrence, Kan., while visiting friends. He was 94 years old.

Norris was on the faculty from 1924 until his retirement in 1959. Widely recognized for his pioneering research in poultry nutrition, he wrote more than 200 papers on the subject. He discovered the role of manganese in preventing a crippling leg disorder that plagued commercially raised chickens and the importance of vitamins in poultry health. He is also known for his discovery that whey, a byproduct of cheese production, is an excellent source of riboflavin for poultry.

Norris received many awards, including the 1938 Borden Award and the 1957 Poultry Science Teaching Award, both from the national Poultry Science Association.

A scholarship in Norris's honor has been started by his colleagues in the poultry and avian sciences department. Contributions to the fund can be made to Cornell in care of the Leo Norris Memorial Fund, Rice Hall, Cornell University, Ithaca, NY 14853-5601.

### Paul J. Zwerman

Paul J. Zwerman, professor emeritus of soil conservation, died Dec. 24, 1985, in Owego, N.Y. He was 74 years old.

Zwerman, a member of the faculty from 1950 to 1976, specialized in soil-drainage problems. His experiments and demonstrations of land recontouring to promote surface drainage are regarded as models of reconstructed farming systems.

He was the author of more than 70 technical articles and the recipient of numerous awards and honors, including election in 1975 as a fellow of the American Agronomy Society.

Following his retirement, he was an agronomist in New Mexico for three years with the federal Bureau of Land Management.

He is survived by a son, William L. Zwerman of Calgary, Alberta, Canada; and a sister, Anna Zwerman of Milan, Ohio. ■



# Mushrooms, Molds, and Curtain Calls



Richard Korf the mycologist . . .

For a year, Prof. Richard Korf bade adieu to his fungi while he directed the theatre arts department at Cornell. "Absolutely not!" was his first response when asked to serve as acting chair. But the idea grew on him and he relented.

Korf surprised himself as an administrator, he says, having more talent in it than he suspected. Coming from outside the department was an advantage in giving people a fair and unbiased hearing, he adds, since he had no particular image, or self-image, he was trying to make the department conform to.

Since his undergraduate days in the 1940s, Korf has been close to the department as a performer and as a friend to many of its faculty members.

He studied under Cornell's legendary theater academician, Alexander M. Drummond, head of theatre arts for many years. Throughout undergraduate and graduate school, Korf acted in plays while pursuing his degrees (B.S.'46, Ph. D. '50) in mycology, the study of fungi.

Korf had always been enchanted with drama. As a child, he put on puppet shows, and while a student at the private Riverdale Country School in the Bronx he acted in school plays.

It was at Riverdale that he became interested in biology. His biology teacher was drafted into the Army, and Korf, who had excellent grades in biology, was asked to teach the course. "Teaching is a performance," he says, "and I had a wonderful time."

Korf's family had a summer home in rural Connecticut, and he got the notion of becoming a "gentleman farmer and living my idealized version of rural life." He enrolled in the agriculture

college to follow that dream.

His career interests turned to science when he studied with the late professors Loren C. Petry—"a brilliant teacher"—and H.H. Whetzel. Professor Whetzel, a famous and enthusiastic plant pathologist, made him realize that plant pathology was to be his calling; later, a course in fungi convinced him that mycology was to be his "subcalling."

After joining the faculty as a professor of mycology, Korf became involved in local theatrical productions—acting in plays, directing weekly WHCU radio shows put on by agriculture and home economics students, and directing Cornell plays with agriculture and home economics students who belonged to the drama club Kermis.

In recent years, Korf has performed with local and campus groups: the Barnes Players, the Green Room Circle, Theatre Cornell, Ithaca Community Players, and Central Casting. He appeared in such plays as *Painting Churches*, *The Runner Stumbles*, and *The Art of Dining*. His most recent Cornell appearances were in the roles Ramsden and The Statue in Shaw's *Man and Superman* and Chebutykin in Chekhov's *Three Sisters*.

"Great plays have a universal message," Korf says. "They expose some part of the human scene. The point can be slight, as long as it exposes a truth we don't normally confront."

"And, of course, for an actor or actress, great plays allow you to expand yourself, and in doing so to expand the audience's experience."

Presence, a vitality, marks great actresses and actors, Korf notes. "Lionel Barrymore could sit on a stage and not twitch a muscle and the audience would be riveted on him. It's a magnetic 'something' that cannot be taught."



and Korf the actor, as Chebutykin in Anton Chekhov's *Three Sisters* at Theatre Cornell last year.

Acting shouldn't be just for professionals or serious amateurs, says Korf, but for everyone, as a way to improve communication. "When I was directing three William Saroyan plays for Barnes Players at Cornell awhile ago, I was struck by how in just a few weeks the communication skills among the players had improved both on and offstage."

"Acting forces you to make ideas clearer, cleaner, more true. All teachers should be required to learn acting."

Korf himself takes communication seriously, speaking and listening like a dramatic actor: pondering and answering questions carefully, delivering his answers with a flair of voice and timing.

Studying fungi would seem slow-going in comparison to theater, especially if, as Professor Whetzel said, "the only way to become a real mycologist is to get down on your stomach in a swamp and start turning leaves."

But, with the exception of lab work, Korf says, it's actually a hectic life. His field trips around the world follow the schedule "up at dawn, dash around with other researchers collecting specimens, have a piece of cheese and maybe some wine for lunch, race around some more taking notes and collecting until dinner, then catalog the specimens until midnight or one in the morning."

In Ithaca, he takes his students to bogs and woodlands to study wild mushrooms. Korf is a leading authority on truffles and cup-fungi; the latter group includes his favorite, the morel, a highly prized May mushroom most frequently found in old apple orchards. The morel can't be cultivated, he notes, because it is dependent on the roots of certain species of trees for its survival.

The morel is one of only a dozen or so species he collects to eat—out of a potential 4,000 species—a rule he adopted because "there's a reasonable history of mycologists dying from their mistaken mushroom identification."

Soon Korf will resume his full-time mycology teaching and research. He enjoyed the year's experience as theatre arts chair but looks forward to his main work.

"I've never had a job, if a job is defined as doing something you don't like to do. Someone has always paid me for doing what I like to do best."



## Sophomore's Design Chosen for Recreation Club

A landscape design by sophomore Christine Cleveland has been chosen by the Cornell Recreation Club for its new park, which is to be located on Freese Road, off Hanshaw Road. Construction of the park's first phase will begin this spring, with a playground, softball field, pavilion, barbecue and picnic areas, and a pond to be completed first. A recreation building and tennis courts, among other facilities, will be built later.

Students in the course Landscape Architecture 201, taught by Prof. Marvin I. Adelman, worked on the project for the recreation club; Cleveland's was among 23 designs submitted.



The Department of Entomology and the College of Agriculture and Life Sciences, Cornell University, cordially invite alumni and friends to the dedication of John H. and Anna B. Comstock Hall,

May 2 & 3, 1986.

Scheduled events include an open house, reception, and colloquium.

For more information, write to Building Dedication Committee Dept. of Entomology Cornell University Ithaca, NY 14853-0999 or call (607)256-3253.



## Alumni Notes

Jane Shelton Krusman '62, Bridgeport, N.Y., is a medical technologist in the clinical pathology department at the Upstate Medical Center in Syracuse, N.Y.

Robert C. Forsythe '42, Vernon Center, N.Y., retired in December and is now a marketing consultant for Dairyale in Syracuse and Penicillin Assays, Inc. in Malden, Mass. He had been town justice in Vernon for 18 years.

Michael R. Caruso '56, Utica, N.Y., is president of Caruso Cheese Products Corp.

Albert W. Hostek '29 and his wife have 24 acres of salt marsh and sand dunes in Setauket, Long Island. They cultivate both popular and endangered flowers, shrubs, and trees.

Solomon Wiener '35, New York City, is the author of *Officer Candidate Tests*, a study guide and general overview for armed-forces officer exams.

Joseph D. Peck '55, a dairy farmer in Saratoga Springs, N.Y., is on the town planning board and does a daily radio show on agriculture for a local station.

Thurloe E. Whitman '43, Gettysburg, Pa., retired from Agway after 39 years and is active in community work. "I've never been busier!" he writes.

Gordon L. Seward '61, a dairy farmer in Bergen, N.Y., recently spent two weeks in Hawaii.

Richard D. Hammond '35, Frederick, Md., is past president of the Maryland State Beekeepers Association and tends 110 colonies of bees. He works part time in the summer as an apiary inspector for the Maryland Dept. of Agriculture.

William E. Fine '65, Boston, Mass., and his wife Doty Hoffman '66 spent last October hiking in the Annapurna Range of the Himalayas.

Arvin H. White '42, Canandaigua, N.Y., is retired from the federal Soil Conservation Service. Following retirement, he spent several years as a private appraiser of soils for farms in the state.

Robert Donnan '81, Piffard, N.Y., is assistant manager of Donnan Farms, Inc., a 500-head commercial dairy. He is also an emergency medical technician and a firefighter. Donnan reports that he still plays polo, as he did at Cornell. He married Courtney Roy '80 in 1982.

Earl H. Regnier '41, Urbana, Ill., will be a host for the national meeting of agriculture alumni at the University of Illinois in July.

Cynthia M. Kubas '78 of Pasadena, Calif., is marketing the first genetically engineered version of interferon, for the Schering-Plough pharmaceutical company. Her husband, Roger W. Hachett, Ph.D. '85, is a postdoctoral research fellow at Cal Tech.

Gordon H. Gowen '52, a dairy farmer in Alstead, N.Y., is past president of the North American Maple Syrup Council.

Julius F. Thomas, M.S. '49, is assistant housing manager for the city of Oakland, Calif.

Ronald Geren '59, Severna Park, Md., is president of Geren Sales, Inc., a food brokerage firm in the Baltimore-Washington area. He is also an officer in several regional food-sales groups.

Roberto Huyke, M.S. '37 of Rio Piedras, P.R., is co-owner of a racehorse and goes to the track regularly.

Lorrie Ziobro '83, Utica, N.Y., is a meat and poultry inspector with the U.S. Dept. of Agriculture.

Elizabeth H. Cowles '82, East Lansing, Mich., is a second-year biochemistry graduate student at Michigan State University. Her husband, Richard S. Cowles '82, is an entomology graduate student there.

Robert S. Jonas '32, Rochester, N.Y., is executive secretary-treasurer of the New York Land Improvement Contractors of America.

Fred Schmidt, M.S. '69, Ph.D. '73, of Selburn, Utah, is director of the Center for Rural Studies in the College of Agriculture at the University of Vermont.

Colonel Richard K. Hantman '59 has served in medical assignments around the world for 25 years as a clinical chemist with the Army's Medical Corps. He is now chief of the chemistry division at Fort Sam Houston in San Antonio, Tex.

Harrie K. Washburn '45, Sharon Springs, N.Y., is vice president of the BOCES (Board of Cooperative Educational Services) Albany region. Washburn is also director of the BOCES Rural School Program, for which he runs a program for migrant children.

Arthur E. Greene '50, Belleville, N.Y., is retired after 21 years as a vocational agriculture teacher, 4 years as an extension agent, and 10 years as a farm business consultant.

Richard E. Turrell '65, Oneonta, N.Y., is a retired sheep farmer. He spends several months each winter in Sarasota, Fla.

Craig Yunker '72, Elba, N.Y., has been named one of four top young farmers by the National Jaycees Organization. In 1985 he was named New York's Top Young Farmer. His father, Carl '44, won the same New York State award 30 years ago. Craig is also chairman of the Genesee County Legislators.

Howard Ensign Evans (M.S. '41, Ph.D. '49), Fort Collins, Colo., is the author of *The Pleasures of Entomology: Portraits of Insects and the People Who Study Them* (Smithsonian Institution). His portraits of entomologists include Henry Dietrich '17, Ph.D. '37, a Cornell entomology professor for many years. ■

—Gregory D. L. Morris '87

## Advisory Council Acts as College's Sounding Board

Members of the College of Agriculture and Life Sciences advisory council give professional perspectives to the dean and directors on the college's research, extension, and academic programs. The careers they represent are broad, including corporate business, education, farming, extension, and state government.

Meeting twice a year, the members (both alumni and nonalumni) listen to presentations by directors, professors, and students on collegewide activities and trends. Presentations and occasional tours are followed by discussions with the dean about the benefits and potential drawbacks of the programs in question, along with an open forum of topics.

Advisory council members are appointed by the university president upon recommendation of the dean.

Serving on the 40-member council are (from New York State unless otherwise noted) George E. Allen '73, Schaghticoke; Robert W. Bitz '52, Plainville; John H. Brahm III '64, Naples; Mary Ellen Burris, Rochester; Donald G. Butcher, Morrisville; John C. Colmery, Parsippany, N.J.; Gordon L.

Conklin '49, M.S. '51, Ithaca; Richard I. Coombe '64, Grahamsville; Thomas E. Corell, M.P.S. '76, Babylon; Edward R. Crist '47, Walden; Jeanne Marie Darling '68 (Home Ec.), Hamden; Herbert E. Doig '56, Albany; Joseph Gerace, Albany; Linda S. Griffen, Glenmont; Philip C. Griffen '57, Glenmont; William A. Hiller, Syracuse; Nancy Lorraine Hoffman, Syracuse; David J. Kast, Albion; Richard J. Keane, Buffalo; William H. Kelly, M.Ed. '58, Ph.D. '69, Burlington, Vt.

Also, George F. Lamont '57, Albion; Richard T. McGovern, Melville; Bert S. Morse '51, Marathon; David J. Nolan '49, M.S. '51, Canajoharie; Patrick M. O'Donnell, Westfield; Norman E. Payne '69, Springfield, Mass.; Eleanor M. Peavey, Mexico; Kenneth E. Pollard '58, Fishers; Richard H. Popp '61, Castile; David G. Porter '58, Adams Center; Bernard W. Potter '43, Truxton; Judith Frary Riehlman '80, Cortland; Lloyd Stephen Riford, Jr., Auburn; Sue Ann Ritchie, Schenectady; David R. Tetor '65, Millbrook; Maureen J. Torrey, Elba; William P. Tully, Syracuse; William T. Underwood, Tully; Thomas A. Wilson, Scarsdale; and Arthur S. Wolcott '49, Dundee. ■

## Council Has Counsel of Wine Executive



John Brahm, vice president of Widmer's Wine Cellars, examines new wine-grape varieties at the New York State Agricultural Experiment Station in Geneva.

John H. Brahm III '64 is one of the newest members of the advisory council, joining in 1985. Brahm is vice president of Widmer's Wine Cellars, Naples, N.Y., and is responsible for the company's vineyard operations, grower relations, and grape purchasing and processing. He joined Widmer's in 1964 as assistant vineyard manager for Naples operations and from 1976 to 1980 was also administrator of the company's California vineyard operations.

On weekends, Brahm devotes nearly full time to his mail-order business, selling Brahm's Sherry and Claret Wine Sauce. The wine sauce, a dessert-style syrup, was originally marketed under the Widmer's label. The company discontinued it in the early 1970s, but there was a customer clamor for it, so Brahm decided to resume production on his own. His wife, Katharine, and daughters Tina and Sherry help produce the sauce in a building next to the Brahm's home. It's mixed in 200-gallon quantities, bottled by semiautomatic equipment, and hand labeled.

During the fall, Brahm and his brother Thomas, co-owners of Randall-Standish Vineyards in Canandaigua, N.Y., sell fresh grape juice to some 800 home winemakers in the Finger Lakes area. (Another brother, Roger, a senior product designer in the

medical research and development division of Eastman Kodak, is a 1967 ALS graduate).

John and Katharine own a vintage truck and car, both of which John helped restore: a 1931 Ford Model A pickup truck and a 1936 Plymouth. She learned to drive on the Model A and he learned on the Plymouth. He bought the Plymouth from a high-school friend for \$25 in 1967, drove it at Cornell during his student days, and restored it in 1984.

Local customers of Brahm's Wine Sauce receive special delivery: the sauce is personally transported by the Brahm's in the Model-A pickup.

Brahm has been president of the Naples Business Council and the Naples Rotary Club, chair of the Finger Lakes Grape Extension Program Advisory Committee, and a member of the board of directors of the New York State Grape Production Research Fund. He also is chairman of the Ontario County Industrial Development Agency, the Nelson J. Shaulis Fund for the Advancement of Viticulture, and the N.Y.S. Wine Research Advisory Panel.

He belongs to the American Society of Enologists, the American Wine Society, and the Antique Automobile Club of America. ■



# Test Tube Tomatoes: Something Borrowed, Something New



Prof. Maureen Hanson hopes through her bioengineering research to surmount the natural barriers to tomato hybridization. Her research could yield techniques for producing more and better tomato varieties, as well as give a better understanding of how plant genes work.

**T**he marriage of one tomato variety to another is a difficult event for plant geneticists to arrange.

Most of the tomato crosses, or hybrids, created so far have had to be limited to genetically similar parent plants, which represent only a small number of potential hybrids.

Through bioengineering, Cornell plant geneticist Maureen Hanson is trying to overcome the natural barriers to tomato hybridization so that the vigor of wild tomato species can be combined with the tastiness and high yields of cultivated species.

Hanson uses protoplasts, single cells whose walls have been removed. To obtain individual cells, she removes a leaf from the plant, strips off the epidermis (outer layer) and treats the epidermis with enzymes to dissolve the rigid cell walls and the gluey substance between the walls.

The cells are incubated in a medium of salts, sugars, vitamins, and plant hormones in which they divide repeatedly, forming a clump of cells.

These cell clumps are then transferred to another medium that induces the growth of shoots and roots, resulting in plantlets. The plants can eventually be transplanted to greenhouses or fields, where they will flower and set fruit.

When the regeneration procedures have been worked out for each species being studied, Hanson attempts to introduce new genes into the cells.

"One way to incorporate genes is through fusion of cells from the parent plants," Professor Hanson says. "This process gets around the main stumbling block of producing new hybrids—the inability of many species to cross-pollinate."

Tomatoes are by nature self-pollinating, fertilizing themselves and producing plants identical to themselves. Hybridization requires that the flowers, which bear seed, be emasculated by removal of the pollen organs. The price for this manual pollen removal is substantial: the average added cost is \$100 an acre.

Fusion in a test tube is equivalent to the sexual fusion that occurs naturally when pollen fertilizes an egg cell. Bioengineered fusion can be accomplished through the use of chemicals or electrical devices, both of which Hanson has used.

There's a drawback to either natural or standard engineered fusion, however. When two cells fuse, all of the chromosomes—the structures on which genes are located—from both parent cells wind up in the fertilized cell, and thus the hybrid plants contain all genes from both parents. Not every wild gene is beneficial. Some genes result in small fruit, for example, or a sprawling plant.

Ways to circumvent this problem include making partial hybrids—containing only choice chromosomes from the wild

species—which can be done either by radiation or a third-party organism.

In the first method, the cells of wild tomato species are treated with radiation before fusing them to cultivated species. Radiation can break chromosomes apart, allowing them to be handled individually. Says Hanson, "We don't know, however, whether these broken pieces will be incorporated into the nucleus of the fused cell and remain stable as the cells divide to form a whole plant."

Genes can be introduced through organisms unrelated to the parent plants. Scientists recently discovered that *Agrobacterium*, a strain of bacteria, is able to attach itself to plant cells and transmit some of its genes into the chromosomes of the plant cell.

These bacteria insert one gene, for instance, that forces the plant to produce an amino acid that they can eat. Genetic engineering techniques can trick the bacteria to instead take up, then pass on, specified genes to plant cells.

Hanson hopes to coax the bacteria into transporting the gene coding for "cytoplasmic male sterility," which prevents plants from producing pollen and thus makes them ideal for hybridization with pollen from other plants.

"Once the bacteria transmit a gene into the chromosomes, the plant cell can be regenerated into a whole plant carrying the new gene. So far we have obtained regenerated plants carrying several foreign genes that specify bacterial enzymes. Now we're attempting to isolate interesting plant genes that can be put into the bacteria."

Hybrid tomato research is important not only for improving crop performance and cost, Hanson says, but also for understanding how genes work.

"We have much to learn about how a gene is regulated—why a gene, for example, produces a protein in a plant's roots but not in its leaves."

"By taking genes away from their normal milieu in one chromosome of a species and introducing them into a new plant, or by altering the genes before introducing them into plant cells, we can begin to identify the mechanisms that control the activity of genes."

Hanson's research is supported by the Cornell Biotechnology Program, Agrigenetics Research Associates, Ltd., of Boulder, Colo., and the McKnight Foundation.

Before joining the Cornell faculty, Hanson was a biology professor at the University of Virginia. She holds a bachelor's degree in botany from Duke University and a doctorate in biology from Harvard University, where she carried out postdoctoral research. ■

## Fisheries Research Fund Enters Phase II

**T**he \$500,000 Fisheries Research Endowment Fund established in 1983 is entering its second phase to raise \$250,000 from people interested in protecting the Adirondack region.

An initial \$100,000 challenge gift by the Prescott Foundation was successfully matched with \$150,000 contributed by individuals and groups close to the project. Now, a group of business and community leaders interested in the Adirondacks is making contacts with corporations, foundations, and groups throughout the region to raise the remaining \$250,000.

Cornell's fisheries research is headed by Dwight A. Webster, professor emeritus of natural resources. The present focus is on the development of acid-tolerant trout species, the fertilization and liming of lakes to improve water for fish production, and the management of lakes and ponds for stocking and production. (An update on the research project appeared in the fall '85 issue of the *News*.)

People wishing further details on the fund should contact John Sterling, Assistant to the Dean, College of Agriculture and Life Sciences, 242 Roberts Hall, Cornell University, Ithaca, NY 14853-5901. ■



## African Safari Slated for Alumni Next Year

**E**scape to exotic Kenya next winter in the company of College of Agriculture and Life Sciences alumni. Sponsored by the alumni association, the Jan. 15, 1987 safari will be led by Robert J. Young, former associate dean of the college and professor emeritus of animal science. The safari starts in Nairobi, Kenya's capital city. From there, alumni will visit some of Kenya's most beautiful game parks. Among the highlights of the trip will be visits to Tsavo National Park, home to some 16,000 elephants; Samburu game reserve; and the Masai Mara National Park, almost 1,000 square miles graced with free-roaming wildlife. Safari-goers can expect to see a wide variety of plains and forest animals, including lions, giraffes, zebras, cheetahs, antelopes, and gazelles, and a spectacular diversity of bird life. There will be outstanding opportunities for photography.

Accommodations are at first-class hotels and game lodges.

The trip will also make use of luxury tented camps, which provide the amenities of a lodge but with the feeling of being close to nature that camping gives. Transport in Kenya is by special safari cruisers, each outfitted with roof hatches for game viewing. In addition to wildlife observation, the safari will include a close-up look at agriculture in East Africa. Visits will be made to both traditional and modern farms in Kenya's Rift Valley and the highlands. There will also be chances to meet with Kenyans during informal get-togethers. Many of the special events will be directed by a University of Nairobi professor.

The cost of the 18-day trip is \$3,395, which includes round-trip air fare from New York City, all accommodations, and most meals and miscellaneous expenses. For a detailed itinerary and enrollment form, contact Voyagers International, P.O. Box 915, Ithaca, NY 14850, or phone (607) 257-3091. ■



## Elephants May Have a 'CB' Channel



Nancy Adams

Arrow indicates area of elephant's forehead that flutters when infrasonic calls, which may be used for long-distance communication, are produced.

**E**lephants produce—and perhaps communicate with—low, rumbling sounds that are beyond the range of human hearing, Cornell biologists have discovered.

In addition to the familiar trumpeting noise that humans hear, the huge beasts frequently make inaudible sounds, 5 to 10 seconds at a time for as long as 10 minutes.

This discovery may answer the riddle of how elephants separated by several miles can suddenly mobilize in times of danger, without any apparent signal. Infrasonic calls could be the elephants' "secret channel," according to biologists Katharine B. Payne, William R. Langbauer Jr., and Elizabeth M. Thomas.

Elephants are the first land-dwelling mammals known to produce infrasonic sound, Payne and her colleagues note in an article that will appear in *Behavioral Ecology and Sociobiology*. The only other mammals known to produce infrasonic calls are whales.

The elephants' infrasonic calls are in the sound frequency range of 14 to 24 Hz (hertz, or cycles, per second). Generally, sounds below 20 Hz and above 20,000 Hz are inaudible to humans. Sounds below 30 Hz must be extremely intense to be heard. Sometimes, the low-frequency energy is felt by humans as a rumbling sensation.

That rumbling feeling and a fluttering movement in the elephants' foreheads were the only clues the biologists had of infrasonic calling.

They began their studies by recording audible sounds from captive Asian elephants in Portland's Washington Park Zoo and at Circus World in Haines City, Fla. Subsequent recordings of African elephants in Kenya's Amboseli Park confirmed their findings.

By speeding up the recordings to raise the frequency and by viewing audio signals on spectrograms, the researchers detected elephant vocalizations their ears had missed. The spectrograph provided acoustic imprints of all sound frequencies the elephants emitted.

Analysis of spectrograms showed that some, but not all, infrasonic calls have audible components as well. Besides their trumpeting sounds, an adult elephant's repertoire includes roaring, barking, and tapping of the trunk. Among captive elephants, infrasonic sounds occur between adults and between females and their calves.

The fluttering motion in the elephant's forehead, in the area where the nasal passages enter the skull, does not necessarily

indicate the cause of the infrasonic calls, Langbauer explains. The sound may originate in the animal's vocal cords and then resonate from the forehead, much like a loudspeaker produces ripples in a nearby pan of water. The researchers are not sure of the infrasonic source and plan further investigation.

Nor do their findings prove the elephants are actually communicating with infrasonic calls, the biologists say. Communication, in the strict definition, requires that an animal change its behavior as a result of a signal from another.

To determine whether true communication is occurring when elephants make infrasonic calls, the biologists will take their experiments back to Africa. Watching from tall towers, they will note the reactions of elephants to the infrasonic vocalizations of others at a distance. They will also play back recordings of infrasonic calls to observe the reaction when the animals that produced the sounds are not present.

"Family life in elephant society is an extraordinary affair," says Payne, "and there is little question that it is supported and facilitated by an equally extraordinary network of acoustic, visual, and olfactory communication."

"We also know that an elephant's hearing is better at the low frequencies. There is circumstantial evidence—from the Masai warriors, who are the only threat to elephants in Amboseli Park—that elephants may have a 'secret channel' for communication."

"A big, sprawled-out group of elephants, facing in all directions and engaged in various private occupations, such as feeding, bathing, or sleeping, can suddenly mobilize for a highly organized march when no signal is apparent to human observers."

Infrasonic communication could be the explanation. "Our ultimate hope," Payne says, "is that our work may increase the elephants' chances of survival in the world. The more humans know about other animals, the more humans realize that animals, too, lead rich complex lives with concerns similar enough to ours that they should not be ignored."

Payne, Langbauer, and Thomas are research associates in the Laboratory of Ornithology, which along with the World Wildlife Fund and the National Geographic Society, supports their work. Their elephant recordings will become part of the ornithology lab's Library of Natural Sounds, an archive of bird recordings that is broadening its holdings to include choirs of other organisms. ■

—Roger Segelken

### Scenic Prints Offered of Cornell and Ithaca

**T**he college's alumni association is offering 10"x 13" museum-quality color reproductions of four oil paintings by Victor R. Stephen, professor emeritus of communication arts. Representing each of the four seasons, these paintings depict nostalgic scenes of Libe Slope, Beebe Lake, Cascadilla Gorge, and Taughannock Falls. Alumni and faculty members chose these scenes as the most memorable of campus and the Ithaca countryside. ■

Send me the following:

- ☐ **LIBE SLOPE . . . SPRING EVENING**  
— prints at \$10 each.
- ☐ **BEEBE LAKE BRIDGE . . . SUMMER NIGHT**  
— prints at \$10 each.
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— prints at \$10 each.
- ☐ **CASCADILLA GORGE . . . FALL AFTERNOON**  
— prints at \$10 each.
- ☐ **THE FOUR SEASONS SET**  
— prints at \$36 each.

Please add \$5.00 for delivery outside continental United States.

Enclose check or money order payable to ALS Alumni Association and mail to

ALS Alumni Association  
242 Roberts Hall  
Cornell University  
Ithaca, NY 14853

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This is a gift order. Please mail to above individual, and

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## Save the date

Saturday, September 20

The all new, surprise-filled Alumni Roundup  
Albert Beard '52, Roundup chairman, promises  
an event to remember.

This is the year to attend!

## agriculture & life sciences

New York State College of Agriculture and Life Sciences  
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