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Cover Credit: Aileen Merriam.
**Editorial**

**THE PHYSICS AND PRACTICE REVISIONS**

Two of the oldest curses of the agriculture student are undergoing faculty scrutiny. The physics requirement and student practice are both going to be debated in coming faculty meetings.

No one on the faculty is ready to say anything definite about either situation. Most responses to questions are variations on a theme of “no comment.”

Nevertheless, the students have been aware that something was happening to student practice and to the physics requirement.

Last year the stigma-encrusted name “farm practice” was changed to the less offensive “student practice.” Towards the end of the spring term there was a sharp upturn in the number of rumors predicting that student practice requirements were in for a change.

During the summer a questionnaire went out to students who had taken Physics 104 and asked them for comments. In addition, a committee of faculty members talked to students, examined high school physics courses, studied the content of Physics 104, and compared marks in Physics with marks in other courses.

The chairman of the committee, Professor L. B. Darrah, has been asking for lecture notes, text books, lab notes, and any other material from Physics 104. Corpus delicti, we suppose.

Because there are no official statements on what is likely to happen to student practice and the physics requirement we can only speculate.

We would guess that student practice is likely to be liberalized. There may be more emphasis on work in the individual’s major field of interest. Look for more control by the individual departments. We doubt that student practice will be dropped altogether.

It is more difficult to prognosticate about physics. Don’t expect the physics requirement to be dropped, either. It is possible that the ag school will agitate for better instruction in physics. One idea circulated among students last term suggested beefing up an elementary Agricultural Engineering course and using it for the physics requirement.

There is a definite need for both student practice and the physics requirement. Something should be done to restore their value to the students.

We commend the faculty for studying these problems.

S. A. B.

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October, 1959
Of Cows, Crows, and Calls
by Zilch

GREETINGS once more from Zilch, your friendly, folksy, homespun upper quad philosopher.

Zilch spent the past summer out among the people. Why of course, on a farm. Not that he had to, but in order to satiate the masochist in him. But so as not to forget his delightful days of farm work for farm practice credits, Zilch kept a diary—sort of “Things I never told Prof. Shapley.”

Item: Call to a Cow. When day is done and milking time rolls around once more, the cows, way off in their pastoral paradise, must be, in some way, vocally summoned. There are many ways of achieving this end, and the methods vary from farm to farm. On the farm on which Zilch worked the following were used:

Boss the elder used the more or less classic, “Come Boss!” The results varied depending on how much the cows really wanted to come and how loudly he intoned his plea.

The permanent hired man had his own method consisting of something that emitted as a cross between a muffled roar and a snort. The words of his little song: “Come baby, come baby.” The results of the hired man were slightly better, however, as the cows thought of him as one of them.

Boss the younger (son of boss the elder, obviously) used a logical call which described his desire and gave helpful directions. “Coooomome home.” The cows rarely listened for two reasons: 1) They are afraid of him (he hits them) and 2) The cows don’t understand English so they wouldn’t know what he meant anyway.

The temporary hired man picked up a little thing in his travels which is nothing like anything Zilch has ever heard before. His call seemed to be, “Plash plish,” or something to that effect. The cows were completely befuddled by this one and, consequently, ignored it entirely.

Zilch, ace Ivy League farmer, has developed a call that is without equal in this, or any other state. He has nicely combined the aforementioned methods and added a few things of his own. It goes (gently crooned), “Come home boss-baby, you plish plash daughters of a frog.”

Hard work, however, could not stiffen Zilch’s highly flexible mind. Creativity is a thing not easily stifled by toil. In the case of Zilch he even soared into the realms of poetry.

Now, in these times of modern farming, it seemed to Zilch that some of the old poems should be revised. For a start, the one about Little Boy Blue:

Little boy blue, your bank note is due,
And there is a lien on your farm;
The tax man is here to collect for last year,
So you’d better go pawn your horn.

Enough in the modern vein. This next bit of poetry was composed when Zilch finally left the sweet confines of his beloved dairy-poultry farm.

Goodbye to the old bull, who made me so sore;
So long to the hay fields, I’ll see them no more.
The corn may possibly get... Oh, this high;
Maybe you’ll eat it my friend, but not I.

Goodbye to the chickens, the calf and the cow;
Goodbye to them all, for I’ve had it for now.
Goodbye to the old farm, goodbye and farewell;
My boss, his father, and sons—Go to H—!

One day last summer, while prowling around the farm, Zilch came across a wind instrument that’s so far out that Brubeck doesn’t even dig it. It’s called, “The Olt’s Regular Crow Call.” Real crazy sound!

This call business must be a big thing. The Olt people make quite a few types of calls. For instance: Canadian Honker Call, Fox-Coyote Call, Coon Call, Quail Call, Two-tone Turkey Call (Zilch has never seen a two tone turkey), Goose Call, Pintail Widgeon Call. Pintail Widgeon! Who would want to call a pintail widgeon except another pintail widgeon, of course.
Hormones Control Breeding

by Steven A. Breth '60

Artificial insemination is probably the greatest advance to reach livestock men in centuries. Dairy-men especially, have quickly taken advantage of it.

But A.I. has never caught on with beef raisers. The reason: watching for cows in heat is too time consuming on cattle ranches.

To look for cows in heat, the rancher has to ride out on the range and observe his herd every day. Then the cows in heat have to be cut from the herd and the inseminator called. Most cattlemen prefer to let bulls run with the herd. Often these bulls are scrubby.

But now, two hormones promise to make A.I. as practical for the beef raiser as for the dairyman.

Cornell's Dr. Wm. Hansel says that progesterone and oxytocin can be used to regulate heat periods in cattle. Using a combination of the hormones, Hansel can cause a cow to come into heat within two days of any given date.

Under these conditions you could use A.I. to breed your entire herd at once. One week a year you would round your cows up, bring them into heat and breed them all at the same time. Using frozen semen, the cows could be bred to one or as many proved bulls as you desire.

The functioning of the heat cycle depends on many hormones. Dr. Hansel manipulates the amount of two hormones—progesterone and oxytocin—to gain partial control of the cycle.

In a normal ovary a high level of progesterone retards heat. When the level of progesterone is low, heat occurs.

The level of progesterone depends on the size of a small yellow body in the ovary. This body is the corpus luteum.

The corpus luteum is formed after an egg is released (ovulation). The corpus luteum grows and degenerates in cycles of about 22 days. As the corpus luteum enlarges it secretes increasing amounts of progesterone; as it shrinks the level of progesterone drops.

When the level of progesterone is at its lowest ebb the cow comes into heat. If she is bred and conceives, the corpus luteum enlarges and stays large. Hence, there is a high level of progesterone and the cow does not come into heat during pregnancy. If the cow is not bred the cycle begins over again.

The effect of oxytocin on the reproductive cycle is a recent discovery by Dr. Hansel and his associates. Oxytocin retards the growth of the corpus luteum. As long as the corpus luteum is small the level of progesterone stays low. The cow, now, comes into heat about every nine days instead of every 22 days.

To control a cow's heat cycle, Dr. Hansel injects oxytocin to keep the corpus luteum underdeveloped. To keep the cow from coming into heat after the oxytocin injection, he injects progesterone. The cow's heat cycle is now controlled by the injected hormones.

About six days before he wants the cow to be in heat Dr. Hansel stops the shots. At the end of this period the cow comes into heat and can be bred.

The main problem facing researchers is the number and frequency of injections. At present, it takes many injections to maintain the proper hormone balance.

The average cattleman couldn't find the time to make the shots. But, longer-lasting, more inexpensive hormones are being developed. In the future, cattlemen may have a practical method for using artificial insemination.

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Flora Rose . . .

Home Economics Pioneer
by Margaret FitzGerald

IN 1907 the workday of an average farmer's wife was 12 or 15 hours of unending labor. Labor-saving devices were few. Helpful advice from women's magazines was almost nonexistent.

At Cornell's College of Agriculture, Martha Van Rensselaer was trying to spread knowledge of easier, more efficient methods of housekeeping to farm wives.

She had built a home reading course around home economics bulletins. Her winter course in home economics had attracted many farm women to the Cornell campus. She was now ready to find an assistant.

Miss Van Rensselaer invited Flora Rose, a nutrition graduate of Columbia University, to teach the winter course. And so, in the fall of 1907 the tall, blonde, well-groomed young woman arrived in Ithaca to work with Martha Van Rensselaer.

Shortly after Flora Rose arrived at Cornell, Dean Liberty Hyde Bailey decided to create a department of home economics. The success of the winter course had convinced him that home economics could be a valuable part of the College of Agriculture.

He asked both Martha Van Rensselaer and Flora Rose to recommend a director for the department. Miss Van Rensselaer suggested Miss Rose. Miss Rose suggested Miss Van Rensselaer! When the department was created a year later, Dean Bailey was still undecided on who would be director. He said, "Frankly, I have not found two people who can work together successfully, on an equal footing, but that is the way I propose to begin this department."

By agreement, Miss Van Rensselaer and Miss Rose divided the responsibility for the department. The former was in charge of extension service and general administration and the latter was in charge of resident teaching and research. As a result, Miss Rose came in close contact with the students.

They had their differences, but usually managed to settle them in the best interests of the young department. As Miss Rose said, "... where one may yield in despair, two may resist with confidence and courage."

Jacob Gould Schurman, Cornell's third president, characterized the Van Rensselaer-Rose relationship as "the only successful double-headed administration in the academic world."

Finding funds for the fledgling department was not always easy. The members of the state legislature looked on home economics with a jaundiced eye.

Miss Van Rensselaer and Miss Rose frequently had to travel to Albany to appeal for funds.
However, at least one State Senator was won over by the oldest of
woman’s wiles. During an inspection of the college by some legis-
lators, the department of home economics served a meal for the vis-
itors. A former student recalls that the meal particularly impressed a
senator who asked, “What is this delicious dish I am eating?” When
told it was cabbage, he replied, “Why I never eat cabbage, but you
may give me some more.”

Some time later, when the Legislature was debating the College of
Agriculture’s request for $2,000,000, the senator declared, “I want to
vote for the women who taught me to like cabbage.”

That $2,000,000 allowed Dean Bailey’s 10-year plan for the expan-
sion of the College to go into effect. The department of home economics
became a school in 1919. In 1925, the dreams of Martha Van Rens-
seelaer and Flora Rose were at last realized when the School became the
College of Home Economics.

Flora Rose’s career was a phe-
nomenon in an age when unmarried
women were expected to stay behind the shuttered windows of their
homes.

Three years of high school and the inevitable “grand tour” in Eu-
rope had completed Miss Rose’s edu-
cation according to the standards of the day.

Flora Rose rebelled against family
tradition and the strictures of the
time. She borrowed money, and
went in search of a career.

She received a diploma in house-
hold arts from Framingham Normal
School, Framingham, Mass., in 1903

![Flora Rose](https://example.com/FloraRose.jpg)

and earned a B.S. degree from Kan-
sas State in 1904. Miss Rose re-
ceived her M.A. in food and nutri-
tion from Columbia University in
1907.

Miss Rose was a kindly, yet
strong willed woman. Once she had
declared herself for something she
did everything in her power to pro-

One of the things she felt strong-
ly about was the nutritional value of
fish oils. She even included in her
contract with a handy man a
clause pledging him to take cod liver oil daily. Once when Miss Van Ren-
sseelaer was in the hospital Miss
Rose sent her not two dozen flow-
ers, but two dozen halibut liver oil
capsules.

When World War I ended, Flora
Rose went to Belgium to help con-
quer the malnutrition of the Belgian
children. The Belgian government
honored her with the Order of the
Crown for her work.

Flora Rose’s greatness as a teach-
er extended from her deep interest
in her field and from her love of people. A former student remem-
bers how Miss Rose loaned her
$1000 to continue her college edu-
cation. When she paid her back,
Miss Rose declined to take interest
on the loan.

Upon Miss Van Rensseelaer’s
death in 1932, Miss Rose became
Director of the College of Home Eco-
nomics until her retirement in
1940. After her retirement, she con-
tinued her interests in the growth
of home economics and the College.
Miss Rose served numerous home economics associations, as she had
served her country by working on
food commissions during the war.
She taught nutrition to groups of
senior citizens in California where
she spent her retirement years.

Flora Rose died July 25, 1959.
The College of Home Economics is
a memorial to her pioneer spirit.

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ON a poultry farm somewhere in the Northeast, at this very moment a small boy might be sitting on his father’s knee, looking into the elder’s eyes, and saying, “Daddy, where do egg prices come from?” In the spring of 1959 the little boy had seen his father become numb upon hearing the Urner-Barry report describe a 25-cent egg market price. He now wanted to know the origin of the mysterious force that caused egg producers so much distress.

At the core of the egg pricing system is the New York Mercantile Exchange located in lower Manhattan. The Exchange, organized in the late 1800’s, is little more than an auction where certain commodities can be bought and sold. Originally the Exchange dealt in several products, but now mainly egg trading is done.

Buyers and sellers are a necessary part of any transaction and on the exchange the primary traders are the large corporate grocery chains, like A & P, the Grand Union, and the large independent wholesalers.

Corporate chains, as buyers on the Exchange, will only buy as much as they expect to sell.

Independent wholesalers vary their role in two respects. Although wholesalers are primarily sellers on the Exchange, they also buy some of their supplies there. Where chains have sales limitations on purchases, wholesalers accept nearly all offers.

Complete with buyers, sellers, and a market place, the egg pricing picture is ready for action. On a typical day the buyers for the chain stores and the wholesalers’ sales representatives converge on the Mercantile Exchange. At precisely 10:30 a.m. trading begins.

Eggs are put up for sale with an asking price. The buyer either buys at that price or haggles with the seller until an acceptable price is reached. The Exchange closes at 10:45 a.m. and final prices are usually agreed upon five minutes before closing.

Eggs are graded for sales according to weight, quality, and color (for instance, “Extra Fancy White Heavyweight”) and each grade must have a price set for it. Many prices may be accepted for many groups of eggs of each grade during the trading, but the last prices accepted before the Exchange closes are the important ones.

Next to enter the egg pricing drama is the market reporting firm of Urner-Barry. A reporter, Mr. Urner himself, goes to the Exchange and checks the closing prices for the various groups of eggs. These prices, tempered by results of street
Eggs?

by Edward L. Razinsky '61

sales, compose the Urner-Barry egg market quotations. They are the accepted base price between egg traders throughout the Northeast and the United States. These are THE egg prices.

So the picture seems complete: the closing price on the Mercantile Exchange as quoted by Urner-Barry is THE price of eggs. But a few more strokes can be added by a USDA report written by Norris T. Pritchard and a personal interview with Lawrence B. Darrah, professor of marketing in the College.

Trading on the Mercantile Exchange determines the price of eggs for the major part of the poultry industry. Mr. Pritchard, in his report, brings up the question of representativeness. Of the total volume of eggs traded in the Northeast, Mr. Pritchard noted than only 1 percent went through the Mercantile Exchange. Although heavy trading was done on the Exchange in the past, now a very small percentage of eggs traded goes through the Exchange.

Egg producers are then faced with a pricing structure that is possibly sapping the life out of their industry. Professor Darrah suggested a course of action that could help certain farmers who happen to be in the right place at the right time—direct marketing.

“What good reason,” asks Professor Darrah, “is there for anybody to produce eggs in the Northeast? It isn’t the climate, low labor costs, or building costs . . . and you can go on. You finally come down to the important thing . . . the market—the cities in and surrounding our production area.” All the northeastern egg producers, Professor Darrah continued, aren’t taking full advantage of their markets.

Eggs produced in the Northeast are marketed primarily through wholesalers. This is the same procedure used by Western and Southern producers and it costs them less to produce a dozen eggs.

When the egg price is high, Professor Darrah suggests letting someone else do the marketing. But when the price is depressed, the farmer might just as well pay himself the wage received by the truck drivers, egg graders, cndlrs, packers, and other people involved in marketing eggs.

On the poultry farm somewhere in the Northeast, the little boy might be looking into his father’s eyes and asking, “But Daddy, what about the Mercantile Exchange?”

Daddy might recall from Mr. Pritchard’s report that chain stores buy more than 80 percent of their eggs from farmers’ cooperatives. He may then reason that the coops in the Northeast might band together and form an egg market whose prices would very closely represent egg trading conditions.

Daddy doesn’t know the answer, but he is sure of one thing. If, in spite of his efforts to be a successful farmer, an outdated marketing system is restricting his profits, he, and other independent egg producers in the Northeast, may be without farms.

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Mr. and Mrs. Joe College: A Campus Phenomenon

by Brenda L. Dervin '60

Mr. Joe College of 1945 would have never considered marriage a part of his college career. Far from it, he didn't want to be tied down—marriage was strictly for the future.

But, the Joe Colleges of today seem to think otherwise. One out of every five U.S. college students is married. In just 15 years, the number of married students has increased from a handful to 700,000. And, it looks like the number is going to climb higher.

Why today's generation of college students is marrying when past generations didn't has been a matter of much conjecture to educators. The opinions of four family relations experts were summarized in an issue of Good Housekeeping.

According to Dr. Helen Buchanan of Pennsylvania State, Dr. Gerhard Neubeck of the University of Minnesota, Dr. Nelson Foote, past director of the University of Chicago's Family Study Center, now of General Electric's Research Staff, and Prof. Harold Feldman of Cornell, the GI's of World War II broke the ice by returning to the campuses with their wives. At the same time, the stigma against women working was disappearing.

More jobs were available on campuses as a result of the education boom and ten years of prosperity. The experts also stated that the students from the lower socio-economic classes, who could afford college for the first time, continued to marry early, college or not.

Professor Feldman of the Child Development Institute of Cornell College summed up the matter by saying:

"The GI's came back with their wives, and the women went to work. This was the streaming of the flood."

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"The GI's came back with their wives, and the women went to work. This was the streaming of the flood."
Development and Family Relations Department in Cornell’s College of Home Economics adds another reason for the increase in college marriages:

“Today, early dating and high school ‘going-steady’ mean many students coming to college have already experienced the social freedom that formerly came as a part of college. These students are further ahead in the process of mate selection.”

Whatever the general reasons for the increase in college marriages, the students themselves have their own reasons.

As one Cornell student put it: “We both know what we want and we love each other, why wait?”

This seems to be the general attitude of many married students. Dr. Donald Ford, director of Penn State’s Division of Counseling backs this up: These students “have counted their assets and know they’ve an average chance of making a go of it.”

Adventure and fame are not the goals of these students. They want a loyal mate and a happy home first. And, they see no reason to postpone marriage, if they’ve found the right partner.

Yet, the price they pay for marrying is often high. By far, the vast majority of these marriages include a student-husband and a working wife, who is getting her Ph.T. (Putting Hubby Through). As the result, many of these couples live in a state of semi-poverty, where making every penny count is an absolute necessity.

Many educators see this lack of money as an asset. These students “wear their poverty as a badge of honor,” according to Dr. Ford. The poverty unifies the couple rather than separates them as it might in later marriage.

Most of these couples aren’t concerned about the possibility that they might be caught without funds during a serious economic depression in the future. In short, they are not worried about the future. In addition to financial problems, these married students have other special problems. As one recently married Cornell co-ed put it: “Being married and going to school at the same time isn’t easy.”

Yet, there seems to be a universal opinion that these marriages are good. Many studies indicate this. Worth R. Jones, assistant professor of education, Teachers College, University of Cincinnati, questioned 75 married and 75 unmarried students. In his sample, married students expressed fewer emotional problems and tensions and were better able to cope with those they did have.

While many educators were at first skeptical about married students keeping up their grades, Dr. Feldman of Cornell best summarizes the present opinion on this point: “Married students are no worse scholastically than most unmarried students and in some studies, better.”

But some educators still have reason to doubt the success of these marriages. They ask whether these students will regret the freedom they didn’t have while in college.

Professor Feldman answers that this is a matter of individual differences. Some of the students who do marry are the more mature and have already had enough of the “playboy” period in their earlier years. They are psychologically ready for marriage.

The results of these marriages won’t be known for quite a few years. In the meantime, they will be studied and discussed by educators. Married students are no longer an oddity, but they still are a relatively new segment of the college student body.

But, the future looks good for students who marry in college. As Dr. Gerhard Neubeck, chairman of the Family Life Program at the University of Minnesota states: Most of these marriages are “mature . . . well thought out . . . promising.”

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Ag. Engineering Club

This organization provides a practical supplement to the agricultural engineer's curriculum.

The club is represented on both the Engineering Council and the Ag-Domicon Council. Membership in the club is open to both 4- and 5-year students.

The program for this year includes movies, speakers, tours, and, of course, the annual banquet and picnic in the spring. Regular meetings are held twice a month in Riley-Robb Hall.

| C.A.T.A. |

C.A.T.A. is made up of future high school teachers of vocational agriculture. Members, through regularly scheduled meetings and trips to near-by high school Vo-Ag departments, learn many of the practical aspects of teaching Vo-Ag and advising Future Farmer groups.

The meetings are held on every first and third Thursday of each month in Warren Seminar Room. In addition, an annual picnic is held each May.

All Vo-Ag majors should make C.A.T.A. a part of their education and club activities at Cornell.

Conservation Club

The Conservation Club is a group of Cornell students interested in conservation and natural history. Every other Thursday evening, members meet in Fernow Hall at 7:30 p.m. At these meeting the club listens to speakers, usually professional conservationists, and plans events and projects.

Yearly events consist of several outings, a game dinner, and a smelt fry.

For projects, the club participates in wildlife census, co-sponsors the Audubon Screen Tours, and presents exhibits and gives talks to interested groups.

What does the Countryman staff do? Look through this magazine.

Editorial staff members write the copy, proof it, select the pictures, write the headlines and captions. Advertising staff members create the ads and sell the space. Business staff members balance the books, pacify the creditors, and harangue the debtors. Circulation staff members mail out the magazine and correspond with subscribers. Art and Photography staff members create the cover and illustrate the articles and advertising.

Watch for notices of our first compet meeting. Or, even better, drop up to 490 Roberts Hall any afternoon after 4:30 and have a cup of coffee with us.
CLUBS (continued)

ers on current topics and problems.

But, wait, we need one thing! We
need enthusiastic rural leaders of
tomorrow. You guessed it. You
qualify! Look for posters of our
meetings.

Floriculture Club

The Floriculture Club consists of
about 50 members from the Flori-
culture Department.

We have meetings once a month
with different speakers or themes
for each meeting. These themes
range from tips on traveling around
the world, to floriculture, and to
plant diseases. We have a Christmas
party and a big picnic at Butter-
milk Falls in the spring.

In October the Floriculture Club
sponsors the Mum Ball. This is one
of the first big dances of the school
year.

This fall the club will work at
various jobs to raise money for a
trip to the New York City Flower
Show.

The club will hold its first meet-
ing soon. Come and get acquainted.

Cornell Grange

Many people do not realize that
there is a subordinate Grange loc-
cated right here on campus. Cor-
nell Grange 1577 meets on the first
and third Tuesday nights of each
month at 8 p.m. in the Warren
Student Lounge.

The Cornell Grange has an active
Recreation Team and at present is
trying to establish a scholarship for
an incoming freshman Grange mem-
ber.

All students interested in belong-
ing to the Cornell Grange are wel-
come to attend its meetings.

Pre-Vet Club

Through guest speakers and fre-
quent movies, the Pre-Vet Club
gives its members a close look at
the various branches of veterinary
medicine.

Each year veterinarians give
their views on fields ranging from
general practice to outer space re-
search with monkeys. Often the
student will find that veterinary
medicine offers more than he ex-
pected.

Poultry Science Club

Small, powerful, helpful and with
lots of energy—this is the Cornell
Poultry Science Club.
In the picture, you will notice the interest that the public shows in our activities. This is our exhibit at "Straight to the Country."

Anyone who has interest in poultry is urged to come to our meet-ings and meet the members.
We will do our best to make you feel at home and to enjoy yourself. Look for posters around the Ag Campus announcing our meetings.

**Round-Up Club**

The Round-up Club is made up of students interested in raising, fitting and showing livestock.
The Student Livestock Show, held during Farm and Home Week, is the highlight of our year's events.
In addition to speakers at our regular meetings we have student-faculty skits, field trips, judging contests, parties, picnics and a banquet. These are just a few of the interesting events planned for the coming year.

**Vegetable Crops Club**

Vegetable Crops Club is concerned with topics related to the vegetable industry. Membership is open to anyone interested in our activities.
Our team competes in the Inter-collegiate Judging Contest annually (above).
The monthly meetings are highlighted by a speaker. Discussion and refreshments follow.
In addition to participating in Farm and Home Week the club may make some trips to vegetable areas in the Northeast.
We hope to see you at our next meeting.

**Other Clubs**

Other clubs on the upper campus are: Dairy Science Club, Home Ec Club, Agronomy Club, Pomology Club, and Ag Domicon Council.

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**STATE DINER**

*The best food in town*
*For the most reasonable price.*

*428 W. STATE ST.*

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**SUNNYSIDE RESTAURANT**

*Southern-Fried Chicken*
*Steak*
*Seafood*

All Legal Beverages
Corner Elmira Rd. & S. Meadow St.
Parking no problem

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**Shoe Sales — Repair**

- Bates dress shoes with campus styling
- Low cut—U. S. Keds
- Regulation R.O.T.C. shoes
- Engineer Boots

Opposite Leonardo's
401 Eddy Street
Ithaca 2-1700

Complete Shoe Store on the Hill
20 years...of Comfort, Production and Profit...OR?

Few men can afford more than one parlor and pipe line in a lifetime...so...the selection is a big decision.

Up to now nobody has thought up a more convenient and more comfortable way to milk cows than in a Surge Parlor...and, twenty years is a long time to be uncomfortable.

Up to now—nobody has figured out a better and a safer way to milk for high production and udder health than with Genuine, downward and forward Surge TUG & PULL that holds the teat cups down where they belong.

Up to now—nobody has topped Organized Surge Service...and with any pipe line milker, service is an important part of the story.

Up to now there is just no better guarantee of comfort, production and profits than a Surge Parlor with a Surge Pipe Line.

The Surge is not a cheap machine...the price will be higher—over a twenty year stretch Surge might cost you a quarter of a cent more a cow a milking.

Not much to pay for insurance when you consider what you have at stake.

**ALL SURGE EQUIPMENT SOLD ON EASY TERMS**

BABSON BROS. CO. of New York
842 W. Belden Ave. • Syracuse 1, New York
Spreads it right... heavy or light

From 5,000 pounds per acre to 10 pounds per acre, this New Idea Fertilizer Spreader distributes any fertilizer in any condition in any amount... uniformly, accurately, and without clogging... or the purchaser gets his money back.

It broadcasts fertilizer or lime... makes band application for row crops... top-dresses pastures... spreads feed to turkeys and pullets on the range... distributes insecticides, herbicides, sand, salt, and cinders.

It sows any number of grasses, grains, and legumes. With front mounted seeding attachment, it accurately sows small, light, and chaffy seeds in clear view of the operator.

Easy to clean, its agitator, shutters and bottom assembly are all quickly removable. Operating handle adjusts in length for convenient control from the tractor seat. Long drawbar permits short turns.

Like the New Idea Fertilizer Spreader, each piece of New Idea farm equipment tells its own story of excellence in design, engineering and construction.

Doesn’t this explain why sucessful farmers always look at New Idea before they buy?

New Idea Farm Equipment Company, Coldwater, Ohio

Specialized Farm Equipment Since 1899
World’s greatest tractor family gives every farmer top earning power on every job...

There are six Farmall® power sizes
... 10 to 65 hp ... models and options unlimited!

There are seven International® tractor power sizes ... 10 to 82 hp!

There are six International® crawler tractors ... 40 to 202 hp!

Dozens of types, sizes, and options let a farmer “design” his own IH tractor to fit a 5 acre truck farm ... a 5,000 acre wheat ranch ... or any other acreage or farming enterprise in between!

See your INTERNATIONAL HARVESTER Dealer

International Harvester Products pay for themselves in use—Farm Tractors and Equipment ... Twine ... Industrial Tractors ... Construction Equipment ... General Office, Chicago 1, Illinois.
The Thankful Heart

If human hearts know shame,
Ah, then truly it must be
That this one blushes crimson.

To consider how these miser'd fists
Seize Heaven's every gift
As though it were deserved . . .

To think how this vain self,
In all its utter thanklessness,
Takes Life and Love
As its due heritage . . .
Makes unproved claim
To Sight and Sound
And Touch and Taste
And all of Life's endowments . . .

To reflect how this ungrateful mind
Dares trifle even its mean talents into dust . . .
Dares squander even one small skill,
And play the profligate with Time . . .

To know this petty creature that I am
Dares taking Beauty for its own,
Makes property of all the stars,
The sun, the earth, the very universe,
Deems Art its rightful slave
And Poetry its handmaid . . .

To know with what effrontery it deigns
To pilfer particles of Wisdom's fund
And make them playthings . . .
Make keys of friendships, coin of Truth,
And mold of Faith a luckpiece . . .

To ponder this . . .
To ponder this, and recognize too well
One's proud and selfish image there,
Reflected so in gross ingratitude . . .

Ah, then it is this heart must blush
And beat its tardy thanks—
Its sincere and humble thanks . . .

For this beggar's bag of blessings!
How LINK-BELT’S broad chain selection aids the designer, improves the design

DOUBLE PITCH AGRICULTURAL ROLLER CHAIN

HOW TO DESIGN

STANDARD-PITCH PRECISION STEEL ROLLER CHAIN

400 CLASS AND SPECIAL PINTLE CHAIN

STEEL LINK-BELT CHAIN

EXPERT ENGINEERING—Link-Belt maintains an engineering staff of unsurpassed experience in the application of chain.

ACCUARATE MANUFACTURE — Modern, specialized machines give economies of large-scale mass production, yet maintain high accuracy.

A COMPLETE LINE assures correct selection for each job. This Case No. 135 manure spreader uses Link-Belt steel detachable chains on apron conveyor.

Link-Belt has chains, chain attachments and sprockets to match every need...all built to the highest farm machine standards

For drives and conveyors on hard-working farm equipment, nothing matches the efficiency of chain. It has the strength and stamina to easily withstand heavy loads, to take dust and all kinds of weather in stride. And chain performs positively...without slip, with minimum wear.

The completeness of Link-Belt’s line of chains and chain attachments make it possible for designers of farm machinery to get the one chain that’s best for each application. Horsepower, loading, speed, impact—every requirement can be met to enable the machine to maintain rated performance and efficiency.

Since 1875, Link-Belt has worked with America’s agricultural engineers to increase the efficiency of farm machinery. Today, over 300 farm machine manufacturers rely on Link-Belt for chain. They know that Link-Belt’s unmatched facilities, services and experience are their best possible assurance of quality products...properly applied.

LINK-BELT CHAINS AND SPROCKETS

To Serve Industry There Are Link-Belt Plants, Sales Offices and Stock Carrying Distributors in All Principal Cities. Export Office, New York 7; Australia, Marrickville (Sydney); Brazil, Sao Paulo; Canada, Scarboro (Toronto 13); South Africa, Springs. Representatives Throughout the World.

November, 1959
I've got a whole stable full of the best darn bulls you've ever seen. And the best part is I don't have any of the expense, danger or trouble of keeping bulls. How? I belong to NYABC.
Disgruntled Dairyman

FOR A NEW slant on the maneuvering of powers in New York State agriculture, we recommend adding The Defender to your reading list of farm publications. The Defender is the voice of the Dairy Farmers of America, a group of disgruntled upstate dairy farmers. The DFA recently became formally linked with the National Farmers' Union.

The targets of The Defender's wrath are, in order of unpopularity with DFA: Ezra T. Benson, Dairyman's League, other milk processors and handlers, Farm Bureau, Don J. Wickham (NYS Commissioner of Agriculture and Markets) and Cornell agricultural economists.

The Defender is always amusing and often informative. When reading most publications, one must remember that in spite of the information, there is usually some underlying propaganda. When reading The Defender, remember that in spite of the propaganda, there is usually some underlying information. The smattering of facts that The Defender does publish are usually the type that the major power blocs in NYS agriculture would rather have toned down or suppressed completely.

In contrast to the insipid writing of many agricultural publications, The Defender is colorful, if somewhat misguided. For example, in a brief article entitled "Traitor Yankus" The Defender's editors were positively frothing at the mouth. Yankus, a Michigan chicken farmer irritated by government controls, decided to move to Australia. Here are the opening and concluding paragraphs:

"Traitor, convict, anarchist. These are harsh, unpleasant words, but each is a true description of Stanley Yankus, former Dowagiac, Michigan, chicken farmer."

and

"When Yankus finally gets to Australia, it will be very 'good riddance.' Yankus fails to understand that we have a government of law, rather than men. Yankus doesn't understand the difference between democracy and anarchy."

Mann Library has The Defender. Read it—it will give you a new perspective on your agricultural thinking.

S.A.B.

THIS MONTH'S COVER was drawn by Ron Andrews, '62. Ron has illustrated for conservation magazines and has done the drawings for one book. At present, he is doing sketches for a popular book on botany.

November, 1959
Winter is Icumen in
by Zilch

SHALOM kiddies, winter is icumen in. Time to break out the woolies and that fifth your dad gave you at your grammar school graduation. Winter, you will recall, is the time of sleighrides, gay skiing trips, warm firesides, pretty girls with rosy cheeks, bitter howling winds, homeless widows, wrecked houses and starving orphan waifs. Yes, winter brings reminders of many happy days. "But wait," you say, "this is only November—just the late fall season." Aha, I say, quick as a python’s tongue, you my son have not spent as many winters in Ithaca as the venerable Zilch. Winter in Ithaca is like a cougar. It waits until one bright fall day when you are reveling in the unexpected sunshine, then it leaps out, smiting you on the brow with snow and ice. Ithaca is never heard from again. Never, that is, until the first glorious spring day when the gamblers return from Capistrano.

Zilch was sitting at the Ho-Nun-De-Kah barbecue last month when the master of ceremonies began to address the gathered throng in a rich Southern accent. Thinking that the speaker was Orvil Faubus, Zilch, to Zilch’s everlasting chagrin, jumped to his feet and began to sing "Dixie." Fortunately, one of Zilch’s companions quickly felled him with a blow at the base of the skull. The speaker, it turned out, was Arkansas’ Larry Littlefield.

Ag-Hec Day, November 7, gets the Zilch seal of approval. It looks to be one of the gala events of the season. A round and square dance, “Pumpkin Promenade,” will swing from 8 to 1. The biggest gluttons from the upper campus clubs will be entered in a pie eating contest. (Zilch knows of at least three clubs which have been starving their entrants for weeks in anticipation of the contest.) For the youngsters in the crowd there will be the crowning of the Ag-Hec Queen. Be merry! Be gay! Attend Ag-Hec Day.

Zilch notes with sadistic glee that Countryman editors, among others are distraught! The reason for this happy state of affairs is that some one donated loads of parking meters to place on Eddy Street for the use of Collegetown residents. Happy days are here again. Italian lesson for today: Parccheggio da pettina (or something like that) means diagonal parking. Zilch came across this rare usage in the fifth canto of the Inferno.

For all you continental people who need wine and cheese with your meal, Zilch has an easy, sure-fire, creative suggestion... do-it-yourself. If you desire a concoction to rival Liebfraumilch and Mogen David, just buy yourself a couple of bushels of grapes. They’re cheap. If you have a sheet that must be dyed a divine shade of purple, you’re set. Call up all your friends, tell them to wash their feet and come over. Toenail dirt just might halt the process of fermentation. Attempt to get as many people in the bathtub as is inhumanly possible... this could become a bigger fad than telephone booth stuffing. The local record is 11, held at 406 Stewart Avenue, October 3, 1959. Your bathtub and everybody’s feet will now be a spectacular shade of purple. After three days feet should return to normal. As for the bathtub... well, what’s wrong with a purple bathtub anyway? Add sugar, a little water and some yeast to the mess, sit and wait until it bubbles spastically. In a few years the product will be ready to market.

Zilch almost forgot about the cheese. Buy loads of milk and let curdle. Add to the curds some mold from your favorite cheese... Liederkranz is fine. Just let it sit in cheese cloth near a bottle of Air-Wick for a few weeks... and lo and behold... CHEESE!

Zilch does not recommend that you serve these delicacies at your next apartment party, unless you’re an advocate of small, intimate classes.
Turn Chef, College Man!

After The Game, Before The Show
Whip Up These Cocktail Tidbits

by Carole J. Wedner '61

WHAT are we going to serve those kids after the game on Saturday?” one Cornellian mused to his roommate late one Thursday night. “I’m sick of beer and pretzels.”

“What else is there?” his roommate snapped back from the depths of a physics problem.

This dilemma has an easy solution. All it takes is a little imagination, lots of elbow grease, and a spirit of adventure.

Cheese presents a wonderful beginning. But what kind of cheese? There must be a million types.

Cream cheese makes a base for a wealth of dips to slosh crackers, pretzels, or potato chips in. Mix it with horseradish, anchovy paste, onion soup, or other kinds of cheese. A simple spread is:

Cream Cheese and Horseradish Spread
3-oz. package cream cheese
2 tablespoons horseradish

Put the cream cheese into a bowl and let it stand until it is soft (about fifteen minutes). Mix the horseradish into the cream cheese and keep mixing until you have made a smooth paste. Spread this on crackers or potato chips or put it out in a bowl and let your guests do their own dipping.

Substitute a package of dried onion soup, a tube of anchovy paste, or a package of blue cheese for the horseradish for variety, or use ½ pint of sour cream in place of the cream cheese.

If you are feeling fancy add a splash or two of Rhine Wine to the blue cheese spread while you are mixing it. Serve the wine with the dip, Ritz Crackers, Wheat Thins, and potato chips. Mmm!

Sharp cheddar cheese adds a tangy compliment to dry wine. Grated and mixed with wine this cheese makes a delectable spread. This one has to be made the day before.

Cheddar-Sherry Spread
1 pound sharp cheddar cheese
1 tablespoon butter or margarine
1 teaspoon sugar
1 teaspoon salt
½ cup dry sherry

Grate the cheese or cut it up in very small pieces. Combine first four ingredients. Blend them using a fork. Add the wine slowly, continuing to blend. Cover the mixture and let it “ripen” in the refrigerator for at least 24 hours. Take it out about 30 minutes before you want to use it as a spread for Triangle Thins, rye crackers, or Melba Toast Rounds.

To measure for the ingredients of these tasty tidbits you needn’t be a chemist. An approximate measurement will do. Remember you can always add, but once you’ve put something in you are stuck.

Beer can be simply and deliciously complimented too. Get a half pound of butter and let it soften. Mix it well with a few sprinkles of either garlic salt or powder. The powder is stronger than the salt. Spread it on thick slices of Italian bread and slip it under the broiler for a second. Or let your guests spread it on the bread and eat it cold.

Even those pretzels can have a new flavor. Put out big dishes of hot mustard to be spread on thick beer pretzels.

A bowl, a spoon, and a little luck and there you have exciting after game snacks.
NYABC — Breeding By Mail

In 15 Years, NYABC, (sending semen by mail), Increased Its Breeding Toll from 3,500 Cows To the Goal of "A Cow A Minute"—527,040 Cows in 1959-60.

by Edward L. Razinsky '61

ONE HUNDRED and fifty-two husbands with 480,326 wives! That's not polygamy, that is NYABC.

New York Artificial Breeders Cooperative (NYABC), located about a half mile east of the Cornell Campus on the Judd Falls Road, used 152 bulls in 1958-59. These bulls were artificially bred (or wed) to almost 500,000 cows. But these figures represent only the most recent phase of the NYABC epic. The beginning was not so impressive.

Bion Carpenter, Director of Information at NYABC, said the original concept for NYABC came from a research project at the New York State College of Agriculture in the late 1930's.

At that time several farmers in and around Tompkins County were working with artificial breeding of dairy cattle. The project was under the direction of Professor Stanley J. Brownell who is referred to as "The father of dairy cow artificial breeding in New York State."

As a result of the success of the initial project, other artificial breeding associations came into being. Competition for good breeding bulls existed between the breeders. Naturally, they all couldn't get the best bulls.

Many of these breeders were affiliated in a cooperative in the early spring of 1940 by the organization of NYABC. Under this cooperative system they could all benefit from the best bulls.

Syracuse was the first home for NYABC. Mr. Carpenter explained that they moved there because transportation was good but later moved to the present location in Ithaca. Because they were working closely with the College of Agriculture and the Veterinary College, Ithaca was more convenient.

NYABC has shown amazing growth and progress in its fifteen years in Ithaca. On the main site on Judd Falls Road is the administration building and three barns. Here, most of the semen extracting, testing, shipping, and general management is carried out.

The West Hill Farm, supplementary to the main headquarters, has 250 acres on which most of the roughage for the bulls is raised. On
this farm, the four barns house calves until service age (about one year.)

Central headquarters of NYABC is only a part of the whole. The other part is made up of the 217 technician units and the almost fifty thousand members.

Technician units are smaller branches of NYABC located in counties throughout New York State and Western Vermont. They are placed according to cattle population and use of the service. The trained technicians in these units do the inseminating and general field work.

Members of NYABC, as well as the dairy industry in New York State generally, said Mr. Carpenter, have benefited from NYABC service.

Through its cooperative structure NYABC members are able to breed their cows to high quality bulls which they couldn’t ordinarily afford. This has significantly improved the general quality level of dairy herds in the state as well as increasing total income.

Improved production of NYABC sired cows, reported Mr. Carpenter, has resulted in an increase in income in excess of $5 million per year.

Records are another part of NYABC operations. The Dairy Herd Improvement Association checks herd production averages from which a state average can be set. NYABC uses this information in at least two ways.

DHIA records of NYABC-bred cows show the general results of the breeding program.

“Bull in Waiting.” Also, breeding qualities of a specific bull may be checked. After a bull had been bred with 3,000 cows he is put “in waiting” for about four years. During this period the cows bred must give birth and their daughters start giving milk. The production records of the daughters are then checked against state average.

If the comparison is not favorable, their sire is scratched off the NYABC list of eligible males. If the bull is retained he is termed “AB Proved.”

Service from only Holstein and Guernsey bulls was available to the early NYABC member. Now, service has expanded to Jersey, Ayrshire, Brown Swiss, and Angus. In addition to this, semen is purchased from non-NYABC bulls of many breeds.

Antibiotics are mixed with the semen before it is sent to the technician. This prevents disease from passing from the bull to the cow as might happen in natural breeding.

During their years of operation NYABC has had many fine bulls. Notable among these was an individual with the title: Sir Bess Ormsby Fobes Dean, or just plain “Dean” to those who knew him well.

Dean, during his six year term in the NYABC bull pen bred 30,000 cows. At the recommended breeding rate of 30 cows a year for a bull in natural service, it would take 1,000 years to equal Dean’s record!

NYABC now breeds 40 percent of the milk cows in the state, reported Mr. Carpenter. And the future? Mr. Carpenter expressed the hope that within not too many years, nine out of ten dairy barns in New York State will bear the green and yellow emblem of the New York Artificial Breeders Cooperative.

Sir Bess Ormsby Fobes Dean, or just plain “Dean” to those who knew him well.

The remarkable part of all of Dean’s breeding was the resulting production records.

Dean daughters averaged 12,345 pounds of milk per year. The state average of all DHIA cows is 11,210 pounds.

Cows sired by Dean are such prized possessions that many dairymen make collections of the daugh-

cers of Dean.

Dean was bred to his last cow in 1951. Had Dean lived two years later his semen might still be used today. It was at this time that frozen semen was first used in the field. Through this process, semen collected from a bull may be stored for long periods of time to be used at a later date.

New York cow population is still influenced by Dean, however, through his many sons, grandsons, and daughters.

Goal: A cow a minute. In their first year, NYABC bred 3,500 cows. After ten years this number had increased almost seven times. The goal for 1959-60? It can be seen in NYABC advertising copy. “A cow a minute” is the claim.

There are 327,040 minutes in a leap year. NYABC wants to breed one cow for every one of these minutes.

Is this progress? As a comparison, in their first year of operation NYABC bred one cow for every two and one half hours!
EVERY summer, thousands of out-of-state laborers flock into New York State to harvest its crops. This summer, they numbered about 35,000. Although this labor force is essential to state agriculture it poses numerous problems to the farmers, local residents, and the laborers themselves.

There are three main streams of labor migration in the United States. One group of Mexican-Americans comes to harvest cotton, citrus fruit and vegetable crops in Arizona and California. The second, largely residents of Texas, move up through the Northwest into Minnesota, Indiana, Michigan and Wisconsin.

The third large group of migrants, the one which pours into New York State, comes from the deep South. Many are residents of Alabama, Georgia and South Carolina.

They harvest winter crops in Florida, move up for the peach harvest in Georgia, harvest strawberries and other vegetables in Delaware, Virginia and Maryland. They follow the season up to New York and move down again to harvest crops in these southern areas untouched by frost.

The Northeastern stream of migrant laborers is largely Negro. All the laborers come from economically disadvantaged groups in society. Most regard migrant labor as a stepping stone to unskilled or semi-skilled industrial work. Although the migrants are generally under 35 years of age, many people over 60 work, because they are unable to get adequate social security benefits.

Migrant labor began to be a notable economic force during the depression era. Although it would be a mistake to over-generalize about the emergence of the migrant labor force, one can attribute to mechanization the chief impetus for migrant labor. The switch to machine labor in the South reduced the need for permanent agricultural workers, and drove the sharecroppers from their homes. This provided a mobile labor supply. Increased specialization in the North, meant that New York farmers had to search outside their localities for a large enough labor force.

Originally, migrant laborers came largely from the cities within the state, to supplement the local population. These laborers were often of immigrant groups. As they became assimilated, they moved on to more lucrative positions.

The migrant labor pattern is totally dependent upon an unskilled, underprivileged social group, which is willing to subject itself to the whims of weather, insects and unstable markets.

As the southern Negro becomes more prosperous, it is probable that the migrant labor force will become largely Puerto Rican. Eventually, if the United States immigration policy remains as strict as it is, this labor source will dry up.

That this process occurs with great rapidity is evidenced by the fact that about half of the migrant labor stream is new each year. At the same time as the labor source is diminishing the mechanization of harvesting is increasing. A snap bean harvester has made it necessary to eliminate migrants to a large extent on farms where the machine is used.

Forty counties in New York State employ migrant laborers on a large scale. In Suffolk County they are needed to harvest the potato and cauliflower crops. Another area heavily dependent on migrant labor is the Hudson Valley area. Here they are used to pick fruit and vegetables. They are also used for the same purpose in Central and Western New York, particularly Madison, Oneida, Chenango, Erie, and Wayne Counties. In Tompkins and Cayuga counties, there are several isolated camps.

The migrants reach these areas either travelling alone, or under the auspices of a crew leader. The crew leader has usually had experience as a laborer himself. Very often he assumes the responsibility for a small group of family and friends. In other instances he is a legal contractor. He arranges for the transportation of a group of laborers and is paid by the farmer on a piece-work basis. He, in turn, pays the laborers. Often, the laborers are merely a surplus from adjoining states.

In 1957, the workers averaged 158 days of work for an annual wage of $1091. The contractor, in a good year may make a substantial profit, however, his job involves great financial risk. In a bad season, he may transport large numbers of workers only to find that a sudden frost, dry weather, or a drop in market price has greatly decreased the need for migrants. The migrant
is obliged to spend long periods of time in unemployment getting about from place to place and waiting to be placed on a job.

The migrants are placed in camps, some of which are of excellent caliber, but others of which have inadequate medical and sanitary facilities, and makeshift homes. There have been a number of disastrous fires in farm labor camps. Many of these were caused by portable kerosene stoves. The camps are run by individual farmers or a group or corporation of growers. The farmer, therefore, is responsible for the management of the camp. Where he is attentive, the camp can be an efficient and worthwhile social institution. Neglect in caring for these camps not only lowers the laborers’ living standards but increases tension between the laborers and the permanent residents of the community.

New York State has passed laws insuring at least minimum protection to the laborers in camps. The State Health Department inspects and issues permits for farm-labor camps. It may also close, by injunction, any camp with substandard living conditions. The Health Department also provides, free of charge, tuberculosis and venereal disease treatment, child health clinics, nursing services, and educational services.

The State laws of 1950 provided Child Care Centers for children up to 14 years of age where there are more than 15 children and the school are willing to pay 15% of the total cost. The migrants have benefited from this program.

The State Police inspect each farm labor camp at least once every two weeks. They enforce state laws, including those pertaining to transportation of migrants. The Interstate Commerce Commission also regulates the interstate transportation of migrants.

Migrant labor in New York State poses serious social problems in the communities where it is used. Migrant worker’s children swell community schools in the late spring and early fall. According to State law, children between the ages of seven and 16 are required to attend schools whether permanent residents or not. They also lay a heavy burden on the community public health facilities.

Although there is a group of professional migrants, e.g. celery packers, who are highly skilled, the average migrant is of a different social stratum than the permanent resident. Their wages are far lower than the norm. They often have no social moorings. The laborers do not belong to groups for social improvement such as the N.A.A.-C.P. Because of their nomadic existence, they have no community ties.

As long as the migrant worker is necessary to the agricultural economy of the state, it will be essential for the communities involved to understand the migrant’s problems. The migrant’s conditions must be mitigated as much as possible, but it is equally important to remember that the migrant worker is an integral part of the state economy.
The Consumer Demands

Meat
With Built-In Maid Service

by Jack E. Hope '61

The task of “putting meat on the table” for America's millions has become an increasingly complicated business due to changing economic conditions, consumer preferences, and revolutionary developments in the raising and marketing of livestock.

The meat packing industry consistently ranks third or fourth in the nation in dollar volume of sales. But, it operates on an amazingly low percentage of profit, less than one cent on the sales dollar!

Meat packers depend on a tremendous output to make a profit. With the vast amounts of machinery and armies of labor that the meat industry requires, any interruption of production such as a labor-management dispute could easily prove disastrous. To insure a continuous flow of meat, packers must employ both livestock buyers and meat salesmen. Because meat is highly perishable, buyers and salesmen must time their purchases and sales with the greatest accuracy.

The skyrocketing standard of living in this country has enabled families to purchase more expensive and more fully processed cuts of meat. In the last 10 years, there has been a notable decline in the "cut
to order" type of meat purchase and a corresponding increase in the pre-packaged, ready-to-eat cuts at the retail level. Many meat packers are now in the process of altering their operations so that nearly all meat products can be entirely processed and packaged in the slaughtering plant, rather than shipping carcasses to chain and retail stores as is the practice today. More meat is going into "packaged meals" at the retail counters, as food distributors attempt to meet the public’s demand for time saving devices.

Age and other characteristics of the population have a definite bearing upon consumption of meats. Recently, certain heart ailments have been linked with diets high in animal fats. This has been a factor in the falling per capita consumption of pork.

The desire of modern Americans to control their weights has further served to lessen the popularity of fat cuts of all types of meat to such a point that a revision of the meat grading system (which is based in large part upon marbling or fatness) seems imminent. The increasing average age of our population indicates a swing to more easily digestible meats such as lamb.

Another major change in the meat industry is the gradual but definite decentralization of both the livestock and the meat packing businesses. Irrigation of arid lands, conversion of farming operations from crops and grains to the raising of animals, and utilization of new types of animal feeds have stimulated cattle raising in areas which previously supported few animals. The most spectacular increase in cattle production is on the old cotton lands of the South. Packers are decentralizing too. Increasing use of refrigerated trucks for meat shipment has caused interior packers to spring up near the new areas of livestock production.

Of what significance is all this to the consumer? Just this, these changes represent the efforts of meat packers and retailers to keep the prices which consumers pay for their foods at a “reasonable” level, and to satisfy the tastes and demands of a changing market. The alterations represent the most economical means of serving the American public. This is accomplished by adding services to a raw good. It’s a safe bet that the changes that are made in meat marketing techniques do not just "happen," but are carefully planned attempts to satisfy the appetite of America in the most efficient manner.

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FORTY years ago the late H. H. Whetzel introduced progressive teaching to Plant Pathology 1. Today, Whetzel’s experimental methods are still more forward looking than much college teaching.

“This is the only course I’ve taken that has treated me like a man,” volunteered a student sitting in “plant path” lab one evening last spring. This remark is typical of the regard held for this unusual course.

As the College catalogue blandly puts it, Plant Pathology 1 deals with “the nature, cause, and control of plant diseases.” But the catalogue doesn’t mention that the style of teaching in Plant Pathology 1 makes it unique among the courses on campus.

The course is now taught by Professors C. W. Boothroyd and R. L. Millar, but remains much as the late H. H. Whetzel conceived it.

Whetzel, Cornell’s first professor of plant pathology, wanted to improve the techniques of teaching college sciences. He assumed that every college student has the desire to learn and designed his courses to spark that desire.

At the first lab session each student is given a list of plant diseases. He selects one for each week of the term. Each week the student has fresh and preserved specimens, slides, culture plates and photos available to him.

From this point the investigation of the disease is solely the student’s responsibility. He can study it in any manner, at any time that he wishes.

The laboratory doors are always open. Many students come in the evening when the lab is quiet. Often they accomplish as much in one hour as they would in two during the regular lab session.

A student stumped on a technique or a passage from the text can get help from the professor or his assistant. Whetzel once said, “The student can always see me regardless of what I am doing or with whom I may be in consultation. . . no matter if my visitor be the President of the University or the Dean of the College.”

Although Whetzel ignored convention and protocol, he had to bow to the powers on the subject of grades. Still, the grading system in Plant Pathology 1 is distinctly flavored by this man’s thinking.

Fifty percent of the total grade is based on periodic oral conferences. When a student feels mastery over a particular disease he requests a conference at a date of his choice. At the conference he talks with an instructor. The instructor examines him on the history, nature, and control of the disease.

These oral conferences have no time limit other than that needed to determine the student’s knowledge.

by Richard Kaufman ’60
Students get personal instruction in Plant Path I.

The conferences have a certain teaching value of their own. Many students leave these conferences realizing that they have got more from a half hour "on the carpet" than they could from three or four hours at their desks.

If a student thinks he has done poorly in conference he simply asks to have his grade voided. He then covers the same subject with the same instructor at a later date.

The remainder of the grade is based on a prelim (which is optional), a term paper, and a final.

Do you feel that what sounds good on paper doesn’t necessarily work out in practice? Look at some of the results of Whetzel’s “experiment.”

Instituted in the early twenties, Whetzel's teaching methods have continued to the present almost unaltered.

Student comment is overwhelmingly favorable. Questionnaires filled out at the end of the term drew these responses: “very well organized,” “… factual, clear,” “best of its kind I have taken . . . this is the type of course a college should have.”

Some refinements have been made, and probably will continue to be made. But the principle of the student’s freedom to investigate remains the watchword of the course.
A New Guide for Cornell Research

by Jill H. Beckoff '61

A N ADMINISTRATIVE organization can do one of two things. It can make a lot of rules and regulations or it can provide facilities and funds to aid individuals,” explains Dr. D. Keith Kennedy, the new associate director of research for the Colleges of Agriculture and Home Economics. “We will try to avoid the rules and provide the help.”

Professor Kennedy sees his job as that of a middleman, coordinating the research being done in the colleges. He administers funds—federal, state, and private—to various researchers and attempts to “stimulate and foster cooperation among different departments doing related work.”

The new director came to his job after ten years of teaching and research in the department of agronomy. He finished his own projects last summer and expects the graduate students working under him to be finished in another year or two. Most of his time now is devoted to the tremendous job of keeping 600 research projects in smooth running order.

The job of research director is an evergrowing one, especially in the College of Agriculture. Presently, there are over $5,000,000 worth of research funds being spent in the College annually. This amount increases as state and federal institutions and private foundations and industries invest more heavily in agricultural research.

In addition to agricultural research, Director Kennedy will “help in every way possible” his counterpart in the College of Home Economics, Assistant Director Catherine J. Personius. “Miss Personius,” he says, “will be mainly responsible for home economics research, but we will check with her and try to remain aware of the needs and progress of the home economics school.”

In his new job, Professor Kennedy replaces Dr. Charles E. Palm, who retired last summer to become dean of the College of Agriculture. Like Dr. Palm, he will be primarily a coordinator of the research projects initiated by members of the faculty, farm and consumer groups, industrial leaders, or county agents.

Dr. Kennedy finds that agricultural research projects cover a wide range of problems, both applied and basic. They range from probing in the dark, with little more than a hunch to go on to seeking answers to very specific questions. “The only thing we try to avoid,” according to Kennedy, “is routine testing projects. We want to establish basic principles.”

In his own research, Dr. Kennedy exercised his predilection for coordination, pioneering in the development of cooperative forage research among the departments of agronomy, animal husbandry, and plant breeding. For his research in this field he was awarded last year's
New York Farmer's Award for outstanding agricultural research.

He also took part in pasture management and silage research at the Ruarka Animal Research Station in New Zealand. At the time he was both a Fulbright Research Scholar and a Guggenheim Fellow.

Avocationaly, he is active in Boy Scout work and is a sometime photographer. He also has a wife and two teenage sons to keep him busy.

D. Keith Kennedy
"research middleman"

Vancouver, Washington, is Director Kennedy's home town and Washington State University his first alma mater. He didn’t come to Cornell until he was a masters candidate and earned both that and his doctorate here before joining the Washington State faculty in 1947. Two years later he returned to Ithaca to become a professor of agronomy. He has been here ever since.

D. KEITH KENNEDY
"research middleman"

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December, 1959

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The College in Transition

Last month the largest faculty meeting in recent years met to vote on Student Practice. Their vote liberalized the requirements and may foreshadow a change in overall policy in the College of Agriculture.

The new rules do not eliminate Student Practice. All students will have some practice requirements. But for most students not all of the practice credits will have to be gained on farms. For some, none of the credits will have to be from farm work.

Twenty-five weeks of farm work is the maximum amount anyone will be required to fulfill under the new rules. But many departments will require less than 25 weeks on the farm.

Students majoring in such departments as bacteriology, biochemistry, and science teaching won't have any farm requirements at all. However, they must complete 13 weeks of professional work before they graduate.

For the first time in the history of the college, coeds will be bound by the same rules on Practice as men. Here again, their specific requirements depend on their department.

Students in the College at present can choose whether they will complete the old or the new requirements. The Student Practice office will continue to supervise all on-the-farm work.

The COUNTRYMAN has been opposed to the old Student (Farm) Practice requirements for many years. In theory, the old regulations insured that all male students got an understanding of the problems and pleasures of modern agricultural life. In actuality, students with no farm experience (hence the ones that needed it the most) got the worst jobs. Few progressive farmers were willing to make the sacrifice of training, boarding and feeding an inexperienced college student. As a result, many students were forced to get jobs on substandard farms. Too often, students left these jobs with a more distorted picture of agriculture than if they had never been on a farm.

There seem to have been two primary reasons motivating the change in the practice requirements. First, the college could handle 400 more students than are currently enrolled. Using the tuition at the other Cornell colleges as a gauge, a 400 underenrollment means that $600,000 worth of education is being wasted each year. One of the main reasons that the college is currently underenrolled is the old Student Practice requirement. It deterred many qualified students from applying to the College.

Second, farm experience has little value for many students. The College of Agriculture offers a vast range of courses. Many of these are not bound intrinsically to farming, e.g. science teaching, biochemistry, etc. This does not mean they have no connection with farming but that actual contact may be slight or nonexistent. Students in these areas can probably gain more from work in their field than from farm experience.

The overall effect of the Student Practice changes was to bring the College closer to the agricultural realities of the state.

Some may say that the College is drifting from its responsibility to farmers. Nothing could be further from the truth. With four per cent of the state's population in farming and forty per cent in agricultural goods and services, the College must train people to improve antiquated marketing facilities, to increase utilization of agricultural goods, to increase agricultural production, as well as to produce the goods themselves.

S.A.B.

December Cover

FRANCES Ann McKittrick is our cover artist this month. Miss McKittrick is a graduate student in entomology. She has done scientific illustration for many theses and books published on campus.
Zilch is Hip, Editor Square
by Zilch

Zilch cranked up the Zilchmobile the other day and made his way down to bustling Ithaca. It’s always a pleasure to see the merry Christmas season begin in this rustic little village. Holly and tinsel and gay lights and I don’t know what-all are draped in gay profusion. Rosy-cheeked merchants gulp tranquilizers and scurry around polishing their cash registers and loosening their money belts. Up on the hill the happy students empty their bulky coats of all the Christmas presents they’ve managed to shoplift. They look forward to vacation time when with other happy youths they will go caroling the Winston commercial and dancing to the Ave Maria Cha Cha Cha. There’s nothing like an old fashioned Christmas.

Last month Zilch was reading about Norman (“The Naked and Dead”) Mailer’s latest book. One of the sections of the book classifies assorted subjects on a “hip” vs. “square” basis. For example he says that “Richard Nixon is hip, John Foster Dulles is square. The New York Herald Tribune is hip, The New York Times is square. Motorcycles are hip, scooters are square.” Not to be outdone in the non-sense department, Zilch has compiled an upper campus hip-square listing: Brown Swiss are hip, Holsteins are square. Tung nut, wheat, corn, sugar beet, and tobacco farms are hip; dairy and poultry farms are square. Dead hours in the Straight cafeteria are hip, dead hours in the Ivy Room are square. A clean shaved chin is hip, a bearded chin (except for coeds) is square. Chewing Mail Pouch is hip, Chewing Union Leader is square. Zilch is hip, the Editor is square.

Zilch was gratified to learn that someone had smuggled a Countryman to the little old lady of Sheldon Court. Last month the besotted flacks of a campus humor magazine allowed how one of our headlines caught their fancy.

One of Zilch’s informants reveals that a flick has just been released which probably contains more bull than any other of the age. It stars the voice of Sam Woodside and the music of Jack Deal. The flick: “This Is My Life, Calico C. Clarence,” an NYABC production. Woodside plays a large, black and white Holstein bull in this epic of life on Judd Falls Road.

The Pipe and Tobacco Council sent Zilch some interesting statistics recently. They claim that 65 percent of the coeds prefer a man who smokes a pipe. They also claim that 18 percent of male college students smoke pipes. Hence, Zilch calculates that pipe smoking should be a sterling way to offset the Ratio. Zilch intends to smoke a large calabash in Mann Library for the next month in confident expectation that he will be overwhelmed by insatiable coeds desiring a man who smokes a pipe. All right, girls, on your mark. . .

Countryman Elections

The Countryman is pleased to announce the election of M. Christine Sidler ’62, Jane E. Brody ’62, Hillary T. Brown ’63, and Tina E. Bloomstein ’63 to our editorial staff and the election of Virginia Swanson ’62, Linda J. Reed, Martin Wolf, Alan W. Burg, and Judith H. Fischer, all ’63, to our business board.

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December, 1959
A GRACEFULLY draped sari brushes the floor as the Indian woman, laden with books, makes her way through the crowded corridors of Martha Van. She stands out among many because of her dress.

The Indian women at Cornell find few problems in dress because they keep their traditional clothing. They maintain their nationality through dress. But they, and all other foreign women coming to Cornell, face many problems and decisions in adapting to our ways of dress.

Saris, the principle item in the Indian costume, are made of a long piece of either silk or cotton. The material forms principally the skirt of the garment, but is also part of the top. It is wound around the body with one end draped over either the head or shoulders. The distinction here results from the woman's native province.

All foreign students have the problem of the right clothes for the occasion. The Indian woman must decide on the color and material of her sari. "Should my sari be cotton or silk?" she asks; and "should it be bright or dark, solid or printed."

For the other women the problem is greater. They must decide the style of dress—should it be cocktail, formal, or tailored; the fabric—should it be wool, taffeta, or cotton; and the color.

**Saris Transform.**

In the classroom the Indian woman presents a curious mixture of America and India. A cotton sari usually makes its appearance. For a bodice a sweater is used. This is warm enough for chilly winter days and does not detract from the grace and beauty of the sari. Flat, comfortable shoes such as loafers or saddles are adopted. The Ithaca weather and hills make these a wise choice.

For teas, cocktails, dinners the costume changes of an Indian woman are just as subtle and successful as those of her other foreign sisters. Silk replaces cotton in the sari. It can be more decorative with borders and embroidery. The traditional little blouse is substituted for the sweater.

One Indian student in Textiles made a cocktail sari. She found some copper colored nylon and purchased it. First she adapted the design of the native blouse to some of it. The rest she draped as a sari. Because the fabric was stiff it billowed instead of clinging to her body. Thus she appeared at parties having adapted a dressy fabric to her native style.

Indonesian women often use their native dress for special occasions. The sarong is somewhat like a sari. It takes the place of our skirt. A long piece of Batique material is sewed together in the form of a big tube to make it. The wearer steps into it and wraps it tightly around her. On the left side are six to eight inches of permanent pleats. The blouse is an overblouse of sheer silk print. A sheer silk scarf is worn over the left shoulder.

**Foreign Footwear.**

Shoes depend on the weather and method of transportation as well as the occasion. Those worn in India are of embroidered cloth. They often have interesting toes—turned up or open-worked. Some are flat; others have carved wooden heels. These would look nice at a dance or cocktail party. Wet or snowy weather might make it advisable to substitute them with leather heels.

Problems of other nationalities can be solved easily. Simplicity is the keynote of campus living. "It is better to under-dress than over-dress," warns Miss Frances Spratt of the textile and clothing department.

Those who wish to adopt American clothing...
choose a few plain tailored dresses or suits. A plain black wool jersey dress can be worn anywhere from the classroom to a faculty tea or dance. Its versatility comes from the use of accessories. A simple circle pin takes the dress to class while a strong of gold beads are for a tea and a rhinestone pin and bracelet for a dance.

A change of shoes can make a difference too. High heels put a dress in the dressed up category; flat comfortable ones belong in the classroom.

A suit presents even more avenues of versatility. A tailored, oxford cloth shirt looks good in the classroom. A blouse with short sleeves and peter pan collar can make a suit fit for a tea. A frilly, silk blouse worn with just the skirt is right for a cocktail party.

Gloves and a hat make any suit or dress ready for church. A bright flower on the collar and it is ready for a visit to President Malott.

Weather in Ithaca causes problems with outer clothes. A good many of the days are wet with rain and snow and winter brings freezing temperatures. Bundling up to immobility is not the answer to combating Jack Frost.

When venturing outdoors one good warm coat is the best protection. Here, heaviness is not a criteria for warmth. A light weight wool coat with a millium lining is excellent. Popular and equally warm are wool coats lined with fluffy pile of orlon or nylon. These have the feel of fur against the skin, but not the weight of it.

Ears are especially sensitive to cold. The long, knitted "six footers" are warm and can be wrapped around the neck as well as the head. Silk or cotton scarves work well too.

Nylon stockings, wool knee socks, or tights protect legs from winter's bitter winds. Leather gloves lined with fur or wool, or wool gloves protect hands.

Snow and slush call for galoshes. Sturdy rubber boots that go over shoes are excellent protection. Fur lined leather boots eliminate wearing shoes and are warm.

The buildings on and off campus are well heated. There is, therefore, no need for long red undies or wool stockings. A sweater worn either alone or with a blouse is enough to keep anyone warm when she is inside.

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December, 1959
Babcock Chicks Go 'Round The World

Latin America, Germany, the United States—
the hatching grounds for Bessie . . .
Babcock Poultry Farm's prize chicken.

by Edward L. Razinzsky '61

HATCH chicks on State Street in Ithaca? It doesn't seem likely. Yet it was in a small store on the corner of State and Meadow Streets that Monroe Babcock, in 1935, started a hatching business that today ranks fifth in size in the nation.

Due to the definite chicken smell coming from the hatchery, Mr. Babcock's landlady objected. After three years on State Street, Babcock Poultry Farm moved to its present location five miles northeast of Ithaca on the Trumansburg Road.

Babcock Poultry Farm started on 30 acres. Now, according to Miss Margaret Gibson, advertising manager, the farm covers 300 acres, 200 additional acres of rented land, and has 20 flock-owner farms within a 30 mile radius raising birds.

20,000,000 "Bessies".

During the first year on the farm Mr. Babcock hatched 365,000 chicks. For the year 1958-59, Miss Gibson reports that 20 million "Babcock Bessies" were sent to poultrymen in the United States. The obvious element of the Babcock story is growth. But this cannot be the whole story. Poultry production is a huge business in the United States. Competition between hatcheries sometimes reaches cutthroat proportions. For any hatchery or breeder (Babcock is both) to become successful, it has to sell chicks. To do this the chick must give the poultryman what he wants . . . a chick that will make money for him.

Mr. Babcock's offering has come in the form of Bessie. Babcock Bessie is the name of the strain of chickens developed by Babcock Poultry Farm. She is the product of an extensive breeding program designed to produce a bird that will satisfy the needs of the poultryman.

The Babcock strain, and basically all others, are bred in the following way.

There are certain characteristics that are necessary in good laying birds. For example: long life, high rate of production, uniform egg size (preferably large), good interior quality, strong shells to name only a few.

Breeders start with a base stock. The specific crosses are trade secrets, but in general a program works something like this.

A particular strain may be noted for heavy egg production, another for good interior egg quality. These two strains are crossed to produce a bird with both these characteristics.

Perhaps this resulting chicken lays a lot of eggs with good interior quality but with weak shells. It then is crossed with still another strain which is strong in this trait.

Various series of breedings are carried out until the breeder comes up with a particular set of crosses, or a strain, that satisfactorily meets all the requirements.

Each time chickens with different characteristics are crossed a new type, or strain, or bird is produced. Each strain is then named.

Some breeders use their own names or the names of their farms for their strains. Miss Gibson said that Mr. Babcock had a different angle. He decided to use women's names. Hence, Bessie and Barbara for the two Babcock strains.
Hot Rock Incubators

Breeding is only part of the business. The other part is mass producing the product for sale... 

Long before Babcock Bessie, or Babcock, Monroe, for that matter, the ancient Egyptians and Chinese were trying to copy the conditions under the hen while she was hatching an egg. The ancients used hot rocks as a source of heat.

The modern, almost completely automatic, incubators like those used by Babcock certainly don't look like those used by the ancients, but the basic idea is the same... to artificially provide an environment for the fertile egg so that the chick embryo may develop and the chick hatch.

The process is divided into two parts: incubation and hatching.

Incubation, which lasts for 18 days, takes place in roughly what amounts to an insulated box. In here, the temperature, humidity and ventilation can be strictly controlled.

Eggs are placed on trays in the incubator. It has been found that turning the eggs is essential for good hatching, so the whole tray is tilted 45° periodically.

The changing requirements of the growing embryo are met by putting the eggs in a hatcher for the last three days. This machine is also an insulated box, but with different conditions of temperature and humidity than are found in the incubator.

If all goes well, at the end of 21 days a new Babcock Bessie emerges from the shell to face the world.

Bessie chicks are then "sexed." Egg producers want only birds that lay eggs, so the underprivileged male has to be removed. Babcock Poultry Farm, Miss Gibson pointed out, guarantees 98 percent pullets (females).

Fresh Chicks For Sale.

After the chicks are put into cardboard boxes (100 per box plus four extras), they can be sent anywhere that can be reached in about 72 hours. A chick that has just hatched has enough food in its system to last 72 hours and can survive for this long without being fed.

It would be difficult and expensive to send chicks to many points in the United States from Ithaca within the 72 hour limit. For this reason, said Miss Gibson, a network of franchise hatcheries was established by Babcock Poultry Farm.

According to Miss Gibson, there are 89 Babcock franchise hatcheries in 43 states and Canada. These hatcheries, privately owned and operated, contract to hatch and sell only Babcock Chicks. In this way, explained Miss Gibson, Babcock Bessies are hatched at a convenient shipping distance from any poultryman to assure freshly hatched chicks.

Through an associate hatchery program, poultrymen "South of the Border" are raising Bessies.

The "associate" part of the names of these Babcock branches is used to distinguish them from the domestic franchise hatcheries. Their functions, however, are the same.

Miss Gibson reports that there are now 37 associate hatcheries in Latin America, Mexico and also in Europe.

Babcock In Europe.

As a part of a program to extend Babcock operations in Europe, Miss Gibson explained the Babcock Poultry Farm in Germany. This farm would be to Europe what the Ithaca farm is to America. The farm in Germany would be the central breeding and hatching plant with the equivalent of franchise hatcheries branching out from it.

Monroe Babcock, who studied poultry and Ag Ec at Cornell, said, "I've raised chickens ever since I could count the eggs." Counting the eggs used in hatching the 20 million chicks last year, to say nothing of the bookkeeping involved, should require nothing less than an electronic brain... which happens to be the case.

As a further step toward more efficient operations Babcock Poultry Farm uses IBM machines for bookkeeping. These machines tabulate records, address material for mailing, duplicate, sort and file the thousands of cards used in running a modern hatchery.
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Science and Faith Can Coexist

by Jane E. Brody '61

Dr. John M. Kingsbury, assistant professor of botany, has discovered that the scientific mind need not be devoid of faith. In fact, he has found that certain scientific facts often substantiate philosophical truths taught by members of the religious world.

The scientific method, points out Dr. Kingsbury, limits the biologist to looking at life with a "scientific eye, dispassionately, objectively, unemotionally . . . he must not speak of soul, right and wrong, purpose, ethics, faith, hunches, cunning, sorrow, hate and the like—these are unscientific. . . . No less a scientist than Harlow Shapley has stated, 'Scientists cannot have faith. Ours is a perpetual inquiry: any acceptance of faith—in a scientific or a metaphysical or an aesthetic sense—brings inquiry to a halt.'"

The scientific method is as important and useful to Dr. Kingsbury as it is to any other scientist. But it does not regiment every aspect of his thoughts. He applies it to those situations to which it is applicable, but does not follow it so closely that "sensitivity to other approaches to truth is crowded out."

Dr. Kingsbury notices an increasing tendency among the members of the scientific world to delve into the "philosophical significances of scientific concepts." This allows room in the mind of the scientist for two schools of thought—the physical and the metaphysical. It permits him to successfully integrate both philosophies, applying each one in its appropriate situation. Dr. Kingsbury finds support of this viewpoint in certain biological facts from which one can easily draw philosophical inferences.

The Hesitant Wolf.

The behavior patterns of the timber wolf have been pointed out by Konrad Lorenz, a noted German descriptive biologist. When engaged in combat, the wolf who is near defeat exposes his throat—the most vulnerable part of his body—to the apparent victor. Instead of the stronger animal closing his jaws on the throat of the weaker, he fails to strike. Similar behavior is observed among other members of the animal kingdom.

Well then, what about the human being? Is he not an animal too? Religious thinkers teach man that "whosoever shall smite thee on the right cheek, turn to him the other also." But to man, this attitude seems contradictory to the theory of survival of the fittest. How can man expose himself to the weapons of his competitor? Yet, it is obvious that in the natural world this is just the phenomenon often observed.

In other words the religious teaching of turning the other cheek has a "biologically sound foundation." What could be more acceptable to the scientific mind?

There is another aspect of the natural world, explored by Dr. Kingsbury himself, which sheds light upon his views. In the world of algae—microscopic plants which often form the scum found in ponds—there exists an evolutionary trend which is based upon immediate losses resulting in eventual gains.

One path of evolution begins with a free swimming algae, capable of reproducing a variable number of daughter cells. It slowly evolves into a flat colony of 32 cells, all motile and each producing exactly 32 daughter cells. Finally, it develops into a spherical colony of about 50,000 cells, only a few of which are capable of reproduction, the rest being strictly vegetative cells.

In becoming part of the colony the individual algae loses: "the ability to divide into a varying number of daughter cells, . . . the eyespot, . . . motility, . . . the ability to remain alive apart from the
Kingsbury calls these items of an "absolute" nature.

But, in joining the colony, the algae gains such things as: "organization, division of labor, definiteness of number of cells." These items are considered "abstract" by Dr. Kingsbury.

It is obvious that the spherical colony is more advanced than the unicell, but in order to achieve this state of advancement, the unicell had to suffer losses of an absolute nature in order to gain items of an abstract nature. This concept of "gain through loss" is one factor Dr. Kingsbury believes to be frequently essential to evolution.

One step back, two forward.

It is at this point that Dr. Kingsbury draws his parallel to human life. Why shouldn't human nature follow these same trends? If we were able to stand aside and view objectively "the absolutes of change which at first appear to be losses," perhaps we would see that they are merely "making way for total gains."

Instead of reflecting over these losses in sorrow and distaste, we should accept them in hopes that they will result in an eventual benefit far surpassing the consequences of the immediate losses.

This acceptance requires a kind of faith. Yet this faith is not proclaimed blindly, for it is based upon observations of the natural world of which human beings are a part.

And so, Dr. John Kingsbury has shown that one and the same person can be a man of science, following the strict rules of the scientific method, and a man of faith, capable of finding comfort in metaphysical thoughts.
The Fight to Save Our Forests

A Countryman Editor examines the battle of conservationists to preserve the nation’s natural resources.

by Jack E. Hope '61

One government agency pays farmers to reclaim land...

The interests who support the conservation of natural resources in this country are fighting an uphill battle, not only against private persons and firms who seem to possess an uncanny facility for polluting streams, destroying wildlife and ruining public lands, but against branches of government and individuals within these branches as well. These governmental bodies and the officials within them supposedly are representing public interests, conservation included.

Northway: People vs. Trees.

To cite one very recent example of this friction between conservation groups, consider New York's "Northway" project which was approved by the state's voters at the polls on the third of last month. This measure authorizes the construction of a new super-highway through part of the Adirondack forest preserve. Although the State Conservation Council (made up of and advisory body of representatives from N.Y.S. sportsmen's clubs) voted no on the proposition by a vote of 24 to 17, Harold G. Wilm, N.Y.S. conservation commissioner, along with other conservation groups, heartily supported the measure. Governor Rockefeller's comment on the project that "people are more important than trees," indicates that he supports "Northway" on the belief that the public needs a 4-lane highway into their wilderness lands in order that they may enjoy the rigors of the great outdoors from the air-conditioned interior of an automobile!

Without delving into the pros and cons of this issue, the point to be made is that such rifts in the forces of conservationists are apt to broaden into splits on other issues where complete unity is essential.

Within our federal government, many programs administered by one branch are in complete opposition to policies advanced by other governmental agencies. This indecision as to the proper course of action is not amusing. It is taking dollars out of the taxpayer's pocket as well as defeating the cause of conservation.

Let's take a look at the drainage schemes initiated by both the Bureau of Reclamation and the Agricultural Conservation Program by which farmers are paid for turning wet lands into tillable acreage. Concurrently, under the Soil Bank, farmers are receiving payment for removing lands from production in order to reduce surpluses. In view of our growing surpluses, withdrawal seems to be a logical course of action. The Fish and Wildlife services are seeking to take advantage of any land withdrawals by converting these lands into areas capable of supporting wildlife. However, it can be seen that their efforts are hindered by the aforementioned policies of "reclamation."

Minors Exploit...

Another incidence of intra-governmental conflict which pops up all too often involves the Federal Bureau of Mines. This body has the power to grant exploitation of mineral resources discovered on public lands, pending favorable assay reports. Since many of the public forest lands contain mineral deposits, a rash often arises over the issue of opening these areas to the devastations of mining operations or preserving the forests for recreational uses.

A dispute of this sort is believed by many to have been instrumental in the resignation of President Eisenhower's first Secretary of the Interior, Douglas McKay. The issue in point was the Al-Serina case in which it was claimed by conservationists that McKay granted exploitation rights in a national forest as a personal favor to the Al-Serina mining firm. Congression-
al investigation ensued. The implications by the opponents of exploitation have been that the secretary had approved the project so that his “friends” could make a tidy profit on the cutting of timber in the mining area. It was even suggested that McKay ok’d the project before receiving the all-important assay reports. McKay resigned soon after the committee brought forth its findings. Can such missteps be attributed to lack of inter-agency harmony, or simply to mismanagement?

Be that as it may, the proposal was abandoned and the federal mining laws amended as a result. The amendment separated the privileges of exploiting deposits and of harvesting timber in the mining area. A firm may no longer use mineral assays as an excuse to gain access to the forest resources on federal lands; a step in the right direction, but only after a painful lesson.

Coordination

A program of coordination between various branches and levels of government to best meet the needs of the American public seems to be at least part of the answer to conservation’s predicament. Such a scheme was the Coordination Act of 1934, which has had teeth put into it during the Eisenhower administration. This law, in essence, demands cooperation between such agencies as the U.S. Corps of Army Engineers and the Fish and Wildlife Service in order to provide wise conservation measures on all projects (reservoirs, etc.) constructed by the federal government.

This measure is a good example of what needs to be done in the way of coordinating the interests of conservation with the goals of other public or private projects. The law should serve as a stimulus for similar legislation.

Those groups concerned with the future of our scenic and recreational resources of forests, wildlife, etc., are faced with enough outside opposition, without having to battle with governmental bodies as well. It is the duty of conservation, whether on a private or government basis, to integrate their interests with other public projects. For only in this manner can conservationists cope with the increasing problem of preserving the American outdoors for generations to come.

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Conquering the Liver Fluke

Dr. Clifford O. Berg, College of Agriculture entomologist, has discovered a practical way to break the life cycle of the liver fluke.

Throughout most of the marshy areas of the world, the liver fluke is a common enemy of both livestock and man. The liver fluke causes a disease called "liver rot" and often destroys the health of whatever it is infesting.

The U.S. Department of Agriculture estimates that the liver fluke cost cattle and sheep raisers over $7,000,000 between 1942 and 1952. Until recently, control of the liver fluke was limited. But an accidental discovery by a College of Agriculture entomologist may lead to the control of this parasite.

Ten years ago, Dr. Clifford O. Berg noticed that a snail in his aquarium was being attacked and killed by tiny larvae. He identified the larvae as belonging to the marsh fly family.

This discovery was important because snails are a key link in the complex life cycle of the liver fluke. The snail is host to an immature form of the fluke. The only way the liver fluke can be transferred from one animal to another is through the snail. If the snails in an area could be destroyed, then the life cycle of the liver fluke would be halted and they would die out.

By 1952, Berg had observed six species of marsh fly. Their larvae all had the same taste—snails. Encouraged by these results, Berg continued his studies until today he has examined 70 species of marsh fly from many parts of the globe. Dr. Berg now believes that all marsh fly larvae are snail killers.

Last year, Hawaiian entomologists asked Berg to send them marsh fly larvae. The islands' cattle industry was being crippled by the liver fluke.

Dr. Berg and his associates reared a Nicaraguan marsh fly which feeds on a snail closely related to the Hawaiian type.

The Nicaraguan marsh fly has all the ear marks of a good insect control—high fertility, fecundity, and longevity; and it's easy to raise. Its larva are energetic and robust.

This fly has just been introduced on the island of Oahu and it looks promising. Three months after adult flies were released, flies in all stages of life could be found, assuring scientists that the flies had become established.

Dr. Berg's research is being conducted under a grant from the National Institute of Health, U.S. Public Health Service. His study of the life cycle of marsh flies is continuing. At present, he is extending his study to Europe in the hope that there may be a better, more efficient, snail killer which would conquer the flukes of man.
Sociologists Compare Churchgoing and Personality

Churchgoers’ personality and behavior differ from non-churchgoers, say two rural sociologists, William W. Reeder and Paul C. Heckert. Professor Reeder and Heckert, a graduate student, have just completed a survey of churchgoing in an industrial community of 4000 in central New York.

Families were called religious according to their membership in church organizations and the money and time they gave to it. Reeder and Heckert found that these families have different outlooks and attitudes than non-religious families.

Churchgoing families, observed in the survey, tend to be home owners with high incomes. They are more conscious of health measures than non-churchgoing households and tend to be more ethical and honest. Religious families are also more satisfied with life and believe it has more purpose than non-religious homes.

On the other hand, non-churchgoers are more self-confident. They place a higher value on the education of their children and are constantly striving for self-improvement.

Women in both types of homes belong to more religious organizations than their husbands.

Reeder and Heckert venture various explanations for their unusual findings.

They conclude that women are more inclined to join religious groups than men because they have more available time and because church groups offer social and educational contact.

Religious persons tend to have less self-confidence than non-religious persons. This stems from church activities that are professionally planned and led by trained church leaders. “This affords less opportunity for congregations to plan, participate in, and lead various activities. Instead they follow their church leaders in planned meetings,” states Professor Reeder.

“However, non-religious activities are lead by individual members. Non-religious groups are partial to members who are self-assured. Their election committees tend to invite members who will add prestige to their group, as opposed to church groups which have open membership.”

Because of their Bible and religious training, religious persons score higher on honesty and ethical questions.

It has been proven that churchgoers adhere strongly to the idea that life has a purpose. However, they do not have any more faith in the future than their non-religious counterparts.

Generally, it has been established through this survey that churchgoers are more ethical and have more satisfying relations with their family, neighbors and fellow employees, while non-churchgoers rate higher in public committee participation, self-confidence and leadership.

The results of this survey are of considerable significance. In the past studies, religious and non-religious people have been included in one category. In this research project, 36 out of the 40 factors studied indicated that the two groups have different characteristics. The observations are intended to aid the community in correcting their ideas and standards.

In this way, Professor Reeder believes that the “people in the community can have the power to choose the standard of education and ideals taught in their community, and will therefore stimulate education in broader perspectives.”
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January, 1960

Does He or Doesn't He

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The Need For Farm Policy Debate

A G-DOM should be encouraged by the size of the audience at last month’s panel on government subsidies. The turn-out shows that there is an active interest in agricultural policy throughout the University. Public debate of agricultural issues is sorely lacking at Cornell. Ag-Dom could sponsor many more lectures, panels, and debates to the great benefit of the college.

How many people off the ag campus are aware of the importance of Cornell agricultural economists in national affairs? For that matter, how many agriculture students realize why the philosophy they hear expounded in class so closely resembles policy that issues from the U.S. Department of Agriculture. A debate of farm programs between, say, Charles Brannan and Professor Herrell DeGraff, would be extremely revealing and one of the most newsworthy events to take place on this campus in years.

There is no reason why such events can’t take place. The campus contains some of the foremost spokesmen for (for lack of a better term) “conservative” agricultural policy. It should not be hard to find a partisan of “radical” (an unfortunate term, also) agricultural policy who is willing to come to Cornell to talk. We’ll grant that it might be difficult to get Charles Brannan to come all the way from Denver, but there are many people within New York State who hold views as contrary to Cornell’s as his are.

One rarely hears the high support point of view explained or justified because there is no one at Cornell that believes in it. At the recent government subsidy panel, Professor K. L. Robinson made an able presentation of the high support case, but this isn’t the answer. A theologian shouldn’t be asked to make the case for atheism.

Public debate and discussion of the various schools of agricultural thought would lead to a better understanding of the problems facing agriculture. We’d like to see representatives of the “conservative” and “radical” viewpoints challenge one another and defend their views.

S. A. B.

January Cover

This month’s cover is the third drawn by Aileen Merriam. Previously, Mrs. Merriam drew the May and October covers of the Countryman. She somehow finds time to draw between studying and teaching comparative anatomy labs.
Remove Lice From A Corpse?

by Zilch

SOME time ago Khrushchev said that Russia would bury the United States. Zilch has just learned how the Russians intend to do this. It seems that a dairy area in Russia has challenged Oneida County (the leading milk-producing county in the New York milkshed) to a competition to see who can produce the most. Zilch foresees the Russians challenging counties in Kansas to wheat producing contests, counties in Iowa to corn producing contests and so on through all our produce. In the end, the Russians will bury us in our surpluses. Seriously, it's good to see Russia and the United States engaged in economic competition rather than military competition.

Professors-are-Human Department: Zilch likes this story Prof. L. B. Darrah relates. It seems that Professor Darrah arrived hot and tired at a hotel in New York City late one night to attend a meeting the next day. Before retiring he wadded up the shirt he had been wearing and threw it in a corner of his suitcase. The next morning he pulled a clean shirt from his suitcase and started to put it on only to find that he had packed one of his son's shirts.

He then unwadded the shirt he had cast off the night before and holding the lapels of his jacket closed he went to a haberdashery to buy a new shirt. He told the salesman the size, brand, and name of the style shirt he wanted. The salesman told him that they didn't have the brand of shirt he wanted but had the same thing at a slightly higher price. Professor Darrah asked what the difference was and the salesman said there was none except the material was better. Professor Darrah bought the shirt and returned to his hotel room. He stripped off his wrinkled shirt, wadded it into a ball, threw it into his suitcase, opened his new shirt and discovered that it had French cuffs.

Zilch commends to your attention the Samuel L. Stewart Prize Essay Contest. You'll pick up $100 if you write the best 600-800 word essay on producing high quality milk. The contest closes on April 15. Contact Professor B. L. Herrington of the Department of Dairy Industry for details.

Zilch is bursting his britches about now—at the annual convention of Agricultural College Magazines, Associated, the Countryman won awards in every category. The 1959 Farm and Home Week issue won third prize for general excellence, Steve Breth's article on plow planting won second prize in the technical presentation contest, Bunnie Dervin's article on careers in business won second prize in the material of interest to women contest, and the December 1959 cover showing an Alaskan fisherman holding a giant crab won the first prize cover award.

The U.S. Department of Agriculture is the happy home of a group of devoted bureaucrats whose main purpose in life is to give information on any subject to anyone who wants it. Zilch has in his possession a list of questions that have stumped or at least startled the people who have to reply to letters that come into the Department. Here are a few of the best: What are worms with legs in my basement? What do you use to remove lice from a corpse? How many hops will it take to make 100 gallons of home brew? What is the best gasoline sold?—I want to remove my dandruff by washing my hair in it. How much potassium cyanide is lethal to a human? Can you give me a recipe for a home brew?—If I can change the taste of my formulae I can get more than 25 cents a bottle for it. Does corned beef come from cows that have been fed corn?

Happy New Year Kiddies.

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January, 1960
WHO would open a dress-shop off the beaten track in a small up-state New York town... and expect to make a go of it? Not many people. But, Mrs. Harold Armstrong, a 1933 graduate of the College of Home Economics, did just that.

A year ago November, Mrs. Armstrong opened a country clothes shop—the Old Firehouse—in Homer, N.Y.

Mrs. Armstrong recalls that she was warned she wouldn't succeed with a shop in a small town. But, she explains, she wanted the kind of customers who make a day of coming to her store—shoppers who go out for lunch, do some antiquing, and are looking for brand name country clothes that are well-made and distinctive. And, she points out, "There's something special about going to a place that you've found yourself—this is the appeal of most out-of-the-way stores."

Mrs. Armstrong's philosophy worked—after one year of business, her Homer shop is thriving, and, in cooperation with several other people, she has opened shops at Wells College and in Ithaca.

The original store in Homer is the cooperative venture of Mrs. Armstrong and her partner, Mrs. R. N. Miller, who handles the business end of the operation. Both women have raised families and, according to Mrs. Armstrong, "have had a fill of community activities."

Mrs. Armstrong explains that her circle of friends had always sent away for country clothes because they had never been able to get what they wanted in upstate New York. So, in a search for something to do after their children moved away, Mrs. Armstrong and Mrs. Miller found a dress shop the logical answer.

The site of the Homer shop is actually a firehouse, owned by Mrs. Miller's husband. Both women re-decorated the firehouse from their own attics and nearby antique stores. A large wheel mounted on a base is used as a skirt rack; antique chests hold sweaters, jewelry, and purses; an antique print covers the walls; and a pot belly stove is tucked away in a corner.

The casual shopper is not only amazed by the decoration of the shop, but can see such clothing items as imported English ties, Tyrolian hats, mix-and-match wool skirts, wool for made-to-order suits, and lounging outfits—all in country colors—greens, browns, yellows, and blues. As one shopper stated, "You go in to browse and you can't leave without buying something."

When buying items for the Firehouse, Mrs. Armstrong says she usually selects according to her own taste... except in color. Choosing country clothes, she adds, isn't too difficult because they are basically classic.

One of the biggest buying problems, Mrs. Armstrong explains, is the seasons. "Right now, manufacturers are showing summer bathing suits and are getting ready for fall and winter showings."

The newly-opened branch of the Old Firehouse in Ithaca is being run by twenty-year-old CiCi Heasely, daughter of Walter C. Heasely, a member of the Cornell University Board of Trustees.

Miss Heasely explains that the Ithaca store, located in Community Corners, is very much like the Homer store and carries the same lines of clothes.

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For Fun and Entertainment

**TRY BOWLING**

**FOOD**

**BEVERAGES**

**OPEN 24 HOURS AT THE**

**Ithaca Bowl**

378 ELMIRA ROAD
ONE morning last fall in the studio of Syracuse, N. Y.'s WHEN-TV, County Agricultural Agent Tony Aja stood in front of the television cameras watching the upraised hand of the program director. The director dropped his hand and Aja was on the air. Confidently, Aja began to explain to viewers how to prepare a garden for winter. Ten minutes later the program was over. In those ten minutes 100,000 people had been watching.

Aja and 20 other extension agents from six counties near Syracuse have cooperated for over five years to plan and perform on WHEN-TV's "Party Line." "Party Line" is a ten minute program from 9:10 to 9:20 a.m., Monday through Friday each week.

The agents that participate in "Party Line" are just one of six groups of extension personnel that put on shows in six cities throughout New York State. Programs originate in Albany, Binghamton, Rochester, Buffalo, and Utica as well as Syracuse. Extension programs are on the air for 3½ hours a week, playing to an audience of nearly 1½ million people.

Agricultural news stories get professional treatment from Bill Quinn, County Agent-at-large, as an example of an Extension farm show.

TV Opens Doors

Because "Party Line" is an early morning show the audience is made up of housewives and children. The extension agents know who is in their audience and they think it is worth their time to reach them.

4-H Club agent Phyllis DuBois says, "We're interested in promoting 4-H work to everyone, mothers and children, alike. We're amazed by the number of people that say, 'we've seen you on TV' and it immediately opens the door."

Many of the County agricultural agents put on programs designed to help the consumer understand agriculture or extension work. County Agent William Quinn frequently puts on programs showing consumers where food comes from and what is involved in producing it. "There is a lack of knowledge and understanding of what the present-day farmer receives and earns," he says. Tony Aja adds that "good consumer relations are a continuing operation" year after year.

"Party Line" performers report that it takes them about as much time to prepare for a television program as it does to prepare for a good local meeting. And, of course,
the audience for the television show is vastly larger. With 21 agents taking turns on “Party Line” each one does a show about once a month.

Four times a year all the agents meet with Extension TV Specialist Jim Lawrence to map the programs for the next three months.

To make planning easier, most agents keep a file with possible topics for a show. They get their ideas from reading and from talking with viewers, the TV specialist, and WHEN-TV’s program director. County agricultural agents on “Party Line” have discussed such varied subjects as mulches, electrical wiring, garden insect control, pruning fruit trees, and many more.

Home demonstration and 4-H agents stick to a more domestic fare with programs such as outdoor cooking, last minute Christmas gifts, planning a kitchen, and fruit and vegetable sauces. In general, the agents try to stick with subjects that they are completely familiar with.

The next step is to organize the material. Most agents use a format—an outline and guide to the areas the agent wants to cover. No one memorizes lines. The agent who knows his topic thoroughly, can talk freely about it in front of the camera. “The fact that I did not write down what I was going to say, helped me most in learning to relax and enjoy myself,” says Home Demonstration Agent Marilyn Miller.

After preparing the format the agent gathers the props he needs to illustrate the program. The agent then discusses his show with the station’s program director and has a rehearsal on the television stage. The next day the program is on the air.

Relax and Be Calm
Performing on television has one main problem—nervousness. 4-H Club Agent Adelaide Kennedy was extremely uneasy before her first few shows. But as she gained experience she came to enjoy them. She says, “agents should give themselves time to get used to the rigors of television.” Nothing reduces nervousness like a little experience and confidence.

Periodically the agents organize a workshop and refresher course at the television studios. The station’s staff gives the agents an intensive indoctrination into television procedures. This first hand experience teaches them how to utilize television’s capabilities and limitations to better present a program.

TV specialist Jim Lawrence maintains a running criticism of the programs on “Party Line.” He, too, cheers the successes and makes suggestions to improve the duds. But the main improvements come through the

Make your drab dormitory room seem like spring with a house plant with brightly colored blossoms.

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For a large selection of potted plants and bulbs.

Mary Jane Van Meter, Cayuga Assistant HDA, shows homemakers how to stretch the food budget with low-priced meat cuts.

Professionals Enthusiastic
What do television professionals think of the show? Gordon Alderman, program director of WHEN-TV, was one of the early proponents of the show and still is enthusiastic about it. Station personnel speak admiringly of the ingenuity of the extension performers. The station itself is well satisfied, too or obviously it wouldn’t have underwritten the production costs of the unsponsored program for the past six years.

Extension agents should consider organizing a TV program if there is a large station nearby. Many large cities are willing to cooperate. No one claims that TV is a substitute for personal visits and meetings. No one claims that it is a way to reach the farmer. But television is a way to reach thousands of families in a few minutes. It gives agents the opportunity to meet the growing needs of the urban home-owner and it gives the extension service a chance to build public relations for itself.

Mrs. Marilyn Miller, a veteran of many “Party Line” programs, says “The large audiences reached by TV more than justify all the time spent. Extension personnel all over the country should consider this and learn the possibility of including educational TV in their programs.”
The National Science Foundation backs undergraduate research

Research Grants for Students

by Elizabeth Pomada '61

During the past summer an undergraduate in the College of Agriculture discovered a chemical that controls the growth of bacterial flagella.

Bacteriology major Linda Blumenthal, '60, worked under an undergraduate research participation grant from the National Science Foundation. As the demand for scientists grows, research foundations are realizing that more scientists will be available only when more students are studying the sciences. By financing research at the high school and undergraduate level promising students get a taste of what professional investigation is like. Results such as Mrs. Blumenthal's are the dividends on the Foundation's investment.

Mrs. Blumenthal was studying the bacterium Bacillus circulans. This bacteria's colony moves 3 ways: it rotates, it moves forward in bullet-like formation, and moves forward and rotates its head. The colony rotates counterclockwise two-thirds of the time and clockwise one-third of the time—a non-hereditary characteristic.

Why the colony rotates and why it rotates in specific patterns are questions that Mrs. Blumenthal hopes to answer with her bacteriology senior project this year.

Mrs. Blumenthal was one of 30 undergraduates from all over the country participating in the first Cornell University undergraduate research program sponsored by the National Science Foundation. The Foundation gives grants to 200 Universities and research institutes in the U.S. to allow undergraduates, science teachers, and high school students to work with the staff in research for training. The main purpose of this program is to give undergraduates a chance to really experience scientific research.

Prof. George C. Kent explains that during the 10-week summer session and the 2-term winter session, students are given financial support and are "used as junior scientists, not as laborers." In other words, the student actually becomes a member of a professional research team.

Students in the biological sciences or agricultural engineering may apply to the Program Director if they are in the scholastic upper half of their class. They must meet staff approval and, after indicating the area they're interested in, are chosen by the individual staff members they will join.

Other students working under research participation grants were:

- Jane Brody, '62, who studied the relationship between plant nutrition and apple scab fungus. Certain apple trees afflicted with a vitamin deficiency disease (yellow leaves) are resistant to apple scab fungus. Miss Brody ran chemical analyses on yellow leaves comparing them to the green ones. Her studies revealed that there may be a chemical association with the disease that produces apple scab resistance. Miss Brody is very pleased with the program. "I'm very happy to see that something is finally being done to encourage undergraduates who hope to make science their life's work."

- Marcy Stoffman, '61, who did extensive work with plant tissue culture with Dr. F. C. Steward in the botany department. She found that regardless of any notion people have of "one person alone in a lab with his microscope," teamwork and contact with many others is necessary for involved projects. Miss Stoffman feels that she wasn't prepared enough for her work and, if at all possible (a student can only participate in one session), would like to try lab work again.

- Lois Kraus, '61, worked on a problem that included field and laboratory work—the toxicity of insecticides to flies. Miss Kraus worked in area dairy barns and made tests on the chemicals and flies in her laboratory. She was trying to determine the initial killing and residual effects of the chemicals. "I learned more than just specific techniques—how research was carried on... the problems, disillusionment, and drudgery... You never realize how much it is unknown—how much unexplored territory—until you start work. This summer was very worthwhile—you can't get everything out of books, you have to learn through experience."

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January, 1960
Diplomat In Dungarees

Communism can be countered with knowhow and friendship.
A Cornellian reports on his rewarding work in Vietnam.

by Ray Borton '54

The pleasant feminine voice on the short wave radio has just broken into my reverie created by the Bach harpsicord recording and reminded me that I'm listening to Radio Hanoi, voice of the Communist People's Democracy of North Vietnam. But for that blandly beautiful voice I might have been back in Ithaca, listening to the phonograph after having worked my free afternoon in the plant breeding department greenhouse.

But rather, the feminine voice with the touch of felicity reminds me that I'm here in South Vietnam and have just finished a day's work at the Dalat Horticultural Station.

Toan, my Vietnamese interpreter, constant companion, and friend, has now turned the radio to a station playing South American mambos, thereby showing caution, sentiment, and modern taste. Caution because in South Vietnam listening to the Communist North Vietnam radio station is discouraged, sentiment because he is a refugee from Hanoi himself who fled Communism in 1954, and last but not least, plain preference. Mambos are lots more popular than Bach among young Vietnamese.

Today we've been planting beans at the Horticultural Station. Since there is no background of recorded research, we must start simply. This particular experiment employs six different kinds of beans and peanuts, both local and imported varieties. Each kind of bean is planted in six different plot treatments: 1. Control, 2. Control, 3. With inoculation (for nitrogen fixation) only, 4. Inoculation plus lime, 5. Inoculation plus phosphate, 6. Inoculation plus lime plus phosphate. All the plots received the same amount of potassium sulphate. This experiment in two to four replications at two different stations will begin to tell us something about the responses of these different beans and peanuts to inoculations and fertilizers. The inoculation cultures came from the U.S.D.A. at Beltsville, Md.

These incidents illustrate everyday happenings and the work of an International Voluntary Services, Inc., team member in South Vietnam. There are now twelve of us here, all recent graduates of colleges of agriculture, acting as junior technicians on the American foreign aid program administered by the United States Operation Mission in Vietnam. By the time you read this, one of my two years here will have been completed and if the second is as varied and interesting as the first, I'll be doubly satisfied with my decision to spend two years abroad on a voluntary wage scale.

Rice and Duck Feathers

You can find facts on the agriculture of Vietnam in an encyclopedia; that its main crop is rice, second is rubber; that it is a producer of tea, coffee, cinnamon, and black pepper. A recent report might even tell you that the third largest agricultural export after rice and rubber is duck feathers. A travel book might tell you about the tropical climate, the sights of Saigon, the capital city, and a few excursions to various temples, pagodas, etc. A sociology text might mention the various mountain tribes—people who are related to the Indonesian Polynesian-Maylayan group. History books will list the many kingdoms, civilizations, and occupations that have come and gone from the area. Postage stamp collectors see pictures of elephants, pagodas, and the president of South Vietnam, Ngo Dien Dien.

People to People Aid

But to actually be here, to see and live it all brings an intimate awareness of these facts and a far greater understanding of it all. Land reform and development is more than just a word. It is a picture of lines of farmers waiting for their loans, resettled refugee villages where new land and new crops are bringing better housing and better food. The market place is no longer an economic term, it is a teeming area full of people, goods, smells, and dirt.

Technical assistance on a people to people basis is the basic principle of IVS. Here in Vietnam we are

The author visits a mountaineer village for an elephant ride.
is the key to our work. With the advice of our American aid program technician supervisors and using our own common sense and experience, we go ahead, working with the Vietnamese station managers and their staffs. Perhaps a big portion of our real work is on-the-job training for these counterparts with whom we work, for their training in agriculture is generally even more meager than ours.

**Ingenuity at a Premium**

Sometimes we must spend hours and even days in planning projects with our co-workers. At other times it is necessary to actually do the work of implementation in order to demonstrate new techniques. Upon arriving at a new station recently, two team members first had to demonstrate the use of a tractor and plow because the idea of pattern plowing and turning the soil into a furrow had never been seen before. Then there were a number of new machines, all provided by the American aid program, but still in the crates waiting for assembly. Locating the right wrenches to use in the assembly was one of the biggest problems of all.

These same two team members received an odd reception when they paid their first call on the chief of the province. His first question was, “Did you bring along your own food like all the rest of the Americans?” They answered an emphatic, “No.” Throughout the country we have found the local foods to be excellent and with a few precautions they are as safe as any imported canned products.

This same chief of province was quite adamant in his viewpoint that Vietnam would be better off if it could exist without foreign aid. However, he seemed pleased with the team members’ work and asked them to teach English classes in the evenings. As soon as they agreed, the word went out. To their surprise, they had 168 pupils signed up. Among their students are most of the leading provincial officials.

Team members have found that teaching English classes is a fine way to make the acquaintance of the rising, self-educated, younger generation of South Vietnam. The interest in the English language is phenomenal. It has become the international language of Asia almost overnight. At recent state visits to Vietnam by the presidents of Korea, the Philippines, and India, the official language was English. Regional conferences are in English. Many new textbooks arriving in the country are in English rather than French, which was the official language of the colonial days of Indo-China.

**International Cuisine**

Adaptability is the keynote to our living conditions too. The New York Times reporter who visited one of our stations wrote that two team members were living in a “cramped cottage” and wearing dungarees and sweat shirts in the field for their work. Our food varies from American style to French, Chinese, and Vietnamese. We are free to set up our own household on the allowance of local currency that is provided for our living expenses. Housing is provided by the Vietnamese government and varies from the “cramped cottage” type to an old French villa. In all cases we live with our Vietnamese interpreters and sometimes with our working counterparts as well.

Our interpreters serve as language teachers too. All of us try to learn as much of the local language as possible, although we realize that it is impossible to become really fluent when studying only in spare time over the two years we spend here. We are able to learn enough to enable us to travel and work without the aid of an interpreter after a few months here. Learning just enough of the language for a rudimentary conversation means much to the Vietnamese people. They are both surprised and pleased to find that Americans can and will learn a language that is completely removed from English and which is valuable to them only in this limited area of the world.

**Fringe Benefits**

Not only do we learn a little of the language, but we find ourselves learning much more than we could have anticipated. There are many peoples and customs in Vietnam, besides the Vietnamese themselves. Various mountain-tribe groups populate the highlands and the remains of the ancient Cham and Khmer civilizations are scattered over the lowlands. Flora and fauna are intriguing and colorful. One of our team members who finished his two year term in January took home two tiger skins as souvenirs. One of our biggest problems on the stations in growing sweet potatoes has been the raids of the wild pigs. Pea-
Na Trang, seaside resort and fishing harbor in South Vietnam, is a favorite weekend spot for IVS team members in that vicinity.

cocks and wild chickens are the pheasant and quail of Vietnam. Orchid collecting is a favorite pastime in the mountain areas. It's still the people that one meets that really take the cake for being interesting. Our contacts with the Vietnamese vary from domestics to Deans, mountainers to Ministers. Among the American community we've met the Ambassador, many aid program and government officials and technicians and their families, contract group advisers, exchange professors, both Protestant and Catholic relief and mission personnel, professional hunters, tourists, and so it goes. And then there are our international friends, the Dutch and Australian agricultural technicians, the Filipino movie director, the former French legionnaires, the Indian cyclist going around the world, the Japanese surveyor, and many others.

Not that our work isn't intensely interesting, too. Introducing new plant materials, hitherto unknown varieties, new uses of fertilizers and lime, the use of insecticides and fungicides, the operation of new machinery, and helping plan water buffalo and livestock improvement programs are the opposite of dull. At my horticultural station we have some blackberries from Texas, avocados from California, broccoli, Hubbard squash, and fancy petunias, all things never before grown in Vietnam. Of the other species of fruits, vegetables, and flowers, we have many new varieties that haven't been seen here before. Some will of course not prove as adaptable as local ones, but others may provide excellent new commercial crop material. Each new day brings new progress and growth of these new materials which is watched with many interested eyes.

As I finish this writing, the short wave radio is again bringing in some excellent music, this time "Incidental Music from Russian Films" broadcast by Radio Moscow. Although pleasant, it reminds one of the proximity of the Communist influence against which our work is indirectly aimed.

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Housekeeping for Credit

Education Majors Learn By Doing!

by Margaret FitzGerald '62

Isn't Economics of the Household 302 just for home ec ed majors? Few coeds realize that EH 302, Home Management Residence, is open to all home economics students whether they plan to teach or follow some other career in home economics. Juniors, seniors, and graduate students may register for the course.

EH 302 is a four hour course given for seven weeks twice each term. Home ec ed majors schedule it with practice teaching and home nursing. Some also take courses in special problems.

A student who is not an education major may take the course along with a regular program of courses.

Everyone who takes EH 302 lives in the home management apartments in Martha Van. The cost of living in the apartments is $140 per student. Each student has an opportunity to live in both a large and small unit.

The students divide up the responsibilities for managing the work in the apartments. The instructor joins the students for several meals each week. A graduate assistant lives with them.

"What is living in the home management apartments like?" Prof. Alice J. Davey says that "we aim to provide the students with some of the resources homemakers use so that the student may begin to understand and appreciate what is involved in the management of the home and come to realize some of the responsibilities in the job."

In Apartment A, the larger unit, the students operate on a food allowance of $1.15 to $1.25 a day. Students experiment with various methods and equipment used in performing household tasks. According to Professor Davey, each day is a testing experience for the students as they learn by doing. They organize their work and evaluate their performances as responsibilities are rotated.

The aroma of freshly baked bread lured me through the spacious living room into the kitchen where the manager for the week was preparing lunch. She remarked that for all her success of the moment, she had burned last night's lemon sauce for the snow pudding.

She was assisted by the waitress who was making a cabbage and pineapple salad. I was told that life in the home management apartments is a self-directed experience. At the first evening meal, the waitress was faced with the problem of how to serve the coffee. She started to take the coffee pot to the table and then decided to pour the coffee into cups in the kitchen only to pour it back into the coffee pot before she served.

When one goes shopping, it is helpful to know where the stores are. Thus the manager had stopped in the P&C to ask where the A&P was when she bought the groceries for the first week.

As I turned the corner into the nursery, I found a baby contentedly taking her formula as she was gently held by a coed. Some of the students had no experience in handling a small child and find that giving the first bath is quite a splashy, slippery affair.

They gain confidence as they take care of six months old Joanne Showacre. She arrives at 8:30 in the morning and stays until 5 p.m.

Two students live upstairs in Apartment B. The food allowance is 85 cents per day each. Apartment B has a minimum of equipment and limited space. One of the students is the manager and has all the responsibilities she would have as a homemaker.

A student who has been married for a year was the manager when I visited Apartment B. She told me that she had been trying to find more efficient ways of doing her housework while working under a limited budget.

Although the course is open to all home economics students, it is required of home ec ed majors. As part of the Smith-Hughes Act passed in 1917, all prospective home economics teachers are required to have experience in home management responsibilities.

One coed taking the course said that living and working with others had helped her to apply the principles taught in all her home economics courses. Through use of various materials and methods, she had gained confidence in coping with the many problems which confront the homemaker.
Easy-to-grow potted plants

Flowing Foliage For A Dull Desk

by Robert B. Gambino '61

PLANTS can be as interesting and decorative as your roommate (and considerably less obnoxious).

You don't need the horticultural background of the late L. H. Bailey to produce a tangle of lush green growth on your desk. There are many plants that can be grown in your dormitory room or apartment without much trouble—lending a spring-like atmosphere to the room.

The foliage plants are the most popular indoor plants because of the relative ease involved in caring for them. The bulbous plants follow, with their bright flowers, such as in Amaryllis or varied colored leaves typical of Caladium.

Flowering plants like Geraniums and African Violets need special attention in order to produce blooms of any interest.

The difficulties involved in producing a jungle effect in your room are numerous, but easily overcome in most cases. The atmosphere indoors is usually too hot and dry. A little ventilation will remedy this. Improper care is a malpractice to be avoided. Never shock plants with hot and cold temperatures, place them in drafts, or poke holes in the soil with your ball-point pen.

The foliage of the plants may be kept clean and free from dust and insects by occasionally rinsing it under the shower. A better method is to use a sponge or soft cloth to clean the top and bottom of the leaves. Water should be at room temperature, especially for African Violets.

Determining the correct amount of light for a plant is difficult. Plants grow best when there is plenty of sunlight and moisture. However, there are many plants that are able to survive under a minimum of light.

Plants requiring more light can have the deficiency made up artificially by using a strategically placed florescent lamp. For most plants, the more light, the better its growth.

The temperature for optimum growth varies with the plant. A majority of plants will flourish at a temperature between 60° and 75°F. Cool temperatures at night are desirable. Nevertheless, a plant on a windowsill or near a window is apt to become frozen if the window is left open to a chilly Ithaca night. Protect plants by moving them to a safer position or by placing newspaper between the plant and the window.

Watering is a delicate subject. Your plants should be watered as often as needed. This requirement depends on the plant's species and vigor, the weather and the time of the year. When watering, water thoroughly and fully. Mature plants usually need only enough water to keep them from wilting. The more vigorous plants will need a good soaking. Be careful not to overwater and thereby kill the plant by waterlogging the soil.

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Cornell Countryman
The best soil used for most plants can be obtained from any florist. It consists of one part peatmoss, one part mason’s sand and one part garden loam.

Repotting plants can pose a problem for the indoor gardener. With the above soil mix, the correct size pots, and a little practice, no trouble should be had. Repot only plants that are growing vigorously and whose roots have become crowded in the pot.

Feeding plants is a good practice and should be carried out when the plant is actively growing. Soluble fertilizers can be purchased from your local florist and should be applied once a month according to the manufacturers’ directions.

The conditions under which plants are grown in the home often encourage the development of insect pests and disease. All-purpose house-plant sprays can be purchased for the control of plant enemies. Aerosol sprays or liquid concentrates containing Malathion are recommended. If plants become heavily infested or infected they should be removed and replaced with healthy plants.

The following plants can easily be grown on your desk or window sill:

| LOW LIGHT | | MODERATE LIGHT | | BRIGHT LIGHT |
|-----------|---------------------------------|---------------------------------|---------------------------------|
| Chinese Evergreen | Grows well in water. | Coleus | Can be grown easily from cuttings. |
| Rex Begonia | Needs organic matter and good drainage. | English Ivy | Trails, will grow in water, requires cool temperatures and no direct sunlight. |
| Grape Ivy | Trails, decorative. | Peperomia | Will withstand dry conditions and adverse conditions. |
| “Rudolph Roehrs” Dieffenbachia | | Golden Pothos | A climber—will withstand dry conditions and poor light. |
| Dracaena | Suitable for large containers, decorative. Needs humid conditions and warm temperature. | | Decorative. |
| Swiss-Cheese Plant | Can be trained, suited for large containers, decorative. | | Suited for large containers, decorative, will withstand dry soil, prefers warm temperature. |
| Philodendron | Climber, or trailer. Will grow in cool temperatures (60°-65°). Good for indoor conditions—warm and dry locations. May be grown at low temperatures. | | Don’t over-water. |
| Bow-string Hemp | Easy to grow. Will grow in water, a trailer. Withstands warm and dry locations. | | Easy to grow. |
| Syngonium | | Wandering Jew | | |
| | | | | | |

Philodendron (left) and Swiss Cheese plant (right) are two plants that grow readily in low light.
Sociologists' tool

Level of Living Scale

Carole J. Wedner '61

THE ring of the doorbell echoed through the house. A homemaker turned from the stove and, without removing her apron, hurried to the door. Through the window she saw a young man carrying a clipboard. Setting her face to its “I-don’t-want-any” expression, she opened the door.

“I’m Robert Danley,” the man said. “I’m from the College of Agriculture at Cornell University. I’d like to take a few minutes of your time to ask you some questions.”

With a relieved smile the homemaker opened the door wide and ushered him into the living room.

Forty-five minutes later, the interview completed, Mr. Danley thanked the homemaker and left, heading for the next house in the sample of rural households.

As a member of a team of seven, Mr. Danley made many such interviews. One of the purposes of the interviews was to set up a new level of living scale. This scale would consist of a list of items (see box). The more items on the list a family owned, the higher would be their level of living.

Sociologists needed a scale that could encompass farmers and city people, plus those who lived in rural areas, but did not receive their incomes from farming.

Previous scales were in existence, but, they could be used to study only farm or only urban populations. When an experimenter wanted to compare two different groups, he had no yardstick common to both.

Older scales also needed revising because of the items on them. For instance, the older scales separated high from low level of living by whether or not a car was owned. Since so many families now have automobiles, it was decided that the relative newness of the car would distinguish high and low levels of living.

Mr. Danley, who is now a Professor in the Department of Rural Sociology at Cornell, and his interviewing team, talked to 549 residents of Broome County. During the course of the interviews they discovered the education, occupation, material possessions, and participation in clubs of the residents.

When the interviews were completed, Professor Danley and Professor Charles E. Ramsey analyzed the answers. They used occupation as a basis to determine the socio-economic status of the families interviewed. The items possessed by high status families and not by low status families were used in the new scale. So, Professor Danley was able to establish a thirteen and a nine item scale to measure level of living.

“Because level of living is related to socio-economic status,” he explained, “we were not surprised that the relative position of a fam-

USING this new level of living scale, sociologists can determine in a short time the socio-economic status of an individual, a family, or a large group. How many of these things do you own?

1. Hot and cold running water.
2. Tub and shower in bath.
3. Piano
5. Freezer—separate from the refrigerator.
7. Electric clock.
8. An automobile two years old or newer.
9. Four or more magazine subscriptions.
ily on the level of living scale is significantly correlated with its other societal activities. Both scales predicted membership in formal organizations, leadership in the same organizations, and educational status.”

The accuracy and predictibility of the scales were tested in another series of interviews in Cattaraugus County, New York. Professors Danley and Ramsey chose a typical region that had a significant number of low-income farm families to test the validity of the scale. The findings showed the relationship of level of living to the variables of 1) income, size, productivity, and quality of a farm; 2) attachment of the family to the farm; 3) social and occupational isolation; 4) current health of the family members and their use of health insurance. The utility of the scale for a distinct second sample was demonstrated.

Thus Professors Danley and Ramsey established a contemporary level of living scale that is short, and includes items to be found in rural New York in the 1950's and '60's. It is a scale that can be used for nonfarm as well as farm people. The scale has already aided other Cornell professors in their research and will continue to do so for years to come.

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The Faculty Views College Goals

The goal report presented to the faculty by the Ad Hoc Committee on the Educational Program of the College is an intelligent and forward-looking study. Any organization that is associated with agriculture must be constantly reevaluating its aims because the nature of agriculture is changing so rapidly. Especially important is the fact that the number of people actually farming is falling each year. But more and more are entering the processing of agricultural goods.

Basic research, applied research, and teaching are the primary missions of the College, says the goal report. But the College must keep adjusting these missions to the changing face of agriculture. The report states that the College “must anticipate the future, not be overtaken by it.”

The Ad Hoc Committee comes out strongly for basic research. Basic research is the cornerstone of an intellectually vigorous college. If the College is to maintain its prominent position in the national and world agriculture, it must continue to attract men interested in pure science as well as applied research.

Another goal of the College is to boost undergraduate enrollment. Says the report, “It is a matter of considerable importance to determine why we are unable to attract additional students to a tuition-free institution which offers such a wide range of training.”

Changing the College to keep it at the forefront of agricultural progress has been and will continue to go on. The institution of a course in food distribution and the modification of student practice are just two signs of the readjustment the College is undergoing.

We foresee changes in the organization of majors. A general course of studies for first year agriculture students may be initiated. Under this system students would branch out into majors when they were upperclassmen.

The problem of underenrollment should be solved, if by nothing else, by the increased number of girls in the University when the new girls’ dormitory is constructed. At present, the number of coeds in the College is limited by the amount of housing available. Also, soaring college enrollment in the next few years should do much to bring the College of Agriculture up to capacity.

It is interesting to note that the report, although veiling it in academic terms, points out that the original legislation is broad enough to allow the college to move in almost any direction it desires. Once again the administrative genius of Liberty Hyde Bailey (the man who wrote much of the original legislation) shows through.

S.A.B.

Letter

Editorial Insults Farmers

To the Editor:

I think it would be a mistake for me not to write you with reference to your editorial in the December issue of the Countryman. I recognize that opinions may differ and that an editor has a perfect right to express his idea. In general, I do not take issue with what you wrote.

When you say, however, “In reality students with no farm experience got the worst jobs. Few progressive farmers were willing to make the sacrifice of training, boarding, and feeding an inexperienced college student,” you do not know what you are talking about and you are telling many of the best farmers in New York State, who have taken these students for many years, that they are not progressive. I am very sure that they would not be impressed very favorably by your statement and, as a matter of fact, it simply exposes your ignorance.

There may have been instances when students without farm experience were on farms that were not the best in the State, but knowing something about the hundreds of farmers during the years who have taken these inexperienced students, spent time with them, been friends to them, and for whom the students have had much respect, such a statement as you made is most unfortunate. Since very few farmers will see the magazine, I am not too much concerned as far as their feelings go, but the college is putting this magazine into 594 high schools of the State and if it is worth doing, it will probably be read by high school students from farms where Cornell students have worked during their summer vacations.

I am sorry to have to call your attention to this mistake in an otherwise very good issue of the magazine.

A. W. Gibson
Director of Resident Instruction

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CORNELL COUNTRYMAN
Eaters of Banal Meat Balls Revolt!

by Zilch

WELL, the annual midyear madness is finally over. If all those professors think that students should work for an education and not emphasize marks, why do they give such abysmal exams. But, naturally, Zilch had no troubles with any exams. He bombed all his courses. He bombed agronomy by tossing a hand grenade through Professor Neilson’s office window. He bombed botany by connecting the starter of Professor Banks’ car to three sticks of dynamite. He bombed physics by placing one sub-critical mass of uranium in close proximity to another.

One of Zilch’s bohemian informants culled the following menu from a copy of the Village Voice. The Village Voice is a sort of small town weekly with urbane pretensions because it carries Jules Pfeiffer’s sick, sick drawings. Anyhow, here’s the menu:

Frozen beer to start off the day at 90 mph.
Whiskey sours en thermos.
Ham and Eggs.
Cream cheese, lox, bagles.
Sara Lee cheese cake.
Coffee.

The pages of the Rural New Yorker carry ads for such items as arthritis cures, power saws, barn cleaners and the like. The December 5 issue is distinctive because among this welter of ads there is one offering a diamond ring from Tiffany & Co.! Zilch envisions this ad being used as proof in Congress to show that the farmers are getting richer all the time.

Zilch is forced, upon occasion, to sup at the Martha Van. As a substitute for good food we get exotic names. The most ambitious project was naming the same kind of banal meatballs for all the Scandinavian countries and two Far Eastern republics. If more time were spent cooking and less trying to make the menu sound like the bill of fare at Sardi’s, Zilch’s stomach might be more settled.

Absurdity of the month: Zilch understands that there is a freshman coed that regularly practices smoking and even has girls on her corridor light her cigarettes so that she can achieve the proper amount of sophistication.

In Zilch’s opinion the people who write this magazine get a disproportionate amount of the credit. The hardworking business staff only get their names in the masthead. To remedy this inequality Zilch hereby lists their names along with some personal characteristics so that you may recognize them. The business staff consists of saucy Al Burg, vivacious Judy Fischer, delightful Linda Reed, charming Ginny Swanson, crafty Marty Wolf, rugged Barry Goodrich, effervescent Suzy Gubin and ugly Steve Middaugh.

Zilch just got a copy of the latest Ford Almanac. It would make a great gift for anyone interested in farming. It’s full of facts and figures on who grew the biggest and best corn, hogs and just about everything else. It contains articles that will amaze and fascinate you and has enough to keep you reading from now ’til spring plowing.

One last item of interest: Zilch disclaims all connection with the Frosh Register and any gulch or prep school mentioned therein. Zilch has retained Clarence Darrow, a student in the law school, to investigate the possibility of filing a suit against the Frosh Register.

February Cover

The puzzled colt and smug cat on the cover this month eminated from the talented pen of Martha Blake ’61 the artistic pride of Alpha Omicron Pi.

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The Farm: A Dying Way of Life

Is the trend toward bigger and bigger farms killing off those intangibles that once made farm living so worth while? This writer thinks so.

by Jack E. Hope '61

I S THE farm "way of life" fading from the social scene in the United States? Surely, a sector of the population must remain in the farming business, even though the actual number of farm units is on the decline. But of the farms remaining, how many will continue to provide the environment, the atmosphere that will preserve the traditional farm society that for generations has symbolized rural life in America?

Of the approximately 5 million farms in this country, fifty per cent are providing but meager incomes for their owners. This lower half of which we speak is responsible for a mere ten per cent of the nation's agricultural output.

A good share of the low income farms are of the tenant variety, found primarily in the South. Tenant farmers and sharecroppers who operate farms in a state of continual deficit are naturally considered a drain on the nation's economy, due to their inefficient...
production and to the fact that many of these people require welfare payments of one sort or another in order to survive. The type of farm existence that these people lead is surely not the good country life that we like to associate with farm living. This portion of rural life is gradually shrinking, and is probably doomed to near extinction. These families would fare considerably better if they were engaged in non-agricultural occupations. Economically speaking, this is a goal toward which our government should strive by means of financial aid and social reform.

At the other extreme we find the vast factories in the field, responsible for America’s abundance of food and fibre (and also for our surplus). These huge units seem to be the coming thing in the production of agricultural commodities, but they can hardly be considered as “farms” in a sociological sense. Whether the owners choose to produce wheat, hogs, or tomatoes, the procedures used in the production are generally the mass output methods adapted from industry.

This type of farming has taken much of the hand work out of everyday operations. A farm owner who has adopted these labor-saving techniques has but to touch a centrally located switch in his barn, and his animals are fed, watered, milked, their fortunes told, etc. via a host of mechanical gadgets.

Will the farmer of the future, whose daily chores are thus simplified, be offering his offspring the opportunity of the wholesome rigors of country farm life when he sends junior to the control tower to “push the button”? Will the rural agricultural society of tomorrow provide the same character-building elements that have existed in the past, those features of responsibility, physical exertion and alertness that have exerted a positive influence on the personalities of past generations of farm youth?

Successful farms are becoming more mechanized, requiring less manpower, growing larger in size, and fewer in number. The trend is indicative of reduced responsibility for members of the farm family, a withdrawal of one of the building blocks of rural character.

With “poor” farms incapable of providing the traditional atmosphere which we link with a favorable rural life, and with our prosperous farms growing scarcer and more un-farmlike, we may certainly question the future position of American agricultural society.

More efficient means of communication with urban influences, attractive offers of non-agricultural employment, and cosmopolitan social ideals are additional factors tending to obliterate the independent farm society. The question now is not one of whether farm society is undergoing a transition, but whether this change is a desirable one.

Although the pros and cons of the social significance of this transition may never be fully realized, we may well regard the destruction of the traditional farm personality as a loss to American society.
For the poultry producer and consumer

New Forms for Old Birds

by Edward L. Razinsky '61

DOWN through the annals of history many things have changed. However, that product of the pullet, the fruit of the hen...the egg...has remained practically the same. But some of that may be due for change.

The team of Lawrence B. Darrah, Professor of Marketing, Professor Robert C. Baker of the poultry department, and several of their colleagues at Cornell have taken it upon themselves to change the egg along with other poultry products.

Working with Darrah and Baker are a home economist, Roberta Ford; a marketing specialist, Bob Reid, and many assistants.

This team of workers is not devoting its time to merely a radical whim. In the past ten years, the consumption of eggs and fowl has gone down and prices to the farmer have dropped.

"We are using two approaches to the poultry and egg problem," explained Professor Darrah. "The first is a study of the barriers to the consumption of egg products." The idea here is that if it can be discovered why people aren't eating eggs, positive action can be taken to increase consumption.

The second approach, continued Darrah, involves the development of new poultry and egg products.

Bob Reid, the marketing specialist of the team, feels that egg producers have been selling just plain eggs for years. "We are trying," explained Reid, "to develop something more desirable, something new."

For most people, eggs are a breakfast food. Due to many factors, continued Reid, people are no longer eating a big breakfast at home. This, naturally, has done a lot to decrease egg consumption.

However, if the "image" of the egg could be changed; if eggs could be put in some new forms so that people wouldn't just think of eggs for breakfast but as a snack, hors d'oeuvres, or main meal, more eggs might be eaten. And there is the story.

Ready for the market now is a ready-to-eat French toast. The toast is cooked and frozen. The housewife must simply put the toast in her pop-up toaster for a couple of minutes and she has French toast.

This item would make an easy to serve breakfast, but also has possibilities as a snack for many occasions.

From the egg marketing standpoint, every two slices of French toast sells an egg.

Professor Darrah, during the spring term of 1959, gave his Ag. Ec. 140 class a quiz which involved setting up a market program for colored Easter eggs. These eggs were hardboiled, colored, attractively boxed, and sold as a novelty item for the Easter season.

The Easter eggs were market tested and proved to have potential for giving the egg market a seasonal boost. (It might be remembered that in the spring of 1959 the price of eggs hit an all-time low. A little boost might have made life more bearable for many egg producers.)

While doing market studies on different kinds of egg cartons, Professor Darrah noticed that most shoppers have an almost savage urge to open the carton to see the eggs. "To this day," Darrah said, "I don't know what they were looking for." But from this came the idea to make the shoppers' investigation easier...egg boxes with windows.

At first small holes were made in the tops of the boxes exposing a
few eggs. But consumers wanted to see more. The openings got bigger.

When questioned about their preferences, shoppers, Darrah reports, said they would rather buy eggs in boxes with windows.

Finally, an egg carton was developed with a clear plastic top and a colored plastic bottom. This container makes the eggs much more attractive than the old, dull, gray carton...and all the eggs can be seen.

"Old soldiers never die..." someone once said. But old leghorns, on the other hand, do reach the limit of their productivity and must be sold. The problem is that the market price for leghorn fowl has been "fading away"...if the farmer can find a buyer at all.

To solve this problem, Professor Baker has been working on new forms for old leghorns, with the aim of creating more demand.

"My job," explains Baker, "is developing new products and Professor Darrah does the merchandizing." Professor Baker does the technical work on the new products such as bacteria counts under different storage and processing conditions.

Under development now are chicken cold cuts. The chicken is ground, emulsified, put in casings, smoked and cooked, and made into loaves which, according to Professor Baker, will compare favorably to any cold cut on the market.

Competition for the traditional "hot dog" is being developed. The "chicken frank" is chopped meat stuffed into a casing. This also is a possible outlet for leghorn fowl.

Ready for market now is what Professor Baker calls a "young roaster." For years, reports Baker, people have associated roasters with a large bird...too large for a small family. The young roaster weighs from three to four pounds and will allow the average sized family to have their roast chicken without having leftovers for the rest of the week.

Poultry and egg producers will gain from the new food forms if consumption increases. They, however, are not the only group to gain.

Benefit to the consumer is mainly in the form of convenience. One more service added to a food product before it gets on the grocer's shelf, is one less service the housewife has to perform before she can serve the food to her family. These added services reduce time spent preparing meals and allow the modern housewife to extend her life beyond the kitchen.

As Professor Darrah pointed out, regardless of the perfection of the egg or meat as it comes from the chicken, studies show that consumption has fallen.

Poultry and egg products have been given to the public in the same shape, color, and container for a long time. A new gimmick, a different form, an attractive carton, an added convenience—all these things can be used to stimulate appetites for these products and improve conditions for both producers and consumers.
MAPLE trees several years old and only six inches high; tobacco plants bent, gnarled, and stunted until they look like warty gourds; pines without a needle or cone on them. A nightmare? No, all these deviants exist and all are man-made—with the aid of atomic radiation.

Every day scientists at Brookhaven National Laboratory expose hundreds of seeds, seedlings, rootstocks, growing plants, and other plant parts to several hours of atomic radiation. Sometimes it takes days, sometimes weeks, months, or years, but eventually some of the plants show the effects of atomic radiation.

Irradiated plants change in one of four ways: they die, their growth is stunted; somatic (body) mutations occur; or germinal (hereditary) mutations occur. Brookhaven radiobiologists are primarily concerned with the last two changes.

Somatic mutations are changes in the chromosomes of plants which alter some of their characteristics. They differ from germinial mutations—similar changes in the chromosomes of egg or pollen cells—in that they often can't be propagated sexually, as well as in their place of origin.

**Altered Violets**

African violets used by one biologist showed an interesting series of somatic mutations. The variety, an unnamed one called X-59 by the workers, is normally white with deeply scalloped round leaves and semi-double flowers. Mutants appeared with mauve-colored flowers. Some had double flowers and some single. Even leaves changed—they elongated, lost some of their “hair,” and their edges became regular. Some were variegated and some curled. When the leaves were rooted to make new plants, they retained their mutant character.

Two back rooms of a greenhouse and a special gamma-radiation field are set aside for the actual radiation of plants. In the greenhouse, a radioactive form of cobalt bombards plants with gamma-rays, similar to X-rays. The floor is marked off in concentric circles, enabling workers to determine the amount of radiation each plant receives, reducing the dose as the plant moves back. After the plants have been set, the cobalt is raised from its lead and concrete safe and the bombardment begins. Each morning, during the half hour when the source is down, plants are set and removed. Three and a half hours of the afternoon are set aside for housekeeping—watering, cleaning, examining, recording. These four hours are the only respite the plants receive.

Plants in the radiation field grow just as they would in a garden—with one important exception. The only time any gardening can be done is in the afternoon; during the rest of the day and night the cobalt radiation source is out of the ground and the field is unsafe for man or beast... or plant, for that matter.

Neat rows of gladiolus grow in this garden. The row nearest the radiation source displays only dead seedlings. A little further back the plants made brave attempts at leaves. At about the tenth row some big healthy leaves appear and, beyond that, the first flowers. All these plants were set in the ground at the same time but radiation has stopped or stunted the growth of most of them.

**Deadly to Pine Trees**

Gladiolus is a comparatively resistant plant. It can survive 1,000 times as much radiation as more susceptible plants such as pine trees. The remains of four pines stand several feet beyond the fence enclosing the radiation field. They have been stripped of all evidence of life and the bare trunk and naked branches are all that is left. A grove of healthy pines grows just a little beyond these, where the radiation level is much lower.
by Jill H. Beckoff '61

Brookhaven National Laboratory’s Biology Department, checks the progress of plants undergoing radiation treatment.

February, 1960

Several tobacco plants began to grow but were stopped in their tracks by gamma rays. Instead of growing tall and flowering, these plants became stunted and bent. Their stems developed a coating of tumors, and plants receiving the largest doses became little more than a few humps and a lump.

Researchers at Brookhaven work in medicine, chemistry, physics and biology. Medical researchers seek new uses for ionizing radiation. Among their findings have been the use of radioactive iodine as a cure for certain thyroid gland disorders and radiation treatments for cancer.

Probing with Electrons

Physicists probe to find the essence of matter, the particles that make up the atom. They work with accelerators, devices to make particles move fast enough to leave tracks on photographic plates and other recorders. (It is the ability of these particles to leave traces upon photographic film that makes film badges effective barometers of radiation. Periodically, the films in the badges are developed to see if a dangerous amount of radioactive material has come in contact with them.) Physical research also makes use of reactors, the machines that actually turn samples of cobalt, iodine and many other metals into their radioactive isotopes.

A 30 billion electron-volt Alternating Gradient Synchrotron is being constructed. This accelerator will be the largest of its kind when completed. It will be a great boon to the work of the physicists as well as all the other workers at Brookhaven.

Chemists are interested primarily in the chemical effects of radiation. That is, how is the structure of a compound changed when it is irradiated?

It is in the biology laboratories that plants are studied—along with animals. The biology department is responsible for the odd-looking plants in the greenhouses and the gamma-field. These plants are irradiated and watched for mutations. Mutations are propagated for further study when they appear.

At present, scientists aren’t sure why plants change when irradiated. They think, however, that the ionizing radiation causes atoms in the cells to gain or lose electrons. This loss or gain is sometimes enough to alter the protein of the cell nucleus and cause a mutation, which can alter the appearance of the plant or animal.

Holocaust in the Chromosomes

Another observation is that radiation sometimes results in the loss of centromeres of chromosomes. When these are lost, chromosomes are unable to divide normally along with the cell. Instead of migrating to the ends of the nuclei of the two daughter cells, chromosomes without centromeres may “get lost” and not appear in either of the two nuclei. If this happens in a sufficient number of cells, the organism will die.

Polyploidy, almost the opposite of this, is also believed to result from atomic radiation. This is because the radiation interferes with the cell division and the chromosomes reproduce but do not separate to form the daughter nuclei. Polyploids, interestingly, have been found more resistant to radiation than normal plants.

These and other findings have found practical application. Botanists made great strides in the study of photosynthesis by using radioactive carbon. New storage methods were developed for fruits and vegetables. Some plants have yielded more as a result of artificially-induced polyploidy. Mutations in many plants show promise of giving improved varieties, but much more study is required.

According to the senior radiologist at Brookhaven’s biology department, Dr. Arnold H. Sparrow, this is just the beginning. He explains that this is a relatively new science, just over 30 years old and hardly anything has been done, compared with what remains to be accomplished.
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“Out, Damned Spot”

Bizarre requests for stain removal information keeps Professor Vivian White amused and sometimes puzzled.

by Hillary Brown '63

“How can I get egg off my husband’s tie?” “I’m a nurse and would like to know how to keep the bottom of my stockings white.” “Please send me all the free information you have on textiles.”

These requests and many more like them find their way into the Textile and Clothing offices daily. Opening her letter file, Miss Vivian White of the TC department who answers questions on spot and stain removal, new fibers and general textile problems, lifts a handful of such inquiries received within the last month. A letter from a business firm asking for advice on planning educational programs, a plea from a university in the Philippines for aid in a research publication and questions from school children asking for material for projects are just a few examples of letters which must be answered promptly and completely.

Because so many problems are similar, Miss White, with the aid of other members of the TC Department, have published two extension booklets, “Spot and Stain Removal” and “Synthetic Fibers.” In these publications, which can be ordered by mail, they try to incorporate common problems and solutions which homemakers can perform without much training.

“Because these two areas are so broad,” said Miss White, “we often omit some information. For example, I received this letter recently from a homemaker reporting that ‘your spot and stain removal bulletin is my Bible, but nowhere does it mention how to remove curry from my tablecloth. What should I do?’”

After testing with detergents, spot removers and cleansers, Miss White and her staff will be able to tell her what she should do, and will also add this information to the spot removal bulletin which is being revised.

Although the school isn’t an official testing bureau, when the proper facilities are at hand, experiments will be performed, if not by Miss White, by her classes which may be studying related problems in labs.

Dead-on-Arrival

“One of the most puzzling problems arrived in a package,” revealed Miss White. “There was a piece of material saturated in an unknown solution in a plastic bag. A small note enclosed only read—’What happened to this material?’ The fabric looked so worn and molded that I dreaded touching it for fear of disease. I finally mailed it back to the sender.”

Such instances, where people ask for special help in performing their household duties, occur quite frequently, and as the Home Economics College is N. Y. State supported, it exists to aid the State, by training adults as well as their children. This service has been available since the beginning of the century when Miss Martha Van Rensselaer founded the school. She asked homemakers of NYS to submit problems and ideas to serve as bases for her courses and in return she answered their needs. This practice has continued today with extension bulletins, television programs, and a Textile and Clothing Newsletter which is sent to county agents to use in their work.

“I have even received frantic telephone calls from University students. In fact,” recalled Miss White, “one Spring Weekend a fraternity phoned and wanted to know how they could waterproof their float. I imagine it didn’t sink, for I never heard from them afterwards.”
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AT CORNELL UNIVERSITY
ITHACA, NEW YORK
FEBRUARY 22 TO 27, 1909
L. H. BAILEY, Director

Practical Discussions and
Demonstrations in Farming
Different phases taken up in detail every day from 8 A. M. to 5 P. M., with
evening meetings at 7:30

ADDRESSES BY
Pres. Schurman and Dean Bailey
WEDNESDAY AND FRIDAY

REDUCED RAILROAD RATES
This Week is for you and your neighbors. Board and room
convenient and cheap. Ask about it.

An early Farm and Home Week poster

Farm and Home Week 1960
by Elizabeth Pomada '62

FARMERS and people in agribusiness, homemakers, veterinarians, and high school students will get an opportunity to see just what's going on in their state colleges in the 49th annual Farm and Home Week. This year, Farm and Home Week will be three days long—March 22, 23, and 24—instead of the usual five, and the entire schedule has been streamlined, centralized, and co-ordinated into the theme "The Challenge of Change."
“Something for everyone” in all fields covered by the Colleges of Agriculture, Home Economics, and Veterinary Medicine will be on the program. For the first time, there will be separate programs for adults and young people of high school age. A schedule avoiding conflicts of interest is another innovation.

To conserve walking time and space, most of the exhibits will be in Mann Library or the Livestock Judging Pavilion. In Mann, intriguing exhibits dealing with “The Challenge of Change” will include: “Atomic Energy in Agriculture;” “A Thousand and One Cornell Publications;” “Water for Good or Evil;” “Exploitation of Inner Space” (oceanography); “The Life Story of a Chick” (a huge incubator showing eggs cut open at stages in the chick’s life cycle until he comes out of the egg), plus many others. The Judging Pavilion will have several interesting exhibits including live animals, and new machinery for grape and bean harvesting.

500-Cow Dairy Barn

The exhibit “Dairying in 1970” will be in a plastic balloon-like structure that has no rigid support. The agricultural engineering department will construct this between Wing Hall and Riley-Robb. Inside you’ll see the “Pentiary,” a model of a future 500-cow dairy system with mechanized cleaning and feeding, new forage harvesting equipment, and other items of vital interest to the modern dairyman.

President Malott and Dean Palm, Dean Canoyer and Dean Poppelseick will open Farm and Home Week with a symposium on the topic “Looking to the Future of State Colleges and Challenges Facing Higher Education in Future Years” at the Alice Statler Auditorium Tuesday, March 22, at 10 a.m. Following this the key speaker, Dr. Earl L. Butz, Dean of Agriculture at Purdue and former assistant Secretary of Agriculture, will speak on “Research: Gateway to the Future.”

In the afternoon there will be a symposium on “Protecting Food Supplies from Radioactive Materials, Pesticides, and Antibiotic Residues.” Arnot Forest and the Ornithology Lab at Sapsucker Woods will start their three-day open houses, and guided tours of the Veterinary College will be given.


All of these events are open to everyone, so students may hear and see something of interest to them during their dead hours.

Speeches and Songs

Tuesday night’s schedule will feature the Rice Debate at Warren 45 and the Amherst College and Cornell University’s Women’s Glee Club Concert at Alice Statler. The topic of the debate is: “Resolved: that strikes detrimental to the public welfare should be subjected to compulsory arbitration.” Competing for the $100 top prize are Alfred D. Bruce ‘61, William F. O’Connor ’60, Judith A. Reamer ’61, and
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WANTED
There will be a short meeting for all those interested in working with the Cornell Countryman in the departments of Business, Art, Photography, Editorial, or Advertising on Wednesday, February 17 at 4:45 at 490 Roberts Hall.

“We give Student Practice Credits”

Hugh Smith ’60 — alternates are Lawrence Dries ’60, and Robert Lincoln ’61.

New York State is faced with a problem of water shortage in farm and city—the major emphasis on Wednesday will be Water Resources. Some highlights of that day’s agenda are speeches by State Senator Frank E. VanLare, Chairman of the N.Y.S. Temporary Commission of Water Research and Planning, and Dr. Mark Holis, Assistant Surgeon General and Chief Engineer of Public Welfare in Washington, D.C., a symposium on water resources, and a presentation on precise weather forecasting for N.Y.S. Agriculture, “Man’s Search for the Elixer of Life,” “The Influence of Machines on Furniture Design,” and “Retirement: Triumph or Tragedy” will be among the many diverse topics presented by the Home Economics College.

President and Mrs. Malott will hold an open reception for Mrs. Nelson A. Rockefeller in the Andrew Dickson White Museum from 3 to 5 p.m. The student livestock show will go on in the Judging Pavilion from 1 to 10 p.m. Another speaking contest, the Eastman Stage, will be held Wednesday night. Participants are Sidney C. Cleveland ’60, Stuart F. Crandall ’60, Irwin Finkel ’61, William O’Connor ’60, Ronald Pederson ’61, Edward Race ’61, and Jean Slomsky ’60, alternate.

Marketing of agricultural products will be emphasized on Thursday. Featured, along with repeats of Tuesday’s and Wednesday’s schedule, are speeches on agricultural marketing by Dean R. K. Fraker of the Agriculture College of the University of Wisconsin, Dr. Harry Trelogan, U.S.D.A., Paul Cupp, President of American Stores, Stanley Benham, President of the Dairyman’s League, Kenneth Geyer, Manager of the Connecticut Milk Producers’ Association, and several Cornell professors. A special program will be given by the Veterinary College at 2. Dean Canoye will speak on “The Homemaker and Her Marketing” and among the presentations by the Home Ec. College will be “The Science of Refrigerating Food Prepared in Large Quantities” and “The Changing Parent.”

During these three days, the three sponsoring colleges expect to have 10,000 visitors who will catch just glimpses of what’s ahead in the worlds of agriculture, home economics and veterinary medicine.

Cornell Countryman
Because of out-dated farming methods, many countries can not produce enough food to feed their rapidly growing populations.

Too Many People

Overpopulation and low food supply is rapidly becoming the world’s foremost problem. Here is the reason why Uncle Sam’s surpluses aren’t likely to solve the problem.

by Jane E. Brody ’62

Each year the United States produces a large food surplus. People in democratic countries throughout the world are starving. Why don’t we feed them? Why are we waiting for these countries to become so desperate that their people will turn to Communism in hopes for relief?

There is much more to feeding the world with U.S. surplus than meets the eye. The one obvious problem—that of disrupting the economy of exporting nations—is but a minor issue. The countries in need of support do not have very much of an export-import industry.

However, two more subtle factors are the main blocks to an international aid plan. First—taxes. The U.S. taxpayer is already paying a million dollars a day to store surplus food. To ship this food across an ocean would cost considerably more. U.S. taxes are high now the people are not willing to pay much more. It is very unlikely that any bill involving an increased tax rate—as one concerned with shipping food surplus would be—would ever get through Congress.

Sporadic Aid Is No Help

And then, should such a foreign aid program be instituted, how would it be received by the countries for which it was created? The governments in need of help are hesitant to accept it. They have no assurance that the United States would give continued support. Once-starving people who receive food one year are not likely to go back to starvation the next without a great deal of dissention and possible revolt against the government. It is also true that U.S. surplus varies in kind as well as amount. One year it may be in wheat—a product much-needed by a given country, but in another it could be a grain which this country already produces in sufficient quantities.

But even if the U.S. supplied the needed food to the world—even if the world accepted this support, the problem would not only remain unresolved but it would grow to fantastic proportions. Feeding the population encourages its growth. Disease, famine, and war, the one-time checks on population growth, have essentially been eliminated. The result—the world’s population is expanding by leaps and bounds. In some 700 years there will be no more than one square foot of land for each person to stand upon.

Forecast: 800 Million Indians

But the problem is more immediate than that. People throughout the world are starving and homeless because of overgrown populations. There is no better example than India, a nation one-third the size of the United States. Yet there are more than twice as many Indians as there are Americans. And at its present rate of growth, the Indian population is expected to double from 400 million to 800 million in one generation’s
time unless some means is employed to control the birth rate.

Only one-fourth of the present population has adequate housing facilities; the rest sleep on the streets and bathe at fire hydrants. The average Indian eats two meals a day but a large number eat only four times a week. Iliteracy is widespread, with less than one-fourth of the children going beyond the 8th grade. The rest seek jobs which simply do not exist. And so, the child who was received by his parents as "a gift of God" becomes an additional burden upon the one or two wage-earners of a family of eight or more.

Raising the standard of living involves raising the literacy level, introducing modern agricultural methods, and building up industry, all time-consuming accomplishments, because 20th century methods crash headlong into traditions, contradicting many religious beliefs and disrupting the entire social and cultural order. By the time these advances are made, the tremendous growth of the population will have recreated the original problem.

Birth Control

And so, we return once again to the issue of halting the rapid population ascent. What can 20th century man do?-Birth control! But this is no overnight cure either. Many difficulties are encountered in introducing birth control into a country like India. Methods presently available are far too expensive and too complicated for the average uneducated Indian to comprehend. Instruction on the use of contraceptive devices must be done on an individual and personal basis. It is not as if a large group of people could be instructed at one time in a hospital.

The "patient" is unlikely to come asking for assistance; rather, the instructor in "family planning"—as the program is called—must go from family to family relating information and giving advice. And even then, many who can understand and afford to practice contraception do not do so because of lack of privacy and contradiction with religious beliefs. Many of these obstacles will be eliminated with the advent of a pill-like contraceptive; its use is less complicated and does not require privacy. It can be distributed widely at a lower cost, especially if the government takes over its manufacture and distribution. This pill is still a long way from perfection, but it is conceivable that if it is developed and its use widely instituted before too long, it could save the governments and economies of a large number of the countries of the world.
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more milk in 1958 than their already excellent record for 1957. Extra return over feed cost was $49.20 per cow. A recent summary of 23 herds on D.H.I.A. last year, using the Beacon Program, shows increased milk production of 856 lbs. per cow. 14 of these herds had been on the Beacon program two full years. Their increase per cow for the two-year period was 1718 lbs. of milk, and $43.28 additional income over feed cost.

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March, 1960
From the President's Desk

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Dr. Steward's Pampered Plant Cells

Buy Chicks by Test

Campus Flowers I Have Known

Careers for Women Only

Scientific Agriculture, 1970

Outlook for the Decade

Dairying

Marketing

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Conservation

Plant Pathology

Weather

Engineering

Dairy Manufacturing

Animal Nutrition

Water

Forage Crops

Spices

Radioactivity in our Food

Regeneration in Frogs, Salamanders and Humans

Cover—Research is the theme of Farm and Home Week. This month's cover symbolizes the continuous research that is going on at Cornell, year after year. For a glimpse of the many kinds of research that are going on, turn to page 21 "Scientific Agriculture, 1970." Cover artist: Louise H. Burmeister, '60.

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CHAINS AND SPROCKETS

March, 1960
The Rewards of Research

Farm and Home Week gives many people—the visiting public, students and the faculty—a chance to get a glimpse of the incredible scope of activities carried on in the Colleges of Agriculture and Home Economics. When you are caught in your daily routine of classes, studying and coffee breaks there is a tendency to forget why Cornell has such a prominent national and international reputation. The displays and lectures of Farm and Home Week give a compressed idea of the activity that goes on the year around at Cornell.

But no display can give the entire picture of the unending scientific investigation at Cornell. Research is a singularly unglamorous occupation. Few of the discoveries and advances made at Cornell were accidents. They are the result of careful planning, carefully controlled experiments and painstaking, time-consuming analysis.

Some of the most important experimental work in hybrid corn was done in a dusty little hollow in back of Fernow Hall. This hollow is now known as the Emerson Garden, after R. A. Emerson who played a major part in developing the world’s hybrid corn.

Corn is still grown and bred in the Emerson Garden. Drop by in the summer if you want to see what research is really like. Each corn plant is neatly capped with a brown paper bag. Half-way through the season the bags are bleached white from the hot summer sun. Even when there is a breeze, it is sweltering between the rows from the heat and the transpiration. But, every day the researcher and his graduate assistants move through the rows, transferring the paper bags from the tassels to the ears. After a while you get used to breathing pollen all day long.

At the end of the summer, the work isn’t over. The seed has to be removed from the ears, it has to be dried, it has to be classified and labeled so that it can be planted again next year.

Eventually, you get what you have been looking for—a variety that has strong stalks, high yield and is disease resistant. The variety gets printed up in Cornell Recommends, the farmers like it and plant it heavily. Your work has paid off.

The next year a new corn smut invades New York and begins to destroy the corn crop. You go back to the experimental plots and start over again.

The scene is not always the experimental plots. Sometimes it is the lab, or the barn, or the greenhouse. You are working with protozoa, or cattle, or hormones. But the cycle is similar—long hours of hard work and then the occasional reward of knowing that you are making nature just a little bit less mysterious.

The March issue is the last one for this writer. This is my public thanks to the staff-members for the time and effort they’ve put into the magazine.

Ed Razinsky, ’61 and Al Burg ’63 have just been elected Editor-in-Chief and Business Manager, respectively. My best wishes for success go to them as the Countryman begins its 57th year of continuous publication.
Zilch Stays, 
The Rest Go

ZILCH again this year, notes with pleasure the advent of Cornell's very own Farm and Home Week. He is enthralled with the prospect of having so many people descend on this fair campus and, perchance, read these humble words on the pages of the Countryman.

This time of year also marks a milestone for many of the champions of the written word who unselfishly contribute both time and talent to the Countryman. This milestone comes in the form of staff elections, and with these elections our ranks are broken and/or reorganized.

Traditionally, the Editor-in-Chief writes a last will and testament as his editorial, in which he leaves various items to out-going staff, friends, and well-wishers. Since the present editor has taken it upon himself to brazenly and wantonly stray from custom, Zilch feels that it is his duty to shoulder this responsibility and carry on this noble gesture. Herein will follow the Zilch version of the time-honored testament. To the Editor-in-Chief: (most high and sainted) To him goes the Agriculture and Home Economics Inter-College Public Relations Award given to the student most likely to be knifed in Martha Van. To him also goes a Sears, Roebuck gift certificate for one pair of $4.95 sneakers.

Business Manager: A copy of the text, "How to Make Small Advertisers Into Big Spenders." It has been suggested that this personage lacks certain facial features which may be considered pleasant to the human eye. To help him overcome this deficiency, Zilch gives him a five pound glob of modeling clay and the book, "Plastic Surgery for the Micro-cephalic."

Managing Editor: To him, Zilch's rules for calculated copy fitting, the Certificate of Merit from the National Rubber Cement Institute, and the extension bulletin called, "Rabbit Care and Handling."

Associate Editors: For her—the bent pica stick and the remainder of the cropping wheel. For him: the names and addresses of the roommates of all the girls on the staff.

Photo Editor: Formal and informal poses of all the professors in the Ag School. It is hard for him to take good pictures because his camera is so small. He can't get a bigger camera because his VW wouldn't hold it.

Home Ec. Editor: To her, an appointment with all the Home Ec. professors and their promise to disclose all, withhold nothing.

Board of Directors: Ah, sweet symbols of stability! For them, a clause in the constitution which limits their term in office to no more than 20 years.

To the Countryman Staff: Zilch says to you that, if elected to the office of Editor-in-chief, he will give by-lines to the business staff, and article payment to the writers!

Vis Aids people: In honor of your leader; one pocket knife, an Alnico 5 magnet, four pieces of Alphacite chalk (should be a life-time supply), and 72 pounds of warm Glycowax.

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From the President's Desk

On behalf of Cornell University I welcome you to the campus; we are happy to have you with us for the annual observance of Farm and Home Week.

Your colleges at Cornell, the New York State Colleges of Agriculture, Home Economics, and Veterinary Medicine, plan this diverse program each year to aid you in your goal — improving your farms and homes — so that you can serve better the ever growing population of our country and the world. In a sense we have a common goal. Whatever you learn here, whatever ideas for improvement you take home with you, benefit us all.

Through the lectures, exhibits and events planned for you during this period, you can share in the discoveries made here and in the current research being conducted by Cornell University for you.

We hope you participate fully in the program, profit from it and come back again soon. You are always most welcome.

Deane W. Malott
President, Cornell University
Forty Years Ago ...

... a new farm organization bearing the cumbersome name of Cooperative Grange League Federation Exchange set out to implement the recommendations of the Cornell College of Agriculture.

Working with Cornell specialists, G.L.F. (as is was to be more familiarly known) was able to turn those recommendations into reality, making available to New York State farmers such innovations as open formula feeds and fertilizers, and known-origin seeds adapted to rigorous Northeast weather.

From a handful of farm leaders and an idea, G.L.F. has grown in four decades into a 118,000-member farmers' cooperative serving New York, New Jersey and northern Pennsylvania.

Much of the inspiration for G.L.F.'s founding came from agricultural pioneers at Cornell. Their work and the work of their successors have contributed greatly to the success and growth of G.L.F.

On this, our Fortieth Anniversary, we look forward to the next forty years of cooperation between our two institutions, in the interests of a more prosperous agriculture.

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March, 1960
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Charles E. Palm,
Dean,
College of Agriculture

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We're Happy

WELCOME to the new Farm and Home Week!

We have streamlined the agricultural part of this 49th annual event. In compressing the former five days into three, we hope you will find the 1960 program with its theme, "The Challenge of Change," not only more compact and better coordinated, but also an easier one to select and attend the many events of your choice. This includes not only the lectures but the centralized exhibits and demonstrations as well. For the first time, the rural youth will have a program of their own.

Although Farm and Home Week has a "new look," basically it has the same purpose of helping the people of New York State to live better now and to plan for the future. In this big "open house," our scientists open up their laboratories and present new research.

This year, in particular, we are taking a look into the future of agriculture. What will dairying be like in 1970? What changes can farmers expect in marketing milk, poultry, fruits and vegetables, and other products? How will the population explosion affect agricultural markets and education? What can research do to help solve the problems of contamination in food supplies? What are the opportunities for young people in agricultural science? What will America and the world of 10 to 20 years hence be like? Scores of other important topics may be of special interest to you.

Farm and Home Week is one of the functions of the College of Agriculture designed to serve all the people of the State, including farmers, their organizations, city and suburban people, industries allied with agriculture, and others who depend directly or indirectly upon agriculture. It's a good time and place to study the present and to peer into the future. We're happy to have you as our guest, and we hope you find your visit a very profitable and enjoyable experience.

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CHANGE is our way of life. However, during the past decade economic and social changes have come more quickly than ever before. In the 1960's, we can expect even more rapid and striking changes which will affect everything we do and think.

Change is a challenge, and this year's Farm and Home Week program is designed to help families gain insight into today's and tomorrow's changes and adjust to them. The staff of the College of Home Economics welcomes this opportunity to share information and exchange ideas with you. Each department offers the resources of its faculty and laboratories to help homemakers and their families understand rapidly changing conditions and make the increasingly complex choices that lie ahead.

You will have a chance to hear and think about what's happening now and what's just around the corner. As well as hearing results of research, you may see some of the research methods used to explore the unknown. You may widen your horizon by attending regular class sessions and hearing illustrated reports of recent travel in other countries.

You will get new ideas, gather facts, weigh alternatives, learn about new products and the skills required to handle these products satisfactorily. All this can help you as you perform your many roles—as informed citizens, community leaders, family members, and consumers. It's up to you to make the most of your visit.
A researcher replaces a flask filled with coconut milk and growing carrot cells.

Dr. Steward's Pampered Plant Cells

Botanist F. C. Steward is studying unusual growth substances which cause a single carrot cell to develop into an entire plant. The National Cancer Institute is interested in his results.

Dr. F. C. Steward of Cornell's department of botany has been able to stimulate a single, mature cell of a carrot so that it reproduces a new, fully-developed plant. This unusual proliferation of cells, which occurs rapidly and irregularly, is stimulated by growth factors contained in coconut milk.

The wild, erratic growth of these carrot cells is similar to what occurs in animals when certain cells suddenly deviate from their normal growth pattern and go haywire, producing cancerous tissue. Its direct relation to cancer, about which scientists know so little at present, is evidenced by the fact that the National Cancer Institute is supporting the research.

The mature, non-dividing cells of carrot root-phloem have been used most extensively in these experiments. Two milligram plugs of this tissue are removed from the carrot aseptically and placed in large round flasks which have nipples blown symmetrically about their circumference.

A base medium, and coconut milk extract are added to the flasks. The base medium allows some growth by cell enlargement. The coconut milk encourages fast growth of the tissue. The researcher then places them sideways on a large disk which rotates at a constant rate of 1 rpm. As the disk revolves, each nipple containing the explanted tissue is first submerged in the growth medium and then exposed to air. The entire experiment is carried out under controlled conditions of light and temperature.

In this system, the 2 mg. explants grow rapidly and uniformly, increasing in weight to as much as 10 mg. in about 28 days. It appears that the coconut milk contains substances, distinct from any known vitamins or growth regulators, which are capable of stimulating cell division.

Free Floating Cells

Although the original 2 mg. plug
consists of many cells, the liquid medium in the flask contains many free-floating single cells which apparently break loose from the plug. Microscopic observation has revealed that these cells are alive and undergoing cell division. The free cells are then transferred to a new flask in which they grow freely, dividing to yield a multicellular mass.

4-Way Growth

Cells isolated from potato tuber and peanut cotyledon as well as from carrot phloem exhibit this accelerated growth which occurs in four different ways: 1) proliferation of an isodiametric 'mother' cell and colony formation by successive divisions, 2) internal divisions and formation of a moruloid mass within the confines of the original cell wall, 3) extrusion of tube-like or filamentous processes and formation of multicellular filaments, and 4) extrusion of small papillae or buds which enlarge into full grown cells."

It is not long before the resulting cell-aggregates, which strongly resemble embryo plants, commence to form root-like structures. When placed on a semisoloid agar medium, the culture at this stage will develop a shoot, and then may produce a carrot storage root. And this completes the cycle from carrot root-phloem, to free cell, to carrot root, to carrot plant!

But this is far from the end of the story. What constituent of coconut milk stimulates the growth of cells which do not respond to "a number of commonly used nutrient extracts or plant-growth stimulants?" The active components of the coconut milk are separated by fractionation. Fractionation takes advantage of differences in the distribution ratios of substances in two immiscible liquids. Very similar substances can be separated by successive fractioning.

Fractions containing isolated or partially isolated substances must then be tested individually to see if they will incite cell growth. The coconut milk, which is really the liquid endosperm that nourishes the coconut embryo, has been found to contain not one but several active growth-promoting substances, at least three of which have been isolated in the form of recrystallized substances. No one of these substances has thus far been tested has been able to stimulate growth. Instead, a combination of two or more of these active components appears necessary to produce this unusual activity.

**Scientific Implications**

This experiment lends insight into many problems of the biochemical world. It can be viewed as an extensive study of cell division as a process essential to life. It is also an attempt to understand better the metabolism of growing tissue. It may reveal those substances present in the endosperm which are responsible for stimulating the rapid growth of an embryo plant.

It hints at the possibility of identifying and perhaps even synthesizing the substances which regulate cell division at least in plants. These substances may be found to have use in agriculture as herbicides or growth regulators.

But, as an ultimate goal, it is hoped that this work, which has been in progress now for several years, will eventually shed some light upon what is responsible for the sudden, uncontrollable growth of cancerous tissue.

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By Monroe C. Babcock

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You are invited...

... to visit us at Babcock Poultry Farm during Cornell Farm and Home Week, March 22-24. We are located on Route 96, six miles northwest of Ithaca. It will help if you call before you come so we can have some one on hand to show you around.
Random sample egg laying tests can be an important tool for the nation's poultrymen. Here's how they work and how to use them as chick buying guides.

by Edward L. Razinsky '61

Dr. Marble suggests several points to consider when using random sample egg laying tests as chick-buying guides.

1. Don't just look at one test. See how the birds did in other tests in the country.
2. One year's results are not enough. If a breed does well consistently, year after year, in all tests, it will probably do well on your farm.
3. Environment is important. Some strains perform well under some conditions but poorly under others. Make sure you compare the testing conditions with those on your farm before you decide.
4. Are the traits money-makers? It's nice to be number 1, but it's better to be number 1 for a trait that will mean profit for the producer. (Egg production, livability and feed efficiency are most important.)
5. Consider the ranking for traits that are important to you. If you must sell extra large eggs for the same price as large, a high test score for percent extra large doesn't mean more profit for you.
6. The test are a comparison—not a prediction. The results show that X did better than Y, but NOT by how much.
7. Check the publications of each test to judge differences. Each test is different in some way—and this affects the value of the results. Know the test to judge the results.
8. Study the overall test results. The Council of American Official Poultry Tests publishes an annual bulletin which lists, by name, all the breeds in all the tests and how they did.

A few years before the U.S. sank into the Great Depression of the
1930's, a change in poultry testing was made in the Netherlands. In these tests, larger numbers of entries from each breeder were picked at random and all the birds in the test were raised in one place. This led the way for the modern random sample tests of today.

Sunny California held the first of the modern random sample tests in the late 1940's. There are 14 random sample tests in operation in the U.S. today but, basically, their procedure is the same.

Any qualified breeder may enter his birds in any or all of the tests throughout the country by sending in his application and fee.

At a specified time the test supervisor or his representative (often the local county agent) goes to the breeders' farms to select hatching eggs for the test. They pick eggs, at random, from the incubator trays, cases of eggs on hand or the nests. (Dr. Marble does this for the Western and Central NYS tests.)

All the eggs from all the breeders in each test are hatched in the same way and at the same time. Of the chicks that hatch, 50-100 pullets are kept as the test flock.

Birds from the individual breeders are intermingled during brooding and rearing and are kept in identical conditions. The test runs until the birds are 500 days old and no culling may be done during the test.

Birds from each breeder are identified and records kept for the economically important traits. At the end of the test period, the results are figured out and each entry is given a score for each trait.

Because the difference between the top and bottom scores is often small, reports Dr. Marble, and because so many factors influence birds' performance, it wouldn't be fair or meaningful to call any one entry "number 1." For these reasons, entries are listed according to the score for each trait and the list is divided into quarters. In this way, no breed is "number 1," but only in the first quarter, or quartile. For comparison, all the birds in any quartile are considered equal.

Dr. Marble points out that the test results cannot be used to predict how many eggs a breed of chickens will lay. They only show if the breed did better, worse, or the same as the other entries in the test.

Random sample test results can be used as a good guide to buying chicks, concludes Dr. Marble, if they are taken for what they are worth—no more and no less.

---

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Campus Flowers
I Have Known

by Robert B. Gambino ’61

WEEDS parties, picnics, gummies, bermuda shorts, field trips, and at last, sunlight are some of the signs many of us associate with spring at Cornell University.

During the month of April, we will see many other indications that warmer days are on their way. To some, the presence of robins and chipmunks indicate the coming of spring. To others, the real precursor of spring is the rejuvenation of plant growth.

All over campus and the surrounding countryside, leaf and flower buds will begin growth by bursting their inclosing scales. Perennial plants and bulbs, too, will poke their green shoots through the half thawed Ithaca soil.

Probably, the first spring color will be noted on the corner of Tower Road and East Avenue. The slope of lawn from the Andrew D. White Museum has been planted with cROCUS.

What could be more refreshing than seeing splashes of purple or yellow on a green background after a visit with the Dean of Men (or Women)?

Before the crocus blooms, however, many other plants show their courage by flowering through the wet March snows. The first of these, Helleborus, flowers as early as January or February, and is found in the courts of Plant Science Building. Also in these courts and along Tower Road between the two campuses, the Winter Aconite and Snowdrop can be found blooming together. Both are less than three inches in height. The Winter Aconite has yellow flowers while the Snowdrop blossom is white.

As the season proceeds into April the Siberian Squill, Grape Hyacinth and Trout Lily make their appearance in many of the campus gardens. (The Trout Lily can also be found growing wild all around Beebe Lake.) One may occasionally find the Glory of the Snow which is similar to the Siberian Squill. Another interesting spring flowering bulb is the Star of Bethlehem. Its flowers are star shaped and white with green stripes.

A trip up Tower Road bordering the White Museum, during the first part of April (preferably at 7:30 in the morning) will be well remembered. Anyone with an appreciation for beauty of a different sort will never forget the swaying of the Narcissus against the light green background of newly leaved trees set in the pink glow of an Ithaca sunrise.

Many varieties of tulips may be found in the campus gardens. The best display of the common types (Darwins, Breeders, and Cottage) can be found in an area most of us associate only with alumni and Homecoming—the Big Red Barn. On one side of the Barn and behind the Andrew D. White Museum are tulip beds. This garden is also planted to summer annuals, presenting a beautiful picture of floral color to visitors and returning graduates all season long.

To one side of the tulips is a formal garden, the Secret Garden, planted mainly to white flowers. White tulips are used exclusively and combine well with the light blue blossoms of the Periwinkle.

When you leave the tulip beds and continue east toward the Upper Campus you will descend a few timber and grass steps and find yourself in an area comprised of many ericaceous plants. The plant that will be in bloom during the fore part of April is the Korean Rhododendron. It is the first northern Azalea to flower, the purple flowers appearing before the leaves. The plantings here provide an interesting opportunity to observe sequence of bloom and subtle combinations of colors.

The LuA Minns Garden on the corner of Tower Road and Garden Avenue will probably provide its usual colorful spring display of perennials. However, it will end before it really begins, since the garden is to be moved to a new and better location in front of Plant Science Building.

Throughout the Cornell campus there will be found an abundance of trees and shrubs that indicate the coming of spring. The yellow flowers of the Carmelian Cherry, the red flowers of the Red Maple, the gold of the Forsythia and the purple of the Daphne can be found with little difficulty if one is observant. During late April some of the Magnolias and Japanese Cher-
Now that you're here in Ithaca remember Home and Her. How she would love a ring for her hand. You will win her heart! At Hill's we also have watches, bracelets, earrings and pins.

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ries will show their color. They are followed closely by the dainty white flowers of the Shadbush and the rose-salmon blooms of the Flowering Quince.

Following Wee Stinky Creek from Sage Hall through its course between Willard Straight Hall and the Medical Clinic one will find another area that abounds with spring color from late April through the summer. This is the Rock Garden.

This is one of the most diversly planted rock gardens in the area. The small white flowers of Arabis and the purple of the Aubrieta are found profusely covering the outcropped rocks. Golden color from Basket of Gold Alyssum can be found in the background. Dutchman's Breeches and Bleedinghearts have been planted in the lower part of the garden to add to the spectacle of the many varieties of Primrose that are interspersed within the area. An occasional English Daisy and Pasque Flower may also be discovered along the banks of the fragrant brook. Brunnera (looks like an overgrown Forget-me-not) has run hog-wild in the lower reaches, while the shaded lower corner is covered with Lungwort. Violets too will be in flower as the season progresses, spreading their perfumed scent all along Wee Stinky Creek. Many other rock garden plants will bloom throughout the season and add to the effect of this garden.

So grab your gummies and best date and take a stroll through the campus some balmy April day and try to find the location of the only Trillium on the Upper Campus. Remember, look—don't pick!
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These leaders in animal and dairy husbandry imbued us with certain everlasting fundamentals. Today we still rely for guidance on the professors in the dairy departments of these same colleges of agriculture.

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MARCH, 1960 17
O n the bulletin board of the high school sewing room hangs a step by step picture description of how to put a zipper in a dress. These charts and many similar ones were received by a grateful teacher from an industrial firm.

The College of Home Economics at Cornell turns out many fine educators, but they are not all teaching in the schools of the country. Many companies are setting up educational departments which hire home economists to experiment and write material which will be helpful to the public.

The purpose is two-fold. First, product promotion leads companies to seek ways to present their goals without actually advertising them. Good will is also fostered. Miss Rajean M. Codish, director of Talon Company's Educational Services explains that a child who learns to enjoy sewing and becomes successful at it is a consumer of zippers, thread, snaps, buttons, etc. for a lifetime.

Jobs in this field are many and varied. Field representatives travel all over the country visiting schools, stores, distributors, and adult groups. Simplicity Pattern Company sends out both store and school fashion shows accompanied by a representative. The representative sets up the show, fits dresses to models, moderates, and then moves on to another area.

The home offices of the education departments have advisory committees made up of about six leading educators. The National Dairy Council consists of high school teachers, a head of foods in a college and a health specialist. These people check the general program and material being issued by the department to see if it fulfills education's needs and is understandable.

Research laboratories are also maintained by these companies in connection with the education departments. General Foods maintains extensive laboratories where every idea thought up, every product, and every customer complaint is tested. Talon Zipper Company and Coats and Clark Company maintain sewing rooms where ideas for new and better uses of their products are born and tested.

Opportunities for home economists in this field are enormous. Many top positions require experience, but getting it can be as exciting as reaching the top.

Mrs. Wood of the Home Economics College placement office recommends magazine and newspaper work for an inestimable amount of experience for the girl who can be creative with words. Hired as a "girl Friday" or copy writer, a college graduate learns how to put fresh ideas across to her boss, the editor, and the public. Many a Cornell graduate has found a job on one of the Fairchild Publications (Woman's Wear Daily, Home Furnishings Daily), gone on to a fashion magazine, and then into promotion.

Research work in any field, explained Mrs. Wood, provides background for advancement in industrial education. Here a graduate learns to follow through the ideas of others, come up with some of her own, and produce them in workable, practical form.

Both Miss Codish of Talon and Miss Mary Gerard of Simplicity Pattern Company emphasize that experience in retailing or teaching is essential for anyone interested in being a field representative. A person traveling alone and making
contacts for a company needs to
know the problems of the sales
clerk and the teacher. This know-
ledge can only be gotten by hold-
ing their job for a while.

The field representative also
needs the maturity and presence of
mind to be able to cope with the
numerous and unusual problems
that arise. When one has the know-
ledge and maturity necessary, the
job is a fascinating and rewarding
one.

Retailing can also lead to other
promotion jobs. One Cornell grad-
uate who began as a saleswoman at
Shumakers' wholesale house has
been promotion director for the
manufacturers of Pellon for four
years.

Entries into magazine and TC
work are presented by secretarial
jobs. The placement office in the
Home Ec. College gets many re-
quests for students as secretaries
and has histories of students who
advanced directly into the promo-
tion field from these jobs.

Many college graduates are hired
to answer correspondence. Cus-
tomer letters pour into these de-
partments at a fast rate. Each is an-
swered as quickly and well as pos-
sible. Efficiency, correctness, and
originality shown in answering con-
tumer letters can be recognized and
lead to higher and better things.

Sorcia Brodsky, now involved
with fashion and fabrics at Corti-
celli-Blending Company, was as-
signed to write a history of the
company when she first came there.
She traced the company back to its
beginnings, finding connections
with many small thread manufac-
turing firms, the origin of the kitten
tangled in thread symbol, and
many other interesting facts. This
original push plus subsequent jobs
well done helped her achieve her
present position.

The educational material issued
by food companies, co-operatives
(like the National Dairy Council),
equipment companies, textile find-
ing companies, and home furnish-
ings companies is aimed at the pub-
lic in general. Pamphlets, charts,
and instructions are written for
schools, extension groups, house-
wives, shoppers, experienced and
inexperienced cooks, and home
sewers.

Company findings produce much
helpful material for school sew-
ing laboratories. Coats and Clark
Company, for instance, publishes
an eight page leaflet called "Stitch
In Time." Each issue covers a dif-
f erent area of sewing as fully as
possible. Such subjects as hems,
grain, facings, and sewing with
wash and wear fabrics have been
recently covered.

J. H. Thorp Company, producers
of upholstery and drapery fabrics,
put out a booklet for home deco-
ratos on "The Interior Decorator
and You."

Utility companies not only show
homemakers how to use their
equipment but are helpful in plan-
ning efficient household work areas.
Meal plans for both over and
under weight people, and for good
health are available for both home
and school use.

The job of getting a company's
product before the public eye may
be called publicity, promotion or
education. No matter what the title,
it has created a need for home
economists and provides many dy-
namic jobs for Cornell graduates.

Home Economist Audrey Jones '57 demonstrates a technique for Jacky Grimes
and Mary Ann Roda, Helen Thackery, Manager of General Foods Test Kitchens,
makes an additional point.

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MARCH, 1960
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SAVINGS BANK BUILDING
Ithaca, New York
Scientific Agriculture, 1970

Agriculture is moving ahead at a tremendous rate. This progress is coming in every area of agricultural endeavor. The Countryman asked 11 College of Agriculture professors to predict the advances that will take place in their fields by 1970. The next 14 pages contain their thoughts. To lead off this special section, we have asked Farm and Home Week’s keynote speaker, Dr. Earl L. Butz, Dean of Agriculture, Purdue University, to give us an overall outlook for agriculture in 1970.—Ed.

Outlook for the Decade

“A strong and growing agriculture”

Earl L. Butz, Dean of Agr., Purdue University

The rapid change which characterized agriculture in the 1950’s will continue unabated through the 1960’s. Farmers will use more capital per worker, more machinery, larger and more economical power units, less cultivation and more chemical weed and insect controls.

One worker on farms now feeds and clothes himself and 25 others. This ratio has trebled in the last generation. By 1970 fewer workers on our farms than now will be feeding 215 million Americans—37 million more than now. One farm worker will feed and cloth about 40 other people—better than ever before in history. When Mr. Khrushchev sees that, he may modify his oft-repeated boast about the Russian farmer out-territing the American farmer in per capita production of meat, milk, and eggs.

Only about 8 percent of our total population will be members of farm families in 1970. This contrasts with 11 percent now, and over 25 percent a generation ago. By 1970, we’ll have a fifth fewer farms than now, just as we now have about one fifth fewer than 10 years ago.

This decline in number of farms does not mean that agriculture is falling apart. Nothing is more erroneous than to think of agriculture as a declining industry. American agriculture is an expanding industry in every important respect except one—the number of people required to run our farms. Only in this single respect can it be said that agriculture is a “declining industry.”

During each year of the 1960’s, our agricultural plant will use more capital, more science and technology, more managerial capacity, more purchased production inputs, more specialized marketing facilities, and more research than the year before. It is obvious, therefore, that those writers and analysts who refer to agriculture as a “declining industry” look only at a single phase of this growing and important American industry.

We don’t think of air transportation as a declining industry just because a pilot in a jet airliner can now take 100 passengers from coast to coast in half a day as compared with 20 passengers in a day and a half two decades ago. This, like agriculture, is a strong and growing industry.

The next decade will witness a tremendous upsurge in efficiency of producing meat and milk. Changes here will be comparable with those in the broiler industry in the 1950’s. Before 1970, science will have moved into the pig pen, the beef lot, and the milk parlor in a big way. We’ll be making a pound of lean pork with less than three pounds of feed in contrast with five or six today, a pound of good quality beef (without the four ounces of excess fat to be discarded) with one fourth less feed than today, and a gallon of milk with much less feed. This will result in lower costs, and consequently relatively greater bargains for Mrs. Consumer at the meat counter or dairy bar.

This means a pronounced shift toward animal agriculture by 1970. Per capita consumption of livestock products will increase markedly, while per capita consumption of crops, especially cereal grains and starchy foods, will decline. This shift in our eating habits will move substantially toward solution of our chronic feed grain surplus. And, equally important, all America will live happier and healthier lives because of the improved diets made possible by the scientific breakthrough in livestock production.

By 1970, the unduly long hours of farm toil and drudgery will be only a conversation topic among the old-timers. We’ll use a fourth fewer man hours of labor for farm work to produce a fourth more output. Family farms will be larger with much more capital—busi family farms. It will not be uncommon for a good family farmer to operate a unit of 400 to 600 acres, with a quarter million dollars invested in his business. In such cases, one hundred thousand dollars or more will represent working capital, such as machinery, livestock, feed inventory, and current supplies. An increasing share of this capital will come from off-farm sources, either from specialized credit agencies or from farm suppliers through some contractual arrangement. This does not mean that the individual farmer will lose his independence through integration. Instead, it means that he will enlarge his earning potential by increasing his volume through the use of outside capital and planned coordination of his farm production with the processing and selling phases of the total food and fiber industry.

Many production practices of 1970 will bear little relation to those of 1960. The relentless march of science will revolutionize agriculture. Crop cultivation will have
been rendered obsolete by pre-emergence weed control. Highly effective herbicides and pesticides will do the rest. One operation seedbed preparation and planting will be the rule. Larger power units will permit one farm worker to cover far more acres than today. The type of power itself will change as we move into the Nuclear Age. Before 1970 you may be able to purchase a nuclear farm tractor with enough fuel locked in it to last until the bearings wear out.

Chore time labor in 1970 will be reduced by a third as building rearrangement and automation bring us closer to "push button" meat production. The livestock feeder won't necessarily be tied to his "twice a day" chore time stint at the barn. He can take the week end off, if he chooses, for a pleasure trip with his family, just as his city cousin does now.

Farmers will produce to a pre-determined market with respect to quality, time of marketing, and type of product. No longer will they produce anything and then seek a market at whatever price it will bring. They will use their knowledge of genetics, physiology, and environmental factors to produce "to specification" for a particular kind of market demand, just as industry now does. This will enhance selling price and income.

One fifth fewer farmers in 1970 than now by no means portends decay of the rural community. It will be stronger than now, although substantially different. Large numbers of urban workers, many of them former farm families, will live in the country. There are very few rural families, almost none east of the Mississippi River, who do not live within commuting distance of urban employment. As these urban-oriented families intermingle with farm families in church, school, 4-H Clubs, and social occasions, a new rural culture will emerge. This will combine the best of our present rural and urban cultures.

In this environment, the commercial family farmer, using large amounts of capital, science and technology, will increasingly assume the characteristics of a business establishment. The farm manager will assemble "packages of technology" which have been produced by others on a custom basis. The share of total farm receipts spent for production items will increase still further; the gross margin per dollar of receipts will become narrower and profits will depend increasingly on growing volume.

The rural "businessman" running the farm of 1970 will think and act much like any other "businessman", whether he happens to live in city or country. A new community culture will emerge in which the farmer will be less conscious of his vocational identity, just as the lawyer, the doctor, or the machinist now loses much of his vocational identity in his own community life. The differences between rural living and urban living will have narrowed markedly. The farmer will be a businessman in much the same sense as is his city cousin. He will demand and will receive comparable levels of income and of satisfactions from life.

### Dairying

**Dairymen will aim for 350,000 pounds per man**

![Samuel T. Slack, Department of Animal Husbandry](image)

_Dairying_ is in a period of rapid change and new developments. Greater strides were made during the past ten years than in any like period in the history of dairying. Even greater advances are indicated in feeding, breeding, and management of dairy cattle for the 60's.

The number of farms in New York State declined 53 percent since the peak of 1900 of which one third of the decline occurred in the past 10 years. At the same time, land per farm increased. This trend toward fewer and larger farms, accompanied by the need for higher capitalization per farm, is expected to continue during the next decade.

We can look forward to a steady increase in milk production per cow, much of which will be due to better feeding practices. Dairymen will continue to improve fertility and the productivity of their soils so that they can produce a more adequate feed supply. They will exercise more complete control of the harvesting, storing, and processing of forage crops than in the past to insure quality of stored forages. Adverse weather during the harvest season is still a major deterrent to production of top quality forage. Harvesting a greater part of the first cut forage as grass silage or the use of natural or heated air drying systems are increasing and appear to be preferred methods of insuring high quality forages. The average cow in New York State produces 7700 pounds of milk annually, however, it is expected to be near 9000 pounds per cow by 1970.

Milk production per worker will increase as a result of better feeding, housing, and labor-saving equipment allowing for increased number of animals per worker. Top dairymen will aim for 350 thousand pounds of milk sold on a per worker basis. Indications are for a more general application of labor-saving equipment to facilitate the handling of milk, roughages, grains, and manure. Many current stanchion barn situations will add milking parlor facilities with appropriate holding area arrangements. Indications are that bulk tanks will have completely replaced the can during this period and bulk milk hauling to the processing centers will have been completed.

Records of the farm business are currently a necessity and will be even more important in the future. The use of milk production records as a means of culling, feeding and breeding as a part of farm records will increase. In New York State about 40 percent of the dairy cows are being artificially inseminated. It appears that 70 percent of the dairy cow population will be artificially inseminated in 1970, or about one million cows. Artificial insemination has demonstrated that it can give the service that farmers demand and can achieve results above those obtained in natural service. While the general trend in butter fat production has been increasing, artificial insemination has speeded up this increase. Techniques will be further improved to more accurately evaluate the genetic worth of sires used in artificial insemination.
Convenience foods will boom

NEW products, new methods, and new firms will bring many changes in farm product marketing in the decade ahead. The developments of the fifties will be completely overshadowed by those of the sixties. We are on the threshold of many exciting innovations, which will materially affect not only consumers and marketing agencies but farmers also.

Rising consumer incomes and continued population growth will expand effective demand to provide markets for the most unusual goods and services. At the same time, ingenuity and invention will combine to break the technological barriers to the solution of marketing problems.

To food shoppers the most apparent change in marketing will be the number of new products offered, and the way these products are packaged and displayed. The total number of products available in a typical supermarket may not increase as rapidly over the next ten years as it has in the past, for more existing lines will be discontinued as new products are added.

Many new products will be completely different, and not just minor changes to gain temporary shelf space. They will be the result of new processes and new methods of handling. Some examples recently introduced or in the testing stage include sterile concentrated whole milk, potato flakes, dehydrated baby food, and boil-in-a-bag frozen vegetables.

These new products will have two common characteristics. First, and foremost, they will be acceptable to the consumer in appearance, in taste, and in ease and speed of preparation. Second, they will be capable of efficient handling through marketing channels from point of production to final sale.

Farm product marketing, in spite of its importance in the economy, has lagged in adopting methods. The bulk, perishability, and variability of most farm products has restricted mechanization in spite of rising labor costs. The growth of processing by itself will partly overcome this obstacle, but machines will be developed to handle unprocessed products also.

Electronic egg grading and packing equipment that reduces direct labor requirement to a minimum is already in commercial use. Apples, onions, or potatoes may be next in line as improvements are made in the process and equipment costs reduced.

Milk will be produced and bottled in automated plants, where machines not only perform the necessary operations, but also check their own performance and make adjustments where necessary. In grocery warehouses products will be selected and assembled by an operator with an I.B.M. machine, as already is the case in at least one frozen food warehouse. Records necessary for buying and selling, for inventory control, and for management decision-making, will be stored and processed on electronic equipment such as that in use in a few food distribution centers already. Among the many new devices to be installed in retail stores will be equipment to assemble, bag, and carry out customers' orders.

Standard containers eight feet wide and eight feet high and varying in length, that can be easily transferred from truck bed to railroad flat car to ship's hold, will be used to transport commodities from one location to another.

The new products, and the improvements in methods of handling existing products, will encourage new firms to develop in the marketing field. These firms will be new in a particular sense only. They will be larger in size than many at present because of the specialized equipment and knowledge needed to operate effectively, and the advantages of size in distribution. The functions they perform will be combined in different ways. Some firms will be more highly specialized than present businesses, while others will assume additional responsibilities. The net result will be that ownership of farm products will be transferred fewer times between farmers and consumers than is the case today.

A unit of the proposed bioclimatic laboratory at Cornell. This laboratory would enable scientists to work with exact quantities of light, temperature, and humidity in performing biological experiments.
Assembly and primary processing firms like milk receiving plants, potato packing sheds, egg grading stations, and livestock slaughtering operations will take in larger territories and deal directly with processors or retail food chains. The food chain, corporate or voluntary group of independents, will assume the functions of distribution locally.

All these changes will not occur without important effects on farm production. Changes in marketing will be responsible for changes in the location of production of many products, and the organization and operation of the farms that produce particular products. Efficiencies in transportation and the ease of transporting processed products will eliminate much of the advantage of producing products close to consuming centers. Instead, output will move to areas best adapted to efficient production.

Consumer preferences and marketing methods will place increased emphasis on the need for more uniform quality of product, better scheduling of production, and sufficient volume from each individual farm operation. More farmers will select crop varieties according to market requirements, more cows will be bred to freshen when plants can best handle the milk, more farms will be organized to enable delivery in sufficient quantity to minimize costs of handling, supervision, and accounting.

Knowledge of gene chemistry will increase

Genetics

Adrian M. Srh
Department of Plant Breeding

Genetics is the science that deals particularly with the biologically heritable systems having control over the nature of living things. Genetics, at this point in time, is a highly exciting science. Over the past ten years or so, the problems of genetics have attracted chemists, physicists, and mathematicians, as well as workers in almost every area of biology.

The combined efforts of investigators having so great a variety of knowledge and technical skills, and of points of view, have led to rather amazing advances. As a result, sooner than most biologists expected, we have preliminary but highly suggestive and well-founded clues as to the nature of life and of living systems as they may be understood and defined by the scientist.

Some of the further advances to be made during the next decade can be more or less anticipated. Certainly much more will be learned about the chemical nature of hereditary materials. "Genes" are structured entities carrying hereditary information from one generation to the next, and are the ultimate source of definition of the chemical capacities that determine the properties of a living individual. At present, genes are known to be composed at least in part of the substance deoxyribonucleic acid (DNA).

For example, certain organisms that are able to synthesize a particular vitamin may have close relatives, sometimes in the same family, that cannot synthesize the vitamin, and do so because they have inherited particular pieces of DNA. Their deficient relatives have inherited corresponding pieces of DNA that somehow are chemically-physically different, and are incompetent with reference to vitamins synthesis.

Over the next few years, biochemists are likely to describe in accurate chemical terms at least some of the pieces of DNA that determine the chemical potential of living things. This will mean that a fundamental mystery of life will have a solution able to be written as a chemical formula.

In a few species of bacteria, hereditary materials may be provided by means other than the normal reproductive processes. Chemically pure DNA isolated from bacteria with particular characteristics can be supplied to similar bacteria with alternative characteristics. Some of the recipient bacteria incorporate the externally derived DNA into their genetic machinery, and transmit to their progeny characteristics peculiar to the bacteria from which the DNA was derived. Isolated DNA of this kind essentially represents "genes in a test tube." A good deal more of heredity by injection, at least for experimental purposes, can be expected, although the techniques may need to be varied from organism to organism.

Increased knowledge of the chemistry of genetic materials increases the probability that they will in some instances be predictably alterable. High energy irradiants and certain chemicals are already known to have the capacity for altering genes, although not with pronouncedly predictable specificity.

One now finds it possible to suppose that particular chemical treatments will be able to be altered at will, in ways favorable to man's intent.

Geneticists will undoubtedly pursue their investigations in new ways. Some imaginative investigators believe that the sequential arrangement of genes in humans can be studied more effectively by appropriate genetic study of human cells in tissue culture than by the orthodox method of tracing hereditary characteristics through family pedigrees. Similarly, certain kinds of genetic studies of higher plants in tissue culture seem feasible. Before too long, plant breeders may be growing some of their experimental material in flasks as well as in the field.

Substantial advance can be expected in medical genetics. Even though defective genes may not be curable, increased understanding of the physiological consequences of possession of defective genes will permit more effective treatment of genetic lesions.

Finally, in this space age, the possibility cannot be ignored that geneticists will be involved in comparative interplanetary genetic studies. Among organisms on earth, from viruses to man, differences in genetic systems seem to be no more than minor variations on a theme. If life exists on other planets, geneticists will be most eager to see whether quite different genetic mechanisms have evolved. For example, will DNA again be at the center of things? Perhaps for the moment the saletest and most elegant answer can be taken from Shakespeare. "There are more things in heaven and earth, Horatio, than are dreamt of in your philosophy."
Man's use of environment has to be planned

Conservation

In any community there are two basic areas in which reconciliations must occur if the community is to persist without discord and uncontrolled change. The first is the internal strife between members of the community which compete naturally to meet certain requirements. The second is the frictions that arise between the community and its resource base or environment.

When we observe the efforts of man it is apparent that the bulk of energy has been largely directed toward resolving the first kind of conflict. That is to say, man is primarily concerned with man. This concern has been formalized in the structure of our morality, law, economics, politics, and arts. There has been over the past hundred years however, a growing effort towards interpreting man's position relative to his total environment. This effort has been made primarily in the area of science. While a preponderance of knowledge gained in this field has been used for and concerned with man relative to man, greater efforts are being made to apply this kind of knowledge to the community of man relative to his resource base or natural environment. Conservation is, of course, the organized effort in this area of activity. That is, conservation has been concerned primarily with resolving the problems which occur as the community of man interacts with its environment.

Today we are experiencing the beginning efforts in American society whereby the two basic areas of conflict can be treated simultaneously. The concept involved has been called both "Area Development" and "Regional Planning." While the words are not new, the scope of the factors involved in this kind of planning is considerably greater than in past years.

Geographically, regional planning takes in relatively large areas and often looks to natural boundaries (e.g. watersheds or river basins) to delimit its working area.

Investigations involved in such an effort include not only the physical aspects of a given region or watershed, its water, soils, plant and animal communities, topography, minerals, etc., but also attempt to assess man's position and development within the area and the ability of the area to meet the demands inherent in development.

Foremost in this kind of planning is ordering the growth and changes subsequent to growth in our society so that serious upset of the human society and the resources of the area will not occur.

Problems such as flood plain encroachment, land use planning, providing adequate water supply, meeting recreational demands, continue to be a part of our daily living. Our past piecemeal approach to solving these has not proven successful. And, our growing population and increased societal complexity are adding to these problems with each passing year. The importance of understanding our position relative to our resource base, upon which we are dependent, cannot be minimized. Orderly development through sensible planning seems inevitable. What we need is the courage to accept the kind of broad planning which can offer us alternatives of development, to ensure the continued improvement of human society, and at the same time maintain the integrity of our environment.

Plant Pathology

The evil of all roots: plant disease

The science of Plant Pathology has completed the change from a purely descriptive science to one of analysis of basic factors, or relationships: pathogen to plant, pathogen to environment, pathogen to fungicide, and the plant to any factor or factors causing disease. These fundamental approaches to the explanation of disease and the causes of disease are being rapidly broken into a number of different specialized fields of study, each of which is making rapid changes.

Changes in fungicides and the control of diseases by chemicals will be less frequent during the next 10 years than in the last. Recently there has been increased awareness of possible human toxicity from cumulative chemicals. As a result, requirements for either proving chemicals non-toxic to humans or using them in disease control so as not to leave a residue on the marketed product, will slow production of new chemicals and greatly increase costs. However, a drop in the speed and ease of producing new protective chemicals will boost the search for systemic fungicides. These systems are thought to be non-toxic to humans and hence less risky when found. The end of this decade will probably find systemic fungicides of the more general types coming into commercial use. Research into the more specialized truly systemic fungicides should be well advanced.

Knowledge of plant viruses
should increase rapidly during the decade. The present studies on the structure and formation of the active particles — nucleoproteins — are interesting and promising. We should by 1970 know whether the active portion is the nucleic acid or the complete nucleoprotein, whether insects pick up an entire molecule or only a portion as they pass the agent from one plant to another; and when the infective particle gets into the host plant whether it reproduces itself from amino acid particles or from inorganic nitrogen and carbohydrate fragments.

There is real evidence that we will know something of the nature of the cause of disease. Studies of the action of fungi and nematodes in interfering with the physiology of the healthy plant are beginning to give suggestions of how the pathogen does its work. Studies on rust fungi and other organisms attacking leaves are pointed at determining the portion of the respiratory cycle affected by the pathogen’s toxins of antimetabolites.

The greater advances, however, will be made in our knowledge of root decay. At present little or nothing is known of the nature and cause of the decay of roots. There is evidence that more crop losses are due to root troubles than to any other group of troubles, but this area of plant diseases has been entirely neglected. This may be because our cultural techniques as used on the aerial parts of plants do not work on roots. It may be because root decay is not the result of the action of a varying complex of organisms and edaphic conditions. Plant pathologists are beginning to put some of the isolated factors together in a way that makes it plain not only that there is much to learn by studying root diseases, but that crop production can be greatly increased by learning now to grow plants with healthy, fully active roots.

Weather

Forecasting will be longer range, more accurate

IMPROVED accuracy of weather forecasting has depended upon technological advances in other fields. During, and previous to the mid 1800’s forecasting was restricted to local guesses and weather folklore. A few of these weather proverbs are:

When the sun is in its house (halo) it will rain soon.

Red in the morning, sailors take warning. Red at night, sailor’s delight.

These proverbs were the result of searching for signs of the future weather. Some of the weather sayings reflect what we now know to be basic meteorological principles.

The first real advance in forecasting had to wait until a rapid means of communication was developed, so that man could extend his vision beyond the local horizon. Morse supplied the means with his invention of the telegraph about 1840. By 1870, systematic collection of weather data, interpretation and crude forecasting service had been established in many countries.

Storms, then as now, were the principle concern of the forecasters. A large majority of storms originate over the ocean areas. Marconi’s invention of the radio (1900) enabled ships at sea to transmit weather observations for the first time. Now, the forecaster had some inkling of the weather occurring over the 70 per cent of the world’s surface previously denied him.

During the 1930’s the invention of the radiosonde by Molchanoff made possible the systematic sampling of the upper atmosphere. Storms were now examined in the vertical, as well as in the horizontal.

A decade later, von Neuman adapted the electronic computer to the processing of weather data, which by that time, had become so voluminous that it was impossible for man to handle it without help. There are now over 10,000 weather stations on land, over 3000 ships reporting weather and more than 1000 stations reporting upper air conditions. These various stations send in scores of reports daily. Although this may sound like adequate coverage of our world there are many areas where coverage is so sparse as to be almost useless.

The development of radar helped to fill the voids between stations and the use of rockets, to carry weather instruments to greater heights, allowed a more comprehen-

The latest in poultry housing has slatted floors, pit cleaners, automatic feeders, waterers, and thermostatically controlled ventilation system. The galvanized steel sheets form a vapor barrier. The walls and ceiling are insulated.
New De Laval Combine Milker brings you “Turbulent Action” Automatic Washing

Water bottle test shows you why “Turbulent Action” gets pipelines cleaner, more sanitary — and saves you money, besides!

These action photos dramatize the difference in cleaning power between ordinary in-place pressure systems and De Laval’s “Turbulent Action” vacuum method. Bottle at left is half-filled with water. See the turbulence when it’s shaken? This is how De Laval vacuum cleaning works. It pulls water through lines at up to 35 mph with great turbulence to scour away fat and milk deposits.

Bottle at right is filled with water. When shaken, no turbulence occurs. That’s how pressure systems work. They fill lines with water then push it through at only 4 mph without turbulence. Only “Turbulent Action” can give you truly sanitary lines, lowest bacteria counts, highest quality milk.

What’s more, De Laval’s Automatic Washer uses 60% less water, less electricity, 60% less detergent. With pressure you’d use 78,840 gallons of water a year for a 50-cow herd... only 32,850 gallons with vacuum. And only 228 lbs. detergent as against 547 lbs. with pressure.

FAR BETTER MILKING, TOO—Of all pipeline milkers only De Laval’s Combine Milker gives you fast, clean and gentle milking. That’s because only De Laval has absolutely uniform pulsation and narrow-bore liners. Result — better udder health, less mastitis, more milk. See your De Laval Dealer. Get a Combine Milker with Automatic Washer. You’ll save time and labor, make more money.

Barn or parlor layouts cost as little as $4 a cow per milking.

SET IT...FORGET IT! — just add detergent, flick the “wash” switch and walk away. This control panel does the rest... pre-rinses, washes, clean rinses, then shuts itself off—all unattended. Sanitizes automatically, too. And unlike all other CIP systems, it never re-circulates the same rinse water. The De Laval Separator Co., Poughkeepsie, N. Y., or 5724 N. Pulaski, Chicago 46, Ill. De Laval Pacific Co., 201 E. Millbrae Ave., Millbrae, Cal.

10% down...up to 4 years to pay
Agriculture, 1970

sive vertical picture of the atmosphere.

The final pieces of the world-wide weather picture will fall into place in the near future with the help of television-equipped satellites orbiting hundreds of miles above the earth. Then, for the first time, the meteorologist will be able to see the complete weather picture and he will not have to rely upon a picture a few hours old, based on interpolation of scattered observations.

High speed computers and satellite information will allow the meteorologists of the 1980's to approach 100 per cent accuracy in their forecasts. The daily forecasts of the future will also be more detailed both in area covered and in the statement of the times of beginning and ending of various weather phenomena. The long range weather outlook, at present only 30 days long, will improve. By 1980 the outlook will be day to day forecasts, similar to the present daily forecasts, but for a period three months in advance.

Engineering

Automation will sweep the farm

One job that needs urgent attention is that of handling the millions of tons of forage for dairy animals. Self-feeding is only a partial solution to this problem. New machines to help simplify the handling of forage will be developed. Whether the machine's end product is called a waler, a Hayfer, or a pellet is immaterial. The important thing is that the forage bulk will be reduced and that the uniformity of the product will make it easier to handle with mechanical equipment. This is important not only in moving forage in and out of storage, but it is also important in metering the correct amount to a cow according to production. The job is only half completed when modern field machines deliver the forage to the warehouse and then let a two legged servo-mechanism with a front-end shovel unloader meter the stuff haphazardly to the cow.

Devices that are both experimentally and operationally sound are in existence that can relieve men of this silage feeding chore. The feeding schedule can be programmed into the mechanism to meter out silage according to the cow's requirement, actuate an unloading device that is synchronized with a conveying system, and shut the whole works down when the last cow is fed. It might even qualify for the "fully automated" title if the whole system can be integrated well enough to also turn itself on when required and monitor its own operations. The farming aspect of agriculture has not even scratched the surface of electronic control use to relieve the man for more important managerial tasks.

Probably the most lucrative part of the dairy operation is milking. This activity has gone substantially unchanged for many years. Engineering techniques and equipment related to the handling of the milk are relatively well developed. It is the handling of the cows that causes the trouble. Conventional types of milking parlors have improved the situation somewhat. The more recent development of the herringbone milking parlor allows one man to milk 40 to 45 cows per hour and do an excellent job. But even this is not the panacea of the milker. Why? Because there should be no milker. An observer should be all that is required and the system should handle more cows in less time.

A system that comes close to modern, large herd requirements is already in use on the West Coast. It enables two men to wash, feed, milk, and otherwise care for cows at the rate of 100 per hour. The system is expected to pay for itself from savings in labor charges alone in six years time. The equipment won't wear out in that time. The important thing to note is that it
could be modified to eliminate one of the two men from the operation that are now used. Then one man could milk 100 cows in one hour. After that, the only step left is to go full circle and make the system fully automatic—from the application of the milking unit to the keeping of the cow’s records on the farm.

Dairy housing is certain to undergo change as research yields more and more information about how the dairy animal’s environment affects her production, health, longevity, and general welfare. It may very well be that a slow but continuing increase in the average temperature of this hemisphere will see not only the human population in a more closely controlled environment, but some of our more important animal species as well. Dairy regions of the Southern United States could capitalize quickly on findings from the psychoneurogenic laboratories and could economically increase production of dairy animals by placing them in a controlled air conditioned environment. Perhaps rapid population expansion will make this a closer reality than we can now perceive.

**Dairy Manufacturing**

**Dairy manufacturing is due for a revolution**

*J. C. White, Department of Dairy Science*

Who can tell what will be happening in dairy manufacturing in 1970?

Many things are possible. We can conjecture that the whole field of milk distribution will be radically changed; that in our metropolitan markets there will be essentially no door-to-door delivery and perhaps no great sales of fluid milk because the experimenters in laboratories have had success in producing a milk powder or a concentrated milk of extreme flavor stability and free of the defects which have accompanied these products to date.

We can prognosticate that there will be very few dairy farms of family size. Only the largest of farms may be in operation and only the largest of plants may be handling the milk.

We can conceive that milk will be carried extremely long distances by tank truck or by air transport and we could even conceive of milk becoming a public utility because of its public health significance. All of the small plants may disappear and milk may be processed completely by automatic equipment from the farm to the final product and distributed to the public by semi-automatic or automatic channels.

We may even have a pipeline spanning New York State to carry milk from Buffalo, Rochester, Albany, Syracuse and Watertown in to some central location such as Cortland or Elmira where it could be processed in a huge plant geared to use atomic power for changing the perishable nature of milk into whatever the product would be.

None of this is likely to happen, but the things that do happen are likely to be as surprising and as strange. All we are sure of is that things will change and that they will change more rapidly as time goes on.

The last ten years have seen more changes in the dairy industry than have occurred in all of the time since the first factories were built in New York State about 100 years before.

In 1970 we will have a solid dairy industry in the Northeast. Our climate is geared to the production of milk. We have rolling country suitable for dairy animals, and about the best crop we can raise is roughage . . . admirably suited to be run through a cow. The cow itself is admirably suited to the production of food, provided we can afford to run our food through an animal before it is offered to humans.

Our cows produce high quality milk from acres which are sometimes uncopiable and they use roughages which are not usable directly by humans. From unusable material they produce about 25 percent of our food and the highest quality product, in terms of vitamins, minerals, and protein, in our diets.

Of course, we could produce food more cheaply from crude materials in a yeast tank, but who wants to eat yeast when he can get fine dairy products? We believe that the American economy will support an animal agriculture and that the cow is the most versatile and most efficient in turning roughage into harvest 100-200 acres daily and do it within the air-conditioned shock-absorbing interior of this streamlined combine. All the operator has to do is turn corners. Routine guiding and adjustment is done automatically.
The Most Important 5 Minutes in a Dairy Farmer's Business Future...

... could be the five minutes it will take to read this ad. The reason why we know that this message is important to dairy farmers is because Eastern Milk Producers are all dairy farmers... 100% an organization composed of dairy farmers.

Stated basically, Eastern's position is that dairy farmers need the influence of a cooperative and that this is best provided by a bargaining cooperative such as Eastern. Because it is primarily interested in achieving higher prices for dairy farmers, Eastern has no conflicting interests and speaks loudest for dairy farmers.

**REPRESENTATION.** All of Eastern's officials and delegates are elected by the dairy farmers who make up Eastern's membership.

**LEGAL AND ECONOMIC COUNSEL.** Eastern provides experienced legal and economic counsel to dairy farmers in legislative and marketing hearings... with individual service available to each member at other times, as well.

**COMMUNICATION.** In addition to a monthly publication, Eastern publishes a quarterly news letter and special bulletins when special occasions demand. Eastern's members are the best informed dairymen in the country.

**MARKETS.** One of Eastern's most important functions is to assure each member of a market for his milk production... at the highest possible blend price.

**INCOME PROTECTION.** Eastern's members are also provided income protection in the event of quarantine or temporary loss of his market.

Well, there are other benefits, of course, and membership in Eastern Milk Producers provides more of the cooperative advantages that are exclusive to dairy farmers.

The five minutes spent reading this ad are important. Important, too, are the few moments it takes to contact your area Eastern Field Representative, or write direct to Eastern, Kinne Road, East Syracuse, New York.

**Eastern Milk Producers Cooperative Association Inc.**
human food.

We will still be using fluid milk. It will still be harder in 1970 to open a can and dilute it with water, or to beat up a powder, or dissolve a pill than it will be to take the cap off a milk bottle or open a paper carton.

We firmly believe that the flavor of fine, fresh milk will be better than that of the manufactured product and the price of the fluid milk will compare favorably with the manufactured substitute.

We will still have a number of competing companies and we will still be handling some milk in cans, but almost all will be in bulk.

Our dairies will be bigger; there will be fewer of them. Our milk plants will be bigger and there will be fewer of them.

However, the pure, clean lactic secretion of the healthy cow will still be one of the favorite foods of the consumers in New York State.

Animal Nutrition

Dairy cattle will be fed more grain

Today the average dairymen in New York State are underfeeding his cows. Because of the artificial breeding program the producing ability of his cows has been markedly improved, but his feeding and management has not always kept pace. As a result, many dairymen never find out which cows are the really good ones.

Most cows now carry adequate conditions at calving time, but the level of grain feeding is increased too slowly as they start lactating and they are not allowed enough concentrates to reach their full potential. The successful New York dairymen a decade from now will follow a feeding procedure about like this.

The week before calving the dry cow will be fed 8 to 14 pounds of concentrate mixture depending on her condition. There will be no decrease in concentrate feeding unless the cow becomes ill and appetite fails. Each day following calving the concentrate allowance will be increased approximately one pound until the maximum of 18 to 28 pounds is reached, depending upon the milk yield.

The exact rate of increase and maximum concentrate allowance will, of course, depend upon the cow's appetite as well as level of milk yield. Highest producers in top herds today are sometimes fed as much as 36 pounds of concentrates daily for months. This indicates the safe potential for the best cows in any herd.

Simple udder edema need not be considered a reason to restrict concentrate feeding. Severe cases can be controlled with new products veterinarians will have. Research has shown that level of feed intake has very little to do with the extent of udder edema at calving, so that cows which consistently show too severe udder edema should be discarded.

The quality of hay and silage is at least as important as the level of concentrate feeding. All good dairy farms will produce and feed early-cut, carefully preserved hay and silage like that now used on the best few.

Replacement heifers will be grown on limited milk, or milk replacers and concentrates, but with maximum use of top quality forage and pasture. They will be bred to calve at 20 to 25 months. Any excessive fatness will be avoided, because research has shown that fatness in heifers tends to reduce lifetime milk yields and reproductive performance.
Biggest changes in feeding dairy cattle will be the result of improved machinery for harvesting, curing, storing and automatic feeding. All phases of feeding and management will be affected by automation so that one man can handle more cows and produce more milk with greater efficiency.

Although there are fewer beef cattle, sheep and swine produced in New York State than dairy cattle these animals have real potential under some conditions. There is a lot of unused land in New York that could produce beef and sheep successfully. Recent nutritional developments may make it feasible to expand some of these animals.

Recent observations showing that grinding and pelleting poor quality hay makes it about equal to the best hay for sheep and beef cattle offers a new method of using some of our poor hays. Pelleted alfalfa is almost equal to concentrates for fattening steers or lambs on a partial replacement basis. Our nearness to big markets offers promise for future development of early lamb production.

Special cooperative marketing arrangements have helped to stimulate swine production in some areas. In the future efficient swine nutrition will not involve pasture. Complete rations adequately fortified are available for rapid early starting of pigs and for finishing them to 190 pounds in four to five months. These feeds, along with proper breeding, help to give leaner pork now in demand and smaller, leaner cuts. A combination of confinement management and careful nutritional balance of rations form the basis of successful swine production in the years ahead.

An engineless tractor. A reaction of gases in the 1008 fuel cells provide electricity that drives the tractor. Because the chemical energy is converted directly to electrical energy there is no heat loss, giving a 90% fuel efficiency. This compares with 40% for the best diesel fuel.

Water

Modern agriculture will demand more water

In the next decade our activities relating to water resources will probably influence the future of agriculture in this country more than anything else we do. Even in a humid state such as New York the supply of water controls crop production probably more than any other single factor. Every year we have sections of the State which suffer from droughts, overly-wet conditions or destructive erosion, all of which are related to our water resources and to our lack of control of them.

In the past only the western half of our country has shown real concern with water. To western farmers water and survival have been essentially synonymous. In the drier areas irrigation has been as important in the development of the West as was man himself. Consequently, politics and plans for water resource use are much
better developed in our western states than in the East. Also, most of our applied agricultural research dealing with water has been carried out in the West.

The East has only recently begun to realize what dependable supplies of water can mean to a permanent agriculture. This is best evidenced by the rapid increase in irrigation throughout this area. Since 1949 the area of irrigated cropland has increased from one million acres in those states east of the Mississippi. In New York, irrigation has increased during the same period of time from about 19,000 acres to perhaps 75,000. Here, as elsewhere in the East, growers have recognized that in order to compete with other sections of the country they must control the water supply.

Significant progress will be made in the next ten years on 1) water use for agricultural purposes, 2) water resource policies and planning, and 3) research on water and its utilization. Irrigation will continue to expand in all areas of New York where sources of water are available. Most of this increase will be for irrigating vegetables and fruits where the return per acre is high. Some grain and hay crops will receive irrigation where “vertical” expansion of farming is practical. It is anticipated that the area under irrigation will more than double in the next ten years.

Important as is the actual practice of irrigation to agriculture, policies and plans for the use of water, and research on methods of most effectively utilizing it are perhaps of even greater significance. In a populous and industrial state such as New York the water needs of agriculture must be considered along with industry, municipalities and, of course, us and our families. We must attempt to develop and conserve our water resources for multipurpose use in our modern economy.

Long-term policies will be developed by appropriate public agencies which will permit, encourage, and even demand multipurpose use of water. There are ample supplies of water in New York State for all segments of the economy. The problem is one of control and allocation. Adequate planning will give agriculture its share of responsibility and opportunity for the use of New York’s water resources.

Research on water problems will be greatly increased during the next decade. Applied research on water utilization for irrigation will be most apparent. We will likely pinpoint those soil, climatic and crop conditions under which irrigation is economical. We will perfect new methods of determining when irrigation water should be applied and the amount to be applied. We will initiate additional studies on the effects of soil cover and soil properties on yield of water from our watersheds for agricultural and other purposes.

Fundamental research on soil-water-plant relations will be greatly intensified in the next decade. Soil scientists will learn more about the movement of water into and through soils. They will study factors influencing water retention by soils and, with the plant scientist, mechanisms by which water is removed from soils by plants. These scientists will learn more about how this loss can be reduced. Their accomplishments in the next ten years may well chart the applied agricultural practices relating to water in New York State for decades to come.

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The Best Seed Costs Less At
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For A List of Growers, write to:

New York Certified Seed Growers’ Coop., Inc.
P. O. Box 474, Ithaca, New York

The Official Seed Certifying Agency of
The New York State Department of Agriculture and Markets

March, 1960
Forage Crops

High Yields, fast growth will boost forages

We can be confident that in 1970 farmers will be growing and handling forage in ways considerably different from our present methods. But an even more radical change is likely in our attitude toward forage crops.

Much of the forage that makes up our present rural landscape is there by default; at the end of another ten years most of the forage on farms will be there because it has earned a place, and considerable acreages will have been eliminated because they were carefully examined and found wanting.

New varieties that are more precisely tailored to new situations, more desirable in chemical composition, easier to grow, and more resistant to disease, will replace the present varieties and especially the "common" or "commercial" seed.

The forage crops that are more efficient in capturing the energy of the sun will gain favor. However, it is unlikely that a whole set of new species will replace our present ones. It may be possible to adopt some highly productive southern species to parts of New York.

The language we use in describing forage is due for a major overhaul. We need both an enlargement of our forage crop vocabulary, and a refinement of certain terms now widely used. Two examples might be cited. "Roughage" is defined as a feed high in fiber and low in total digestible nutrients. On the whole it includes all leafy or stemmy plant material. Our modern farms produce a great diversity of products that can be classified as "roughages." Wheat straw is a "roughage." So is corn silage. So is ladino clover pasture. If we compare these on the basis of estimated net energy we find that the best "roughages" deliver six times as much net energy per pound of dry matter as the poorest. Certainly, our growing knowledge of nutrition will encourage us to discard terms as crude as this one.

A more modern example is "quality" as applied to forage. This term probably means something different to everyone who uses it. While it has value as a part of the teaching process, it is too vague to survive long in our nutritionally sophisticated future.

Some kind of production goal will probably emerge fairly soon. This might take the form of a yield of harvested crop per acre. We would then find ourselves measuring our success by how closely we approached, say, 7 tons of alfalfa hay or 35 tons of corn silage per acre (these are examples, not suggested goals). On the other hand, the operator who processes his forage through his own animals may be more interested in a goal that represents the end result of both production and utilization. Dairymen might be aiming for (again, examples) 7000 lbs. of milk per acre from forage, beef raisers for 900 lbs. of beef.

Another type of goal is likely to be taken even more seriously: output of forage or animal product per unit of effort, or unit of nuisance. Here we deal directly with the farmer's abilities, inclinations, and the conflicting demands on his time.

New alfalfa varieties pose a problem. Research results make it clear that three, or even four, cuttings per year produce a greater aggregate yield than two. But is it worth the effort, or nuisance? An even more clear-cut example is daily chopping of fresh forage, variously known as "green feeding," "green chop," and "zero grazing." Many farmers have tried this, but not many stick with it for more than a couple of seasons because of the nuisance. They either return to a grazing system or advance to year-round feeding of hay and silage.

It was the forage crops, having at last gained the stature of other crops, will be grown more carefully, handled more skillfully, and discussed more intelligently than is now the case.

Madison J. Wright, Department of Agronomy
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Here is how to buy and use spices—“The little things that make food interesting.”

by Brenda L. Dervin ’60

Grandma’s method of cooking—adding a pinch of this and a pinch of that from her spice shelf—may not be as out-dated as we think. The spice business is booming in the United States. In 1957, alone, Americans imported more than 113 million pounds of spices and produced about a third as much.

Probably the best evidence of this upswing in the use of spices are the spice counters in the supermarkets, according to Mrs. Helen Giff, Assistant Professor of Food and Nutrition in the College of Home Economics.

Twenty years ago spice counters in the grocery stores were hard to find. Now, the elaborate displays in supermarkets are evidence that the use of spices to add flavor and interest and to get variety in cooking is increasing.

The flavor-giving qualities of spices have not always been considered their most important asset. According to reports from the American Spice Trade Association, spices were used as preservatives, perfumes, and even healing substances for many years before the birth of Christ. For this reason spices were as valuable as gold and the search for them led to the founding of new trade routes and the eventual discovery of the New World.

Spices, however, have always been valued at least in part for their ability to transform dull foods into palatable dishes. It is this quality that interests the homemaker today when she faces the large spice counter in her supermarket.

What spice gives what flavor? What spice is used with meat dishes, with soups? All these questions face the homemaker and need answers.

From the American Spice Trade Association comes these definitions which provide a basis for “spicemanship”:

Spices—the buds, leaves, seeds, bark, and roots of aromatic plants usually grown in the tropics. The word “spice” often includes herbs.
Herbs—the leaves of aromatic plants grown usually in the temperate zones, such as basil, mint, and oregano.

Vegetable seasoning—dehydrated vegetables in powder form, such as garlic powder.

Spice blends—dry mixtures of spice and herbs such as curry powder and poultry seasoning.

Seasoning salts—combinations of dehydrated vegetables with table salt, such as onion salt.

Condiments—liquid or semi-liquid mixtures of spice, herbs, or both with other ingredients, such as prepared mustard.

Mrs. Gifft adds that the word “spice” also has the popular meaning of hot or sharp, but “actually there are sweet, spicy-sweet, and hot spices.” And, there are more sweet spices, like cinnamon, than there are hot spices.

Definitions alone, however, don’t produce spice-manship. Buying is also important.

All spices lose some of their goodness in storage because their seasoning value depends on the oils present in the original plant. These oils are impaired with overexposure to air, dampness, heat, and light.

For this reason, Mrs. Gifft suggests buying spices in small quantities so they are used before they lose their flavor and odor.

The spice experts also suggest buying in stores with rapid turnover and selecting spices packed in tight containers. Spices in tin or glass containers keep their flavor longer than those in cardboard.

When the containers are transparent, the buyer should select spices and herbs that look fresh and have a bright color. In short, the buyer should remember that substances which give aroma and flavor will lose them in time. Whole spices keep their goodness longer than ground spices. And, leaf herbs keep better than powdered herbs. So, it’s always better to buy whole spices or leaf herbs and grind or crush them at home.

Of course, Mrs. Gifft states, “the ultimate ideal of the true connoisseur is an herb garden so that fresh home-grown products are readily available.” Cornell Extension Bulletin 341, “Culinary Herbs”
gives suggestions on how to grow herbs in a climate such as Ithaca's.

Storing is another problem facing the spice buyer. The experts suggest keeping containers tightly closed and away from warm places. It's best, also, to check quality from time to time—rub a little spice briskly between the palms of the hands, then smell the fragrance. If the fragrance characteristic of the spice is missing, it's time to buy again.

When buying, Mrs. Gifft adds, there are no real price indicators of quality. Usually the more expensive products have the finest quality. But, some of the least expensive also have fine quality if fresh.

Quality and price are just two aspects of spicemanship. The buyer still has to decide what spice to buy. There are many charts and lists published by magazines and spice companies suggesting the right spice to be used in various dishes.

These charts, however, are just guides because "the correct herb or spice to use is the one which tastes right," Mrs. Gifft states. The ability to decide comes with experience.

Correct amounts can't be defined either. It depends on the background and the tastes of the consumer. South Americans, for example, are very accustomed to spices that we rarely use.

So, the best rule is "season to taste but be light-handed until you have had the experience." The charm of spices and herbs, she adds, is often their subtlety—so you can't really taste the spice when it's there but miss it when it isn't.

When to add spices during cooking depends on the dish and how long it takes the flavor of the spice or herb to come out.

The spice experts offer these general rules: "In uncooked dishes, it's better to add the flavorings early. In cooked dishes, herbs are better if added in the last half-hour of cooking. Otherwise their flavor is lost. But, spices need to be cooked much longer."

Perhaps, the whole field of spices is best summarized by Walter Duncan, founder and owner of the Finger Lakes Spice Trader, a mail order firm located in Ithaca. Mr. Duncan, a 1920 graduate of the College of Agriculture, states that "spices and herbs are the little things that make food interesting."

Even though the use of spices is increasing in this country, Mr. Duncan believes that "the American palate needs an education into the world of spices and herbs."

The advantage of spices and herbs to the modern housewife, Mr. Duncan concludes, "are their ability to put variety into meals and to make less expensive dishes seem more expensive."
Radioactivity In Our Food

One of the atomic age's biggest hazards is radioactivity. Scientists in the Laboratory of Radiation Biology are trying to find out how radioactivity is transferred in the food chain.

by Steven A. Breth '60

Radioactive fallout is a touchy subject. It is the cause of heated debate because of its complex moral, religious, political and scientific implications. Everyone knows it can be dangerous, but no one is sure just how dangerous.

Scientists throughout the country are trying to find out exactly how radioactive fallout affects living organisms. Some of the most outstanding research is being performed here at Cornell in the Veterinary College's Laboratory of Radiation Biology.

Under the direction of Dr. Cyril L. Comar, who came to Cornell by way of Oak Ridge, researchers are investigating the effects of radioactive material on the food chain, i.e. how is radioactivity transferred from the atmosphere to the soil and vegetation, from vegetation to cattle and man, and from cattle to products like meat and milk and then to man.

At the same time they are looking into the way radioactive material builds up in specific areas of an organism. For instance, iodine 131 that is ingested by an animal races to the thyroid gland and concentrates there. Radioactive calcium and strontium collect in the bone marrow, often destroying red blood corpuscles and causing leukemia.

Working under grants from the Atomic Energy Commission, Department of Defense, and U. S. Public Health Service, Dr. Comar and his staff perform experiments they hope will bring them to a closer understanding of how radioactive material is transferred and its effects on living tissue.

Because radioactivity is such a new tool, the experiments also, as a by-product, allow researchers to examine basic biological processes and to develop radioactivity, itself, as a scientific tool.

In one experiment, researchers are trying to see if a radioisotope can be trapped in the gut, keeping it from going to the bone marrow. The experiment may at the same time produce new information on the intricate problem of diffusion against a gradient.

This sheep is being fed a radioactive diet. The special pen allows scientists to measure all radioactive material that is ingested and egested.

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In the experiment, a laboratory rat is killed instantaneously so that its tissues will function normally when removed and put under controlled conditions. The researcher dissects out a piece of the intestine and fills it with a radioactive solution. Then the intestine is tied off and placed in a flask with a non-radioactive solution of known concentration and a constant temperature. The solutions diffuse through the intestine just as they would in a living animal.

In this way, the researcher is able to clock the rates at which different isotopes pass through the intestine wall. Similarly, he can study the differences in isotope absorption of intestines of rats that have been fed different diets.

At the same time, the peculiar way radioactive solutions move through the intestine wall is leading researchers to believe that more than just chemical processes and diffusion are involved in diffusion against a gradient. Possibly, there is a mechanical factor, too.

Cows and goats in the Radiation Laboratory, in another study, are fed capsules containing a radioactive solution. The animals live in individual chambers that catch everything they egest. The researchers analyze the animals' milk, feces, and urine for radioactive material. By knowing how much radioactive material the cows or goats were fed and how much was

A researcher checks the functioning of the liver of a dog that has been fed radioactive material.
lost in the milk and egested matter, the researcher can determine how much of a particular isotope is being retained by the animal.

The study of how radioactive material is transferred through the food chain and how different types are selectively concentrated is immensely complex. Different radioactive materials have different half lives, they are transferred from one organism to another with differing efficiency and they remain in the body for differing lengths of time.

The contrast between strontium 90 and cesium 137 exemplifies how the possible dangers of radioactive material are not simply a result of their radioactivity. Sr 90 and Cs 137 have similar half lives (30 years and 28 years, respectively). However, the maximum permissible level for lifetime exposure to Sr 90 is 80 micromicrocuries while the maximum limit for Cs 137 is 150,000 micromicrocuries. The reason: Sr 90 collects in the bone marrow and once there, it leaves the body very slowly. Every exposure to Sr 90 adds to previous exposures that are concentrated in the bone. On the other hand, Cs 137 collects in muscle and leaves the body rather rapidly. The cumulative effect of Cs 137 is much less than Sr 90.

Dr. Comar points out that although the experiments are designed to examine the effects of radioactive fallout on the food chain, they also are a means of finding new ways to use radioactivity for biological investigation.

In the last 15 years, says Dr. Comar, the physical sciences have made tremendous advances because of new techniques and greater knowledge of the atom. "In the next 15 years, using tools such as radioactive material, mass spectographs, computers, and higher mathematics, the biological sciences will have a new awakening."
Regeneration In Frogs, Salamanders, and Humans

Dr. Marcus Singer has found that a product of the nerves may be the answer to limb regeneration in animals.

by Tina Bloomstein '63

Why is it that the leg of a salamander regenerates after amputation and the leg of a man does not? What is about the metabolism of a salamander which allows it to regenerate? These questions intrigue many scientists, among them Cornell's Dr. Marcus Singer, of the department of zoology. He has been working on the problems of regeneration for many years.

The work has many important implications. In a few years, for instance, it may be possible for humans to regenerate limbs lost in accidents or internal organs lost by disease. In addition, Dr. Singer's work demonstrates that even a fully formed adult carries on developmental processes usually associated only with an embryo. The cells of an embryo differentiate into specialized organs such as the heart, lungs, brains, and circulatory system. When you cut off the leg of a salamander, the remaining cells return to the embryonic state. Then they differentiate into specialized cells, reforming the leg.

The hunt for the cause of regeneration has been carried on for many years by Dr. Singer and his associates. There have been many theories which have attempted to explain the reason for the return of cells to an embryonic state. For one reason or another, however, each one had to be rejected. The best clue comes from the role played by the nerves in regenerating tissue.

In a series of experiments Dr. Singer verified data collected as early as 1823 by an English researcher, Tweedy John Todd. Todd's work showed that an amputated leg will not regenerate if its nerves are paralyzed by the amputation. If, however, the nerves are not paralyzed, the limb will grow again.

The exact way a nerve affects a regenerating limb is not known, yet.

At one point a chemical, acetylcholine, produced by nerves was thought to be important in regeneration.

In order to test whether acetylcholine was the agent which enabled an organism to regenerate, Dr. Singer developed a device which can test the effect of several chemical substances on regeneration. When the experiment was actually performed the atropine stopped growth for several days after which growth of the regenerate resumed.

The halting of growth by atropine is particularly dramatic because the regenerate is insensitive to biologically destructive agents such as distilled water, a strong salt solution, and high and low pH.

Atropine's effect, according to Dr. Singer, may be due to poisoning the cells of regeneration or the nerve fibers themselves. However, when acetylcholine, itself, was infused with atropine, the atropine no longer retarded growth.

Additional experiments performed by Dr. Singer showed that acetylcholine was present in large quantities throughout regeneration. However, Dr. Singer notes that "it is important to emphasize that the period of rise in amount of acetylcholine coincides rather precisely with the time when the effect of
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Nerves from the hind leg of a frog (left) are attached to the fore leg (right) causing it to regenerate.

the nerve upon the growth of the regenerate is most effective. It then decreases in quantity at a time which corresponds to the decline in importance of the nerve in regeneration."

In spite of all the evidence which points to acetylcholine as the agent which promotes regeneration, Dr. Singer believes that acetylcholine cannot be the answer to the regeneration problem.

If acetylcholine were the agent causing regeneration then it should cause nerveless regenerate tissue to continue growing. Dr. Singer tested this by introducing acetylcholine in several ways, none of which produced growth.

Another series of experiments performed by Dr. Singer also ruled out acetylcholine. He found that even when a limb had enough acetylcholine to cause it to regenerate, i.e. as much acetylcholine as limbs actively regenerating, there were instances where regeneration did not occur. If acetylcholine was responsible for regenerate growth, then there would be a direct relationship between the amount found in a limb and the regenerative capacity which the limb shows.

Dr. Singer has found that “no correlation can be drawn between acetylcholine content and regenerative capacity. . . The only correlation that can be drawn between these various states of innervation and regenerative capacity is that regeneration occurs when threshold requirements in nerve number are met.”

This is substantiated by an experiment with mature frogs. The adult frog does not normally regenerate limbs. But, Dr. Singer discovered that adult frogs can regenerate limbs if he supplied the tissue with an above normal number of nerve cells.

When asked why atropine could suppress regeneration, even though acetylcholine is not responsible for regeneration, Dr. Singer replied that atropine may have destroyed another chemical that is responsible for regenerative growth, it may have altered the physiology of the nerve itself, or it may have harmed the cells of regeneration which then recovered.

In any case, Dr. Singer’s conclusion was that “if . . . a chemical emanation from the nerve fiber is the agent of the removal influence upon growth, the chemical substance is not acetylcholine itself.”

Work is still going on in an attempt to find the chemical which influences an animal’s capacity to regenerate.

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Editorial

A Better Upper Campus Image

In polite Cornell, Lower Quad society, one simply does not speak about the Colleges of Agriculture and Home Economics. This philosophy is traditional with “artsies.” What is disappointing, however, is to find this same philosophy expressed by students in the Colleges of Agriculture and Home Economics.

We don’t have to go far to find that it is unfair to look with disdain on two colleges that have been elemental in the development of their respective fields. But it is hard to understand how students who are apparently ashamed to admit that they are in the Ag or Home Ec Colleges, can go out into these fields after graduation and devote their lives to this work.

Public opinion, however, is a strong force . . . and when at Cornell, one must do as the Cornellians do. But the Colleges of Agriculture and Home Economics are as much a part of Cornell as any other college and we feel that steps should be taken to enforce this idea.

A certain campus newspaper puts out a freshman issue. We think that some properly placed advertising of a strictly institutional nature, in this edition could start building a better Upper Campus image in the minds of the incoming freshmen.

We also feel that such a project is not outside the concern of the Ag-Dom Council, which might consider its sponsorship.

“Straight to the Country” is often a subject of ridicule from much of the lower campus elite. The organizations participating, under the direction of departments of the Colleges (especially, departments dealing with communications), could use this event to give more prestige to their Colleges.

The specific displays should express a theme of “image building” and could be co-ordinated by Ag-Dom. While we feel that Straight to the Country does create some interest, it does little to promote a favorable impression.

With the Colleges of Home Economics and Agriculture to help, both physically and financially, a cooperative freshman issue of the Countryman could be published. This would be an orientation course between covers to be sent to incoming freshmen in the Colleges.

Incoming freshmen should be made aware, through a freshman issue, that they are entering two colleges that are outstanding in their fields . . . and, perhaps, conscious of their responsibility as students to make good use of resources available to them in these Colleges.

We do not want to start a campaign, as such, to protect the fair name of the Upper Campus. We do feel, however, that the Colleges of Home Economics and Agriculture deserve, at the very least, the respect of the people who are directly profiting from their existence.

—E.L.R.
Bring to rolling boil in small nail keg
by Zilch

ZILCH notes with glee that he is physically able to look back on another Farm and Home Week. Farm and Home Week is the one time during the year when students on the Upper Quad can find out what's really going on here. Frightening, isn't it?

One of Zilch's friends, who goes to school in Martha Van, told him about a housing survey that the College of Home Economics has made. It seems that the trend is toward the family spending most of its time in one room. It appears to Zilch that this is nothing new. Why all the men's dormitories exhibit this phenomenon? To say nothing of some typical, dirty-laundry-laden Collegetown apartments.

It isn't often that Zilch can find a cartoon that causes him to feel overwhelming compassion for the characters depicted. Nevertheless, he has found one and its description is forthcoming.

Close your eyes, if you are in a position where such an action will not seem ridiculous, and picture a cow (any breed) standing on her hind legs and shivering fitfully... a look of panic in her eyes. An artificial breeding technician is walking away from the cold cow with a box in his hand marked "Frozen semen." Another technician speaks to him. The caption: "You have to defrost it first." Oh, that poor animal!

Zilch, in his rounds of Collegetown apartments, has come upon a startling revelation... the male (of the species Homo sapiens) is as skillful in the art of cooking as the female (of the aforementioned species)... if not more so.

Just look at some of these recipes that were developed in the kitchen of one masculine homemaker—such imagination!

1/2 lb. week-old chopped meat
1 sm. can lima beans
1 sm. can tomato sauce
1 pinch: salt, pepper, oregano, tabasco, chile powder, and prepared mustard.

Mix well, Bring to rolling boil in small nail keg. Serves two... who have lead-lined stomachs.

Pretty amazing, no? This same chef also whips up something he calls chocolate french toast. It is made by dipping the bread into a mixture of egg and chocolate milk... a mixture that Zilch found quite unfortunate.

Zilch proposes a toast (not of the chocolate french variety) to the male college cooks of America... and long may they tantalize our "T" zones ("T" for ptomaine).

Countryman Elections

THE Countryman is pleased to announce the results of its staff elections. The editors and managers for the year 1960-61 are: Editor-in-chief, Edward L. Razinsky '61; Business Manager, Alan Burg '63; Managing Editor, Carole J. Wedner '61; Associate Editors, Jane E. Brody '62 and Jack E. Hope '61.

The new Home Economics Editor is Peggy FitzGerald '62; Local Advertising Manager, Virginia Swanson '62; Circulation Manager, Linda Reed '63; and Secretary, Suzy Gubin '63.

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Stronger Vocal Chords for the Farm Voice

From their downtown Ithaca office, the New York Farm Bureau works with farmers to keep agriculture strong. With "Kitchen Konferences" as a basic policy making forum the NY Farm Bureau strives to live up to the motto on their seal: "Confidently we face the future with the Farm Bureau."

by Jack E. Hope '61

"Helping farmers to help themselves" — that's what the New York Farm Bureau has been doing since its creation in 1917. This largest farm organization in the world operates at the county, state, and national levels, with the New York State main office located in downtown Ithaca.

A need of farmers for technical aid and information concerning crops, livestock, marketing, farm politics, and similar issues was recognized early in the century by the Binghamton Chamber of Commerce in Broome County. The Chamber, together with the Delaware, Lackawanna, and Western Railroad, cooperated in the movement to establish a "farm bureau" within the Chamber, with John H. Barron serving as the first county agent.

During these formative years, the New York State College of Agriculture offered organizational and technical advice. In fact, Binghamton's concern with the welfare of the farm population was largely a result of the report of the "Country Life Commission" of which Cornell's Dean Bailey was chairman. County Agent Barron was himself a graduate of the State College of Agriculture.

Then, as now, the Farm Bureau derived its strength from the small, local gatherings of farmer members who have always been the policy-formers of the organization. Starting with the spark in Broome County, interest in the movement spread until the NYS and then the American Farm Bureau Federations were formed in 1917 and 1919, respectively. Due to the location of the New York State College of Agriculture at Ithaca, many Farm Bureau meetings were held at Cornell University where the first state office of the Farm Bureau was established.

During the following years, the State Farm Bureau Federation served, and still serves, the farmers of New York with an ever-enlarging program. Despite the Bureau's increasing functions, its officers and members have maintained the original design of concentrating all power in the hands of the individual farmer members. This democratic structure initiated with County Agent Barron, who promoted the first household and community Bureau meetings where farmers could informally discuss their common problems.

Today, these home gatherings of about twenty members are called "Kitchen Konferences." Here it is that Farm Bureau policy is formed. Such topics as taxes, marketing, education, acreage allotments, international trade and other issues whose outcome may be influenced by farmer opinions and which in turn would influence Bureau members, are discussed.

Through a system of delegates, Farm Bureau's final position at the various levels of government is determined, thereby guaranteeing our farm people a position of unity and strength.

Kitchen Konference participants are kept continually aware of what's brewing in Albany and Washington by their legislative chairmen, and similarly, state and
national representatives can carry out their lobbying with the knowledge of what the folks at home are striving for.

"Paid personnel has its role but they cannot do for the member what he can do for himself." Accordingly, although the Farm Bureau issues formal statements of policy to legislators and to the public at large via its lobbyists and through radio and press, individual members are urged to write directly to their district representatives to provide the much-needed support for Farm Bureau policy.

And Farm Bureau does get through to the top! The Ithaca office of NYS Executive Secretary, Mr. E.S. Foster remains vacant throughout the NYS legislative session while Foster stations himself in Albany to lobby for the members' benefit. In addition, a feature of the Bureau's policy is to provide arrangements whereby delegates from county groups can meet annually with the governor of our state in a question and answer session. As a safeguard of true representation, these delegates must be farmers actively participating in their county bureaus. This and other precautions of like nature insure that the Farm Bureau will always remain a tool of its members!

A step toward more effective influence over legislative activities was taken by the New York State Farm Bureau Federation in 1956, when separation of the State Extension Service and the State Farm Bureau took place. It will be remembered that the very formation of the Federation began with the selection of the first county agent.

Although the two bodies each serve an essential need of New York agriculture, both groups realized that the union of a public-supported body (the Extension Service) and a member-supported, non-governmental organization (the Farm Bureau) was not in keeping with the ideal of serving the best interests of state agriculture.

Specifically, certain issues supported by the agricultural interests in the state might be opposed by the remainder of the taxpaying public, and so long as Extension and Farm Bureau were united in one body a certain amount of restraint and caution by both groups were required in order to utilize tax money in the interests of the whole public. Mutual agreement was expressed on the separation, and relations between the two agencies remained cooperative.

The New York Farm Bureau, now called the New York Farm Bureau, Inc., shifted its state office from Roberts Hall on the Cornell campus to its present location in the City of Ithaca.

In the future the New York Farm Bureau, Inc. will continue to provide its continued support to such programs as research, market expansion, public education and information, commodity promotion, and the like. Members and the general public will be kept informed on pertinent developments, new ideas and trends by way of the grapevine stretching from Kitchen Konference to the Ithaca office, and from there to Albany and Washington. Further information is supplied by way of the organization's publications, including Nation's Agriculture, the American Farm Bureau Newsletter, and the Farm Bureau Spokesman. From the Ithaca State Office also come weekly legislative reports to be broadcast over state radio stations. Mr. John Gold of the Ithaca Office, part of whose duty lies in the issuance of the Spokesman and the Weekly radio tapes, is aptly named, "Director of information!"

An important goal of the New York Farm Bureau is the establishment, in the near future, of a cooperative bargaining association for its farmers. A Market Development Committee in our state is now exploring the possibilities of increasing the farmer's bargaining power in relation to the already powerful position of wholesale buyers of agricultural commodities. A national goal is the formation of a similar association for its one and one half million members throughout the continental U.S., Hawaii, and Puerto Rico—truly an ambitious and worthwhile objective. But from the past record of the Farm Bureau, it is by no means too much to hope for.

Mr. Richard Perry, President of the Tompkins County Farm Bureau, and Mrs. Perry writing to their legislator.
Z Z Z Z ZIPPERS

From its lowly beginning in a stout man's shoes the zipper has become a familiar item in clothing. Until the depression it was a novelty. Today Talon Company manufactures 1,000,000 a day. Zippers are used in items like blue jeans and the rugs at the Waldorf-Astoria.

by Carole J. Wedner '61

Whitcomb L. Judson needed some way of closing his shoes without bending over. His necessity was the mother of the zipper.

IMAGINE the trouble stout, old Santa Claus must have had lacing up high button shoes all by himself. Whitcomb L. Judson, a portly nineteenth century inventor, had precisely this problem. Every time he bent over to lace his shoes, he lost his breath and came up puffing and blowing. Being a constructive gent, he invented a sliding device that would enable him to attach a pull string to the closure and lace his shoes without such great effort.

This clever but clumsy device was the father of our zipper. Today, zippers of all colors and sizes hold our clothing securely fastened. Not only do we have boots of all kinds closed with zippers, but our lingerie, skirts, pants, dresses, and outer garments are fastened with these slide fasteners.

Of course, the zippers used today are quite a bit different from Mr. Judson's "clasp locker and unlocker for shoes." It had a metallic chain formed by flat, curved, sheet hooks, suggestive of battles axes. These hooks were joined together by running a slider over the chain and progressively slipping the hooks into eyes. This original slider was laced into the shoes through holes in the chain.

Although this clasp locker was excellent for lacing Mr. Judson's shoes, it was suitable for little else. In fact, Mr. Judson never intended it for anything but a curiosity. He showed it in Chicago at the Columbian Exposition of 1893 where Colonel Lewis Walker spied it. Colonel Walker closed his eyes, and let his imagination carry this gadget into the homes and clothes of the American people. But, when he opened his eyes again he was faced with this clumsy pair of metal chains, which had to be modified into a usable item.

Walker and Judson set to work experimenting on different hook and eye fasteners. Gradually, the original closer was improved upon, until it evolved into one that consisted of small metallic units attached to fabric tape—similar to the tapes used in today's zipper. As a closing, this model worked fine, but it had an unfortunate habit of popping open when least expected. A few embarrassing mishaps and the "C-Curity" became a failure.

Before the story of the zipper became one of success, there was a long series of similar failures. Colonel Walker, however, had his eye on a goal and would not give up. Finally, in 1914, Gideon Sundback, a noted Swedish engineer, made improvements on the existing model and perfected automatic precision machinery, "Hookless No. 2" became the world's first successful slide fastener.

Successful, that is, as far as working right. Financial success took a while longer.

This new "Hookless" was first used by a Brooklyn tailor on New York's waterfront. He put them in money belts and sold them to sailors.

B. F. Goodrich Company gave the Hookless Fastener Company its first big break. It put new galoshes on the market with slide fasteners as closings. The new overshoes were called "Zippers" and the public took to them immediately. And so a new product was on its way up and a new word was added to the English language.

But the zipper's story doesn't end here. There was still the problem of convincing clothing manufacturers to use zippers in all types of garments. Shortly after the "Zipper Boot" came out, France's famed Madame Schiaparelli designed a gown with the slide fastener spiraling down from the neckline to the hem.

It wasn't until the depression that the use of zippers in clothes became popular. By that time the closing had been modified in size and could be installed securely and invisibly in most garments.

Today's modern slide fastener bears no resemblance what-so-ever to the device which Mr. Judson conceived just before the turn of the present century. The modern zipper, explains the Reader's Digest, "is essentially a series of closely spaced blunt hooks which fit into shallow eyes. If you have patience and a steady hand you can hook one up yourself, but the slider does the job faster and more easily." The slider
forces the chain together at an angle which allows the crown of each scoop to fit into the pocket of the scoop above it. “Each hook once inserted, is held in place by the one above it, since it has no room to turn in to disengage itself.”

Talon Inc., the company begun by Colonel Walker, turns out some 400,000,000 slide fasteners a year. This is more than all its competitors combined. Most of these zippers are sold to manufacturers of ready made garments, but many are packaged separately for sale to home sewers.

The company also fills special orders. Talon employs trained consultants to consider problems peculiar to each individual customer.

The world’s longest zipper was made for the Waldorf-Astoria. The hotel had to rip apart the ballroom rug every time there was a dance and sew it back together by hand after each affair. That was the situation until Talon made a zipper which enables the rug to be removed and relaid in a fraction of the former time.

Talon’s latest innovation will be on the market for home sewers late this spring. This is the “Seam-Thin Invisible Zipper.” This zipper consists of a “concealed slide chain.” No concealing placket is required, for all that remains visible is the pull tab of the slider. This type of zipper is especially suitable for skirt and skirt-type closings and is recommended for use in heavier fabrics. Because of its special suitability it will be available in seven and nine inch lengths.

This simple, little gadget, which we use so often without thinking was struggling for existence fifty years ago. Today the zipper has assumed such a prominent position among closures that it is difficult to imagine modern clothing or living without it. It is a basic product which has become an accepted and integral part of everyday life, useful to both consumer and manufacturer.
LIGHTNING — the destroyer from the sky—kills 600 persons, injures 1500 others, and causes more than $100,000,000 in property damage annually. Yet, lightning has been a part of myths and fables for so long that many an average citizen has little idea of its potential force or of protections against it.

Usually, lightning is a summer visitor and strikes most frequently from May to October following hot spells when extremes of temperatures on the earth and at high altitudes set up violent turbulences.

According to Emil Jungell, executive secretary of the Lightning Protection Institute, a non-profit organization sponsored by lightning equipment manufacturers, lightning originates in storm clouds. As the humid air condenses to rain drops, water turns to ice crystals and there is a separation of positive and negative electrical charges. Usually, negative charges accumulate in the lower part of the clouds and on earth. As the attraction between the positive and negative charges grows, they leap across a gap of non-conducting air. The result: lightning.

In leaping the gap, a tremendous amount of heat and energy ionizes and explodes the air molecules causing thunder.

While the lightning flash looks like just one bolt, it is really a series of discharges, like bullets, one following the other. The flash is actually the path of the bolt in the burning air.

A bolt isn't really as thick as it seems, either. It may be only three-quarters of an inch wide, but it is surrounded by a four inch channel of intensely heated air and can be from 2000 to 15,000 feet long. These thousands of feet of electrical charges pack a mighty wallop, too.

In one bolt there can be a build-up of hundreds of millions of volts. But, voltage alone does not give lightning its destructive force. An electrical toy can have up to 20,000 volts and still be harmless. Amperage, on the other hand, is what makes lightning a destroyer.

In a lighting bolt, from 1000 to 340,000 amperes accompany the voltage. This power is sufficient to smatter a large building to bits or make splinters out of a fine old oak. Or, because of lightning's freak nature, it may merely tear a few shingles from a home.

Mr. Jungell of the Lightning Institute says that lightning can be either "hot" or "cold." "Cold" bolts have high voltage with low amperage and seldom cause fire. However, they contain tons of explosive power. "Hot" bolts have low voltage with high amperage and are the fire-setting variety.

Even though the experts know a lot about what causes lightning, few can predict what it will do when it strikes.

It has been known to set a building on fire and then leap to a nearby fire alarm and call the firemen. It will follow a wire fence for miles and then spring off and kill a herd of cattle.

Lightning is a player of pranks, Mr. Jungell adds. Once, it gave a permanent wave to a woman sitting in bed with her hair in bobby pins. No other damage occurred. And, it once struck a horse in New York, knocked off its shoes, and left the horse unharmed.

No matter how many pranks lightning does play, however, the facts still remain. Lightning is a massive destroyer. But, Mr. Jungell emphasizes, "the toll can be cut down if the public becomes aware of the causes."

Most important is knowing where lightning is likely to strike. Lightning tends to leap the shortest distance. For this reason, higher places are more dangerous — the highest tree on a hill, the Empire State Building (which is hit as many as 48 times a year), a chimney, a television antenna, or a man walking alone in a field.

Isolation also attracts lightning. Because tall objects give a cone of protection to their neighbors, a tree in a forest is less likely to be struck than a single tree in a field. The same holds true for a man walking in that field.

Lightning's attraction for high objects is best summed up by Mr. Jungell's advice, "Don't let the highest object in any area during a storm be YOU."

With the purpose of promoting personal safety during lightning storms, the National Bureau of Standards as well as the Lightning Protection Institute have set up the following suggestions:

• The most dangerous time is just before the storm comes, when

**Lightning Protection Institute**

Lightning traveled down a television antenna, setting a partition aflame and putting a new "entrance" in the kitchen of this home.
from the Sky

The season is open-
season is open-
season is open-

The season is open-

Season is open again and the clock 100
will strike. A building
is an open fire.
The annual
loss to schools alone is estimated at $16,000,000.

April, 1960

Don't remain outdoors. But, rubber tires. So, even if lightning
does strike, the bolt will stay with
even if lightning
does strike, the bolt will stay with
even if lightning
does strike, the bolt will stay with
the car's metal shell, leaving the
the car's metal shell, leaving the
the car's metal shell, leaving the
occupants unharmed.

If a person is hit by lightning, the electrical shock can cause con-
traction of the arteries and heart. Artificial respiration will sometimes
start the heart beating again.

Protection against direct loss of life from lightning is only one as-
pect of the fight, according to Mr.

Mr. Jungell emphasizes, is responsible
for more than a 50 per cent increase
in lightning losses over the last
decade. The need for lightning
protection in suburbs was recently pin-
pointed in the terrible loss of life
and property at a school in a
Chicago suburb.

Damage has also been increasing
on farms because of greater use of
metal in buildings. Overhead elec-
tric wires from the house to the
barn and other buildings and metal
piping systems within buildings in-
crease the hazard.

by Brenda L. Dervin '60

Even schools, as this one, are not safe from fires caused by lightning. The annual
loss to schools alone is estimated at $16,000,000.
Lightning now causes 2 out of 3 farm fires that tend to be totally destructive because the buildings are often all-wood and filled with highly combustible materials such as hay.

This loss doesn't even include the thousands of farm animals killed by lightning every year. Lightning doesn't care what it strikes...it can be a solitary animal lost in a storm or a herd of 504 sheep as were recently killed with one bolt in Utah.

"This toll can be cut down," Mr. Jungell states. Lightning can be controlled with modern lightning protection systems that are properly installed and grounded. Protection can be installed in homes, barns, on fences, and even on trees, where most farm livestock congregate during storms.

Basically, a system merely picks up the charge of the bolt, conducts it harmlessly to the ground or disperses it into the air. It operates on the same principle as the bit of chain often seen hanging from gasoline tanks on highways. The chain is there to carry the static electricity with which the truck is charged to the ground. If this electricity were not carried off, a terrific explosion would occur.

However, as simple as the system sounds, Mr. Jungell emphasizes that installing lightning protection is not a "do-it-yourself" project. It takes trained technicians because a modern system is nothing like grandpa's lightning rod. In fact, it isn't even called a lightning rod, anymore.

It's an air terminal, made of copper, pencil-thin and pointed. The air terminals are installed at intervals on all the high points of a building—roof peaks, gables, and chimneys. These terminals are interconnected and bonded to copper cable strong enough to carry lightning's heavy amperage into the ground.

Everything that is metal is tied into this protective system and any tall trees near the building are tied in, too.

A separate device is installed on
power and telephone lines to arrest and ground "side charges" from any lightning strokes down the line which might otherwise reach the building through wiring and appliances.

A system, properly installed, gives 99 per cent protection. However, if lightning does strike, the system should be checked afterwards for possible damage. And, authorities generally state that a system over 5 years old is in need of reconditioning.

Mr. Jungell adds that of the ten million protection systems on homes, farms, and public, commercial, or industrial buildings, probably one-fifth are faulty and would not function properly under lightning storm conditions. Often these systems are old and have deteriorated over the years.

Repairs or remodeling of the building may have made the system ineffectual. Conductors may have been loosened or disconnected and not replaced or additions may have been built without tying them in. Or, system may not work simply because improper materials were used when it was first installed. Unfortunately, the test comes when a bolt strikes . . . and that is too late.

It is for this reason that before having a system installed, persons should do some checking. "A lightning protection system is no better than the materials used and the understanding and completeness with which it is installed," report Cornell agricultural engineers.

Unfortunately, the lightning protection industry is plagued by irresponsible operators. To avoid fraudulent practices, the Cornell experts suggest a four step plan:

1. Ask for references regarding installation and service from friends and neighbors who have used the company.
2. Find out whether the company will give you a signed contract with exact cost and assurances of standards of installation equaling or surpassing all requirements of the Master Label system. The Master Label system was set up by Underwriters’ Laboratory, a non-profit testing organization, to insure the quality of lightning protection units. After a unit has been installed, the owner himself signs the application for the Master Label after the system has been checked to see if it meets all UL standards.

3. Ask your insurance agent. In many states, a properly installed system will mean a reduction in fire insurance, usually 10 per cent. New York State gives large credits when a system has the Master Label approval.
4. Find out whether the company maintains a regular inspection and maintenance service. As a final safeguard, one representative of an old-line firm stated, "When the installation is completed, pay half the bill, then pay the remaining half when the system is inspected and has received the Master Label."

Readers who wish to know more on lightning protection may write for the free booklet, "Lightning Facts and Figures," from the Lightning Protection Institute, 53 West Jackson Boulevard, Chicago 4, Illinois.

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Cholesterol has been accused of causing heart disease, yet it is found in our most nutritional foods. Both sides of this issue must be viewed before any decision can be made.

by Elizabeth Pomada '62

CHOLESTEROL is a major defendant in the case against heart disease. President Eisenhower's heart attack in the fall of 1955 started the public trial. The defendant is on the witness stand. The charge is attempted murder.

Those who support the theory that there is a correlation between heart disease and cholesterol present these arguments: 1) a rise in blood cholesterol may be caused by certain dietary fats, 2) sustained elevation of blood cholesterol increases susceptibility to atherosclerosis (a disease of the arteries), and 3) dietary fat may cause the shortening of blood coagulation time and also have a destructive effect on the natural enzymes that prevent clotting within the blood vessels.

On the other hand cholesterol is a normal constituent of every tissue. It occurs in all animal fats and in great amounts in our most nutritionally valuable foods.

"One of the Great Men's Clothing Stores of the State."

THE SPORT SHOP
The Store of National Brands
and
Authentic Ivy League Styling

"An ornery bull is one of the best reasons for switching 100% to NYABC breeding. You'll make more by keeping a producing cow in the bull's stall and letting NYABC furnish you with a choice of top sires."

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Ithaca, N.Y.
At the time when the story of cholesterol's harm first came out, conclusive evidence was not available, so research on cholesterol in all branches of science has been intensified.

It has been found that the actual amount in foods is not as important as what the body will readily synthesize. Cholesterol is synthesized (chemically produced) and metabolized (burned for energy) daily in our bodies in amounts far greater than usually consumed in the diet. When dietary intake of cholesterol is increased, the amount synthesized by the body is decreased.

Dietary fats are the primary building stones for cholesterol in the blood stream — especially the saturated or "hard" fats — those that are solid at room temperature. Unsaturated or "soft" fats — those that are liquid at room temperature — might even reduce the amount of cholesterol deposits.

Lard is a "hard" fat; olive oil is a "soft" fat. They're both used in cooking processes and usually increase the caloric value of the food eaten. Obesity or overweight is a result of too many calories. Even though the emphasis now is on eating food high in unsaturated fats, the public has tended to try limiting all fat in order to limit cholesterol.

Experts say that fat itself is nutritionally important. For example: vitamin A occurs in butter, vitamin D in fish oils, vitamin E is present in some vegetable oils, and vitamin K occurs in egg yolk. Amounts of all the vitamins listed are in all the examples cited. As the common storage form of energy, fat is also the most concentrated energy source provided by the diet. Therefore it would seem that total abstention from all fats is just as bad for the body as the overconsumption of fat would be. Perhaps it would be wise for the public to follow a "middle-of-the-road" policy until scientists and nutritionists have decided what is best for us.

Oleomargarine and commercial shortenings pose another problem. They are "soft" fats hydrogenated into solid forms. Originally, the vegetable fats are low in cholesterol, but the hydrogenation process adds hydrogen — "saturates" the fats — and rearranges the molecules. Whether this alteration has an effect on blood cholesterol remains to be seen.

Research on cholesterol is expanding. However, this knowledge, at present, has so many gaps that the best anyone can do is speculate on the ultimate effects of cholesterol in the diet.

CORRECTION
The photograph of the fuel cell tractor on page 33 of the March issue was incorrectly credited and should have been credited to Allis-Chalmers.
Whetzel's Wild Wonder

Once a rock garden favorite, Whetzel Weed has overgrown fields and lawns all over Ithaca. When H. H. Whetzel, Professor of Plant Pathology at Cornell, first planted this unusual flower in his garden he had no idea that he had started an epidemic.

by Robert Gambino '61

"Jimminy" was the censored cry as a student glanced at an expanse of lawn on the Cornell campus. "Is there still some snow on the lawn? I thought the stuff melted long ago."

Upon closer inspection what appeared to be snow was nothing but some cute little white and blue flowers. The plant that produces these flowers is "Whetzel Weed." Its presence on campus for the past few years has been treated with mild concern by some, and intense interest by others. These "cute" creeping plants are considered noxious pests by turfmen and homeowners interested in obtaining excellent weed-free lawns.

The scientific name of this little pest is Veronica filiformis Smith. It is commonly called Speedwell, and rightly so for it can spread from a small patch to an entire lawn in a few years... an amazing feat for a plant once confined to rockgardens.

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HUNTINGTON GARDENS

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Call Ithaca 3486
Whetzel Weed, as it is commonly called in the Ithaca area, was named in honor of H. H. Whetzel, Professor of Plant Pathology. Whetzel was an avid amateur gardener in his day and loved to collect new and interesting plants for his garden at his home on Forest Home Drive. He was probably one of the first persons to place Veronica in a rockgarden collection in the Ithaca area.

It is evident that something must have happened. Whetzel may have given away a few of the plants that were subsequently propagated from the plant he purchased, but this was not enough to cause it to reach the devastating proportions it has attained in this area.

The history of the plant is interesting. Veronica was named by Smith in 1791 and is native to Asia Minor. It had been planted in gardens in France until it reached weed proportions in 1893, running over into the fields. Subsequently it has been reported as an escapee from cultivation by Germany in 1920 and Great Britain in 1932.

In the early 1930's, Veronica was introduced in the United States. It was listed as a rockgarden plant in catalogues for nurseries in New Jersey, Massachusetts, Pennsylvania, Connecticut, and New York.

Reports of its acquiring weed proportions were noted in the Ithaca area in 1936, the turf around Sage Hall and an area in Forest Home being the first to be infested. Now, it has assumed pest-status in the heavily populated areas of upstate New York. There have been some cases reported in south east New York State and Long Island, as well as in Ohio and Pennsylvania. People wondering why this plant has reached pest proportions usually reason that the spray materials and "new-fangled" chemicals used in most gardens today for the control of fungi, insects, and weeds are responsible for the increasing incidence of this plant. Whetzel Weed thrives best in moist shaded places, but can grow as well under other conditions. The climate of the northern states seems suitable for its naturalization.

Veronica has been observed to produce sterile flowers or seed capsules which do not bear seed in the Ithaca area. In spite of this apparent trouble, the plant is able to reproduce vegetatively with ease. Clippings root quickly and, consequently, pieces of the plant carried by moving equipment, rakes and worker's shoes are potential plants and can be carried to areas in which it was formerly absent. This accounts for Whetzel Weed's rapid spread to areas where there has been no formal introduction.

Once established, Whetzel Weed spreads rapidly, crowding the turf, but not actually eliminating it. In some cases it has been used in place of lawns and as a ground cover. As a lawn plant it grows well, never attaining a height greater than three inches. It is a poor substitute for grass though, because it cannot stand much traffic.

In order to control Whetzel Weed, one should be able to distinguish it from Ground Ivy, a plant which is similar in appearance. Veronica has prostrate stems with opposite leaves. Each leaf is oval to roundish, with crenate margins, and no larger than one half of an inch across. The flowers are very small, on thin stalks and pale blue and white in color. The chemical Endothal has been developed specifically for the control of Veronica. It can be obtained from most garden supply centers. Care must be exercised when using Endothal. The manufacturer's directions must be followed if there is to be any insurance of success.

The Ground Ivy, on the other hand, has larger leaves, they being greater than one inch across. The control measures for Ground Ivy are different from that of Whetzel Weed.

We can see now that Whetzel Weed is a problem in lawn areas. These "cute" creeping plants have become pests and are no longer thought of as garden plants. If they were, they would probably be called Whetzel's Wild Wonder!
Katherine Reeves -- Author, Teacher, Children's Friend
by Margaret FitzGerald '62

“Students will always know and understand children better for having been taught by Professor Reeves.”

Professor Katherine M. Reeves had her arms full of colorful children's books as she floated into the lecture room, her wavy hair brushed back. Her students looked forward to another hour of Children's Literature, better known as “Kiddy Lit.” Professor Reeves is familiar to many on the Upper Campus as an inspiring teacher of child development courses. She is well-known as an author of several children's books and articles for parents and teachers.

Grade school children all over the country have been delighted by her most recent book, “A Feather Bed for Toby Tod.” She has also written “The Farmer's Catnap” and “Curious Doings at the Mouse House.” Her articles appear regularly in Grade Teacher and The Horn Book.

In her latest book for adults, “CHILDREN . . . their Ways and Wants,” she describes many types of children with great understanding.

Professor Reeves feels that her childhood experiences and her contacts with children have greatly contributed to her understanding of them.

In Oregon, where she spent her early childhood, she was free to roam the countryside in search of adventure. Professor Reeves remembers the day when she first saw the inside of a great Atlantic and Pacific Tea company van. She was fascinated by “the wonderful way it looked inside with the tea, coffee, and spices.” Later, she was to share this experience with many children as she described the van that Toby Tod and his uncle drove in “A Feather Bed for Toby Tod.”

Professor Reeves says that she has always been interested in children, in being with them, and in learning about them. Since her early days she had been told that she had a knack for children. All of her friends said that she should be a kindergarten teacher when she grew up. The road to this goal was long.

After she received her B.A. from Kentucky Wesleyan, Professor Reeves returned to Winchester, Kentucky, her birthplace, just in time to accept a teaching position at Science Hill School. She taught 20 pupils in the private grade school which she herself had attended.

At first she was scared of the prospect of teaching as she had not prepared for it in college. The opportunity for close contact with her pupils helped her to gain confidence and she soon found that she was very interested in teaching. Professor Reeves said, “I found these children's eagerness to learn so exciting that I decided to go to teacher's college and find out what it was all about.”

Professor Reeves received her M.A. from Columbia and her nursery-primary teaching certificate from the National College of Education. It was during this period of training that she decided to teach nursery children because the whole process of learning was in the beginning stage for them, and more of a challenge to her as a teacher.

In “CHILDREN . . . their Ways and Wants,” Professor Reeves says that it is hard for a teacher to discover something of the past as well as predict something about the future of the children with whom she works. “Although this difficulty complicates her [the teacher's] job, it gives it life and excitement too . . . and accepting each child for what he is, she can help him build self-acceptance so that he will be able to say, as one twelve-year-old said: 'I do not wish I was somebody else, I am just glad I am'”

Professor Reeves joined the staff of the department of child development and family relations at Cornell as a nursery teacher in 1927. She was director of the nursery school from 1937-1947. She became an associate professor in 1943 and a professor in 1952.

In “Four Go Walking,” a sketch for the October 1941 issue of Childhood Education, Professor Reeves tells how the world appears to a group of neighbor's children out for a walk. Their names are of her fancy: “. . . only a Jonathan, three years old, could walk with so demure and so tyrannical a stride. Only a Dicken, not yet two, could waddle so magnificently straight in white woolens which tuck treacherously under the knee. Only a Trumpet-Blossom (seven) in a fly-away blue jacket could skip so eagerly along a rain-wet street. Only a Primrose, age nine and a half, could march with serenity so difficult a family out for a sunny and an airing.”

Students will always know and understand children better for having been taught by Professor Reeves.

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Cornell Countryman

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MAY MEMORANDUM


The Gift Department has a big display of Cornell steins and mugs, souvenirs and gift items for Spring Weekend, picnics and beer parties.

Come in often in May. It's always convenient and there's always something new to see.

CORNELL CAMPUS STORE, INC.
BARNES HALL
Editorial

A. W. Gibson '17

36 years with the Countryman

MANY great names have graced the masthead of the Countryman in the 57 years of its existence. Usually, they disappeared with little or no mention. But we would like to single out one, not only because of its prominence, but also its persistence... A. W. Gibson '17.

This name first appeared in the Countryman in February, 1924, bearing the title of Alumni Editor. Twenty-one years later the name, and the title, were the same.

We wouldn't want it to appear that the Countryman tries to prevent the advancement of its editors. Although A. W. Gibson '17 never became editor-in-chief, he did go a step higher... to the Board of Directors in November, 1945. The masthead has proclaimed this fact for 15 years and is doing so for the last time in this issue.

Of course A. W. Gibson '17 is better known as Director of Resident Instruction in the College of Agriculture. We feel, however, that in his 36 years with the Countryman Director Gibson has meant as much to the Countryman as he has to the College.

We should have, of course, said this many times before—but for all the advice, guidance, patience, assorted desks, chairs, and filing cabinets... and even a recent letter-to-the-editor... the Countryman staff, in behalf of all Countryman staffs—would like to say thank you.

We would like to welcome the new Director of Resident Instruction to his position both with the College and the Countryman Board of Directors. We hope that his association with them will be as successful and rewarding as that of his predecessor.

Congratulations:
to William F. O'Connor, a senior in the Ag College, who won a first prize of $100 and a second prize of $25 in public speaking contests during Farm and Home Week.

Bill took the affirmative side in the Rice Debate on the subject, "Resolved that strikes detrimental to the public welfare be subject to compulsory arbitration." He took first place.

O'Connor's second award, in the Eastman Stage speaking contest, was for a talk on Australian agriculture.

A transfer student from the University of Melbourne, Bill is majoring in agricultural economics and is also a member of the Cornell track team.
The editor is apropos of shipwrecks

by Zilch

Ode to Spring:

Zilch is glad Spring's here again,
'Cause Winter's winds did give him pain.
The sun, the birds, the trees are nice,
Better than that nasty ice.
So enjoy life kiddies, while you may,
'Cause finals come 'fore many a day.

AND now, another message from Zilch, the bard of Roberts Hall.

A Zilch revelation! There are people who make money dealing with eggs. Dr. Alexis L. Romanoff, professor of chemical embryology in the College, wrote a book called, The Avian Egg. The book sells for $3.50! Perhaps egg producers should consider replacing their automatic feeders with typewriters. After all, the demand for eggs is so terribly inelastic.

By the way, Dr. Romanoff's latest book is on sale now. It's called, The University Campus. Zilch notes with pride that the Countryman is mentioned on page 20.

Speaking of poultry—Zilch was, if you weren't—we heard a story involving very subtle, economic connotations.

It seems, a real estate agent, in a heavy egg producing county of the lower Catskills, excitedly approached a poultry farmer. "I found a man who wants to buy a poultry farm!" he hissed hysterically, "He's the first one in three years!" The farmer retorted searchingly, "Is he normal?"

Zilch thinks that this is surely a commentary on our times.

Congenial slaps-on-the-back are in order for a heroic coed in the Home Ec College. Pat Parker, the heroine in question, and her two brothers, saved a ten-year old boy from drowning. And, in the words of a recent press release, "They also retrieved his bicycle." Good show!

Zilch notes with regret that a long-time friend of the Countryman, Professor Lawrence Darrah, has been beset with illness. We hope that Prof. Darrah will return soon, as Zilch needs some help on his chocolate French toast.

In the true journalistic tradition, Zilch has uncovered a really and truly hot news item! Now dig this. After months of arduous argument and insidious insult, the past editor of the Countryman, one SAB, finally cast off the holes-with-laces that he called sneakers and bought a brand new pair. And what yummy "gummies" they are!

Public-Relations-In-Action Department. While checking the Countryman mail, to make sure it wasn't booby-trapped, Zilch came across a letter from the Corn Products Company to our blissfully inept editor. The editor had written for some information concerning pop corn. A public relations man at Corn Products wrote back, "We process quite a bit of corn, but I'm afraid none of it 'pops.'"

Those P-R men are really smooth.

Which brings up another point. Stephen Crane once wrote, "Shipwrecks are apropos of nothing." Zilch thinks that the editor is apropos of shipwrecks.

Good-bye friends. Have a nice summer and may all your good dreams come true.

May Cover

THIS month's cover was designed by Jim Estes of the Extension Teaching and Information Department and drawn by Bunnie Dervin of the Editor Emeritus Department.

Their theme: Spring—when little boys take to the fields with the kites and big boys . . . well, big boys like spring too.

We thank them both for their interpretation.

On Spring Weekend

"Look like an Angel
with a hair style
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Common Sense and Horses

Captain Vladimir S. Littauer bases all his work in training horses and riders on a “common sense method.” Cornellians who participated in a two day riding clinic got a dose of Captain Littauer’s technique.

by Carol L. Levin '60

COMMON sense and horses may sound incongruous. But, it isn’t. For, Captain Vladimir S. Littauer, the foremost spokesman of front-seat riding and a leading trainer of hunters and jumpers, bases all his work on a “common sense method.”

Littauer’s method is based on one sound principal—keeping the horse calm at all times.

It was this one principal that pervaded the recent two day riding clinic sponsored by the Cornell Saddle Club and directed by Captain Littauer.

The Cornellians that participated in the clinic got a good dose of Littauer’s common sense method and his devotion to the theory of “learning by doing.”

Early in the day, the Cornellians, directed by Littauer, practiced slow trotting on loose reins, the forward seat position, trotting on tight reins, then galloping in preparation for jumping. All the practices were aimed toward one thing—greater control. And, after each practice Captain Littauer directed analysis and showed movies.

Very little time was spent on actual jumping because, as Captain Littauer says, “much important schooling of a horse is done at a standstill.”

“Riding consists not so much in combating something but rather in creating a situation in which problems do not arise.”

If a horse is afraid of something, Littauer continues, you should stand the horse next to it until he is sick and tired. Then, perhaps, the fear will go away. It’s no use beating the animal to try to get him near a fence if he is afraid of that fence.

Probably one of the best examples of Littauer’s method at work is his demonstration to show that a well-trained horse will go over fences and turn willingly and easily without a bridge.

Along with the clinics that have spread his fame, Captain Littauer has written seven books and many articles on schooling of horses and horsemanship.

Captain Littauer has been directing clinics, such as the one held at Cornell, since 1942, when he started because he “wanted to raise the standards of riding in the United States.”

Littauer was originally from Russia, where he was a Captain in the First Hussar’s Regiment of the Old Imperial Army. He left his native country after the end of the Russian Civil War.

Once in the United States, Littauer organized the Boots and Saddles Riding School in New York City and after ten years left the school to free lance, schooling hunters and jumpers.

His success, according to one of the Cornellians who rode in the clinic, is probably based on the fact that he is a good teacher . . . as well as a good horseman.
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Helping “Today’s Home To Build Tomorrow’s World”

Celebrating its fifteenth National Home Demonstration Week, the Extension Service helps homemakers to meet the challenge of change in our society through food preparation demonstrations, home management help, and many other services.

by Margaret FitzGerald '62

TODAY’S homemakers need help in adjusting to our rapidly changing society. Over seven million homemakers every year receive just this help through participation in the national home demonstration program.

Home demonstration agents show homemakers the practical applications of current research in home economics. They also keep research staffs informed on what the public needs. Home demonstrations agents help women across the country to save energy, time, and money.

Matching accessories, part of a project unit in the study of clothing, are tired on Mrs. Margaret Gainey by Mrs. Williametta Garvin.

Challenge is the keynote of home demonstration work for the person who enjoys a job with plenty of variety and opportunity to work with people. On May 1st through 7th, homemakers will review the results of the challenge as the Extension Service celebrates the fifteenth annual National Home Demonstration Week.

However, this celebration represents only the most recent phases of the long development of the Extension Service and the home demonstration program.

The beginning was May, 1914, when Congress passed the Smith-Lever Act which enabled the state Land Grant Colleges and the United States Department of Agriculture to join forces in establishing and maintaining an out-of-school educational program. The program was originally designed to aid rural families in improving their farms, homes, and communities. Now there are both urban and rural home demonstration programs.

Under the terms of the Act, funds for extension work are provided by federal, state, and county governments, and administered by the Co-operative Extension Service of the Land Grant Colleges.

In 1960, each of the 50 states, Puerto Rico, and Canada have an extension service.

Local home demonstration units were formed to discuss management and other problems, and to learn new skills.

In order to reach today’s busy mothers, more home demonstration units are meeting at night. There
are shorter training schools and training projects. Some 4,034 trained home demonstration agents teach classes with the help of 617,000 volunteer leaders.

There is a large demand for home demonstration agents in both urban and rural programs. As the Extension Service becomes more active in the field of consumer education, and as home and farm management is expanded, there will be an even greater need for home demonstration agents. Each year, many vacancies are created because of marriage.

If you like people and talk easily with them, and manage your affairs well, home demonstration work might appeal to you. Home demonstration work is an interesting combination of teaching, business administration, and public relations. An agent's work varies with the needs and interests of the members in her area. Her job calls for initiative, imagination, and creativity. She keeps informed of the latest research and trains local leaders who in turn teach their units. An agent plans special workshops, demonstrations, exhibits and fashion shows. She plans educational tours and visits homemakers to talk over their problems. Press releases, bulletins, and radio and television appearances keep the public informed of the latest developments.

Programs are planned to instruct homemakers in many fields of home economics. Homemakers are grateful for the opportunity to learn the variety of skills taught in home demonstration programs.

One homemaker who participated in a unit on pickles, relishes, and canning commented, "I didn't know there were different kinds of vinegar—no wonder my pickles used to turn out so soft and slippery." Units on Italian cookery and oven meals gave homemakers many new ideas for menus. Instruction in making fabric lamp shades saved a homemaker from discarding old or odd-sized lamps.

With the help of her local unit programs and home visits from home demonstration agents, another homemaker learned how to manage time and energy, to run her farm-home and work two days a week at the hospital for extra money. With the extra money, she was able to remodel the living room and kitchen.

Homemakers ask for help on a wide variety of home management problems. Home demonstration agents try to deal with each problem on an individual basis. A real effort is made to emphasize management and decision-making principles in relation to the total farm and home picture.

When a poultry farmer and his wife decided to build a separate farm office, they asked a home demonstration agent for advice. The husband built the office late in the fall after the crops were harvested and between the busiest times in the poultry business. When the business desk was out of the kitchen where the wife had kept the farm accounts, they planned to install an electric wall oven. As egg prices slumped, both decided to postpone the installment. The poultry farmer and his wife had learned to work together as they applied management and decision-making principles.

As a home demonstration agent, you, too, can help others to help themselves.

To be a home demonstration agent, the minimum training re-

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May, 1960
Equipped for spray or dust work, the applicator aircraft is becoming agriculture's fighter squadron. Over 7,000 aircraft are in agricultural use today.

Agriculture’s Fighter Squadron

More and more aircraft is being used to combat agriculture’s natural enemies.

by Gerald P. Kral ’62

In recent years, airplanes have been busily skimming the fresh water lakes of New York’s Adirondack Mountains. These planes don’t drop bombs, they stock fish.

And that’s not all. Whether it’s parachuting fish, spraying or dusting defoliators, fertilizing forest crops, or smothering forest fires with airborne chemicals, the airplane is becoming as important, and as common, as the tractor.

With the development of new insecticides and fungicides that are more efficient, report Dr. Arthur A. Muka and Dr. Paul H. Wolly of Cornell’s department of entomology, and as technical advances are made in the field of aviation, airplanes are found more useful in the business of farming.

Aircraft are now being developed to meet the specific demands of aerial applicators.

Present day crop dusting, seeding, spraying and forestry aircraft are numbered at over 7,000 in the United States alone. Several hundred more are located overseas.

A general list of representative aircraft has been tabulated by Dr. Muka. “The current and new aircraft used in the United States today for aerial application are: the Piper PA-25, the Callair A-5 and A-6, and the Grumann Ag-Cat, the Stearman, the Navy N3N, and the Ag-2.”

The Piper PA-18A, commonly called the Piper Cub, is a converted pleasure plane. Never originally designed for aerial application, the Piper Cub was found useful when installed with an efficient applicator kit—a distribution apparatus consisting of connecting pipes and high pressure spray nozzles attached under the wing and hooked to a hopper which feeds out the desired material.

Called the Pawnee, the Piper PA-25, was designed to replace the Piper Cub as a light spray and dust applicator.

The Callair A-5 and A-6 are similar in design and shape.

The Grumann Ag-Cat, Stearman, and Navy N3N are the biplanes in applicator use. Suggesting some practical aerodynamic advantages, the biplane is considered to have better stall warning characteristics, increased payload capacity at lower speeds, and a fast turn around.

Fast turn around is important in efficient aerial application. The biplane has been clocked at a turn around of fourteen seconds. This compares favorably with the full minute required by single wing planes.

The Grumann Ag-Cat is manu-
factured by The Grumann Aircraft Company. Several of these Ag-Cat applicators can be seen at the Ithaca Airport.

The Stearman and Navy N3N are modified "old jobbers," originally used as primary training craft in World War II. Although com- posing the majority of present day applicators, they are no longer pro- duced and are difficult to obtain and maintain.

The Ag-2 is probably the largest and most specialized of the applicator aircraft. It is specifically designed for large acreages as evidenced by its payload capacity of thirty-five hundred pounds. It is presently operating around the world in such remote "hide-a-ways" as Peru and Mozambique.

In Geneva, New York, the location of one of Cornell's Agricultural Research Stations, fruit orchards have been subjected to a complete aerial spray and dust program.

Results indicate excellent control of plant disease, especially of the fungus-caused apple scab. Results also indicate, however, that certain insect pests have managed to escape or perhaps tolerate the clouds of insecticides that settled around them. More needs to be known about the nature of these insects and how airplane practical insecticides need to be tested and developed before final conclusions can be reached.

States Dr. Wolly, "Insect control looks promising, although more specific research is needed in order to obtain adequate data needed for effective recommendations."

Seventy-five percent of the sweet corn in the Hudson River Valley is at present sprayed by airplane. One of the major problems in obtaining marketable sweet corn is to control the corn ear worm.

Eggs are deposited on the silks when the corn is in the silking stage, the ear worm eggs hatch in two days under high temperatures. If a heavy rain occurs during the spray season, the ground is too muddy to support heavy ground spray rigs.

This leaves only two alternatives: dust by hand, a tedious—not to mention soggy—experience, or dust by air. Consequently seventy-five percent of the sweet corn is sprayed by airplane.

A news item for fishermen, hunters, and southern livestock men: blackflies can now be safely and effectively controlled by aerial spray programs.

Anybody who has ever done any fishing or hunting in the mountains is probably still cursing at the voracious Adirondack Blackfly. It is a vicious biting insect that is feared by fishermen and hunter alike.

There is one case reported of a fisherman being so severely attacked by the blackfly that he threw his fishpole to the winds and dove into the stream, staying submerged for a number of hours and breathing with the aid of a reed.

In the southern states another species of blackfly, the Buffalo Gnat, makes life miserable for livestock. Records tell of horses and mules that have not only been killed from removal of blood to the point of death, but also smothered by large numbers of gnats packed in their nostrils and air passages.

Previously, control was difficult. Treating streams in which the flies breed with insecticides killed the blackfly larvae but also killed everything else. However, when the insecticide is applied from an airplane, the concentration of the chemical in the stream is so low that only the larvae are destroyed.

Many other insect pests have been controlled by this formidable opponent from the skies. Mosquitos, fire ants, bark beetles and other vector pests are among those partly or wholly stopped in their tracks. Previous control was limiting, if not impossible, because only a small area could be covered. With the advent of aerial application, acres could be covered with a minimum of time, insecticide, and labor.

But all is not quiet on the aerial insecticide front. Dissension exists between the conservationist and the entomologist of the actual benefits of aerial spray programs.

The conservationists argue as follows. "Sure, aerial spray programs execute an excellent job of insect pest control, but their sprays are also toxic to much of our wildlife. Rabbits, birds, and other small animals of obvious game and esthetic importance are being popped down the tubes along with mosqui- tos and bark beetles."

The following is a statement made by an entomologist working in this area. "Maybe a few animals are destroyed, but which is more important; saving a thousand acres of valuable timber, or letting a few birds and squirrels live?"

And so the controversy continues. Perhaps agreement can be reached by the development of a species-specific insecticide—one that will destroy only the desired pest. In other words, kill the bug, keep the bird.

The future of aerial application is none-the-less bright. Never before has man had the potential of controlling the onslaughts of insect pests as is now possible.

A Transland Ag-2 Agricultural and Forestry Plane equipped for dust and spray work, the Ag-2 can carry up to 3500 pounds of payload.

May, 1960
How do the various diamond cuts look when set into the engagement ring? This plate shows four favorites: top, left: small brilliant in a square, illusion-type setting. A true solitaire or single stone; no side diamonds. Top, right: fashionable emerald cut diamond with tapered baguette sidestones. Bottom, left: brilliant (round) diamond in classic four-prong setting, sometimes called Tiffany type. Bottom, right: marquise center stone with very long tapered baguettes on either side.

Tips
On Diamond Buying

Most couples who marry have engagement diamonds. Countless numbers of these gems are sold. But, jewelers say most people don't know what they are buying. With these few tips you can be a more intelligent shopper.

by Brenda L. Dervin '60

The diamond you may soon buy for an engagement has a long story behind it. In fact, the story began back about 270 A.D. when the first royal diamond was recorded in the annals of history. Every since, men and women have spent accumulative fortunes for these gems.

In our society today, 85 per cent of the couples who marry have engagement diamonds. And, this doesn't even begin to include the many gems made for thousands of men and women every year.

But, as one jeweler says, "it is surprising how little the buyer knows about what he is buying when it comes to diamonds."

What is a diamond, anyway? Webster states that it is a “native, crystallized form of carbon”—the same element as graphite, but certainly very different.

A diamond, continues Webster, is “highly valued when transparent.” But, over 80 per cent of all diamonds mined are no good for jewelry and are used in industry. Many of these industrial diamonds are no more transparent than mud and no more attractive.

The remaining diamonds—the 20 per cent worth making into gems—are not easy to get to. In
South Africa's diamond coast 20 tons of rock and gravel has to be mined to get two carats of diamonds fit to use in jewelry. By the time these two carats are cut and polished there will be only one carat of finished gems.

The dictionary also says that diamonds are the hardest substance known. Yet, contrary to opinion, a diamond can be injured, being split four ways across its surface in much the same way wood can be split along its grain.

Yet, even though Webster can give you a start, he doesn’t tell you how to buy diamonds and what to look for. And, that’s what’s important to the buyer because diamonds are valued not only because of their beauty but because of their resale value. The resale value depends on the quality of the diamond you purchase.

A jeweler will be the first to tell you that even though you could probably never be an expert in the diamond trade, you can learn enough to buy intelligently.

Generally, the jeweler lists four qualities that affect the price of diamonds and that buyers should know about. These are: carat weight, color, clarity, and cut.

Carat weight is the most familiar to most buyers. A carat is a unit of weight—not an overall size. A one carat gem weighs 200 milligrams. In the round cut called a brilliant, it is about a quarter of an inch in diameter.

Of course, the more carats there

These are the popular cuts for the bethrothal solitaire (single stone) and the arrangement of their top facets. 1) Emerald cut, so called because it was first a favorite for colored stones, especially emeralds. 58 facets. 2) Round cut called brilliant. Many fancy cuts are variations of the brilliant, which gives the maximum glitter through its 58 facets. 3) Oval cut; a revival based on the brilliant. 4) Pear or pendeloque. Also used as a drop diamond on a neck chain. 5) Marquise (mar-KEYS) diamond; makes a slenderizing ring. 6) Heart-shaped diamond.
are in a stone, the higher the price. But, two diamonds of equal size may vary a lot in price because of color, clarity, and cut.

Diamonds come in many beautiful shades—red, pink, lilac, green, blue, a fine deep yellow, and dark coffee-brown. With most of these fancy colors, even the faintest tinge makes the diamond a rarity. But, with the yellows and the browns only the deepest shades are considered fancy.

The degrees of diamond colors are so many that only an expert can tell their real value. This is true even with the clear white diamonds that most buyers prefer.

There are no uniform terms used on a national scale to describe the colors. So, a jeweler usually develops his own scale because it is an aid in selling.

The Federal Trade Commission does set some standards particularly in regard to the term “blue-white.” Actually, a diamond that can be legally advertised as “blue-white” under the FTC rules is so rare that the average buyer couldn’t even consider it.

Unfortunately, however, many jewelers have used the term to mean a fine clear stone. This use has caused so much confusion that the Better Business Bureau now states that merchants who co-operate do not use the term “blue-white.”

Although the buyer can’t estimate the value of a diamond’s color, he can get an indication of the gem’s full shade by looking sideways through the thickest part of the stone.

After color, the buyer is concerned with clarity — how nearly flawless the diamond is. Again, the Federal Trade Commission states that a diamond may not be sold as perfect if it shows any inclusions to a trained eye when magnified ten times.

What the diamond trade calls an “inclusion” is just a flaw that nature put into the stone. One tiny flaw doesn’t affect the beauty of the stone and will lower the price very little. Of course, the more flaws in a stone, the lower the price. However, if you buy a diamond that has a flaw in it, the flaw doesn’t lower its resale value.

Finally, the fourth quality by which jewelers judge diamonds is cut — the most important of all. You can have a flawless stone of beautiful color and if it is not well-cut, it will not possess maximum brilliance.

The word “cut” is used two ways in the diamond trade. First, it applies to the proportions and precision with which the facets are placed. This is what a jeweler refers to when he says a stone is “well-cut.”

On a diamond there are a series of flat planes or facets. The largest on the top is the “table” and directly opposite is the smallest, the “culet.” This is where the diamond comes to a point on the underside. Many diamonds, however, are cut without a culet.

With the culet, most standard shapes have 58 facets. A diamond that is well-made must have each facet in each series identical to every other in that series. At the corner, the facets must meet the joining facets exactly.

The girdle—the widest part of the stone and the line where the top meets the bottom of the diamond—must not be either too wide nor too thin and must have no rough spots. The culet, if the stone has one, must be centered.

In addition to being symmetrical, the facets must be placed at very exact angles. The brilliance of the diamond depends on the angle of

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the facets to each other and their relative size.

Modern cutting is based on knowledge of how a diamond handles light. When light enters a properly cut diamond, it is reflected from facet to facet and comes back through the top in a blaze.

The second use of the word “cut” refers to the shape into which the gem is cut—brilliant, marquise, and so on. Shape does not affect the price of a stone because fashion trends have little affect on the costs. An emerald cut, under 3/4 carat, costs less than a round because the cutter can save more material when cutting the emerald. In larger sizes, the emerald cut will cost a little more than a brilliant because a rough diamond that will cut into a well-shaped, good quality emerald is rarer and more expensive.

In addition to the major shapes, jewelers also carry tapered baguettes or “sticks of diamonds”; bullets, which are baguettes pointed at one end; half-moons, almost like a brilliant sliced in half; triangles; kites; and many others.

When you are choosing a diamond shape, the best rule is probably the one most jewelers offer—what looks best on you is best!

But, when you are considering shape, you must also consider the setting for it keeps the stone in place and away from harm. The most popular setting has been yellow gold since grandmother’s time. However, nowadays, white gold costs the same and enhances the white lights of the stone. In fact, white gold is often placed around the stone even when the ring band is yellow gold.

Platinum is the most precious and strongest setting. For this reason, most large diamonds are set in platinum rings for maximum safety.

When you buy a diamond you not only have to consider the setting, but the four c’s—carat, color, clarity, and cut, along with the price. The best advice any jeweler will give you is that when you plan on buying decide whether you want size or quality.

For the same price, you can get a big, bold stone of lower quality and color or you can get a smaller, more perfect stone.

The larger stone may have flaws that can’t be seen by the naked eye or its tint may not be the clearest white. Yet, if well-cut, the diamond will be sparkling and beautiful. For the same money, however, you may prefer a smaller gem that can be mounted to enhance its size.

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G. L. F.
The Risk That Worked

Considered a risky business at its beginning, GLF is now the largest purchasing coop in the world... and it probably has the longest name.

EARLY in 1920, the Boards of Directors of the Grange, Dairymen’s League, and the Farm Bureau Federation met to try to establish a cooperative for buying farm feeds. Farm cooperatives at that time were a risky business and failures were more the rule than the exception. Nevertheless, after days of debate the representatives of the three organizations decided to go ahead with the new coop.

If length of name meant success surely this new organization would succeed, because each group had insisted that its name be represented. The result was the Cooperative Grange League Federation Exchange, Incorporated. This title, however, was quickly shortened to GLF.

GLF succeeded where others had failed. Today, GLF is the largest purchasing cooperative in the world.

GLF now has 118,000 farmer-members and an annual business of $392 million in New York, Pennsylvania and New Jersey. GLF still fulfills its original purpose of serving the economic interests of its members by supplying them with vocational farm production supplies and providing a market for some of their farm products.

BEFORE GLF was organized, Cornell Professor E. S. Savage and others were proclaiming the benefits of scientifically controlled feeding rations. Farmers interested in following these practices were unable to because they could not buy feed with known contents.

Farmers wanted feed with the contents labeled on the bag—“open formula feed.” This demand is what actually sparked GLF.

The Grange Exchange, GLF’s immediate predecessor, had hired a mill to manufacture open formula feed. The mill was forced to discontinue making the then unheard of open formula feed. With no capital to build its own mill, the Grange Exchange failed.

GLF might also have failed for lack of capital if it hadn’t been for the enthusiastic work of H. E. Babcock, then a professor of marketing at Cornell.

Brazilian lime spreader. GLF created the first of its kind.

In the first weeks of GLF’s existence, the Board of Directors hired Babcock to sell 200,000 shares of stock at five dollars a share—in one month!

Babcock rented an office, hired secretaries, scheduled money-raising meetings, and kept up a frenzy of activity from early morning to late at night. Within three weeks, 36,000 farmers had purchased $878,000 worth of stock. This was “an un-

by W. Stephen Middaugh ’62

May, 1960
heard of accomplishment in those days and a healthy one at any time," said Mrs. Emilie T. Hall in her biography of Babcock.

After his selling success, Professor Babcock returned to teaching at Cornell.

GLF was still struggling when, in 1922, the Board of Directors again approached Babcock and asked him to become general manager. Seeing the challenge and feeling some obligation to the farmers to whom he had sold stock, Babcock took the job.

Writing in American Agriculturist, Ed Eastman, a long time friend of Babcock, said he was more responsible than any other individual for laying the foundation for the organization [GLF] that it is today.

Soon, GLF was not only supplying open formula feed, but also branching out into quality seed and fertilizers.

During its early years, as today, GLF worked closely with Cornell in trying to offer its members the latest and best supplies. GLF brought many "firsts" to its members which, today, can be found throughout agriculture.

Superphosphate was introduced by GLF in 1932. GLF also created the first bulk lime spreader which was a real novelty in its day. GLF was the first supplier in the U.S. to put out fertilizer in paper bags.

Although GLF's start was not much different from that of many coops which failed, GLF has grown bigger and more influential than originally thought possible. By constantly improving its products and offering them to farmers at reasonable prices, GLF has climbed to the pinnacle of the purchasing coop world.

Even though GLF is larger than many corporate businesses, it is still a farmer cooperative. The main difference between a coop and a corporation is that the corporation's purpose is to secure the best possible return (profit) for the owner's investment. A coop, on the other hand, returns only a fixed rate of interest on capital and returns the profits to the users on the basis of the amount of use made of the coop. These returns are called patronage refunds.

At GLF, patronage refunds are given only to those users who are members. One must be a farmer and own one or more shares of stock to become a member. This is not difficult because one share costs only five dollars. At present the majority of GLF's members own only one share of stock.

Because GLF pays an attractive six percent on its common stock, non-farmers might like to invest. Membership, however, is not open to non-farmer investors, which keeps the coop entirely in the control of the farmers. Every stockholder has one vote no matter how much stock he owns.

Many people feel that GLF, as a coop, has an unfair advantage over competing businesses because coops are exempt from Federal Income Tax. This is not true for GLF.

In order to be exempt from taxes, the coop must keep accurate records of every sale, including the ten cents for a pack of seeds at a lawn and garden store.

To avoid the tremendous amount of book work, GLF does not apply for the exemption and, for example, paid over 82 million in taxes in 1958-59 at the same rate as its competitors.

Many farmers who are members of GLF are really members of two GLF coops. This is due to the fact that GLF has about 230 service stores. These stores are coops themselves. Farmers served by these stores not only vote and share prof-
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The New Director

On August 1, 1960 Professor of Entomology Thomas C. Watkins became the new Director of Resident Instruction of the College of Agriculture. But if anyone had told undergraduate (North Carolina’s Davidson College) Thomas Watkins that he would now hold his present position, he “would have thought they were nuts.”

The young Watkins had a burning interest in radio engineering. Sometimes this interest burned far into the night while the wayward engineer played chess by radio with someone halfway across the world.

Almost accidentally, Professor Watkins moved into a career in the biological sciences. He took some courses in biology and liked them. After graduation from Davidson in 1928 he accepted an assistantship in biology with the intention to return to radio work after a year.

However, aside from turning dials on the outside, Director Watkins hasn’t touched a radio in 30 years.

The New Director received the M.S. degree in zoology from the University of North Carolina and served as a high school principal in Dillwyn, Virginia for three years. In 1939 he received his Ph.D. degree in entomology and plant pathology from Cornell and has been here since that time.

Along with his teaching, the new Director has been active on college committees dealing with resident teaching. Many students know Professor Watkins as a faculty adviser. He has also served for several years as faculty adviser to Hoo-Nun-De-Kah, senior men’s honorary society of the Ag College and was voted this organization’s Professor of Merit Award winner in 1958.

With his wife and son, Professor Watkins spent last year on sabbatic leave in Rome, Italy. He worked with the Food and Agriculture Organization and cooperating groups from many countries in pest control research programs.

The office of the Director has administrative responsibility for the on-campus teaching program along with scholarships, loans, faculty advising, course registration, and student counseling.

Professor Watkins not only has the responsibilities of his position but the additional problems involved in permanent membership on the Countryman’s board of directors. We wish him great success with the former and a minimum of pain with the latter.

College Enrollment Going Up

Ever since World War II enrollment in the state colleges of agriculture in the United States has been going down. One exception is Cornell.

Throughout this period, enrollment in the Cornell Ag College has remained constant. This year’s new student enrollment in the Ag College again defies a recent national trend, by going up to 605—35 over last year.

It is not fate that has chosen Cornell to counter the trend. Professor Leigh H. Harden, Professor of Personnel Administration, Resident Instruction, explains the basic reason. Cornell offers a program whose breadth covers many areas. The Upper Campus student can study in the fields of Agribusiness, Biological Sciences, Teaching, Foreign Agricultural Service, and Journalism, plus the general Agriculture College curricula.

Cornell is not lowering its high scholastic standing to increase its enrollment. For example, many of the girls in the incoming class show regents averages of better than 92 percent compared to an overall Cornell Agriculture College average of 86. Their college board scores were, on the average, well over 600, compared to between 550 and 600 for the College.

As the field of Agriculture in general has broadened, the curriculum of the Agriculture College has expanded to meet its needs; thus, attracting high caliber students with many interests. We can see a continuation of this trend of increased enrollment of high quality students; for continued expansion will attract more and more of them.

—CJW

Guldin Awards

The Guldin awards are monetary recognition for outstanding articles “encouraging more adequate rural leadership,” appearing in the Countryman. They are given by the Paul R. Guldin Memorial Endowment. Prior to this year, annual awards of $100, $50 and $25 were given as first, second, and third prizes. This year, the Guldin awards will be given twice—in the fall and spring. For each period the prizes will be: first, $75; second, $50; and third, $25.

Last spring Guldin awards were presented to Jack E. Hope ’61, Barbara Deutsch ’61, Jane E. Brody ’62, and Edward L. Razinsky ’61—all members of the Countryman staff.

COVER STORY: The Brazilian coffee workers, (picture from Maxwell House) symbolize the under-developed conditions in many parts of the world and emphasize the high level of US agriculture and home economics.

It is only with difficulty that our periodicals keep track of the progress made in these fields. The Countryman this year will report on what it considers the most important strides being taken in, and associated with, the Colleges of Agriculture and Home Economics.

With articles from the Ag College alumni, the press summary, a series on new uses and marketing techniques for agricultural products, and many other features, we hope to provide useful and interesting information to our readers.
"You Call This Evolution?"

by Zilch

Greetings once more from the undergraduate wizard of Roberts Hall.

For those of you whose pupils have not dilated at these deathless prose before, Zilch is a figment of the Countryman's imagination. He is poet, philosopher, and reporter of life.

The editor (a figment in his own right) has informed Zilch that he has a whole new group of paying customers—the alumni. Zilch was also reminded that it might be advantageous if a note of respectability were inserted in these few Zilchian remarks.

Zilch feels that this reminder was totally uncalled for since Zilch is the epitome of respectability and the embodiment of good taste . . . occasionally.

Speaking of alumni . . . Zilch thinks that it is only fitting and proper that he keep track of Countryman editor-grads. Zilch knows of two: BLD (editor-in-chief 1958-59) is now part of the Ag College staff—Department of ETI—press service. SAB (editor 1959-60) is barely steady to slightly weaker with USDA, AMS, MID in New York City. It is said that this alumnus is planning to plant ivy in all the elevators at 139 Centre Street . . . but nobody can prove it.

If any other past Countryman editors know where they are . . . and are willing to admit it . . . please let Zilch know. He will be glad to make note of this information.

From a certain stool pigeon with USDA, Zilch heard that the New York Marketing Information office got a call requesting plans for building a PT boat. Zilch knew that agriculture was expanding . . . but not that much!

Zilch has discovered a new standard of sophistication—playing "Scrabble" while doing a New York Times cross word puzzle.

Speaking of standards—here's one for the homemakers. Zilch was present while two home eccies—one a graduate—labored arduously over a commercial cake mix. It took the two of them some time . . . but they finally got the hang of it and came through with charred banners waving.

One of Zilch's friends who spent the summer in the "big city" . . . New York . . . told him of a very interesting chap.

It seems that while this friend was wandering aimlessly up 8th Avenue near 42nd Street, an elderly gentleman staggered out of a bar. He planted himself squarely in the middle of the sidewalk, put his arms upward and presented this question to the world at large: "You call this evolution?"

Zilch thinks that this is the most searching, important, and accusing commentary on our times that he has ever heard . . . almost like "What, me worry?" or those of that ilk.

Another very searching item appeared in a leading farm paper . . . in cartoon form. Two indignant bulls are glaring over a fence at a truck marked "Artificial Insemination Laboratory." One bull turns to the other and snorts, "ALWAYS THERE HAS TO BE A MIDDLEMAN."

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Cornell Countryman
Arctic Adventure

Through the wild, snowbound Arctic, Neal Smith, Cornell grad student, journaled. With an Eskimo as his only companion, he camped on an uninhabited island. All this was to study the evolution of a rare gull species.

by Neal Smith as told to Elizabeth Corning ’60

Upon arrival at Cape Dorset I discovered that the population was almost entirely Eskimo. I spent several days there, hiring a dogsled and an Eskimo — Etigayakjuak — who was to be my guide for the summer. He spoke no English, and I had to hope that the sign language would be effective until I learned some Eskimo.

On May twelfth I said a farewell to civilization and set off with the kamatik (dogsled), Etigayakjuak, and two Eskimos who would bring the sled back to Cape Dorset.

The dogs were unlike anything I had ever seen—even on the Cornell campus. They were very large, and extremely ferocious, fighting among themselves at every opportunity. The white ones with coal black faces looked—and acted—like incarnations of the devil. I soon

VOTE OF CONFIDENCE

That's what farmers in eight Western New York Counties gave Empire Livestock Marketing Cooperative this past August. These farmers subscribed to a $200,000 Empire bond issue and assured themselves of a new, modern livestock market which will be built this fall near Buffalo.

Moral: Never Underestimate the power of farmers or their farm organizations to solve their own problems.

Regular Livestock auctions:
MONDAYS—Dryden, Watertown
TUESDAYS—Caledonia, Gouverneur, West Winfield
WEDNESDAYS—Bullville, Greene
THURSDAYS—Bath, Oneonta, Watertown
SOON—Buffalo

When I was a Cornell student trying to return to Ithaca after a vacation, I sometimes got the impression that Ithaca was isolated. But in the summer of 1959, my research for a doctorate degree took me 1500 miles north of Ithaca—to Baffin Island, well within the Arctic circle—200 miles from any form of civilization.

Sponsored in large part by the New York Museum of Natural History, my purpose was to study the evolution of three forms of gull which nest on the south coast of the island.

In the middle of May I left from Montreal on a Nordair Airlines plane headed for Cape Dorset, a tiny community on Baffin Island. As we flew due north there were fewer cities and villages, and then only a great expanse of forest and shining lakes. Gradually the trees appeared smaller, and finally we were north of the timeliner. The green landscape turned to white, and we were in a world of almost perpetual snow.
found that the dogs had to be tough to survive, for we had started on an exhausting eleven day trek. We were headed across the icebound waters of Andrew Gordon Bay to Iripaiyuk, the location of the gull colonies that were my goal.

The temperature was about five degrees above zero when we left Dorset at eight in the morning. Ten miles out we were in a white “desert.” There was nothing but ice and snow, and the sun glaring twenty-two hours a day.

We could not ride on the sled because the additional weight would slow the dogs down. Running beside was exhausting, but we could not stop or the sled would bog down and the dogs would begin to fight.

At six in the evening we took our first real rest, and had cakes and tea. The sun beat down as though it was midday in June on Jones Beach. My face was badly sunburned, my lips cracked open, and I was exhausted.

**Soft Snow Trouble**

For the first few days the snow was hard and we traveled fast. Then we ran into soft snow—often up to my armpits. The dogs and sled sank in too many times to keep count. The Eskimos beat the dogs with chains and pulled and pushed until the sled came out. A hundred yards later it would be stuck again. We went thirty hours without rest. The dogs had had no food in two days. Their supply was low, and we had not been able to shoot a seal.

Then we came upon rock, interspersed with patches of deep snow. By this time I was completely worn out, and would have sold my soul to be back in Ithaca.

**Journey’s End**

On May twenty-third, when it seemed we could last no longer, we sighted Diamond Island. It was here I planned to make the main camp. Iripaiyuk, the island of the gulls, was a smaller island nearby. Both islands were not far from the mainland of Baffin Island. At that point we were too exhausted to care. After setting up a make-shift camp we slept for most of two full days.

The two Eskimos then headed back with the empty dogsled, and Etigaiyakjuak and I were left alone—two hundred miles from Cape Dorset. We had no way to return until the ice broke up and we could canoe down along the coastline.

Permanent camp was made on a rocky, somewhat protected ridge. The tent was large enough to hold both of us and all of our equipment, including the primus stove on which we cooked. We had to bring in all our fuel, as there wasn’t enough wood to build so much as a matchstick—to say nothing of a fire.

**Gull Watching**

Each morning I would set out from camp walking along a high ridge down to the canoe. Iripaiyuk was in a protected bay which had open water although the main bay was frozen solid, and it took about twenty minutes to canoe over to it.

The gull colonies were all I had hoped them to be. I spent the mornings studying the birds and their behavior. In the afternoon I would return to the main camp and either write up my information or skin the birds I had shot to preserve for further study.

The evenings were long and lonely. The only sound was the roaring of the wind across the miles and miles of ice in the bay. Etigaiyakjuak and I could com-
communicate, but any attempt at conversation was difficult. I wrote innumerable letters, although there was no way to mail them. Each night I would watch the sun swing low, linger along the horizon, and then rise again. At four in the morning, when I awoke it would be high in the sky again.

Our clothing never varied, even as the days grew warmer. Both Etigaiyakjuak and I wore sealskin boots, seal pants with the fur outside, warm sweaters, sealskin parka, and sealskin gloves. These articles were made by the Eskimos, and were standard Arctic equipment.

**We Dined On Seal**

Seals were also important to us as a source of meat. In order to shoot one it was necessary first to locate a hole in the bay ice where the seal came up to breathe and rest. When one came up, it was possible to get within shooting range only by moving downwind behind a white blind which could be pushed along the ice. Once within range it was necessary to fire swiftly and accurately, or the seal would disappear down the hole again.

As the weeks went by the weather became somewhat milder. The snow melted, and the ice in the bay could be heard snapping like distant thunder, though it had not yet begun to break up.

With the disappearance of the snow the Arctic flowers began to show. Nothing grew over three inches high, or it would have been torn from the rocks by the wind. Miniature birch trees grew as large as violets in warmer climates. Towards the middle of June, when temperatures sometimes got up to the forties, the flowers burst into bloom. For a few days the rocks were a riot of color, and then it again became rock with a few patches of green.

There were never many animals around. Occasionally an Arctic hare or fox would be sighted off in the distance, and even more rarely, a polar bear. By contrast there were many birds—not only gulls, but also ducks and eiders.

**Back To Cape Dorset**

The days passed quickly, and as the weather warmed we watched for signs of the ice break-up in the bay. At first there were occasional sounds of cracking, and then some clear water showed. Finally the bay as far as we could see was free of solid ice.

Now we had to work quickly. For about two weeks the ice blocks would drift out to sea, leaving clear water along the coastline where it would be safe to canoe. When the wind shifted the ice would come in again, and our escape would be cut off.

We piled everything we did not need in a cache, and left it to be picked up by dogsled in the fall when the ice was solid again. The Eskimos would bring it down to Cape Dorset, and from there it would be sent down to Ithaca.

Etigaiyakjuak and I started down along the coastline, and then swiftly across Andrew Gordon Bay where we had floundered with the dogsled two months earlier. This trip was considerably easier. We had clear weather, and had brought enough seal meat with us so that we did not run out of food. The only danger lay in the blocks of floating ice, as a collision with one could have injured the canoe badly. We traveled swiftly, camping at night on the shore of the bay. Within a week we were back at Cape Dorset and I was on my way to civilization.
A Wild Dash of Spice

Many wild plants found around the campus add spicy interest to common drinks and also form pleasing beverages of their own.

by Robert B. Gambino '61

GETTING sick and tired of the run-of-the-mill drinks? One can surely become bored stiff with orange juice, coffee, or coke. How about flavoring your next drink with an exotic spice or herb?

The spices mentioned have provided flavors for the beverages of at least seven generations of Americans, and can be found right around the Ithaca area. With a little experimentation, you can flip a few taste buds at the next football game or be a witch doctor's apprentice.

There are five odoriferous plants that can easily be obtained by the lay naturalist. They are: Sweet Goldenrod, Black Birch, Sassafras, Spicebush, and varieties of Sumac. Of course there are dozens more, but for the sake of simplicity and availability the list shall remain at five.

Hay fever sufferers are familiar with Sweet Goldenrod (Solidago odora). TheSweet Goldenrod can be distinguished from its unpleasant counterparts by its characteristic anise-scent. This plant will be hard to find, but, if found, the fragrant leaves, when steeped in water, form a very pleasing beverage . . . like licorice.

The Black Birch, a dark-barked tree, is another abundant flavorful specimen of plant life. Its younger bark resembles that of a cultivated cherry (for those who know what a cultivated cherry looks like). Betula lenta, as the Black Birch is uncommonly called, provides the user of its bark (especially the cambium layer) with the sweet aroma of Wintergreen . . . an added delight to any drink.

That mitten-leaved tree the Sassafras is familiar to many of us. Its leaves, twigs, bark, and berries all have a rich spicy odor. The plant parts of Sassafras varifolium, are believed to be the first plant products exported from New England.

The distilled product of Sassafras bark is used for flavoring medicines, making candy, and scenting perfume. For our own use, it has been suggested that the bark of the roots be made into a tea and served with sugar and cream. There is another use for the Sassafras root or stem: if you take a four inch piece about as big around as a pencil, scrape it clean, and
cut one end in a fashion so that it resembles the sweeper end of a typewriter eraser, you will have a toothbrush par excellence... and no toothpaste will be needed. However, there is no cause to believe the “brush” will do away with the normal article at this moment.

The Spicebush (*Lindera benzoin*), like its relative the Sassafras, has a strong, aromatic odor and taste. Its twigs, leaves, bark, and berries have been used as a substitute for Allspice and in beverages.

Staghorn Sumac, so called because the young twigs are densely covered with velvety hairs resembling the horns of a stag in appearance and mode of branching, is another plant which will impart an exotic flavor to a beverage. This Sumac (*Rhus typhiana*) is found growing in thickets; it has smooth bark, orange wood, and milky sap. The crimson fruit, maturing in the early autumn, is very sour. When these berries are placed in water for a short period of time, a tart but pleasing lemon-like drink is formed.

The Smooth Sumac and Fragrant Sumac (*Rhus glabra* and *Rhus aromatica*, respectively) can be used for the same purpose. Also, *Rhus copallina* the Dwarf sumac, can be used.

If you are wondering how else to use these herbs and spices, why not use your imagination? Any beverage is certain to have its flavor enhanced or improved by a dash of wild spice.

Sweet Goldenrod enhances the flavor of many drinks and makes a tasty beverage of its own.

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Dr. Romanoff - - -
Embryologist and Poet

An "egg"-otist finds peace in poetry and adventure in art. Science, says Dr. Romanoff, is not work, but play. Yet this man is one of the world's foremost authorities on the avian egg.

ALEXIS L. Romanoff could be found, until his retirement in June 1960, in the Cornell University Faculty Directory as a professor of Chemical embryology. His name can be found in Who's Who in America, American Men of Science, and Leaders in American Science.

Dr. Romanoff has been described by both The Saturday Evening Post and The New Yorker as a man of science with a one track mind. To many it does appear that Dr. Romanoff's life involves nothing but the egg. A friend once tried to convince Dr. Romanoff to break his 16-hour "egg studying" day and take in a movie. To this, Romanoff said, "What has Greta Garbo to do with the egg?"

But early in the Spring of 1960 Dr. Romanoff submitted proof to the world that the train of thought of the scientist is well equipped to travel not one, but many tracks.

Romanoff the Poet

The proof? A slim volume dedicated to "The University Campus" written not in the carefully precise prose of the scientist, but the flowing iambic verse of the poet.

Poetry is a form of relaxation, says Dr. Romanoff, and he writes to break the monotony sometimes caused by research. In his book "The University Campus," written entirely in verse, Dr. Romanoff explains that he wanted to pay tribute to the university, in this case Cornell University, "where ideas are born."

As Dr. Romanoff says in the prologue:

"The campus is the place of dreams
Which aid the birth of many themes
To carry forward one's career...
To meet the world without a fear."
Science plus poetry

This, however, is not Dr. Romanoff's first venture in the world of poetry. His recently published book, "The Avian Embryo," was called by the publishers "... the most complete analysis ever written of the structural development of the avian embryo." And each chapter of this exhaustive treatise is prefaced by Romanoff verse.

Creation—his dream

The incongruous combination of science and art has a long history in the life of Alexis Romanoff. For him, they are not incongruous elements, but two means for self expression... part of the dream of a small boy growing up in early, twentieth century Russia.

"Even as a small boy," recalls Dr. Romanoff, "I wanted to do something, I wanted to create something. But, I didn't know exactly what."

The creative urge led Alexis Romanoff into the fields of engineering, medicine, chemistry, teaching, and writing. But his one great love was fine art. He loved portrait painting.

From Fine Art to Science

Strangely enough, it was his love for fine art that led Dr. Romanoff to his, then unrelated, life in science.

When he came to America from Russia in the early 1920's, one of Dr. Romanoff's first jobs was as a research assistant with the Farmingdale Agricultural Research Station in Long Island, New York. There, he was called upon to make scientific sketches. The finished products were technically correct but also showed the delicate lines and subtle shading of Romanoff, the aspiring artist—each signed with an artistic flair.

Dr. Romanoff's artistic inclinations attracted the attention of Professor James Rice, then the head of Cornell University's poultry department. Professor Rice offered Romanoff a research assistantship, and the artistic scientist accepted.

Embryo Love

In the poultry department Dr. Romanoff recalls, "he fell in love with the embryo." Although he still wanted to become a portrait painter, he began to think of embryology as a substitute for fine art. In this field, he explains, he can apply his imagination, all his scientific training, and use his artistic background when writing and illustrating scientific books.

Guiding Philosophy

One of his guiding philosophies, explains Dr. Romanoff, is not to talk about his work before it is finished. "Don't show what isn't done, show the product." Dr. Romanoff violated this philosophy earlier in his career but the results were far from unpleasant.

While doing graduate work at Columbia University in the spring of 1927, Alexis Romanoff met Anastasia J. Sayenko, also a science student at Columbia. It may have been the effects of spring, but Ro-
manoff recalls telling this girl of his plans to write a book combining all the existing knowledge of the avian egg. Anastasia said that she liked his idea and wanted to help him. When “The Avian Egg” was published over 20 years later, the authors were Alexis and Anastasia Romanoff.

“The Avian Egg”

Many problems arose in the creation of “The Avian Egg”, Dr. Romanoff recalls, not least among them, getting it published. When John Wiley & Sons, a New York City publishing house, finally accepted the book, its proposed length was about 400 pages. Mr. and Mrs. Romanoff’s completed book contained over 900 pages.

Hardly considering the length of the book a problem, Dr. Romanoff, once called “the Thomas Wolfe of embryology,” packed his manuscript in two suitcases and went to New York to deliver his book in person.

With suitcases in hand, Dr. Romanoff went, unannounced, into the office of a dismayed Wiley editor, and placed the contents of the suitcases on his desk. The editor expressed considerable concern over the book’s being longer than expected.

To these remarks, Dr. Romanoff responded, “If I did not wish to be brief, the book would have been twice as long!”

Treatise on birds’ eggs

But length didn’t matter. World’s Poultry Science Journal said of “The Avian Egg” that it was “…undoubtedly one of the most exhaustive and scientifically accurate treatises ever written on birds’ eggs.” Yet, Dr. Romanoff is one authority who is always interested in reading the works of other authors in his field of specialization.

It was perhaps with this motive in mind that Dr. Romanoff finally got around to reading Betty MacDonald’s best selling novel, “The Egg and I.” His review—“It dealt with the ‘I’, not the egg.”

A variety of interests

But Dr. Romanoff’s life involves much more than the egg. His poetry is only one example of his other interests. Besides membership in many scientific societies, Dr. Romanoff enjoys the “fellowship and exchange of ideas” at Ithaca Rotary Club meetings. He feels that this relationship helps him “to know the community and to become part of it.” Now Dr. Romanoff plans to remain in Ithaca and continue his research and writing.

The scientific life is anything but limiting for Alexis Romanoff. “Frankly,” he explains, “to have a purpose you have to enjoy life.” In spite of his world renowned contributions to science, Dr. Romanoff says, “I don’t work, I play.”
WELCOME ALUMNI!

With this issue of the Countryman, the Alumni Association of the New York State College of Agriculture launches a new program. The Countryman will go to all members of the association. An alumni article will appear in each issue.

This is only one of the many new projects our Alumni Association plans to carry out which we hope will make for greater participation and interest on the part of all alumni. Our association was organized on February 25, 1909, at a meeting called by Dean Bailey. On this page we have a picture taken at the Golden Anniversary celebration on March 26, 1959. Fourteen past presidents and long-time Secretary A. W. “Gibby” Gibson are in the picture.

The objectives set forth at the first meeting were first, to advance the interests of the College of Agriculture; second, to promote country life interest at large. Since its beginning our association has been instrumental in many activities directed to this end. Each year the association has had its Alumni Banquet and Annual Meeting at Ithaca during Farm and Home Week. This has provided an opportunity for alumni to keep in touch with each other and to hear a report from the Dean of the College of Agriculture on new developments, policies, and plans.

A major activity of the association is the presentation of our College program and the story of agricultural education to the people of New York State.

We are cooperating with the Admissions office of the College of Agriculture in this work. In each county of the State there is a County Chairman. The County Chairmen, working with key alumni, visit school officials and prospective students. The Alumni article in the November Countryman will tell of the activities of the County Chairmen.

Our membership is now at an all time high of 850. We hope that it will soon pass the one thousand mark. This large group of loyal alumni is a tremendous asset to our college.

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Clubs

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Ag-Domecon Council

Students elected to the Ag-Domecon Council as class or club representatives serve as the student governing body for the upper campus. The Council tries to coordinate the activities offered with the students' needs through its Student Faculty Committee, Ag Hee Day Program, Farm and Home Week Activities, and Swedish and Mexican Exchange student programs.

The Council's Educational Policies Committee sits with the University Committee and represents the views of the upper campus.

Through your class and club representatives, you are the power behind Ag-Dom. It is YOUR student government and exists only for YOUR benefit. Meetings are open to all, so why not come and take an active part. Ag-Dom is yours—support it!

The Cornell Poultry Science Club is an active group of students drawn together by their interest in the various aspects of poultry.

The activities in which the club participates throughout the year are varied. Guest speakers are brought in to inform the club of existing problems in the poultry world. The Poultry Judging Team last year was first in the Eastern Collegiate Meet at Penn State.

The club presents an exhibit during the "Straight to the County" exhibit. Last year's included stages of embryo development and freshly hatched fowl of several varieties.
During Farm and Home Week, the club sponsors a popular chicken barbecue.

Club members sponsor faculty picnics at the beginning and end of the school year. Annually, two scholarships are offered to outstanding undergraduate poultry majors.

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Agronomy Club

The purpose of the Agronomy Club is to further the interest in Soil Science by educational and social means. The Club has at least one meeting a month, usually alternating between social meetings and lectures. The lectures are given by prominent men in the field of Agronomy from both educational institutions and industry. An informal discussion follows each lecture and refreshments are served. The social meetings are informal, and give the students a chance to meet each other and their professors in a relaxed atmosphere.

The Club has been active in such things as intercollegiate soil judging contests and projects to raise money for the treasury. Anyone interested in Agronomy is eligible for membership.

C.A.T.A.

The Cornell Association of Teachers of Agriculture (C.A.T.A.) is the collegiate counterpart of the New York State organization. It, therefore, fulfills the function of a professional organization for prospective teachers of agriculture.

It is open to all members of the agricultural education division and its meetings are held on the first and third Thursdays of each month.

Our purposes are centered about three general areas: professional, social, and recreational. The first is brought about by such programs as outstanding guest speakers in the field, field trips to practicing departments, and our annual panel discussion by the senior class cadet teachers. Recreation is covered by parties and picnics. Everyone who might be interested is cordially invited to attend any meeting.

Home Economics Student-Faculty Committee

If you are a girl in the College of Home Economics, we are your voice. The Student-Faculty Committee is the only link of its kind between students and faculty in the Home Ec College. We have a direct voice in the policies concerning you through Resident Educational Policy Committee and Ag-Domecon. Among our accomplishments last year in improving student-faculty relations were the initiation of departmental coffee hours and a student poll on an honors day program or "dean's list". This year we hope to have a permanent suggestion box for you and assist in revising graduation requirements. Take an active interest in the Student-Faculty Committee; we have a lot to say!

Roundup Club

The Roundup Club is a student organization devoted to establishing interest in livestock and livestock activities. Throughout the year the club sponsors many events to bring the student closer to the livestock industry.

The most prominent of these events is the Little International Livestock Show. Students compete for trophies, awards, and honors in the fitting and showing of livestock. Another event more in the comedy vein is the Fall Roundup. Students tend to loosen up a bit under the pressure of chasing a greased pig while engulfed in a potato sack.

October, 1960
There is a subordinate Grange meeting right here on this campus. Cornell Grange number 1577, founded in 1941, is made up of students of the Colleges of Agriculture and Home Economics, but is open to all interested persons in any of the colleges. It was started so that Grange members could continue their membership activities while away at college.

Cornell Grange meets on the first and third Tuesday nights of every month in the Student Lounge in Warren Hall. Many activities are carried on throughout the year, climaxd by the Annual Farm and Home Week Grange meeting.

The Cornell Student Branch of the American Society of Agricultural Engineers attempts to promote better understanding of the profession both within the group and outside.

Each year the club has an exhibit for Farm and Home Week, Engineers' Day, and "Straight to the Country." Special features last year included educational movies, and talks by Per Lohme, Swedish Exchange Student, and Dr. Karl Butler of AVCO.

The Club also organized a tour of the New Holland machinery plant. It is hoped that these tours will become an annual feature.

Social events last year included a picnic with a student-faculty soft ball game, a banquet, and sponsoring Queen candidates for Ag Hec Day and Farm and Home Week.

The Pre-Vet Club attempts to give its members an idea of the many varied fields of veterinary medicine which are open to them. The speakers, usually doctors from the college, illustrate through lectures and demonstrations — includ-

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ing anything from brain-stem fowl to the head of a rabid fox—the work being done in their respective fields.

Campus-wide events like Farm and Home Week round out the club's activities.

The meetings of the club are held bimonthly at the Veterinary College and anyone is welcome. Membership is not limited to pre-vets, but is open to any students who have an interest in veterinary medicine or related fields.

**Home-Ec Club**

The Home Economics Club, like everything else in America, is getting bigger every year. Starting with a handful of interested students, it has blossomed into a program-filled organization with over 50 members. Included among the activities presented each month are: a bridal fashion show, a foreign student symposium, a cake decorating demonstration, several lectures, and a student-faculty function. The club also sponsors a coffee hour each weekday morning for the purpose of earning money for scholarships and last year two $200 awards were made possible.

**Floriculture Club**

Cornellians interested in the amateur or commercial aspects of gardening, landscaping, nursery management and flower arranging are cordially invited to become members of the Floriculture Club. Once a month the members meet to see demonstrations and hear speakers in the fields of Floriculture and Ornamental Horticulture.

The Mum Ball, the first semi-formal campus-wide event in the fall, is sponsored by the club. It has been a rewarding experience for the members who have worked on it and a pleasure for those who attended.

Come and get acquainted. Meetings are announced in the Sun and posted on the bulletin board in the basement of Plant Science Building.

**4-H Club**

The 4-H Club, part of the national organization, has as its aim service. Fun and fellowship are shared through the year as work is done for Ag-Hee Day, Farm and Home Week, and tours for sub-frosh. Timely topics are the subject for meeting programs. If you enjoy recreation, the 4-H Rec Team is
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Pomology Club

Cornell Pomology majors are automatically members of the Pomology Club. However, membership is open to anyone interested in the fruit industry.

Meetings are held the first Tuesday of every month in the Plant Science Seminar Room. Besides interesting and informative speakers, each meeting also includes informal discussions and refreshments.

The apple vending machine in the Plant Science Building is owned and operated by the Pomology Club. From its profits, the club sponsors two scholarships for worthy Pomology majors.

In the spring of 1960 the Pomology department, and operations "The Appleknocker," for alumni, and told about the club, the pomology department and operations of pomology at Cornell and elsewhere.

Cornell Countryman

You can see the work of the Cornell Countryman staff by looking through this magazine.

Editorial staff members write the copy, proof it, select the pictures, write the headlines and captions. Advertising staff members create the ads and sell the space. Business staff members balance the books, pacify the creditors, and harrangue the debtors. Circulation staff members mail out the magazine and correspond with subscribers. Art and Photography staff members create the cover and illustrate the articles and advertising.

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From the College Press

- **CORN RESEARCH**—A ten-foot plastic lung is being used as part of a Cornell University project aimed at finding the ideal conditions for corn growth. Using the huge transparent canopy, Professors Robert Musgrave, Edgar R. Lemon, and Conrad S. Yo- cum can control the amount of carbon dioxide, heat, and humidity experimental corn receives.

- **WATER REPELLENT SOILS**—An exploratory study on water repellents for soils is being conducted at the College of Agriculture by U. S. Department of Agriculture researcher Philip Manley. Manley cites possible uses for the water repellent soils, such as to treat soils around farm ponds and to eliminate frost heaving.

- **SPOILED CONSUMER**—Speaking at the Graduate Bankers Seminar, Prof. Herrell DeGraff painted a picture of the typical American consumer as "the most spoiled and most demanding food purchased who ever breathed the atmosphere of this old globe."

- **CHICKEN HOT DOGS**—That all-American food—the hot dog—is taking on a new flavor. Chicken frankfurters, a poultry product developed at the College of Agriculture, was market-tested in Ithaca this summer.

- **MAPLE SUGAR TREES DYING**—Maple sugar trees seem to be dying off in the Northeast, Wisconsin, and Canada, and scientists don't know why. A Cornell graduate student is searching for some of the answers by diagnosing sick maples in New York State.

- **AGED COUPLES**—A study by Cornell's Housing Research Center shows that aged couples have larger and better homes and more social contacts with other people than do single men and women.

- **DAIRY WATER HEATER**—Cornell researchers have perfected a new "exchanger" water heater that will trap much of the $3500 worth of heat that's been floating around unused in New York milk houses every day.

- **APPLE GROWERS**—should fair better in 1960 than they have for the past several years because the supply of apples is down and prices should go up, says Prof. Bennett A. Dominick.

- **GRANULAR HERBICIDES**—Dry granular herbicides may save the grower time and money, according to Prof. Robert Sweet. In the future farmers will not have to haul liquid spraying equipment to treat their fields with weed killers.

For further information on any of the above items, write to the Cornell Countryman.
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November, 1960

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DURING last year's Farm and Home Week, we were introduced to the "Challenge of Change." Since that time we have become aware of a dynamic, new spirit of change in the College—not only in the work, but in the attitude.

The student body—the group usually attributed with spirit—is not the responsible party in this case. The generators are in the administrative arm of the College of Agriculture—and particularly, the Dean, Dr. Charles E. Palm.

The March, 1959 issue of the Countryman carried an article about Dr. Palm who was then three months away from officially becoming Dean. At that time Dr. Palm expressed a strong desire to get to know students better. We are glad to report that this was a lot more than a campaign promise.

Last spring, Dean Palm initiated what is developing into a series of luncheons attended by representatives or heads of most of the departments and student organizations in the College. The second in this series was held on October 14th.

As luncheons go, this one was pleasantly informal. Table conversation ranged from the Quemoy-Matsu situation to the terrible World Series upset. Dean Palm said a few well chosen words and left the floor open for some extremely thought-provoking discussion. It was agreed that another informal meeting would be held later in the year.

As we left the luncheon we felt that this was part of a new open door policy in the Dean's office. Perhaps this is as close as the Dean of a large college can come to the traditional Sunday afternoon open house of the Mr. Chips era.

Another example of Dean Palm's "Mr. Chips policy" involved the Countryman. The Dean asked for the opportunity to meet the Countryman Board of Directors and he was invited to the first monthly Board meeting.

Dr. Palm emphasized that he did not want to "spy," but simply wanted to become more familiar with the Countryman's operators and operations. This type of familiarity hardly breeds contempt. If anything, it promotes deeper understanding and mutual respect. It might serve as a model for other deans.

Before we entered Cornell, we thought that getting to know the Dean was part of college life. After seeing the size of the University, we came to the conclusion that this was impossible. Dean Palm has renewed our faith.

E. L. R.

Science, Science Everywhere
But Don't Forget To Think

THE UNITED States is competing in the world, and with Russia in particular, for highest honors in the field of scientific achievement. U.S. school systems on all levels are finding it necessary to revise curricula, teaching methods, etc. and to introduce new programs aimed directly at training more and better scientists earlier in life.

Students on the elementary school level are now learning scientific concepts that only five years ago were not introduced until high school. Various science programs, both in and out of school, have been instituted to captivate the young high school student's interest and channel it in scientific directions.

Such initiative is imperative if we are to hold our own in this scientific world, and, certainly, it is to be admired. But a possible shortcoming of this worthy endeavor must be recognized and avoided.

A not-so-unusual result of extensive science education at a young age is antagonism toward the "humanities" subjects, such as English, history, art, and music. All that can result from such antagonism is a one-sided individual with a distorted perspective.

In our desire to be first in this ever-expanding scientific universe, we must take care that our people retain their identity as human beings. They must not only be allowed but must be encouraged to expand their horizons to other fields, even if only on a superficial level. We must guard against producing the machine-like characteristics of a one-track mind.

J. E. B.
A Paid Editorial

Does Ag-Dom Have A Future?

What is Ag-Dom Council?

Ag-Dom Council is the student government organization for the Colleges of Agriculture and Home Economics. Its function is to coordinate the student activities on the Upper Campus.

The official body is made up of 18 representatives elected from the student body, and 18 club representatives. The Council meets once every two weeks and the meetings are open to the student body.

Some of the standard projects of Ag-Dom are: sponsorship of the Swedish Exchange Program in which an Ag College student attends a Swedish university for one year; Mexican Exchange Program which sends a student to Chapingo for the summer; square dances for Farm and Home Week, Ag Hec Day, and the orientation square dance. The Warren Student Lounge Coffee Hour is also Ag-Dom sponsored.

Ag-Dom also attempts to promote better student-faculty relations.

Can Ag-Dom do more?

YES—it must!

As one step toward improvement, we feel that Ag-Dom must stop having elected representatives doing routine work. For instance, until the coffee hour was turned into a concession, members of student government had the jobs of short order cooks!

Ag-Dom must make more of an effort to attract the people on the Upper Campus who are interested in leadership and student government.

We also feel that Ag-Dom should make its voice heard on important campus issues. The Ag-Dom president is on the Executive Board of the University Student Council. He should be expected to represent the Ag and Home Ec Colleges in practice as well as in theory.

Ag-Dom should give active support to the student organizations on the Upper Campus.

The farm policy seminar that Ag-Dom sponsored last year was successful. We feel that Ag-Dom can do more along these lines.

Promoting interest in the Ag and Home Ec Colleges on the part of high school and college students is also in the area of Ag-Dom usefulness. The former objective might be reached by working with the Alumni Association of the College of Agriculture.

Rather than accept defeat because of past failures, Ag-Dom must concentrate all its efforts on making a spectacular success of a particular project. This is the only way to make Council members, as well as the student body, forget past failures.

With the $250 donation from the Pomology Club, Ag-Dom Council might stop wasting the time and energy of its membership with penny-making projects and start being a student government.

Should Ag-Dom be abolished?

NO—not if it can improve itself as it seems to be doing now. We feel that if some improvement cannot be made, Ag-Dom might as well be an appointed committee of five members. This group might operate with more efficiency than the Council now demonstrates.

Ag-Dom Council has voted to change the name of the organization to "Upper Campus Student Council." To become official, the new name must be ratified by two-thirds of the Upper Campus students. We feel that a new name is fine . . . but not if the old shell doesn’t also change.

We feel that the Ag-Domecon Council has the potential to become a useful part of the Upper Campus. We, the Pomology Club, pledge our support to any projects the Council chooses to undertake. We are patiently waiting for such an undertaking to materialize.

The Pomology Club
Togetherness
On The Walls

by Zilch

ZILCH HAS finally seen the legendary writing on the wall. For instance, this item in a small listening room in the Wait Avenue Music Building. On one wall, engraved with initialed hearts and the entire Greek alphabet, is a list of instructions. At the top of the list, this commandment: “Please refrain from manifesting your togetherness on the walls.”

Zilch doesn’t make it a habit to comment about politics, but... it is that time of year. After watching some of the television debates, Zilch would feel a lot better about the fate of our nation if all candidates were made to take Professor Kaiser’s TV course.

Philosophy-in-agriculture: Does a chicken lay an egg because she wants to, or because she has to?
The old philosophy of “Time waits for no man” was proven again. Farm and Home Week was shortened last year to three days. New changes have been made. The name has become “Cornell’s Agricultural Progress Days.” CAP Days will run from March 21-23 with a special youth program to follow during the spring vacation—March 27-31.

To Zilch, this means one thing—he won’t have to compete with the boys in blue corduroy!

Zilch came across a very meaningful statistic: more than a third of all living persons holding degrees from the Home Ec College are employed. In the words of a world renowned philosopher, “That’s swell, John.”

From the spotless research laboratory of Zilch, another statistic: “Nine out of ten Home Ec girls become alumnae after graduation.”

Cornellians-around-the-world departments: Professor William B. Ward, head of the ET and I department, will accompany Secretary of Ag Benson on a two-week trade mission to South America. Professor—of An Hus—Trimberger will judge Holstein cattle at the National Dairy Exposition at Venezuela in December. A former Ag College grad student, Paul V. Kepner, has been chosen Administrator of the Federal Extension Service in Washington, D.C.

And finally, the Cornell Glee Club will make a concert tour in Russia over the Christmas recess.

Zilch wishes he could be there when the sounds of “High Above Cayuga’s Waters” hit Moscow and Leningrad.

Zilch wonders if any alumni readers remember a charming little activity called “mud rushing”? Zilch doesn’t know all the details but he has heard that when campus fields got muddy, all the males in the freshman class collected on the fields and had a general melee.

After the earthy brawl was over, the mud-covered troop converged on the Ithaca movie houses.

Judging from some of the photographs, Zilch thinks it was a pretty nasty affair. Any comments?

Attention aelourphiles (cat lovers)! November 6-12 is Cat Week International. In a fact sheet from The American Feline Society, Zilch learned that “A cat’s mouth is, bacteriologically speaking, much cleaner than man’s.” Bacteriologically speaking, Zilch is inclined to agree.

In any case—happy cat week international everybody!

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cornell countryman
Ag College Mexican Style

As a participant in Ag-Domecon Council's Mexican exchange program, the author reports on his impressions of such things as teaching methods, and the Chapingo version of the Straight.

by Gerald Krak '62

Ever been curious to know what student life is like on a foreign agricultural campus? If so, pull up a chair, adjust that reading lamp and let's go.

South of the border, down around Mexico City, set on a high plateau of the Sierra Madres, is a college of 600 agricultural students. Chapingo, as it is called, has for the past two years participated in a student exchange program with the Cornell Agriculture College under the sponsorship of Ag-Domecon.

Last summer I had the opportunity to represent this program and the following is a brief account of my experiences as a student at Chapingo.

I arrived at Chapingo via Electra jet on June 21, smack-dab in the middle of first term finals—their school year is just the opposite of Cornell's.

Naturally, I was prepared for hot weather, but it never materialized. Situated at an altitude of 11,556 feet, Chapingo has an Ithaca-in-fall, Miami-in-winter climate. I was able to accumulate some data during my stay, climatological and otherwise, pertinent to human habitat at this altitude and latitude. So here are the pleasant facts: average relative humidity, 45 per cent. Average annual rainfall: 38.5 inches. Average number days of sunshine per year: 310. Hottest and coldest temperatures ever recorded: 89 and 34 degrees, respectively. The pH of drinking water: 7.2. And most noxious plant: prickly pear cactus.

Chapingo, a model educational institution in Mexico is government supported and students attend expense free. In return, each student has a military obligation.

Forget Something?

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November, 1960
The military system has been renovated during peace-time and is now merely a form of strict discipline. For instance—six a.m. drill “unless” you wish to ride horses. The military also controls class attendance, general appearance, personal habits and moral behavior.

If someone earns an officer’s ire he can expect an official reprimand known to Chapingo students as an “arrest.” Arrests are removed by accepting detention at Chapingo for one week. A total of three arrests in one week and status as a student is removed.

**The Day Begins**

The day begins at six a.m. Students are informed of this critical hour by a rousing rendition of Mexican reveille. No hot water is offered, so each day is greeted with a face-full of cold, sparkling water guaranteed to wake you—completely!

Two hours before breakfast—time to enjoy a little horseback riding, swimming or close quarter drill. No matter how I looked at it, I was ready for breakfast.

At seven forty-five assembly is called, roll call taken, arrests distributed and everybody marches into the mess hall. Food is plentiful and excellent. Pancho, the head cook, is a true connoisseur of foods, since he must serve hometown cooking to students from all over South and Central America. This leaves students at liberty to choose, besides the Mexican staple of melon, eggs, beans and bread, from a fabulous variety of exotic foods.

**Many Subjects Are Offered**

Classes begin at nine a.m. Lectures are given in biology, botany, math, engineering, geology, soils, chemistry, physics, extension and almost anything else related to agriculture. Lectures can be classified into one of two categories, informal and formal.

In the informal type of lecture, the maestro, as professors are called in Mexico, speaks in a conversational manner and expounds upon his knowledge in tape recorder style. I always smiled at the ability of the maestro to talk for one hour at the rate of two hundred and fifty words a minute. Nothing like a good Spanish lecture to start the day off right!
Each maestro has a Ph.D., has written a publishable book, and is a top man in his field.

The formal type of lecture was quite different from anything in my experience. Students rise as the maestro enters. The lecture is based upon a concise and dictatorial plan. No questions are asked in the classroom. Any questions require a personal appointment and are to be presented as a written query. If valid, it is answered.

Wishing to attend a particular lecture, I was first required to ask permission. There followed on interview at which I was to give my entire background. I was finally given permission.

Besides the lectures, students can expect a number of field trips. Some of them last up to an entire term.

At noon, classes are dismissed. And since lunch is at 2 o'clock, students have a two hour break, traditionally known as the Mexican siesta. Things are far from siesta-like, however. Soccer, baseball, football and other forms of physical exercise are all crammed into this two hour period. Almost every sport you can think of is played at Chapingo.

I even took a couple of bull fighting lessons in Mexico City. My practice bull didn't weigh over two hundred pounds, but he still managed to give me a sound butt.

Afternoon classes start at three p.m. and sometimes last until ten, with an hour off for dinner. Prior to dinner, assembly and roll call are taken a third and final time.

Evening activities are plentiful. Symposiums, bull sessions, or a short trip to Texcoco (similar to Cortland and shortened to Tex-Mex) are always possible. Or you can try being a disc jockey on Radio Chapingo.

A recent addition to Chapingo's social atmosphere is an ultramodern theater. Every Tuesday and Wednesday, movies of agricultural, political or just plain enjoyable topics, from Russia, America, France, England and Italy, are shown.

The theater is always available to a group of students who call themselves, "The Society for Social and Cultural Relations." Once a month they present a program resembling a parody on foreign agricultural affairs. They also present concerts, ballets, orations and symposiums.

Social Life At Chapingo

Social life at Chapingo centers around the "Casino"—Chapingo's version of Willard Straight Hall. Here, amidst cigarette smoke, billiard tables and domino games, students sign up for weekend dates, political debates and committee work.

One thing entirely lacking at Chapingo is student organization. The students have a tendency to remain in small, select cliques. As a result, I found it very difficult to circulate around the student body.

I had an opportunity to give a speech for the Society for Social and Cultural Relations. In this speech I stressed the advantages of such agricultural honor organizations as Alpha Zeta and Ho-Nun-De-Kah and also the advantages of some form of student government such as Ag-Domecon.

It will be up to future participants of this program to expand and develop these ideals of Cornell's.

And if you have the opportunity to meet the student from Mexico on this campus sometime in November or December, make it a point to discuss comparisons between Chapingo and Cornell. He will undoubtedly speak some English and it will be worth your while to learn his views. I am sure that you can get many impressions that I, unfortunately, had to neglect in the writing of this article.
EARLY CAVE men really had a “What should I wear” problem. To get something to wear, they had to take the hide off a wild beast ... or fellow cave men, whichever was more convenient.

The more sophisticated cave-men stripped bark from trees and made blankets which he wore during the day and slept under at night. But these Bardot-like creations would not suffice.

With the discovery of flax (linen) and cotton fibers, the road to modern textiles began. The ancient Egyptians founded the art of weaving by hanging the warp—lengthwise threads—from the bow of a tree and weighting them at the bottom. Then beginning at the top, the crosswise thread was worked back and forth.

Discovery Of Weaving

Many changes have been made since then. In the last five years cotton has taken on many new looks and characteristics. Cotton fibers have always been sighted for their absorbency and resistance to temperature and moths. But, until recently a cotton dress had to be starched and laboriously pressed before each wearing. This is no longer true.

Miss Evelyn E. Stout, Associate Professor of Textiles and Clothing, feels that the development of wash and wear cottons is the biggest development in the cotton industry in the past five years. This has put cotton into competition with the synthetic fibers and won back many markets which seemed lost to them.

The two primary consumer concepts of easy care are: smooth drying and wrinkle resistance during use. These qualities can be given to the fabric by chemical finish, blending, and utilization of fabric construction and surface effects, or combinations of the three.

The newest of these treatments is chemical finishing. It is described by Joseph L. Williams and Frank A. McCord of the Market Research Section of the National Cotton Council of America as a process where the “finish becomes an integral and durable part of the fabric through chemical reaction with the fiber.”

“Most easy care cottons are produced by the use of chemical finishes,” say two researchers.

The birth of these resins did not solve cotton problems immediately. It has recently been shown that subtle changes in fabric weaving can improve tear strength of lightweight, resin treated cotton fabrics without damaging other properties or adding cost to the material.

The quality of the cotton fabric and the fibers we use today have been greatly improved. Miss Stout explains that long fiber cotton is now being grown in irrigated areas in southwestern United States. This crossbreed is a combination of native and Egyptian cotton.

Machinery has been perfected to improve the product and to increase efficiency of production. As an ex-
ions
ric Front
ape of the caveman
af the businessman
ive followed civili-
in clothing, home
industry.
by Carole J. Wedner '61
ample, Miss Stout cites the new Shuttlesless looms. They are smaller and faster then the looms now in use and may have widespread use in the future.

The Importance Of Byproducts

When the Egyptians used cotton thousands of years ago there were many parts of the cotton plant wasted. Today the byproducts of cotton are "almost as valuable as the cotton itself," states Miss Stout.
The linters (short fibers which cling to the seed after ginning) are used for rayon, as is wood pulp. Although wood pulp has become the chief ingredient, the use of cotton linters and possibly poor grades of cotton may have a "big upsurge" Miss Stout claims. The reason for this, she explains, is the new kinds of rayon which are coming on the market. These will "be stronger when wet, may look like linen, are quite stable, and do not stretch." Products made from these new rayons will have tags with such trade names as AVRIL, AVRON, AVCRON (this is a curled one for use in rugs and upholstery), and MOYNEEL.
The cotton seeds have important byproducts too. First they are crushed and the oil removed to be used in cooking fat, oil, and oleo-
margarine. The cake left is used for cattle feed and the residue for fertilizer.

Like cotton, wool has taken on new dimensions and stature.
The newest and most revolutionary development is a finish for permanently creasing wool.
Wool slacks with permanent creases have been on the market since March 1, 1959. The demand for them has been spectacular. One New York store sold more than 6,000 pairs in a single season.

This new treatment does not produce a wrinkle resistant fabric, but does stabilize the final shape so wrinkles tend to hang out.
Garments treated must be dry cleaned as any other woolen, but the creases remain sharp, making pressing much easier. Pleated skirts need only be hung up after dry cleaning and they resume their original pleated state.

Moth Proofing Possible

Another step in making natural fibers more desirable is permanent mothproofing—by adding DIELDWIN to the dye bath. This solution had its previous use as an insecticide in agriculture and public health.
The perfection of DIELDWIN has opened the way to another innovation—washable wools. Shrinkage control, says Miss Stout, is already possible to some extent. The United States Army buys nothing but wool socks. Since the socks do not shrink they are saving the tax payer thousands of dollars.

Research On Wool Continues

Other work is being done to increase the sale and use of natural fibers. The United States Department of Agriculture, in its Wool and Mohair Laboratory in Albany, California has "a reasonably strong basic research program integrated closely with development and applied research," according to Dr. Harold P. Lundgren, Chief of the Laboratory.
A good deal of the research going on there is on making wool an easy-care fabric. Present laboratory results show that such desirable characteristics as shrink resistance, quicker drying, and resistance to mustiness, pilling, and soiling can be given to wool, claims Dr. Lundgren.
Since wool and cotton have been around for so long a time, they could be taken for granted. With the new processes being developed to increase production and make the fabrics more desirable, promotion is an essential part of today's natural fiber industry. Both Wool and Cotton have special promotion representatives—The Wool Bureau Incorporated and The National Cotton Council.
In addition to promoting research, these organizations plan and carry out promotional campaigns.
The Cotton Council bases its campaign for cotton clothing on its "Maid of Cotton," a girl chosen from a cotton producing state to represent the industry. This year they also stand behind the slogan "Cotton is a Natural" and have launched an all-out campaign.
The Council's advertising "bom bardment" is aimed not only at the consumer, but also at the manufacturer and retailer. Advertisements will also appear in industrial publications and farm magazines to promote industrial cotton and cotton-seed products.
Promotion, research, and constant improvement on product and production have helped make and keep cotton and wool tops in fibers and fabrics. Experts predict that this trend will continue far into the future.

The trouser leg at left was treated. Leg at right was untreated. Both were saturated in water, from the knee down, for 24 hours, then dried—but not pressed.

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National Science Foundation Answers

The Desperate Call For Scientists

N.S.F. offers young scientists a chance to preview their chosen field.

by Jane E. Brody '62

With the number of satellites increasing in today's sky, one's ears simply cannot shut out the cry for "more scientists, more scientists." And, naturally enough, it is the National Science Foundation, better known as NSF, which is constantly tuned to the frequency of this desperate call. The response—a nationwide summer science program subsidized by the Foundation.

This past summer Cornell University experienced its second year of participation in this attempt to increase our supply of scientists. But we are not just short of scientists. Good scientists are needed; competence makes a good scientist, and sincere interest is the basis for acquiring competence. The Foundation has just these goals in mind and is approaching them from as many sides as possible—from the high school student, the undergraduate, and the high school teacher levels. The program has assumed all its forms here on this campus, each aspect being directed by a University professor who has the cooperation of fellow faculty members.

Professor George C. Kent, head of the Department of Plant Pathology, was director of undergraduate research—a program which enabled undergraduates to carry out their own research projects under the direction of a Cornell professor. As Dr. Kent sees the main purpose of the program, it is to give the student who wants experience in science an opportunity to participate in his chosen field and get a preview of what lies ahead.

High Schoolers Gain Insight, Too

Dr. Kent's observations extend to the high school student level: "A lot of these kids want something to do outside of high school, and they are not all athletically or musically inclined."

The activities of some 110 high school students were coordinated by Associate Professor Thomas R. Nielsen of the agronomy department. Of the group, 13 participated in actual research in the College of Agriculture while the others took courses in mathematics, chemistry, zoology, and physics. These students, Dr. Nielsen feels, had the opportunity to experience real college life—including dorm living, social and academic decisions, college courses work and all associated joys, trials, and tribulations.

Students Score Program Successful

The reaction of the students themselves?—"The summer's work directed my future toward science," "I reaffirmed my plan to go into the research field," "It has helped me realize the complexities of my chosen field and my abilities to cope with them," "I found that learning principles and not getting 100's is the important thing"—and a multitude of other similar comments, comments which indicate that NSF is the road to success. Of course, there is still much room for improvement—"time is too short," "too little freedom in the lab," etc. —but at least the ball is rolling in the right direction.

The best is yet to come—that part which attacks the problem of stimulating scientific interest at its very roots—a special program for high school science teachers, unique to the Cornell campus. It is designed to better enable the high school teacher to develop a proper understanding of science and scientists in his own students.

Professor Philip G. Johnson of the rural education department, himself an ex-high school science teacher, directed the program for 25 teachers who carried out their own research under the guidance of Cornell professors.

Back At School

Several of these teachers returned to their respective schools to continue further work during the academic year employing the assistance of their own students. Dr. Kent observes, it is useless to encourage the high school student through special summer work if further growth is stifled when he returns to school in the fall.

Good instruction is an all-important thing. But how can a teacher convey the true meaning of scientific research when he himself has never participated in it?

The problem, of course, is much deeper than this. It involves restructuring whole faculties, reorganizing administrations, changing curricula, and the like—all of which take time, money, and hard work. But a start has been made—at least something is being done.

November, 1960
The Works Of The County Chairman

To effectively assist in the high school recruitment program for the College of Agriculture, 56 County Chairmen, supported by more than 300 other key alumni, are organized for volunteer work. The County Chairmen and key alumni provide a line of communications between the College and local high school students in search of a college education.

Each County Chairman is free to plan and develop a high school contact program in accordance with the needs of the county. One of the first jobs is to locate and designate key alumni to each of the county high schools. Groups of this kind meet at least once each year to develop plans for the new school year and to review past accomplishments.

The objectives for this effort are threefold: first, to promote and develop a better understanding with school guidance counselors about entrance requirements and the wide variety of study courses offered by the College; second, to develop contacts and to stimulate the interest of parents, and students who are best qualified for entrance; third, to coordinate the county activities with those of the Office of Resident Instruction for the College.

There are, of course, many details for the County Chairmen to consider. One which requires considerable effort is the arranging and scheduling of boys for the “Open House” activities sponsored jointly by the College and the Alumni Association.

The work of alumni is typified by the job being done by Bill Blackburn, Alumni Chairman for Orleans County. Bill has recently taken over the Chairmanship from Tom LaMont, ’27, a member of the Alumni Association Executive Committee and former president. This fall five Orleans County boys entered the College—Warren Beeton and David Hill from Medina, New York, Robert Husted and Roger La Mont from Albion, and Bruce Sartwell from Waterport.

Bruce and Warren were valedictorians of their respective high school classes. Robert Husted and Warren Beeton received the George La Mont scholarships for their freshman year.

All interested alumni are encouraged to assist in the work of the Alumni Association. Simply contact either the County Chairman or key alumni for your school and inform them of the qualified high school students who are considering a choice of colleges.

Participants in the Association’s activities are interested in telling the story of the College of Agriculture at Cornell University, and in getting more qualified students enrolled.

The New Admissions Counselor

Bernard A. Curvey has recently been appointed Admissions Counselor for the College of Agriculture.

Curvey received his B.S. degree in Agricultural Industries from Southern Illinois University, and his M.S. in Agricultural Economics from Cornell. Prior to his college training, Curvey operated a cash grain farm in Central Illinois and completed a tour of duty with the Air Force.

Curvey’s new job as Admission Counselor is primarily in the field of public relations. He will represent the College at various high schools throughout the State, talking with guidance counselors, Vocational Agriculture teachers and students. The new Admissions Counselor also will work closely with alumni who are interested in serving as ambassadors for the College.

Meeting with professional agriculture groups, planning tours of the campus, writing periodic news letters to alumni, and participating in radio and television programs are some of Mr. Curvey’s other duties. He will also work closely with the Admissions Committee to assist in reviewing applications and handle interviews with prospective students.
Horses and men combine to make Polo at Cornell, but even in the rules of the game the horses come first.

by Frank E. Fee, Jr. '64

Two players charging down the riding hall at a full gallop, each intent on getting control of the ball; the brief scramble, and then away, up the ring again; the sudden sharp turn, the arc of the player's arm as he takes a shot; the pellmell dashes up and down the ring; these are the thrills of polo at Cornell.

Polo at Cornell was sponsored, for many years, by the Army R.O.T.C. Early in 1948, when the Army gave up horses, the Cornell Polo Club was created.

One of the few consistently victorious teams on campus, the Cornell polo team has won five out of the last seven Intercollegiate Polo Championships. Out of 29 games played last year, they won twenty-five.

But in polo, a winning team means more than just men.

The primary ingredient of a good team is good polo ponies. Not just any horse will do for the team. First of all, the polo pony must be...
just that, a pony. Large horses will not have the agility to make the quick turns and sudden stops that a small horse will. The polo pony must have endurance. For this reason, the Quarter Horse does not make the best of mount for the game. Speed is very important, as is ease of handling, and calmness. Put these all together, and a polo mount is born.

**Good Coaching Essential**

Practiced ponies and players are a must, but a third ingredient is necessary to field a championship team—an excellent coaching staff. The coaching staff is responsible for turning out both the players and the ponies.

Coaching the Varsity is “Doc” Roberts, a veteran of twenty-seven years of playing, and a good many years of coaching the Cornell teams as well as being a former team member. Doc was on the team that won Cornell’s first indoor intercollegiate championship.

Dierk Terlouw is in charge of the Freshman. He has the challenging task of teaching boys who have never played the game before. Frank Paige helps out with both the Varsity and Freshman teams, and in addition, he acts as referee at most of the home games.

**Careful! Don’t Hook That Horse**

The first-time viewer will begin to think that this game has no set rules, but a blast from the referee’s whistle will soon dispell this idea. “Number one foul, a free shot at an undefended goal,” but why? It looked pretty clever to reach in front of the other fellow’s mount and hook his mallet.

This brings up still another part of polo—the rules. While it may look as though polo is just one mad scramble, the United States Polo Association, the governing body of polo in America, has set up a complex system of rules and regulations with just one thought in mind: maximum protection for the horse. It is to protect the horse that a rider may not reach across or between the legs of an opponent’s mount. For the pony’s protection a player may not cross directly in front of an opponent or across the line set up between the ball and the rider.
Polo has come a long way since the time fifty years ago when the Imperial Russian Cavalry was forbidden to play the game because of the wear and tear on the horses!

**Handicaps For Good Players**

The USPA, in addition to providing rules for the game, also sets up a system of handicapping players throughout the United States. This is known as goal ratings, and the goal ratings run from 0 to 10 goals. These goal ratings do not reflect on the number of goals a player is expected to make in a game, but are rather an indication that the player has the ability to play on a higher plain than others. The Cornell polo team is fortunate to have two rated players on the squad: Ben Baldwin at two goals, and Frank Butterworth, with a one goal rating. The goal ratings do not hold in collegiate play, but are used for tournament play.

Indoor polo at Cornell is played with three-man squads, with each game divided into four, seven and one-half minute chukkers.

The Cornell polo team does a lot of traveling to games, and the cost of trips to such places as Charlottesville, Virginia, and Culver, Indiana, runs quite high. The University subsidizes the team to a certain extent, but the bulk of the finances is raised by the team members themselves. During the football season, the team parks cars on the riding hall premises, and every year the team runs what has become the second largest Quarter and Cutting Horse Show in the East.

**Polo This Year**

The polo season began October 22, when a team from Westchester County came to Cornell. Among the other well-known teams that will be on the weekly schedule are: Cleveland, Myopia team from Boston, Avon, Princeton, Harvard, Yale, University of Virginia, and Georgetown University.

When you see a rider spur his horse on after the ball and take a shot at the goal, chances are that this Cornell polo player is connected with the Ag College. Eight out of the 12 team members are from the Ag or Veterinary Colleges, including the team captain, Pat Baker, Ag '61.

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**YOU’LL SEE SOME REAL CHANGES IN LIVESTOCK MARKETING IN NEW YORK STATE...**

Now that the U.S.D.A. has announced that the Federal Packers and Stockyards Act will apply to:

1. All livestock commission auction markets in this state doing business in interstate commerce.
2. Anyone who buys or sells livestock in interstate commerce.
3. Anyone who buys or sells livestock at a federally-posted market.
4. Anyone who purchases livestock in New York State, sells it to a packer or slaughtering establishment where the edible products are later sold in interstate commerce.

**You’ll See Some Changes Because P & S Supervision Will Assure:**

1. Adequate bonding of all dealers and livestock markets and others who come under this P & S Act.
2. Checking of livestock weighing devices by Federal Inspectors at “suitable intervals”. False weighing referred to Department of Justice. Convictions carry heavy penalties.
3. Published commission rates which must be reasonable, just and non-discriminatory.
4. No discrimination, no favoritism to buyers or sellers.
5. No “kickbacks” to truckers bringing livestock to market.
6. Adequate records to “fully and correctly disclose all transactions”.

**These are Practices Which Empire Livestock Markets Have Followed Voluntarily for 14 Years Because They Benefit You. We Welcome to New York State These New High Standards Now That All Will Have to Comply.**

Empire has always led the way in honest, dependable and available livestock marketing, when you have livestock to consign—think of Empire, New York’s leading livestock auction markets and on-the-farm sales service.

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**Empire Livestock Marketing Cooperative**

Stockyards at
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- BULLVILLE
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- GREENE
- ONEONTA
- WATERTOWN
- WEST WINFIELD
- soon at BUFFALO

Ask your neighbor about Empire—it’s a good place to do business.
Clubs on The Upper Quad

Veg Crops Club

VEGETABLE CROPS Club is concerned with topics related to the vegetable industry. Membership is open to anyone interested in our activities.

The monthly meetings are highlighted by a speaker. Discussion and refreshments follow.

In addition to participating in Farm and Home Week the Club may make some trips to vegetable areas in the Northeast.

We hope to see you at our next meeting.

Conservation Club

THE CONSERVATION Club is a group of Cornell students interested in conservation and natural history. Every other Thursday evening, members meet in Fernow Hall at 7:30 p.m. At these meetings the club listens to speakers, usually professional conservationists, and plans events and projects.

For projects, the club participates in wildlife census, co-sponsors the Audubon Screen Tours, and presents exhibits and gives talks to interested groups.

From the College Press

- NEW CHEESE DIP—Weight-watchers, budget balancers, and gourmets may soon be able to add a new product to their shopping lists—a tasty, low-calorie, and inexpensive homogenized cottage cheese dip, says Prof. Frank Kosikowski.
- CHICKEN FEED INGREDIENT—A new chicken feed ingredient that includes soybean oil may mean healthier, more productive poultry. The product, consisting of soybeans rolled into very thin flakes, was developed by Cornell researchers.
- POULTRY HOUSE LIGHTING—Poultrymen who plan to install or change lights in their chicken houses might better stick to the old lighting stand-bys. Cornell research shows that the lighting that is best for egg production is exactly what most farmers are using now.
- MINIMUM TILLAGE—Contrary to popular belief, research shows that minimum tillage with modern equipment not only leaves the soil in good condition but actually increases crop yields on many soils, Prof. Hugh Wilson reports.
- EMPLOYED HOME ECONOMISTS—More than a third of all living persons holding degrees from the College of Home Economics are employed, reports Mrs. Doris Wood, associate director of placement.
- VITAMIN B-12 RESEARCH—Scientists, directed by Dr. Louise J. Daniels, are seeking a better understanding of vitamin B-12. Their research could lead to information which will help nutritionists and housewives plan better balanced diets, and doctors in treating metabolic diseases.
- HORMONES CONTROL APPLE DROP—Development of plant growth regulating hormones that keep apples from maturing too fast and then dropping before harvest time may save apple growers thousands of bushels of apples yearly, Prof. Louis Edgerton says.
- PLANT RESEARCH CENTER—A $72,100 grant has been made to the College of Agriculture by the National Science Foundation to support construction of a new center for basic research in plant virology and plant nematology. This amount has been matched by New York State.

For further information on any of the above items contact the Cornell Countryman.

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THE TEAM TO LEAD AMERICA
ELECT
KENNEDY FOR PRESIDENT
JOHNSON FOR VICE PRESIDENT
THE MAN TO REPRESENT YOU IN WASHINGTON
Francis J. "Bud" Souhan
FOR CONGRESS
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This advertisement paid for & sponsored by the Democratic Committee & student contributions.
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There's good reason why so many farm equipment manufacturers choose Link-Belt chain. Experience has shown them that the refinements built into Link-Belt chain make a vast difference in field performance, help assure customer satisfaction for their machines.

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**STANDARD-PITCH PRECISION STEEL ROLLER CHAIN** - a popular choice for transmitting power on such equipment as self-propelled combines. Features high hp capacity and light weight.

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A Union of Pasts

Cornell Countryman

December, 1903—Vol. 1, No. 1 of the Cornell Countryman. “A Journal of Country Life—Plant, Animal, Human.” The first article was written by L. H. Bailey whose title was “Director of the College of Agriculture.

Martha Van Rensselaer wrote an article in that first issue about her work as Supervisor of the Farmer’s Wives Reading Course. “Dodder in New York Alfalfa Fields” was the title of J. L. Stone’s initial article. The Editor-in-Chief was G. F. Warren.

It is hard to imagine how that early Countryman staff found their way around without having the buildings named after them to use as landmarks. But the Ag Quad wasn’t really their headquarters.

The first Countryman office was in the basement of Morrill Hall. If you listen hard, you may still hear to happy “clacking” of Countryman typewriters amid the foreign language drills today.

A later home of the Countryman was, what is now, the radio shack—in the parking lot on the Bailey Hallside of the old Minns Garden.

By 1921, the Countryman had changed from a digest-size to its present dimensions. An October, 1921 editorial explained that “The national advertisers would be much more apt to patronize our columns” with the larger size. That issue of the Countryman had 32 pages with 13 of them covered with ads. But that was the “Roaring 20’s”.

Two major changes later occurred. The Countryman moved to its present perch in the pent house of Roberts Hall. And the undergraduates took over the writing.

Today, 57 years after the first December issue, the Countryman has changed from “A Journal of Country Life—Plant, Animal, Human” to a Journal of Student Life—Mostly Human.

It is thought that two typewriters in the office were first used by the founders of the Countryman. It is interesting to wonder what the first Countryman Editor, G. F. Warren, would have thought about the copy that rolls out of those machines now.

Norton Printing Company

The Norton Printing Company was founded by Edward Norton in 1882, who continued in business until his death in 1924. His son, Harry Norton and daughter, Sue Norton, operated the business until May of 1929 when it was purchased by its present owners Mr. and Mrs. Albert MacWethy.

For the first two years of the company’s existence it was located on the second floor of the present Savings & Loan building. The company moved to its present location in 1884.

Seventeen members comprise the working staff of the company at this time with 14 years being the average length of service. The Countryman was printed at Nortons for several different years from 1903 to 1930 and has been done consistently by them for the last thirty years.

In the earlier part of the century The Countryman was set by hand and run off on hand-fed presses. In 1911 a Linotype was purchased, which sets the type equal to the speed of seven hand compositors. As time progressed other machinery was added until now, so that today the magazine is run on automatic presses and folders and can be produced at a speed that at one time was thought impossible. Compositors of Nortons are affiliated with the International Typographical Union and the pressmen are in the Printing Pressmen and Assistants Union.

The Norton Printing Company’s slogan is Where service is a Habit and they have prided themselves on living up to their slogan. In fact the reputation they have established in this regard can best be determined by talking to any purchasers of printing in the City of Ithaca. Students of both Cornell and Ithaca College have long since discovered that Norton’s is the place to go whenever they have a problem or want service in a printing job.

Working with the various staffs of the Cornell Countryman has been extremely pleasant and many friendships have been made as a result.

This issue of the Countryman brings together the past and present of a magazine and a printer. Together, they symbolize man’s attempt to communicate—the presentation of the written word. And together they present six more words: Merry Christmas and Happy New Year.
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Are Now On Display In Our
GREETING CARD DEPARTMENT

We have a fine assortment of boxed and individual cards.

We urge you to order your imprinted cards post haste in order to assure delivery by Christmas Vacation.

Cornell Campus Store
Barnes Hall

December, 1960
Editorials

Ag-Dom -- So What?

Council as it was and is

Is AG-DOMECON Council Dying a Slow Death?

The title of a Countryman editorial in April, 1958. Based on the findings of a student poll, the editorial pointed out an almost complete lack of interest in, and information about, Ag-Dom on the part of the student body.

The editorial blamed this student state of mind on the inability of Ag-Dom to promote interest and provide information — Council apathy. A subsequent letter from the Ag-Dom president claimed that the guilt lay with the inability of students to broaden their interests and seek information — student apathy.

In the opinions of many present members of Ag-Dom and the student body, the same points of view — their bases and differences — are valid today. An indication was the Pomology Club’s editorial in the November Countryman — “Does Ag-Dom Have a Future?”

Future, however, is a thing called “maybe.” Two other elements are more definite — the present and the past.

Ag-Dom as it is today is brought into focus once every two weeks at their regular meetings. The meeting of November 2nd, for example, progressed like the outline of many analyses of the Council.

Projects were discussed at the meeting, and many evaluations define Ag-Dom in terms of deeds. Such things as Swedish and Mexican Exchange, coffee hours, and a proposed club-officer training program were discussed.

Fuller indications of the Council’s substance and purpose, however, were brought out in discussing the Ag Hec Day square dance and the name-change referendum.

Seventy tickets were sold for the Barton Hall square dance. Of the Council members attending, only one came with a date. President Gary Harden, ’61, blamed the small turn-out on bad timing, inadequate publicity, and poor support from Council members.

Student voters defeated a proposal to change the name of Ag-Dom to “Upper Campus Student Council” by only ten votes. Failures in timing and publicity were again noted. But since a majority of Council members were in favor of the change when it was first proposed, President Harden cited lack of member-support as a major factor in the defeat.

During an interview with the Countryman, Gary Harden explained that those opposed to the name change felt more change was needed. While he was definitely aware that a changed name was not an end in itself, Harden felt it was a good place to begin improvement.

Opposition also centered around the present name’s long tradition. Harden recognized the tradition, but disputed its value. Ag-Dom has been known for a long time, but according to the president, it has been known as a poor organization. “That kind of reputation isn’t worth saving” Harden said. But now the past becomes involved.

Ag-Dom as it was can be recalled by professors who were undergraduates in the College and have been connected with Ag-Dom, student life, and the Colleges for most of the 20 to 25 years since their graduation.

In the past quarter century, the professors recall, Ag-Dom hasn’t filled any vital needs of the student body. This, in part, is due to the size of the Colleges. When the Colleges were so small that everybody knew everybody else, it was a lot easier to communicate and create a group spirit.

There was a time, a professor remembers, when Ag-Dom dances were very popular and well attended. A training program for club officers existed for a while. The program broke down when the student-founders graduated without transferring their interest in it:

Until about five years ago, it was pointed out, Ag-Dom was responsible for coordinating the dates and times for all club meetings — thus avoiding conflicts.

In spite of any proposed changes or past weaknesses, the professors concluded, Ag-Dom provides a laboratory where students can learn such things as parliamentary law, organization principles, committee structure, and personal relations. If only in this capacity, Ag-Domecon Council can fill a vital need.

And as it might be

The value of any campus organization includes those specific services it performs. Beyond this, however, is a worth that is often overlooked — particularly, we feel, in the case of Ag-Domecon Council.

An organization of this type offers students something that could be of real value to them: a beginning toward deeper and more significant living at Cornell.

We do not propose that Ag-Dom in itself embodies this broad scope of college life, but we do feel it could be instrumental in finding students interested in campus activities. In this sense, we think of Ag-Dom as a means by which Ag and Home Ec students have the opportunity to broaden their interests and themselves.

Many of the upper campus students are not interested in this kind of growth. We know some who are, however, and more who might be. For these, perhaps few, a broad-minded Ag-Dom Council can be justified and is necessary to student life.

Countryman CompetElections

We are happy to announce the election of the following people to the Countryman staff:

Anne Dalrymple, Gale Steves, Phyllis Norton, Virginia Lange, and Alice Fried, all ’64.

More new staff members from the class of ’64 are: Frank Fee, Phyllis Rivkin, Linda Goldreich, Nancy Fraser, Ernie Smith, and Richard Mandell.

Also newly elected are: Jim Sample and Susan Rauchway, ’63 and Tom Wickham, ’62.
Pseudo - Yule
and Giant Toads
by Zilch

ZILCH HAS received word from several Country-
mantics of the past. G. P. Hirsch (Editor, 1957-
58) is at the U. of Penn's school of dentistry. Arthur
J. Dommen (assoc. editor 1953-56) is the U.P.I.
Bureau Manager in Saigon, Vietnam. Zilch got the
foregoing information from Dana Dalrymple (Editor,
1953-54) now studying at Michigan State U's Ag
Ec department.

ZILCH'S NEWS ANALYSIS: A home economics
professor at the U. of Texas believes that when little
brother dips his sister's pony tail into the ink, "he
may be expressing deep affection and respect." The
Texas-prof continues that only when the fighting be-
comes extreme should parents become concerned. How
many pints of blood are enough?

Under the headline, "Any Takers," the Rutland
(Vermont) Herald carried a story about a "White-
haired grandmother who claims the rocking chair
championship of the world." Her record is 100 con-
secutive hours! Zilch wonders if she made the Olympic
team.

In Queensland (Australia), they're using giant
toads to eat sugar-cane beetles. This is fine for the
sugar cane industry, but all is not peaceful on the toad
front. Late homecomers object to the unearthly ap-
pearance of the toads gathered around lamp-posts,
catching bugs.

Zilch noticed a press release that started, "If you
see a snake in the grass, relax." When Zilch perceives
such phenomena, he is usually in a state of induced
relaxation, anyway.

With the vast system of research and crop re-
porting at the disposal of USDA, and the trained per-
sonnel studying trends in crop conditions, a recent
issue of Agricultural Situation ran a lead story called,
"Will this be a record crop year?" In answer to the
question posed in the head, the lead paragraph ex-
pertly predicted, "Maybe, yes. Maybe, no."

Zilch would like to extend a special greeting to the
newly elected Freshman representatives to Ag-Dom
Council. The Ag College donations are Jonathan Roth,
and Joe Bowen, while the Home Ec rep is Kristine
Blixt. Zilch thinks the ratio is bad, but the choice
is good.

Zilch knows that he should wish all his loyal
readers a merry Christmas . . . but he can't. The
whole trouble is with something the Editor calls "psy-
chological Christmas." You see, Zilch is writing this
column two weeks before Thanksgiving. But as far
as Zilch's column is concerned, it is two weeks before
Christmas . . . because that's when you read it . . .
even though it's really before Thanksgiving.

So while Zilch enjoys his pre-Thanksgiving,
pseudo-yule, he hopes that everyone else will have a
happy one of the more timely variety—and Zilch
hopes the Editor gets a big can of Metrecal in his
stocking.

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COVER STORY

Our merry Christmas to you is this month's cover
designed by Linda Goldreich '64, who was just elected
to the staff.
Testing Milk's Taste

Cornell professors are trying to find out what makes milk's taste and how to change it. One piece of equipment is a "holy" cow.

by Susan Rauchway '63

AIR-CONDITIONED cows, the dairy industry department, and a group of graduate students are all working for the cause of milk flavor improvement.

Milk improvement programs are faced with an ironical problem. On one hand, it would be hard to find a cleaner, more wholesome, food product than fresh milk. However, the fact remains that some people drink lots of milk, others drink less, and some drink none at all. Since the purity of milk is at such a high standard today, most consumer's complaints about milk arise from occasional off-flavors. Most off-flavors are barely detectable, but it was concluded that they may seriously lower the milk consumption of those people who...
are particularly sensitive to flavor variations.

Improving the taste of milk requires a knowledge of the nature and transmission of milk flavor, the biochemical processes in the cow that produce and change flavor, as well as the investigation of the dairy cow's food and environment.

The flavor-improvement experiment at Cornell is being conducted under the supervision of Professor William F. Shipe, of the dairy industry department, and Professor Robert Watson Dougherty of the College of Veterinary Medicine.

Each of the two cows used in the experiment is equipped with a set of tubes inserted into the rumen and windpipe, through which flavoring agents may be introduced. With this apparatus and subsequent tasting, it is possible to determine if and when these additions have any perceptible effect on the flavor of the milk.
The age of the horse and buggy is passed!

Modern vehicles require expert attention. Let our expert mechanics service your "buggy"?

Glenn's Sinclair Station
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Don't monkey around—Go to the Royal Palm for the best in food and drink.
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Onion and garlic flavors can be air-bubbled directly into the lungs of the cow, as well as into the rumen. Bulkier materials, such as grass and corn silage, require the use of large aerators and hydraulic presses to extract the juices before they are introduced into the cow's lungs.

Artificial fruit flavors, and organic matter, are also included in the tests.

Off-Flavor Detection

When onion and garlic flavors were used, the panel detected an off-flavor, but could not identify it. In the case of corn silage, the judges described the taste in such terms as "sour," "acetic acid," "acetone," "molasses," and "feed." Banana and coconut esters produced an off-flavor, pure vanilla extract resulted in a slight off-flavor, and cherry, camphor, butyric acid, and urine produced none at all.

The conditions of the experiment are carefully controlled: each judge samples the milk independently. This eliminates any possible influence of previous knowledge, and the observations of fellow judges. The results, however, are complicated by the frequent inability of the judges to discriminate among different flavors, and their varying "thresholds of taste."

Evidence From Study

Although no definite conclusions have been drawn from the experiment, there is evidence that some off-flavors may be produced in the cow's rumen. This may be attributed to the enzymatic action of bacteria which live in the rumen.

Accurate identification of milk flavor will be a great step toward the qualitative improvement of milk. It will also be a major advance in dairy research—in understanding the physiology of milk production, and the chemical composition of this very complicated substance.

Milk flavor may also be influenced by environmental factors. These effects are hard to study, since milk is a highly sensitive product, and may be affected by countless environmental variations, which express themselves from barn to table.

Oxidation Problem

A major problem in the processing of milk is caused by oxidation. As Professor Shipe explains, oxidation of milk is catalyzed by copper or by sunlight. Oxidation is less serious in the spring, when the cows are changed from silage to green feed, which contains antioxidants.

Oxidation may be retarded by the use of amber milk bottles. Consumers, however, tend to object to the "beer bottle" appearance of such containers. Moreover, since a majority of people buy homogenized milk today and don't have to see a "cream-line," wax containers are quite acceptable.

The feelings of consumers—the people who drink the milk—are especially important. No matter how loaded with food value milk, or any other food product is, people will not buy it unless it looks, smells, and tastes good.

Although milk is a combination of chemicals, and can be studied in a scientific laboratory, the human factor in its production and consumption must be considered. Our knowledge of how milk is affected must be very specific. One reason is that the farmer who wants to improve his milk's flavor must know exactly what steps to take and the reasons for taking them.
ALUMNI ASSOCIATION members and the College of Agriculture were host to about 130 high school students, parents, and guidance counselors at the fall College Open House.

The purpose of the Open House, held on Saturday, October 29, is to bring interested students to the College Campus so that they may see the facilities available to them and to inform them of the varied educational opportunities in the College of Agriculture.

The program opened at 9:30 a.m. with refreshments and registration in the lounge of Riley-Robb Hall.

At 10:00 a.m. the group assembled in room 125 Riley-Robb Hall, where they were welcomed by Thomas C. Watkins, Director of Resident Instruction.

Immediately following there was a panel discussion by five faculty members on the “Educational Opportunities in Agriculture.” The fields of studies discussed and the five faculty members from the respective departments were: Animal Production, Professor S. E. Smith; Plant Production, Professor E. B. Oyer; Natural Sciences, Professor B. L. Herrington; Agricultural Business, Professor Wendall Earle; and Agricultural Engineering, Professor O. C. French. After the panel discussion, the group divided into several interested groups for a question and answer period with several departmental representatives present to answer specific questions.

Dean Charles E. Palm greeted the group at a luncheon held in the Stocking Hall Cafeteria. After the luncheon, Nealson Hopper ‘39, Superintendent of Farm and Food Labor, in the State Labor Department, presented a talk on “An Alumnus Appraises a College Education for the Agricultural Industry.”

The afternoon session opened with a bus tour of the Campus. Members of the Ag-Domecon Council acted as guides.

At 2:30 p.m. the group assembled to hear five Cornell students talk about “Student Life at Cornell.” The panel members were: Judith Reamer ’61, Manley Makenny ’61, Alan Marion ’61, James Bobnick ’61, and Ian MacLeod ’61. After the panel discussion, the panel was open for questions from the High School Seniors.

The program closed with a short summary of the day’s activities given by Director T. C. Watkins and an informal snack in the Seminar room of Riley-Robb Hall.

Russell Cary, President of the New York State College of Agriculture Alumni Association, was master of ceremonies at the noon luncheon and chairman of the afternoon session.

Similar programs are planned twice yearly for interested high school students.

The Office of Resident Instruction encourages any high school students interested in the College of Agriculture to visit with their guidance counselors if they have any questions concerning the various fields of study or admission requirements.

Scholarships for High School Seniors

HIGH SCHOOL seniors who plan to go to college next fall may be interested in more than 40 scholarships which will be awarded to freshmen entering the New York State College of Agriculture at Cornell University in September, 1961.

Bernard A. Curvey, admissions counselor, says one out of every 3 or 4 applicants usually receives one of these scholarships. Each is valued at $200 or more. The awards are made primarily to outstanding farm boys and girls and to 4-H members who want to study agriculture, who are in financial need, and who have good high school records.

Ten of the awards are Carl E. Ladd Memorial Scholarships, worth $300 each, and specifically for young men and women from New York State farms. The Sears Roebuck Agricultural Foundation has also provided fifteen $300 scholarships for farm-reared freshmen. These awards are made on the basis of financial need, leadership, and scholastic promise in the field of agriculture.

In addition, there are two awards for 4-H members given by the Esso Standard Oil Co. These scholarships are worth $200 a year for four years—a total of $800. Several awards are also available to boys and girls from specific areas of the State. For example, the Lamont family of Albion has provided two scholarships for students entering college from Orleans County.

Students can get more information about these scholarships from their high school guidance counselor. They must act soon, however, for applications must be on file at the College by Feb. 15, 1961. Application blanks may be obtained from local guidance counselors or by writing to the Office of Resident Instruction, Roberts Hall, Ithaca, N.Y.
Evolution of the Christmas Evergreen

The early ancestor of the Christmas tree was the green date palm. Through the centuries it has become the symbol of a happy family in a free world.

by Gerald Kral '62

THIS MONTH YOU and I, along with a hundred fifty million other people, will get Christmas tree fever. In the midst of street corner Santa Clauses, department store Santa Clauses, toyland-, barbershop-, and city-sponsored Santa Clauses, city dwellers will converge upon their shopping centers to select a Christmas tree. It will be pushed, shoved, or mashed into an automobile. Main Street, U.S.A. will resemble a mobilized pine forest.

Meanwhile, rural folk will attack their farm woodlots with axes, saws and if still available, old Dobbin and the sleigh. All this and a hundred fifty million Christmas trees moving into man's domain.

Where did all this begin and how did it become so popular? “Custom and tradition,” you say? Sure, that's true enough but just where did this custom begin? With the aid of a little book entitled, All About Christmas by Mamie Krythe, a radio station and some folklore, rumor and fact, the story of the Christmas tree can be told.

The custom of decorating a tree with trinkets, tinsel and colored lights is certainly not a new one. Early Egyptian Christmas tree—the date palm

It began with the first great civilization—the Egyptians. Once a year, to honor the solstice, the green date palm was decorated with gold and silver. Romans sanctified their god of fruitfulness, Bacchus, by hanging miniature masks of him on their fruit trees—especially the grape vine. Wine distilled from such sanctified grapes was believed to increase both virility and fertility. The Druids of Northern Europe, a mystical breed of humanity believed to be the originators of the human sacrifice and orgy, yearly honored the evergreen as a symbol of the immortality of their chief god, Odin. The evergreen was decorated with jewels, religious relics, and the blood of a human sacrifice.

The decoration of trees thus had its beginning in the mysticism and antiquity of the past. It was born around the rites and rituals of pagan tribes—a romantic and surrealistic birth. But the custom was still isolated.

At the turn of the fourth century, the unifying force became apparent. Christianity was rapidly spreading throughout the civilized
world. Pagans were converted. It was a simple matter to consecrate a pagan temple with a few drops of holy water. People, however, presented a more difficult problem, for they continued their rites and rituals. But they now honored a Christian God. The evergreen was chosen as the symbol of the Christmas season.

The evergreen was used for two reasons. First, of course, was that it remained green when other trees presented nothing but bare limbs.

Second, the year 'round greenness of the evergreen symbolized immortality to the peoples of that time and place.

Druid sacrificial sword to honor the evergreen

The custom spread through Northern Europe reaching Germany. From Germany it spread to Finland, Denmark, Sweden and Norway reaching England sometime in the middle of the nineteenth century. A princess introduced the custom to Paris. She was at a loss as to what she should give the prince on Christmas Eve. A few days before Christmas she heard a minstrel sing of the Christmas tree. The idea delighted her and she asked the minstrel to decorate a tree for her. The deed was done using jewels from the castle store. On Christmas Eve a surprised and very happy prince showed the people of Paris his gift. In less time than you can say cock-a-doodle-doo, every available evergreen was being paraded down the streets of Paris. The entire Christian world had now accepted the custom.

The Christmas tree reached America about the same time it reached England. Charles Follen, a German professor at Harvard in 1824, set up the first tree in America. It delighted his nieces, nephews, and neighbors. The custom caught on. It was still slow to spread, until churches entered the picture. In 1851, the first tree was set up by Pastor Schwann of Cleveland, Ohio. The parish threatened him with bodily harm for they still considered it a pagan practice. The good Pastor did a lot of frantic research and proved the custom to be a Christian one. Soon other churches followed suit. The custom spread like the gold rush fever of that time.

Since its early beginning in America, the Christmas tree has entered all walks of life. It has even been in the political limelight a few times.

Around the close of the nineteenth century the White House had adopted the custom of setting up a Christmas tree. And then Teddy Roosevelt became president. Teddy, noted for his campaign to preserve our natural resources, promptly banned the use of a Christmas tree in White House festivities. Shortly afterwards he was surprised and very angry to discover that his two sons, Archie and Quentin, had set up a secret tree in Archie's room. A fatherly ultimatum was passed; Archie and Quentin, as a final resort, appealed to Gifford Pinchot, America's first conservation-minded forester. Pinchot persuaded Teddy that if young trees were properly cut, more good than harm could be done. So the White House and the Christmas tree lived happily ever after.

Today the Christmas tree custom can be called nothing short of sensational. In 1950, Northport, a shopping center close to Seattle, set up a fully decorated tree, 212 feet tall and weighing 25 tons. Rockefeller Center, in New York City, each year puts up a gigantic tree. Recently they put up a 90 foot Norway pine covered with 7,500 colored lights requiring seven miles of wiring. Three million people visited the tree that year.

On Michigan Avenue, in Chicago, there stands a three story telephone pole. During December, several hundred regular sized trees are lashed to it in the shape of one gigantic tree. It is literally smothered with tinsel (1200 pounds of it) and lights. Rising hot air, created by the thousands of common household bulbs, sends the tinsel into a glittering mass of silver. The tree can be seen for several miles.

Even though these spectacles fill us with awe, the best tree is the little evergreen standing in millions of homes. Decorated by noisy imps, with tinsel around their ears, gleaming ornaments in their hands and thoughts of Santa in their heads, the Christmas tree has become the symbol of the happy family in a free world.
Professor William J. Hamilton, Jr.

Cornell’s Conservation Comedian

A major in Conservation—A minor humor—A unique personality!

by Jane P. Doyle ’62

TENSE WITH expectation, the doctoral candidate waited for the first question on the long, three hour exam. Solemnly, Professor Hamilton cleared his throat. As the student listened for a detailed question on the anatomy of some obscure mammal, the professor said, “Tell me, in poker, does three of a kind beat two pairs?”

A serious moment became a funny one, the student relaxed and passed his exam with flying colors.

Professor William J. Hamilton from toys to table settings

you’ll want to give (or keep) it all.

Professor William J. Hamilton, Conservation Comic

Jr.’s ability to put people at ease is well known among his students in the conservation department. His classes are conducted in a relaxed fashion, although everyone listening must be constantly on their toes. Professor Hamilton likes nothing better than to trap the unsuspecting student.

“Animals can be followed and their presence recognized in several ways,” he told a field trip class one day. “The droppings are very characteristic and so are the footprints.”

Stopping near a set of rabbit tracks he squatted down and placing his hand in the print said, “By golly, this fellow was by here only a minute or two ago—the tracks are still warm.”

Several students near the front placed their hands in the tracks and nodded assent.

Thought of as a joker by many of his students and associates, few realize the other side of the friendly man with the beat-up hat. Often referred to as the top mammalogist in the East and a foremost field biologist, he is known and respected by scientists all over the country.

In 1951, the Society of Mammalogists elected him president and four years later, he was awarded the same honor by the Ecological Society of America.

For several years he was editor of Ecological Monographs and in 1959 completed a three-year term on the National Science Foundation advisory committee whose members review requests for grants to study biological science.

Insects, Mice, and Birds

While still in high school, Hamilton planned to attend Harvard. “Then one day,” he recalls, “I saw a catalogue from a school that offered courses about insects and mice and birds.” In 1926 he graduated from this school—Cornell—with a B.S. in Biology and took an assistantship.

Professor Emeritus Albert H. Wright of the zoology department knew his interest in vertebrate zoology and when a position became vacant, asked Hamilton to become his assistant. “From then on,” says Professor Wright, “the students learned as much from my assistant as they did from me.”

After doing graduate work, Professor Hamilton traveled to South America to do research on the mammal variations found there. But he decided that the traveling wasn’t worth it. He feels that, “There’s a lot to be studied in my own back yard.” And he has stuck to this theory ever since. Feeding habits of mammals of eastern United States have been Professor Hamilton’s major study.

Although known primarily for his work and studies on the food of...
mammals, Hamilton has also gained considerable skill as a marksman. Oliver H. Hewitt, professor of wildlife management at Cornell, tells of the time, two years ago, when Hamilton stalked a large, prong-horned antelope for nearly half a mile before he could get a good shot.

Anxious to preserve both the meat, and the head for a trophy, Hamilton took careful aim and downed the buck with one well-placed shot through both ankles. The meat was undamaged and the head now hangs between the windows over his desk.

Less Academic Side

More of Professor Hamilton's less academic side showed up in an episode involving Dr. Perry Gilbert, professor of Zoology. Professor Gilbert wanted to study under Dr. Brazier Howell, noted anatomist at Columbia University, but had never met him. Hamilton, aware of this, decided to have a little fun.

Calling Gilbert into his office, he introduced an astonished visiting farmer as "Dr. Brazier Howell" Gilbert, very impressed spent the next hour showing his dismayed guest around the building. It wasn't until much later that he learned the real reason why his visitor had no comment to make throughout the whole tour.

Another of Professor Hamilton's humorous interests is Major Hoople of comic-strip fame. And like Major Hoople, Professor Hamilton enjoys telling about his unusual and varied experiences. "When I was ambassador to Spain", he will begin, or, "Do you see that deer head on the wall? I killed it several years ago on Turkey Hill... with a javelin."

But one of his favorite stories concerns a trip that he and Professor Hewitt took to study black bears in the Adirondacks.

Bear Thief

One night a large female bear stole all the meat from the cache. One of her forepaws became caught in a large rat trap near the food and made her trail very distinctive. The next morning the two men set out after the thief. "Around noon," Hamilton reports, "crossing the north slope of Whiteface Mountain, we heard a loud roar and a huge avalanche came thundering down on top of us. We were caught and swept along in the wall of snow. Professor Hewitt was lucky and managed to dig himself out and get back to camp—but I have never been heard from since."

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CORNELLIAN
What’s Industrial About Corn?

A variety of industrial uses increases demand for this versatile grain.

by Jane E. Brody ’62

WHILE downing an ice cream soda or opening the foil wrapping of a pack of cigarettes, has the image of a corn field ever flashed across your mind? If not, you’re not alone. But, an association between corn and ice cream and corn and aluminum foil does, in fact, exist.

Why it this so? It’s all a matter of economics. The demand for agricultural products is relatively inelastic. What this means is that people will buy a certain amount of a given product, no more, no less. Even if their income increases, purchase of the product remains essentially the same. A person who, for monetary reasons, subsists mainly upon fish and is getting all he needs, will not buy more fish should his financial position improve. He will buy steak instead.

Such a situation is especially true of agricultural products. Some, however, are more inelastic than others. Corn as compared with tomatoes, for example, is relatively inelastic. People can eat just a certain amount of corn and no more. A price drop can’t stimulate much further consumption.

The case is a bit more complicated when you’re talking about farm animals, the main consumers of corn in the United States, since the buyer isn’t the consumer. But, in general, the same principle holds — when hogs have had enough corn, they have had enough corn. And in a country which annually produces a surplus of this commodity, something must be done with that left over after man and his animals have had their fill.

The solution — industrialization. The introduction of corn into industry provides an excellent example of how effective this solution is. As early as 1848, the first factory for the manufacture of corn starch was established. Since that time, the corn industry has grown by leaps and bounds, both in quality and quantity. Today 500 million bushels of corn a year, 15 percent of the total national crop, are converted into products which bear little or no resemblance to corn, or are utilized by industries which on the surface, have no relation to agriculture.

Of these 500 million bushels, feed manufacturers, the “dry milling” industry (corn meal, breakfast foods, etc.), distillers, and others take their lot, leaving 150 million bushels to be processed by corn re-
fineries. The refineries' products range from sugars used in baking to growth media for penicillin molds. Both food processors and non-food manufacturers utilize the refinery products to make a wealth of things essential to everyday life.

Cakes, aspirin, paper, adhesives, candy, salad dressings, leather, medicine capsules—all these and many more have in some way incorporated the little yellow corn kernel into their manufacture.

The corn kernel, seemingly a simple entity, is valuable because of starch. Starch has been important to mankind since the beginning of civilization. Eventually, corn was discovered to be a resource of this nutrient, and the corn refining industry was established to tap this resource. Amid the attempts to extract starch from the corn kernel, ways to use the byproducts of the refining process were developed. Now the gluten, hull, germ, and the solubles of the kernel can be converted into products useful to man, making the entire refining process much more profitable.

Today, observes the Corn Industries Research Foundation (CIRF), "almost everything you use, everything you wear, everything you touch each day of your life," is in some way intimately associated with a product of corn.

But, as CIRF sees it, "corn refining contributes more than its products to the economic life of the nation." As soon as the corn leaves the farm, it becomes a job for thousands of employees in grain elevators, on the railroads, and in the plants and offices of the corn refining industry. Leaving the corn refining plants each day are products that in some way create employment for other thousands—people of the paper-milling industry, commercial laundries, breweries, bakeries, groceries, and many other walks of life.

Manufacturers, in searching for ways to profitably use surplus corn, have made the corn industry an integral part of our economy.

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December, 1960
The Meat You Eat—
How It Dies and Why

For YEARS sentiment has run high, for the use of “humane” methods in the slaughter of livestock. Passage of the Humane Slaughter Law by the 85th Congress has met with hearty approval by most humane societies but its immediate effects upon the meat industry cannot be termed entirely beneficial.

The language of this law (Public Law 85-765) requires that meat packers who sell products to the Federal Government must employ designated means of immobilizing or rendering unconscious the livestock which they kill. Four methods of immobilization are recognized as humane: electrical, mechanical, chemical—such as CO₂ anesthetization, and gunshot.

Prior to enactment of PL 85-765, slaughter of the smaller types of livestock was accomplished with a knife stroke, without “stunning”. Unconsciousness and then death, due to oxygen starvation of the brain, occur quickly, probably with little sensation of pain.

Cattle, because of their size, are generally stunned prior to slitting the throat. Many packers have been using stunning methods now approved under the Humane Slaughter Law, although the sledge hammer has proven to be a favorite tool in some plants. The hammer eventually produces an unconscious state, but it is not uncommon that “repeated application” is required.

Therefore, the principal changes precipitated by this law are the immobilization of smaller livestock prior to slaughter and the use of approved, standardized methods to render large animals unconscious.

Adherence to humane slaughter means that meat packers have to remodel portions of their plants, install proper equipment and train personnel in the operation of the new devices. The choice of one of the four methods of immobilization depends upon many factors and a suitable technique in one plant may prove expensive or otherwise impractical in another. The choice of passing operation expense on to the consumer rests with the individual packing company.

Facilities for carbon dioxide immobilization are expensive compared to other techniques, but several plants have made satisfactory adaptations and are using this method, mainly for hogs. In fact, anesthetization eliminates the need for “shackling” an animal before bleeding. Placing a chain around the leg of an excited animal is a precarious occupation and the use of CO₂ has resulted in a lower turnover rate of manpower at this end of the production line!

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Some packers use electrical immobilizers which send a current through an animal’s brain, producing unconsciousness. The operator must hit the right spot on the animal’s skull with an electrically energized shaft or rod as each beast passes through a chute. At a rate of three hundred animals an hour, this job takes speed and accuracy. If the electrodes miss their mark or if animals do not fall evenly past, operations are seriously interrupted.

Concussion and penetration implements for mechanical stunning were familiar to packers long before PL 85-765 took effect. Sheep and cattle are both easy to stun mechanically since they have uniform skull structures. Considerable research needs to be done before these procedures can be suitably used on hogs, since their skulls change as the animal matures.

Although gunshot has been widely used, especially by smaller plants, most large packers consider it unsafe for fast-moving operations.

A very definite accomplishment of the Humane Slaughter Law is the stimulation of research in the areas of post-mortem changes in meat, measurement of pain in slaughter animals, elimination of bruising and blood clotting as a result of mechanical stunning, evaluation of immobilization procedures, and the handling of animals prior to slaughter. USDA researchers are zealously seeking answers and solutions to these problems for until they do, the benefits of the Humane Slaughter Act are open to debate.

Although this law does not apply to meat companies who do not peddle their wares to the Federal Government, several states have now enacted similar laws. With this precedent, humane slaughter may eventually apply to all meat packers. In respect of religious requirements, Kosher establishments have been exempted from humane slaughter requirements.

In the Cornell Department of Animal Husbandry, mechanical stunning has been in use on beef for some time. In keeping with modern slaughter methods, a CO₂ immobilization pit will be used in the new Animal Building.

The Humane Slaughter Law has brought problems to the meat packing industry. Industry research and experimentation, when combined with the cooperative efforts of government, livestock producers, humane associations, researchers, religious groups and the general public, can make humane slaughter a usable tool.
From the College Press

- SOIL TEST — An unexpectedly large number of New York farmers are getting low yields because they aren't using enough fertilizer, according to a College of Agriculture survey.
- APPLE STORAGE — Record numbers of apples are going into controlled atmosphere storage, from which they'll emerge next spring as fresh and tasty as the day they went in, according to College of Agriculture fruit specialists.
- PRE-BUILT DISPLAYS — A technological revolution in retail food distribution that will mean lower food prices and higher quality products is foreseen by Prof. Max E. Brunk. He predicts crops will be arranged for store display right on the farm.
- WESTERN CIVILIZATION — The threat to our Western civilization lies not so much in what the communist world can or will do, but what we can and will not do, Prof. Eric Bronfenbrenner stated at a recent meeting of the Southern District Home Economics Association.
- ATOMIC GROWTH REGULATOR — Cornell researchers are using atomic radiation to study growth regulators that control fruit drop on apple trees.
- ENERGY OF RAIN — Prof. George R. Free, U.S. Department of Agriculture project leader, and his assistant are simulating rain in an attempt to test the effects of rain energy on soil.
- EGG PRICES — will stay up for another five months, predicts Jonathan Tobey.
- GRAPE HARVESTER — A mechanical grape harvester that can do the work of more than 25 men has been developed at the College of Agriculture.
- WHIPSCORPION SPRAY — Cornell scientists have discovered that the defensive chemical spray of the whipscorpion, a creature that lives in southwestern U.S., includes many of the qualities of a perfect commercial insect spray.
- CHILD PUNISHMENT — A study recently completed at the College of Home Economics may help show if there is any relationship between the amounts and kinds of punishment a child is given and the way he behaves.
- FOOD STORE MANAGERS — A survey showing what's being done to meet America's need for trained store managers and executives has been completed at the College of Agriculture.

For further information on any of the above items contact the Cornell Countryman.
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GUEST lecturers and university professors will confirm agricultural progress in the Empire State with data, discussions, and demonstrations March 21, 22, and 23.

The New York State College of Agriculture and the New York State Veterinary College at Cornell University will showcase with pride the latest information on dairy, state and national farm problems, food science, and agricultural related industries during this three-day period.

Programs for high school youth will be held one week later.
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January, 1961
Ag-Dom Revisited

We recently heard an Ag-Dom representative mention that he would like to devote all his free time to Council work, but he doesn’t want to think that he is beating a dead horse... and he doesn’t know whether or not Ag-Dom is dead.

These same sentiments, while not always voiced, seem apparent in Ag-Dom as a whole. A purpose—a reason for being—is missing.

Further evidence of this sentiment is heard from members and observers of Ag-Dom. They feel that members of this supreme student governing body assume the role of poster-makers and coffee-runners. We interpret this feeling as the result of the Council’s lack of basic purpose. Individual tasks become mental when they are viewed as ends in themselves with no broader, more important meaning.

Ag-Domecon President Gary Harden, ’61, seems to sense this lack of spirit but chooses to place the bulk of the blame on his inability to inspire devotion and purpose in Council members. We can not agree. While it might require an Elmer Gantry to inspire Ag-Dom in its present state, inspiration isn’t the only deficit. Also, President Harden inherited the current spiritual situation, he did not create it.

According to several professors whose experience with Ag-Dom reaches back 30 years, the Council never seemed to have a main theme. They always had projects but there never seemed to be a basic purpose.

We would suggest, then, that Ag-Dom undertake a complete revaluation of its functions and decide, once and for all, on a purpose and structure for its existence.

There are several possibilities:

- With few exceptions, students are drawn to the Colleges because of academic needs and the satisfaction of these needs is their primary concern. Ag-Dom’s connection with this concern is usually made unnecessary by the Administration’s efficiency. However, the most successful Council ventures that we can recall—maintaining pre-lim files and changing Mann Library hours—have been in this area.

- Ag-Dom played a major part in Freshman Orientation until the University took over this function. But freshmen who live off campus do not take part in most of these activities and at least the Ag College portion represents an audience for Ag-Dom. Work in this field should also include Ag and Home Ec students from other countries.

- Ag-Dom could follow the example of the Engineering Council which concentrates on one area each year. We find possibilities for this within the existing Council structure. For example, one or more years could be spent exclusively on the work of the Student-Faculty Relations Committee.

We, however, are hardly the only source of suggestions. The members of the faculty and Administration who spoke with us about Ag-Dom would certainly be willing to spend at least as much time with the Council itself.

Advice is available, but the initiative must come from Ag-Dom... unless the horse is dead.

ELR/THW

Editorial

To the Editor:

I would like to thank you and your staff for the interest shown in the Ag-Domecon Council. Your editorials on the Council have stimulated interest by both the student body and the Council.

I would like to address the rest of this letter to the students of the Colleges of Agriculture and Home Economics.

Though criticism of the organization is somewhat justified, I feel that the many good sides of the organization have not been shown. The statements attributed to me in the December issue of the Countryman were only selected ones and do not express correctly my complete opinion of Ag-Domecon Council.

The organization, which is made up of representatives from each club on the upper campus, representatives at large, and representatives from the student body, is not a “poor organization,” but rather one with a second rate reputation.

One of the reasons for this is that the activities of the Council are not known by the student body. I will attempt to present some of the more important activities:

1. Ag-Domecon Council sponsors the Swedish Exchange Scholarship providing $515 for expenses for the Swedish student who is here during the school year.

2. The Mexican Exchange Scholarship under which a student from the National College of Agriculture at Chapingo, Mexico, studies our way of life here at Cornell for approximately six weeks in the winter. His room and board is provided for by Cayuga Lodge. Our exchange student spent his summer in Mexico studying teaching, ideology, student life, and other aspects of life in Mexico.

3. During Farm and Home Week the Ag-Dom Council is in charge of coordinating student participation.

4. Boards are presented to student leaders on our campus, including members of judging teams, club presidents, and others.

5. Ag-Domecon Council presents a free Orientation Square Dance during the first week of school primarily to acquaint the freshmen with each other and the upperclassmen of the two Colleges.

6. Members of the council and other committee members speak to orientation classes in the two Colleges on clubs of the upper campus and on the Council.

7. Ag-Dom provides a coffee hour in Warren Student Lounge.

8. The Council participates in the Sub-Frosh Open House sponsored by the Alumni of the College of Agriculture. Council acts as guides on a Campus tour and answers questions that the prospective students ask about Cornell.

9. Ag-Dom is responsible for Warren Student Lounge, and is responsible for scheduling events to be held there.

10. The Student-Faculty Committee of the Council is responsible for keeping the pre-lim files in Mann Library up-to-date and asking professors to contribute to these files.

Ag-Domecon Council is currently working on such programs as:

1. A calendar for upper campus events including club meetings and other club activities.

2. An officer training program for club officers.

3. Displays for clubs in Mann Library to publicize club purposes and to encourage membership.

4. Investigation of the possibility of a combined upper campus club float for Spring Weekend.

5. Discussion of the feasibility of a “Dean’s List” for the two colleges.

6. Discussion of a more comprehensive Agricultural course outline.

7. Investigation of the possibility of a proposed student exchange program with Argentina.

There are questions currently being taken by your student council. There are probably other things that we should be doing. You students of these two Colleges can make Ag-Domecon Council a better organization by coming in person to our meetings (first and third Wednesdays of each month) or by letting your representatives know your opinions so what Ag-Domecon is discussing or by telling them of problems which you feel should be resolved.

Ag-Domecon has the potential of being a good student council on this campus. This potential can be met by expressing more confidence in what the Council does and by more active participation by the student body as a whole.

Your representatives on the Council have the ability and desire to make this council something that you can be proud of. Show us that you have the interest in making this objective possible.

Sincerely yours,
Gary Harden
President of Ag-Domecon Council
Of Birds
And Cheese
by Zilch

ONCE MORE that friend of the coed in distress and modern philosophical analyst, Zilch, returns to you through the benevolence of our square thinking editor. He realizes that if Zilch were removed from this magazine, discriminating people would stop reading—and circulation would drop drastically.

Being that time of year again, Zilch would like to be the last to wish you all a Happy New Year, and remind you to keep up on those resolutions. Zilch has resolved: to stop making absurd comments under Prof. Pearson's pictures; to be kinder to forlorn coeds; to be kinder to the editor—although he doesn't give Zilch much reason to be kinder; and to try to enjoy the gastronomic delights served up at the "Waldorf of the Upper Campus"—MVR cafeteria.

While wandering through the recesses of Roberts Hall, Zilch uncovered this startling fact. Since WW II ended, the average American has increased the total cheese in his diet from about ten pounds to a wallop ing thirteen pounds! Zilch feels that this is due to the large upswing in the number of coeds whose diets consist of cottage cheese and Wheat Chex.

This brings to Zilch's warped mind an addition to the World Convention of Modern Sports—a cheese eating contest. Along with such classics as: the cross-campus-sprint-wearing-sneakers; comprehensive crossword puzzle solving; marathon knitting (as judged by Prof. VanDemark); and comparative disguises (also known as the girl most likely to be mistaken for a polar bear)—this event will no doubt, put the CU coed in a formidable position . . . athletic-wise.

One of Zilch's social scientist friends came up with this remark: "There are too many normal people in the world . . . what we need are more squares." Here, here! The Editor should be glad to hear that. After all this time, it may turn out that he's really a progressive mutant. Well, that's evolution for you.

One windy day recently, Zilch observed a wonderful example of mixed values. A coed was walking down the steps between Roberts and Stone Halls—one arm full of books—long scarf around her neck—the wind started to do naughty things with her skirt at the same time that the scarf started to fly away.

Zilch would like to commend this coed for her noble attempt to preserve both modesty and scarf—although she had little success with either.

Wandering sleepily through Warren Hall, Zilch literally ran into one of his many friends from the conservation department. Mumbling apologies and greetings simultaneously, Zilch heard the cryptic reply, "Watch out for snowy owls this year." Not believing that his friend was referring to himself as a snowy owl, Zilch interpreted this remark as indicating some type of bird-watching activity.

Zilch had dutifully scanned the skies but must report having seen only five pigeons, two flying squirrels, and an AP Rotsee cadet, with small chicken feathers waxed to his body, gliding off the roof of Barton Hall.

Maybe Zilch's Cons-Dept-friend was referring to himself.

On looking back on the Christmas season, Zilch would like to give thanks to the Ithaca merchant who—via telephone—brought Zilch and Santa Claus together. It took 30 calls, but Zilch finally got the old fellow to listen to him. All was fine until a testy operator cut in and told Zilch that he was misusing the telephone . . . and cut us off.

So Santa Claus—wherever you are—call your old buddy Zilch at Cornell extension 4635.

Zilch would like all of his friends to keep watch for Zilch's new book, "How I Made $2,000,000 Playing the Milk Machines." Just a while ago, Zilch put a nickel in the Roberts Hall milk machine and got change of a quarter, and four containers of milk. He also has picked up the trick of running a dime into a fortune through proper use of the "bent coin return."

Zilch would feel guilty about the whole affair—except for the fact that he has lost a large number of coins in the devilish machines. It might be called gambling—but we do get milk sometimes.

In closing, Zilch would like to quote the latest sensation in the field of rock and roll, Clyde Ankle: "...I'll never replace Elvis. He's the King." Yeah!

This month's cover—entitled "The Chase"—was drawn by Nancy Parker '60. Nancy is now a graduate student in entomology. So as not to create too much anxiety—the rabbit does get away . . . it is hoped.

January, 1961
The author, after serving as an Extension Assistant, has found that home owner advice in urban areas is creating more work for county agents and thereby changing the role of these Extension Workers.

by Robert Gambino '61

A New Area In Extension

YOU MUST TELL me how I can get rid of all those little brown worms.” There was a note of deep concern in the woman’s voice as she spoke over the telephone to the county agent.

“They are crawling up the foundations of the house... Yesterday I found some in my salad... and today my little boy said he ate one. They are terrible! What should I do?”

This was a common problem for many county agents in the southeastern part of the state during the past summer. Problems like these have caused for the development of a new area in Extension work — Homegrounds Extension. This is caused by increased interest of homeowners for answers to their gardening problems.

The little brown worms are millipedes, not uncommonly found by homeowners and farmers, and present in such great profusion last summer that, in some cases, emergency remedies were necessary.

Millipedes were not the only problem Extension workers had to contend with.

When a problem such as the millipeds affects enough people within an area, those concerned usually call on some authoritative source for answers to their problems. In the case of millipeds, answers could be easily obtained at garden centers, or from landscape gardeners, but not a complete answer. These men are usually trained to cope with the problems of their particular job, but not always handle problems outside their own fields. This is where the county agents fit in.

The county agent has been trained to disseminate the ever-growing volume of facts derivated from research sources, as well as those technological advances which occur in the agricultural field.

In urban areas where the homeowners greatly outnumber farmers, a growing concern for answers to the homeowner’s problems is being felt. The county agents in these areas rely on the information provided them by the Extension Specialists of the Department of Floriculture and Ornamental Horticulture at Cornell. Aside from the regular areas of florist crops, nursery crops, and turf, a program has been developed by this department to help the county agent help the homeowner.

Homegrounds Extension, as this program is called, is fast becoming an important factor in Extension within counties like Nassau, Suffolk, and Westchester, and in many of the urban areas along the Great Lakes. The Nassau County Extension Service, for instance, where an overwhelming percentage of the population is homeowners and taxpayers, is almost solely occupied with Homegrounds Extension.

This form of Extension relies on the work of scientists such as horticulturists, plant breeders, soil scientists, physiologist, pathologists, economists, and entomologists just as does Extension in vegetable crops, pomology and dairying.

It is commonly expressed that because of the great amount of time that can be devoted to Homegrounds Extension, the Extension Service in some counties would not be able to serve the agricultural business to its full capacity. It would be merely serving the residents and therefore defeating one of the Extension Service’s purposes (that of helping the farmer make a better living).

This may be true. However, making the homeowner aware of all aspects of horticulture will bring about increased interest in horticulture business in garden centers, tree maintenance, landscaping, nurseries, and manufacturing of insecticides, fungicides and herbicides. In many cases some of the above are the only examples of “farming” found in the area.

But lest we forget the millipede; he was a problem, and still is. Little is known about the lifecycle and habits of the animal except that he thrives in dark damp places, rich in organic matter—such as a pachysandra bed.

I met the millipedes last summer when I had the privilege of working for the Westchester County Extension Service as the summer Assistant County Agent. I was concerned mainly with Homegrounds Extension. This was quite an experience for me, and helped tie together the many loose strings of information I had gathered during the last three years at Cornell.

As summer Assistant my job was to help the Agent and Assistant Agent by taking care of the lesser problems of Homegrounds Extension. In the beginning these were mostly soil tests and phone calls about millipedes. As time went on, I became more experienced and was able to deal with general lawn and garden problems.

I’ll never forget one lawn problem I encountered. A woman had called and insisted I come and diagnose her “brown” lawn. There was little I could do to help her over the phone under the circumstances.

When I arrived I was met by what I considered to be an example of the worst lawn in the County. I tried to figure out what had happened. The woman was...
helpful and answered my questioning as best she could. I began to panic. There seemed to be nothing wrong except that the grass was dead! I glanced down once more at the area where I stood. This time I noticed something crawling over my shoe. I looked again. There was something strangely familiar about this insect. There were two more on my shoe now. I remembered the description of an insect the Assistant Agent had mentioned. (No, not millipeds.) I then realized I was standing in the greatest concentration of chinch bugs in the County.

As time progressed, I was asked to assist in the writing of newspaper articles and in the vacuuming of the office rug. I was also given the privilege of checking questionable elm trees for the presence of the Dutch Elm disease. Because of this latter job I was given the title of “County Tree Condemner” by my friends. I had to disclose to them daily the number of trees I had “condemned” and came to command as much respect as a health inspector.

Homegrounds Extension is certainly an interesting and important part of Agricultural Extension. More and more homeowners are utilizing the program as a means of growing better flowers, trees, shrubs, and lawns.

Horticultural Extension has many phases. Here the author is discussing greenhouse practices with an orchid grower. Home owners are also being helped.

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January, 1961
Rich sweeping trains, full bobbing bustles, puffed sleeves, and tiny glittering bodices echo the days gone by. Their folds and frills try to conceal the wonders of history as they silently hang in the textiles and clothing department's unique costume collection.

The collection which represents the modes and fashions of Europe, the Americas, and the Orient, from 1783 to the present, has been used to inspire members of the design classes. It is hard to believe that these proud dresses are the ancestors of our present day crew neck sweater and pleated skirt. Yet, fashion experts tell us that this is so.

Since most designers do rely upon the past to help them create for the future, it is quite possible that new fashion fads are being formulated right here on the campus.

The woman who had the foresight to see the benefits of such a collection was Mrs. Beulah Blackmore, a former chairman of the TC department.

Most of the items have come to Cornell through the donations of people who have heard of the collection. Several of the more unusual pieces were obtained by members of the TC staff in their travels abroad.

Textile and Clothing Department's costume collection gives students a chance to learn the secrets of craftsmanship and design.

One of the items which the Home Economics College is very proud to own is the 1937 inaugural ball gown of Eleanor Roosevelt, who played an important role in the founding of the Home Economics College.

One snowy winter day in 1937, Eleanor Roosevelt interrupted her husband's semi-weekly press conference. She had heard that she was going to Ithaca. When Mr. Roosevelt expressed anxiety about her traveling in the snow, Eleanor quickly promised to telephone from a snowdrift.

Eleanor Roosevelt, a chauffeur and a traveling companion, drove through the storm in order to be there for Farm and Home Week. Mrs. Roosevelt so well known for her indifference to clothes, marched in a Bailey Hall Fashion Show where she exhibited all of her inaugural dresses.

Later at a tea given in her honor by the Home Economics students, Mrs. Roosevelt asked the girls to choose the dress which they would like their college to own.

The girls chose the 1937 shimmering silver blue inaugural ball gown. It is made of acetate and trimmed with matching fox. Although it is now faded and very much outdated, the dress still reflects the esteem and greatness of its former owner.

The collection has grown through the years and
many historically significant people have contributed to its files. The oldest piece in the collection is thought to be one of the first samples of calico fabric to be brought to the U.S. from Calcutta, India.

A piece which illustrates the ingenuity of the human mind is a linen corset salvaged from the Irish Revolution. The wearer of this garment took special pride in a small pocket where money was sewn for safe keeping. This hiding place was not as effective as its owner had hoped. When the wearer was caught in a heavy downpour the money faded leaving a heavy tell-tale green stain.

In a tiny pair of delicate kid slippers size 3 AAA and an ankle length thin white dress Eva M. Pitts became the first woman at Cornell to receive an advanced degree. Dresses such as these which require tiny waists and prominent rib cages are proof of how women’s shapes as well as fashion tastes have changed over the years.

All of the collection’s apparel is classified on special file cards which makes it possible for a specific piece to be located in a few minutes. When an item of unknown identity arrives, research must be done to learn its origin, age and perhaps something about its owner.
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THE LAZY yapping of a coyote baying at the moon like the great herds of bison and roving bands of Indians—seem to belong to the “Old West.” But according to Professor William J. Hamilton, Jr., coyotes are now on the increase in New York State.

This may be an affliction or a blessing. To the sheep owners of the State, the only good coyote is a dead one. But in the Adirondacks and other areas the coyote may help in reducing the exploding and starving deer population.

Just how many of these animals occur in New York State is unknown. A coyote may travel 20 miles in one day. This large range, plus the animal’s wariness of snares and traps, makes a census difficult. Even those studying the coyote are unable to give any accurate figures. “There may be 1,000, there may be 3,000, there may be many less” says Prof. Hamilton, “We just don’t know.”

Although the first coyotes in New York were officially reported in 1912, the lack of earlier records may have been a case of mistaken identity. “My guess,” explains Hamilton, “is that they’ve been here longer than we realize. Judging from descriptions of wolves killed in the Adirondacks in 1890, I’d say coyotes were simply mistaken for wolves at that time, so we have no reports of animals before 1912.”

After this date very little notice was given to this new citizen of the State. Then on March 20, 1926 the Ithaca Journal carried a story with this heading: “3 Coyotes on Which $900 Bounty Was Paid by Orleans County, Brought to Cornell for Biological Examination.”

Cornell’s Dr. A. A. Allen, to whom the specimens were sent for examination, explained the situation of their capture to Dr. A. K. Fisher, Acting Chief of the Biological Survey in Washington. The bounty increase from $100 to $300 brought out a large number of hunters including a detachment from the State Police.

In his reply to Dr. Allen, Fisher expressed concern that the ever increasing bounties would lead to the introduction of coyotes into New York State by unscrupulous hunters.

As a result, Dr. Allen initiated a measure to be put through the legislature controlling the shipment of such animals to the State. In a letter dated April 19, 1926, to Mr. Peter TenEyck in Albany, Dr. Allen explained the situation and the increasing threat of the coyotes. He concluded with a request for a bill that would prohibit importing or owning destructive wild animals without a permit.

The bill was introduced, passed, and signed by Governor Smith just one month after the situation first came to the attention of Dr. Allen.

Such concern and quick action is understandable after a closer look at the coyote. One of the striking features about these creatures is their rapid increase in size as they move to the higher latitudes. As the late Fred Streever, sportsman and writer for National Sportsman, put it: “If ‘Coyote’ in Mexican Indian language means ‘little yellow wolf’ it is high time we called these here by some other name.”
Among Us

The sky is a familiar scene

The menace it

New York State.

by Jane Doyle '62

Certainly there is nothing little about an animal that may weigh up to 50 pounds.

The Latin name for coyote, Canis latrans, means "barking dog." The coyote may bear a resemblance to a German shepherd, with his pointed ears, muzzle shape, and small nose pad. And like the dog, coyotes can probably live in all areas including those of fairly concentrated populations.

With the exception of the metropolitan areas, the lower Hudson Valley, and Long Island, coyotes have been found in all parts of the State within the past few years. A quarter of a century ago the only coyotes in New York were confined primarily to areas of western New York and the Adirondack Mountains.

The adoption of the coyote to the varied habitats of New York State's high mountain country, cultivated farm lands, and even suburban areas, may be due in part to its varied diet. "The coyote isn't a fussy eater," Professor Hamilton reports. "He'll take anything from deer, rodents, and fowl to ripe tomatoes, melons, nuts, and berries." The main part of the winter diet consists of snowshoe rabbits and deer.

After examining the problem of the coyote, the next step is finding a solution. Early attempts at control used the bounty system, but this plan has definite limitations. A high bounty makes it profitable to import coyotes into the highest paying state. The amendment to the Conservation Law in 1926 relieved the problem although a few pups continued to enter the State illegally.

The question of bounties persisted for some time and, despite obvious drawbacks, in 1953 eight counties were offering from $25 to $75 for single specimens.

A second method of control is to send state trappers into a heavily infested area. Although this is more economical than the bounty system, it is not very efficient. One man, or even a group, takes quite a while to cover a significant area. Even professional trappers have their own lines to attend and can only reach a limited area.

When asked about deer killings and other damage in Westchester and Rockland counties, Hamilton replied, "Feral dogs are probably to blame." He explained that feral dogs are domestic dogs that have returned to the wild state. They bear no relationship to coyotes although they will definitely breed with them.

The result of this cross is a "Coydog"—larger than the coyote and more wary. This has been substantiated by a graduate student at the University of Toronto who crossed dogs and coyotes, producing fertile offspring.

In nature, the occurrence of Coydogs is fairly rare. Of all the coyotes taken, only about ten percent are Coydogs, but they are still a threat. In addition to its larger size the Coydog is more variable in coloration and fur texture. Potentially it is also more dangerous.

Unlike the coyote, the Coydog will often travel with a pack. During times of deep snow, packs of

Although he looks harmless in death, this coyote's life was a history of destruction.

feral dogs, and dog-coyote hybrids, chase deer and sheep, running easily on the crust. The heavier hooved animals flounder in the deep snow until they are exhausted and are easily attacked.

At the present time a combined State trapping and do-it-yourself program is proving the most useful. At the request of any farmer or landowner being harassed by coyotes, a state trapper will provide him with traps, bait, lures, and free instruction on how to capture the cunning coyotes. Periodic checks are also made until the farmer feels confident and can trap with his own equipment. In addition, men are dispatched each spring to destroy dens and young.

Coyote pups, with their soft grey fur and alert-looking faces are as cuddly as baby kittens. Unfortunately, this is where the resemblance ends.

Even a young animal can easily chew through a leather leash. As the pup grows older he may revert without warning to a wild creature—on the defensive and completely unmanageable—not a very good pet.

The coyote baying at the moon may make a picturesque scene for New York's nature lovers, and a profitable venture for bounty hunters. But the nature of the coyote, the potential threat from Coydogs, and the experience of the past should make caution the by-word in dealing with the coyotes among us.
Where Alums Go

A survey by Professor Tyler shows that College of Agriculture graduates do not stay on the farm, but never leave it.

by Bernard A. Curvey

WHAT happens to graduates of the College of Agriculture? Do many go back to the farm? How many work for the government and what types of positions are available for Ag graduates?

Professor Howard S. Tyler, Office of Resident Instruction, has found that the occupations of alumni were obtained from questionnaires sent to two representative classes—1949 and 1954. The class of '49 consisted of 289 men and 41 women, while '54 had 264 men and 36 women. Questionnaires were mailed to both men and women, but the results shown here summarize the replies from men only.

In both classes 11 percent of the men responding were engaged in farming, with about half on dairy farms.

Business or industry has claimed the largest number of alumni. The class of '49 has 42 percent in these fields with '54 at 35 percent. The largest number of jobs in this area are closely related to supplying and marketing farm products. The most important areas are: feed and farm supply management and sales, milk, ice cream, or cheese, insurance or real estate, agricultural chemicals, banking or credit, journalism, advertising and radio, service organizations, farm or dairy equipment, florist or nursery businesses, and food processing and distribution.

Of the two classes, 11 and 13 percent respectively were in college teaching, research, or administration. In both classes, ten percent were working in government service. Public school teaching accounted for nine percent and six percent in the classes of '49 and '54 respectively.

Formal study beyond the BS degree was necessary for some fields. Out of the 231 men in the class of '49 who reported, 70 had earned additional degrees including 26 at the Masters level and 28 with Ph.D. degrees. Out of the 200 men in the class of 1954, 27 had earned their Masters degrees and 9 were still working toward this degree in 1959. Although only 11 percent of the men in these two classes were directly engaged with farming, the majority were serving farmers in some capacity.

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CORNELL COUNTRYMAN
I Was A Summer "Danny"

A Cornellian reviews his summer as a Danforth Fellowship winner.

by Pete Olin '61

HAVE YOU ever been kept on your toes trying to guess just what you would be doing in the next five minutes? Probably not, but for me and thirty-four other college men entering our senior year in land-grant agricultural colleges across the country, this was a very real speculation.

Every year the Danforth Foundation—set up by the late William H. Danforth, founder and past president of the Ralston Purina Company of St. Louis, Missouri—sponsors a month of education, fellowship, and fun for the winners of the Danforth Summer Fellowship. The purpose of the Danforth Summer Fellowship is stated in the words of its founder: "To help students make decisions, to enlarge their horizons, to broaden their contacts, and to render guidance and assistance in the Fourfold way of living."

We were guided through the month of our fellowship by the very able leadership of Mr. Earl Sindus ("Sindy"), Director of Public Relations at Ralston Purina, and were given advice that will help us make important decisions the rest of our lives. For example, mock job interviews were held with each student by men from the Purina Personnel Department. After the interview, comments were made to that student on what was wrong with his approach and he was told how to present himself at his best when applying for a job. We were also shown how decisions are made in the business world and in research.

Wouldn't your horizons be broadened if you flew half-way across the country, studied in some detail the inner workings of a hospital, saw an actual cancer operation, studied several large businesses in operation, visited the best managed experimental farms in the country? This was my experience.

And added to it was living with top Ag students from all over the country, discussing problems in agriculture and business with leading men in the fields, listening to leaders in such fields as religion, philosophy, and psychology.

The Danforth Summer Fellow-
ship is offered each August to an outstanding student in every state agricultural college in the United States, Canada, and Puerto Rico.

The first two weeks are spent in and around St. Louis. At the Purina Research Farm, we observed the testing of feeds and nutrition of all farm animals. There, experimenters are working on such specialized areas as pet nutrition, mink, rabbit, and chukar nutrition. We heard many lectures on nutrition of farm animals and general agricultural research. Four points are stressed in all research—good farm management, good feeding, good breeding, and good sanitation.

Our farm stay was not all work. We spent the evenings playing softball against the farm team, taking a dip in the man-made lake on the farm, or just getting to know each other and exchanging ideas. It was here that we were pulled together as a united group of Danforth Fellows.

At the Purina office in St. Louis, we learned, through observation and lecture, just what goes on at the "test tube" end of research.

There were other side trips of general interest also— a tour through the Barnes Hospital, or the St. Louis Produce Market, or even the Forest Park Zoo.

One morning we visited the Gardner Advertising Agency. Did you ever wonder what one of those full page color ads in Life Magazine costs? You wouldn't believe it but it's $75,000 per issue. This was only one of many things that we discovered at Gardner.

After two weeks in St. Louis, we journeyed to Milwaukee and then across Lake Michigan. We finally reached our destination — before us spread Camp Miniwonca on the sand dunes of Lake Michigan. The camp is a training camp in youth leadership, sponsored by the American Youth Foundation. Here we joined 400 other top students from across the country.

Each day began at 6:30 a.m. with an invigorating dip in the cool waters of Lake Michigan. From then on we were in action until lights out at 10 p.m. After our dip we experienced a rather unusual fifteen minute period of silent meditation. The theme that we pursued in our mental concentrations this year was, "If With All My Heart...", and each day we had another facet of this theme to ponder over.

After a hearty breakfast came inspection and then our five classes of the day. These included, "The Fourfold Development," which stresses leading a life with a balanced mental, physical, social, and religious outlook; "God and the Bible," and its many modern interpretations; and "Christian Ethics and Attitudes."

One very unique class, "Life Essentials," was led by Sindy, our host from St. Louis. Each day he would bring men from all over the country to speak to us. These men were all leaders in their specific fields, such as the president of the Kroger Food Co. and the vice president of the Borden Milk Co., who consented to let us in on just what it was that had made them a success in life.

After supper we attended services on Vesper Dune. Our evening's activity followed, and varied from council fires, to rodeos, to group singing.

Looking back, the fellowship provided a wide and varied education. Knowledge was gained in research, industry, and religion. Many intrinsic values were acquired that can't be defined in words. "I dare you," said Mr. Danforth, "to stand tall, think tall, smile tall, and live tall." This was only one of the themes that we were constantly reminded of throughout our trip. Whatever Mr. Danforth had written usually began with "I dare you." Through his foundation, Mr. Danforth, an amazing philanthropist, provided us with a month of stirring and memorable events.
Cornell’s “Mr. Potato Chip”
by Linda Goldreich ’64

A POTATO chip’s a simple thing. But to one man in Cornell’s vegetable crops department, interest in the crunchy, golden chip is more than dietary. The man is Professor Ora Smith—Cornell’s “Mr. Potato Chip.”

Like George Washington Carver’s research with the peanut, Professor Smith is working toward making the potato more important. From planting the potato crop to packaging the chips, Professor Smith explains, each step is designed to give the consumer an easy, and good-to-eat potato.

Farmers have benefited from an increased demand for potatoes. Chips, Professor Smith points out, are consumed in addition to potatoes eaten at meals. The snack appeal has effectively aided the sale of potatoes during periods of surplus farm production.

Potato chips, however, are not farm products. Their “birthplace” was in a restaurant in Saratoga Springs, New York, in 1855. A customer requested fried chunks of potatoes. The cook sliced potato after potato until the customer felt they were thin enough. These unique, thin, fried slices are what we commonly call potato chips.

Not until eighty years after the first chip was made were potato chips manufactured extensively, and Professor Smith became specifically involved in the chip industry in 1948.

In this year, Professor Smith, who was educated at the University of Illinois, received his M.S. at Iowa State and Ph.D. at the University of California, attended the U.S.D.A. conference on potato utilization. Here, he expressed great interest in potato chips. The President and Secretary of the Potato Chip Institute were at the meeting and decided Professor Smith was the man they wanted to direct their new research program.

In less than a year the program was underway, with Professor Smith at the head. As one of the most prominent research men in potatoes, Professor Smith is now Director of Research of the Potato Chip Institute International.

When questioned about his work, Professor Smith gets carried away with enthusiasm. Although a busy man, he always finds time to help anyone interested in his field.

One of the developments that Professor Smith helped to introduce to the industry is a specific gravity separating machine for potatoes. The specific gravity separator contains a salt solution in which the potatoes are placed. The potatoes with a high specific gravity sink to the bottom. These are the potatoes that will have a lower oil content and yield more chips.

This large scale separating machine is used to sort out potatoes suitable for chips before processing can begin. The first of these machines has just been purchased for commercial use.

Professor Smith also developed the calibrated potato hydrometer. The hydrometer is a very useful “gadget” used to sort out or select desirable potato lots. Professor Smith explains that the hydrometer also works on the principle of specific gravity of potatoes.

Over three thousand potato hydrometers have been sold to such far away places as South Africa and New Zealand. Professor Smith feels that to make laboratory work rewarding, worthwhile discoveries must be accepted by the trade.

Professor Smith also has been studying the color of chips. The desired light color of a chip is partially determined by the amount of sugars in the potato. Professor Smith explains. He recently developed and introduced a “Potato Chip Tester”.

This machine consists of a yellow strip of paper which reacts chemically with the sugars. The amount of sugar in a potato is determined by the color change. Thus, the processor can select the potatoes with the amount of sugars needed for good color.

“We try to keep the whole front moving along,” Professor Smith replied when asked what aspect of chips is primary in research now. “We work on rancidity, packaging to keep chips fresh and crisp, and effect of light and heat on chips,” he continues, but flavor is now the primary consideration.

Newly developed techniques enable researchers to determine what constituents are important in producing a flavorful chip. While the color of the chips develops in the “browning reaction”, the flavor does too. Professor Smith suggests that this is the basic reason “why kids want the crust of bread”.

Professor Ora Smith

The potato hydrometer, was developed by Professor Smith. It is a very useful "gadget" for sorting and selecting desirable potato lots for chips.

Storage of potatoes without spoilage is of great concern to the manufacturers of chips. Since the fall crop has the highest dry weight, ideally it should be used the year round. A good chip contains from one and a half to 3 percent water. If it has much more water than that, Professor Smith explains, it’s soggy enough to “tie knots in it”.

Consumers, farmers, and all potato chip lovers owe thanks to Professor Ora Smith, who has devoted much time and produced excellent results, in the development of the potato chip.
Beauty and The Sneeze

Seven million women and men are sensitive to ingredients in cosmetics, but hypo-allergics are now on the market.

by Hillary Brown '63

SHE LOVINGLY placed her hand to his face... and he broke out in a severe rash. He was allergic—not to her, but to one of the ingredients in her nail polish.

Lately, have you been suffering from a chronic cold? It may not be a cold at all but your reaction to the orris root in your face powder.

Research conducted in the midwest proved that approximately 7 million women, or 1 out of 10, are allergic to cosmetics, reports Borden's Pharmaceutical Division. Most cases are traced to the perfume content of products, but soap, lipstick, nail polish, home permanent waves, and hair dyes are also guilty.

These preparations, intending to beautify, actually irritate the skin causing it to become blotchy, cracked, or red. The respiratory system and digestive tract may also take a beating causing headaches, upset stomachs, and irritated nasal passages. “Saturday nights I splurge and wear eye makeup, but every Sunday I must hide my red, teary eyes,” laments Jane Brody, ’62.

Often the cosmetics do not bother the wearer, just those she comes in contact with. Sniffing his date's fragrant perfume, which cost $4.00 an ounce, one boy developed hives and spent the rest of the night scratching! He was allergic to the lemon oil in her perfume.

“I have to sniff lipsticks before I buy them,” remarked Carole Wedner ’61. “No, I'm not sensitive, but my father is, so I must buy non-fragrant makeup.”

To enable girls to dab on perfume without affecting themselves or sensitive males, many chemical houses are engaged in research to relieve this problem. In 1950 Swiss research teams studied the 32,000 chemicals used to perfume cosmetics and synthesized Chemoderms, non-allergic make-up, so that women with delicate skin could look attractive without scratching and sneezing for it.

Hypoallergenic cosmetics, marketed by Borden's, are custom-made beauty aids that eliminated common irritants and allergy-provoking substances. For example, bromo acid dye, which gives lipstick its indelibility, is not included in hypoallergenic cosmetics. These products, though, are as creamy and lustrous as regular lipsticks on the
Lists of known allergens are constantly growing. The biggest offenders are rice powder, lipstick dyes, cornstarch, non-vegetable hair dyes and lanolin, which may be found in only certain brand products.

A typical freshman corridor boasts three sensitive girls, two of whom break out in rashes from deodorant while the third burns her face from a dermatology cream. They have found relief from these irritations by experimenting with other brand products or using non-allergens.

Doctors believe that people with hives, asthma, or hay fever appear to be most prone to cosmetic sensitivities. Such people are now supplied with testing kits containing non-allergic cosmetic samples. If powder is your problem, they can test various kinds on your skin, each type eliminating another ingredient until the perfect one is found. Many companies which specialize in aiding the woman, or man, with sensitive skin, will even prepare make-up for those allergic to hypo-allergens.

Medical researchers hypothesize that when a person is allergic to a certain food he may also be allergic to the derivatives of the item. One case reveals that a girl allergic to eggs broke out in a severe rash after washing her hair. The source of her trouble was finally traced to her egg shampoo.

Practically all types of cosmetics from deodorants to eyebrow pencils and mascara are available for those with allergies. When these are applied correctly they cannot be distinguished from regular products.

Next time you wash your face and you break out in a rash—don’t think it’s measles! You may be allergic to one of the ingredients in your soap.
From the College Press

- **FATTER LAMBS** – Prof. J. T. Reider stated that farmers can have fatter lambs without giving them extra feed. This can be done by feeding the animals smaller meals at more frequent intervals.

- **GLAND REMOVAL** – One of the glands that control social existence and produce harmony in bee colonies has been successfully removed from living bees for the first time by Cornell scientists.

- **CHANGES NAME** – Cornell’s dairy industry department has changed its name to the Department of Dairy and Food Science.

- **GAME PREDICTION** – New York hunters should be able to set their sights on more than average amounts of their favorite game this season, according to Herbert Doig, graduate student.

- **GRADUATE SCHOOL** – More and more students graduating from the College of Agriculture are going on for further study, a survey shows.

- **RUSSIAN FISHING** – Russia isn’t just trying to build bigger and better missiles or outproduce all the countries in the world, according to Prof. E. C. Raney. She is competing on many levels – one of them, the study of the sea and its inhabitants.

- **COYOTES INCREASE** – Coyotes are on the increase throughout New York State, reports Prof. William Hamilton, Jr.

- **POPULATION CONTROL** – Insects have their own way of solving the population problem. They prey on each other, sometimes doing a better job than man’s most potent insecticides, Prof. David Pimentel stated.

- **CLASSIFYING SPECIES** – Prof. William Brown charged that the present system of classifying scientific information on plant and animal species is archaic. He suggested a new system, using Microcards.

- **BIRDS AND BEES** – Bees will feed birds as the result of research at the College of Agriculture. Ornithology researchers have found that certain birds in captivity prefer bee larvae as food.

- **COMMERCIAL WOODLOTS** – Marketing efficiency combined with better management would double the quantity of wood products produced on commercial woodlots in northeastern U. S. and Canada, Prof. L. S. Hamilton stated.

For further information on any of the above items contact the Cornell Countryman.
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February 1961

Putting on "Hairs"

This month's Countryman cover is a pictorial tribute to Abe Lincoln from the lens of the College of Agriculture's own Professor Emeritus Frank A. Pearson.

To produce his startling photograph, Professor Pearson borrowed a vintage 1860 print of Lincoln from the Cornell Archives. The print, Pearson tells us, is a copy of one of the last pictures taken of Lincoln without a beard.

P. Butlet originally photographed presidential candidate Lincoln about three months before Abe first appeared with a bare stubble of a beard.

Even though newspapers joked that Abe was putting on "(h) airs", the beard was fully grown in February 1861, when Lincoln arrived at the capital to take over presidential duties.

Legend has it that Abe grew the beard at the request of a young girl who wrote him while he was still campaigning. If you'll let your whiskers grow, she said, my brothers will vote for you. You would look a great deal better because your face is so thin.

With this Lincoln print as his base, Pearson added to his photograph another historical remnant: an actual beaver top hat, purchased in 1853 by an early upstate New York family, the Fitts. The hat was passed down until now it belongs to ag. alumnus Herman Crofoot '12.

Always an economist as well as photographer, Professor Pearson notes that Lincoln probably didn't wear a beaver top hat. "The beaver market fell in the late 1850's when a method for felting silk was invented and when the beaver supplies on this continent started to dwindle."

Even if Lincoln didn't wear beaver, however, the top hat helps capture the mood for a pictorial tribute celebrating the 100th anniversary of Lincoln's inauguration.
He's Heard 50,000 Speeches

In his 79 terms of teaching Oral and Written Expression, Professor G. Eric Peabody has heard speeches on every subject from international relations to bearing killing with bare hands. Yet he still looks forward with pleasure to every speech because he feels he learns something new in each one.

by Norma Ruebman, '60

A SHORT, SQUARE shouldered, rotund man with a round face topped with hair that remains abundant and curly though graying, crosses the first floor of Mann Library. The face lights into a smile, a few wrinkles radiate from the round light blue eyes, as he issues a hearty, “Good Morning” to so many familiar student faces. The be vested professor walks into room 131 of Warren Hall to be trapped into answering several questions by the class before it settles down—answers given rich in anecdotal human interest material—material that has been building up during 40 years of teaching.

Professor G. Eric Peabody, Cornell ’18 settles into his chair in the back of the room. Pencil in hand, with two fingers against his right cheek, Professor Peabody rubs his nose now and then as he listens to three or four trembling students struggling through their first speeches. And so he has done through about fifty thousand speeches in his 79 terms in the extension teaching department at Cornell.

Do you think he would get tired of hearing hundreds of speeches each year, many of them on the same topic? Not Professor Peabody. “I would if they all said the same thing in the same way,” he comments. “But even though I hear many speeches on the same topic, each is told in a purely individual way.” It is this spark of individuality that makes each speech he hears a new and interesting experience for him.

Professor Peabody joined the faculty in 1921 after spending a few months in the Army and a short time working a farm and running a drug store simultaneously. He has been in the extension teaching department ever since.

“Few teachers have the chance to get acquainted with each student as we do,” he explains. This personal contact is what the Professor enjoys most about his work.

He Teaches Self-Confidence

The Oral and Written Expression courses, he explains, are different from most other classes since a professor is not giving students a wealth of information and facts in each class. “We strive to give the student self confidence, so he can deliver information effectively to us.” By the time a student gives his last speech he usually does not ever remember the difficulty he had when he first stood with trembling knees before the class. Although it would be impossible to measure the amount of self confidence and poise given to students in Extension Teaching 101 over the years, most feel they have gained an “intangible something” when they are able to give that last speech without having their thinking drowned out by their knocking knees.

A staunch Cornellian himself, with son and daughter who also graduated from the “Hill,” Professor Peabody is an earnest supporter of all Cornellians. He feels students have changed since he first began teach-
"Today's Cornellians are more serious," he said. "They do more work for courses than they used to. They do 'party' more, too," he adds, "but they come to college better prepared than they used to, and, in general, work harder as individuals."

**Students Come and Go**

Professor Peabody has watched students come and go. The end of World War I brought gaiety and irresponsibility to campus, but then the depression struck and Cornell became a "working school." At this time Mrs. Peabody and I had three Cornell girls living and working at our house. This was at a time when co-eds had to live off campus and work in order to earn their way through college. World War II brought an even more serious tone to campus life and upon the return of the veterans to student life the level of courses was raised to meet these older, more serious minds.

Some of his colleagues look back to the "old days" in a kind of golden aurora, but the short man with the long memory looks at today's students with hope and pride. His philosophy is not to be affected "by the small number who don't belong here," but to recognize the independence and sense of responsibility developed in the majority. In 1958, students demonstrated some of their appreciation by selecting Peabody for the Professor of Merit Award.

**The Strangled Bear**

"I feel as though I've learned more from my students than I have ever given them," is Professor Peabody's opinion. Many students wonder how the handy professor always seems to know something about any topic brought up in a conference or class. "Why shouldn't I, when I've heard as many speeches as I have from students all over the world?" International relations, economic and racial problems, obligatory periodic driver's tests, curfew hours for co-eds—Professor Peabody has heard them all. One early speech he'll never forget was given by a Seneca Indian student on how he strangled a bear with his bare hands.

**No Thoughts of Retirement**

The author of *How to Speak Effectively*, (familiar to all E.T. 101 students!), puts off thoughts of retirement. He would rather think of the speeches he is yet to enjoy hearing.

As active in community life as on campus, Professor Peabody has served in civic activities more than 30 years culminating in positions as Chairman of the Red Cross and War Council in Tompkins County during World War II and more recently as vice-president of the Board of Education. Meanwhile he has found time to serve on university and college committees for a total of 17 years.

It would take many speeches and stories to describe the life of a man who has known Cornell in the days of Liberty Hyde Bailey, and Professors Wing, Stocking, and Savage, (names which only indicate buildings to most of us and not human beings), and who remains so vitally interested in the modern student of 1961. It takes a man like Professor Peabody, young at heart, yet rich with the experience of years, to give today's students confidence to speak up and out to others.
Chess For Rats

by Zilch

Greetings once more from Zilch, the ubiquitous ear on the Ag Quad. Zilch's ear has been, as usual, picking up all the vital tidbits of what's going on in our little world and has decided once more to pass on to the less well known, but more worthless news to you, the well informed reader.

For instance, did you know that girl rats can actually run faster than boy rats and at the same time they can live longer? This is a fact scientifically proven by our ceaseless searchers after knowledge, the unsung heroes of the inquisitive world, our grad students. This is a condition which no doubt strikes fear into the hearts of all you boy rats, particularly those planning to play tag. Zilch thinks the best way to compensate for the overabundance in female rat physical prowess is to teach all male rats how to play chess. This will help them get over the feeling of inferiority since they will then be higher on the intellectual side of the scale.

Classes will commence Wednesday evening at eight o'clock and continue nightly until Zilch loses three games consecutively.

Despite the cold weather outside, it is spring in this philosopher's mind. Zilch has found a love to warm the cockles of his heart. In one of his many fan letters last week, Zilch received a request from a lovely young thing who has been receiving the Countryman for thirty years and is now moving to #1 R.D. 2 Subatooli, Tanganyika. She would like to have her subscription forwarded . . . just to read Zilch. Is that not devotion? Never fear, the man will be with you always.

While eating one of MVR's abnormally sumptuous lunches and carefully studying the passing parade of coeds in sloppy white socks and snow-stained sneakers, Zilch overheard one Ag Ec's fabulous plan for making his first million in the true Zilchian method, "I shall found a corporation named Brand X and sue everyone and his cousin for slander." Zilch is wondering what size straight jacket this thinking man would like to be fitted for.

It was brought rather forcibly to Zilch's attention recently by one of his coed friends of the old type, that all of the newer coeds now have the opportunity to become coeds in the true sense of the word by fulfilling the last requirement. Zilch is of course referring to the fine old custom of being kissed on the suspension bridge. Now that the famous old structure has been rebuilt after a year and a half's absence, there will, no doubt, be a mad rush to meet the last vital test. The gorge will echo to the statement, "If you don't, it will collapse!" and there will be peace and contentment in the hearts of all students. Zilch, as a true friend of all coeds (real and official or pseudo and unfulfilled) volunteers his services on any night of the week to any CU girl who cannot get any other male to pop the strategic question.

Zilch is happy to see that the Civil War which was raging on campus between our two Ag school fraternities has subsided to the point where there is little if any throat slitting being done outside of Wing Hall. One must admit that it is duller, but much more peaceful. This always makes Zilch think of that fine old philosophical thought, "Home is where the garbage is." Admittedly, this doesn't apply to our situation too well, but you must admit that it is very philosophical.

In closing, Zilch reflects upon the past and tries to remember what St. Valentine's Day was like before the leap year just passed. While admitting that it was rather annoying to have all those coeds running after him, Zilch finds it strange to have to take the lead once again this year. Being the economical sort, Zilch has decided to save on postal charges by sending his valentines through this column. Attention, all coeds! Uncle Zilch wants you to be his Valentine.
Letters To The Editor

Ag College Dean's List

Pro...

To The Editor:
At a recent Ag-Dom Council meeting, it was proposed that Council conduct an opinion poll of the students in the Ag College to discover whether or not they desired a Dean's List. I personally think a Dean's List is a worthwhile goal.

After discussing this with members of the faculty who studied at colleges where a Dean's List existed, I would say that this distinction would be something to strive for at this College. Such a list would give recognition to students who achieve good grades while they are still in school—not like the degree with distinction which only gives recognition at the time of graduation.

Such a list would be published in Ithaca papers and, by notices, in students' local papers. This distinction would be an added incentive to produce better grades, especially for those with grades on the borderline. This also would help to publicize scholarship on both the Cornell campus and, to some degree, throughout the State.

One argument voiced by some is that grades are not a true judge of scholarship and that students in the 'easier majors' would be more apt to make the Dean's List. Certainly no other way of measuring scholarship has been discovered. Professor Tyler, who tabulates the class standings, states that students in the more difficult concentrations are represented proportionately on the current listings of high ranking students.

Dean Palm has stated that if the students desire this program, the faculty will carry it out, so express your opinion in the student referendum on February 24th.

Sincerely,
Gary Harden, President,
Ag-Domecon Council

Con...

To The Editor:
Recently I attended an Ag-Domecon meeting at which the controversial subject of a Dean's List was brought up. Although there are many arguments in favor of the College of Agriculture having a Dean's List, I believe that there are stronger arguments against having one.

One argument against having the list is that it would not be fair. Most students agree that if a student wanted to select his courses for grades alone, he could pick courses that would raise his average three or four points. Are grades the measure we want to use to achieve more intellectual interest in the College of Agriculture? To me, grades are a method of attempting to measure the individual's academic work. They are, however, not a good enough measure to be the sole basis for a recognition award such as the Dean's List is intended to be. Anyone with an 84 average knows where he stands without also being told he is on a Dean's List. For this individual a Dean's List is just an ego builder.

In an interview I had with a professor in resident instruction, the professor pointed out that if the Dean's List included only the top 5 percent of the students as seems to be the accepted practice in other colleges, the average needed would be about 84 or 85. At present a student that maintains a 55 average in the College of Agriculture is graduated 'with distinction.' This, it seems to me, is more of an honor than the Dean's List and need not be supplemented by a Dean's List.

We do want to encourage a more academic atmosphere at Cornell, but I feel that a Dean's List would only influence only those students already in the upper 16 or 15 percent of their class to try to move up to the 5 percent category to make Dean's List. To the student in the lower percentage of his class, the Dean's List will provide little if any incentive.

On the basis of these feelings, I am going to vote against a Dean's List in the Ag-Domecon sponsored referendum on February 24th. I hope many Countryman readers will join me.

Sincerely,
David Shearing '62

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Cornellians Around the World

Our shrinking world—this is a common concept of today. Modern communications and transportation systems have brought all points of the globe physically closer together. But geographical knowledge isn't really enough to create a lasting bond between people that can overcome their national and political boundaries. For this, a more personal insight is necessary.

Three Cornellians, who traveled to distant spots on the globe, can supply a less formal, more personal glimpse than we get in news reports and textbooks. Gil Bane, grad '61 in conservation, went to Ghana on a fishery research expedition; Jim Sample, Ag journalism '63 visited Moscow and Leningrad as a member of the Cornell University Glee Club; and Ron Beck, dairy industry '61, attended the Royal Agricultural College near Uppsala, Sweden in the Ag-Dom sponsored Swedish Exchange Program.

With their personal stories, we hope to bring you closer, not only to the rest of the world, but to its people. — Ed.

Ghana — —
Progress Anchored to the Past

by Gilbert W. Bane, Grad '61

Our SMALL fishing vessel lay anchored in the glassy bay off Eastern Ghana. Through the humid, tropical night the glow from remote campfires shimmered across the water. A distant drum was faintly audible, then another, and another until the air was filled with the staccato beats of a myriad of drums, broken only by the occasional shriek of a rejoicing native.

Ghana's second year of independence was the reason for rejoicing, but our crew could only take part for two days. The fishery research operations had to continue.

We set a course for the high seas in pursuit of the mighty tunafishes which school in the warm, tropical, oceanic waters. This search was instigated by the Ghana government in an attempt to supplement the dietary deficiencies of some of her people. Their plan was to seek out new sources of fish protein in the offlying waters.

Government Imports New Gear

The government of Ghana, with an American canning firm, had imported new American fishing gear and technicians to instruct the Ghanaian fishermen in progressive methods.

Our vessel had only to sail until dawn before indications of tuna were spotted—a lone bird feeding on anchovies in the open sea was not alone, for beneath the anchovies, tuna were gorging themselves. Or a school of leaping porpoises could be seen frisking gaily over the surface accompanied by the powerful tunas in their aimless wanderings.

Approaching the Tuna

When the boat approached the tuna, the baitman or chummer tossed live sardines into the school to induce the tuna to stop swimming and begin feeding. When they stopped, more bait was thrown over to entice them along-side to bite at the feather-covered hook.

Soon, the air was filled with fish as they were hoisted aboard at the end of a nine-foot cane pole. One, five, or ten tons might be caught in a single morning if enough hungry fish were found.

At times the fish were so large that one man could not hoist them aboard, then two or three fishers tied their lines to the same hook and shared the burden of hauling the tuna aboard. If a close watch was not made for the fish approaching the hook, a tuna could strike quickly and throw the fisherman off balance. Then it is the fortunate fisherman who does not find himself in the sea—as well as loosing his pole.

Fishing continued until the vessel was loaded and the tuna frozen in the hold of the ship. The vessel then returned to port, where the frozen fish were thawed and sold.

Mammys Are Sellers

Ghana does not have refrigeration facilities for storing large amounts of frozen fish, so the bulk of the catch must be sold on the fresh fish market. The African women, or "Mammys," act as hucksters and sell the fish fresh, or may salt or smoke it for later use.

To improve the economic conditions of these "Mammys," the government is building huge freezers for storage of fishery products. Upon the recommendation of a Food and Agriculture Organization (FAO) marketing specialist, Ghana...
has finished a new, fresh fish market and cold storage room. Soon to be completed is the multi-million dollar commercial and fishing harbor at Tema in Eastern Ghana which will give Ghana one of the finest ports in Africa.

Ghanian economy is not dependent entirely on her coastline. This nation is the chocolate king of the world. Since the introduction of the first cocoa pod in 1879, Ghana has become the world’s leading producer and supplies upwards of 30 per cent of the world market. Diamond mines and tremendous forest reserves, together with strategic bauxite deposits add stability to her economy.

More To Be Done

Although this economic stability has improved the standard of living, there is still a great deal to be done — making Ghana a land of paroxysms. From the ultra-modern office buildings and hotels in downtown Accra, Capital of Ghana, one looks out upon open sewers running down the middle of the street. Modern super-markets and department stores are flanked by the open-air city markets where cattle and goats are slaughtered behind the stalls and where exotic jungle fruits and live snails or bright beads and strange medicines can be purchased by a bush-woman dressed only in a brilliant colored skirt. Businessmen who wear European jackets and trousers during the daytime come out at night vested in their finest Kente cloth togas woven from the best brocades and twined with gold or silver threads.

No Segregation

There is no color bar in Ghana, nor is there class discrimination. Black and white are commonly seen in each other’s company in the finest hotel cocktail lounge on the Saturday night cabaret. When visiting Ghana one is frequently invited to the homes of cabinet ministers and close friends of the prime minister and just as often receives invitations to the huts of the common laborer and businessman.

Ghanians are thirsty for knowledge and the government is doing everything possible to educate her people. Ghanians are attending the finest universities in all parts of the world: in Moscow, in England at Oxford and Cambridge, and in

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the United States at various universities including Cornell where three undergrads and two grad students are currently enrolled.

In addition to sending her students abroad, Ghana has built a new university close to her capital where 1000 students are learning about literature, commerce, law, and especially science and agriculture. The agricultural research station of the University of Ghana is trying to improve the strains of both field crops and food animals so that her people may soon be properly fed without relying upon foreign imports.

Even though the average Ghanian is willing to receive an education and accept new ideas there is still a large number of people who believe in black magic, fetishes, and spells of the JuJu man. Specific rituals are still followed whenever twins are born to protect the family from ill fortune. The herbilist or JuJu man sells enchantments to ward off evil spells cast by an enemy. A permanent protective amulet can even be purchased, but as long as it is to work the possessor must abstain from certain pleasures: he must not eat leftover food; he must not attend any parties; he must not drink liquor at funerals; he must not touch the corpse of a relative; he must not sleep with his friend's wife.

Perhaps the prevention is worse than the hex.

**Music Pierces the Iron Curtain**

by James Sample, '63

E _VER WONDER_ what Russian people are really like? I did. I wondered if I would find them hostile, friendly, or just curious about a group of Cornell Glee Club students bound for a concert tour in Moscow and Leningrad.

What were they like—why, just like you or me! They eat, work, read, laugh, and have their good times.

Take the driver of our bus. He was a common laborer, but in his spare time, he was reading a book or talking to his friends. Someday he will become an engineer.

Or then there was the student I met at a Youth Club party in Leningrad. She was studying English at the Institute to become an interpreter. Her thirst for knowledge, especially of American habits, customs, and slang, seemed quenchless.

Everywhere we went, m u s i c seemed to be with us, on the radio, in the factories, in the stores, and most of all within the people. It seemed to be a means of communication, and through our concerts, we conversed in this language.

I remember a joint concert with the Leningrad University Choir. We sang the first half, and then as one of their officials said, "We would now like to trade seats with you for the second half . . ." Although all of their songs were in Russian or some other language, I knew the pleasure they received through music was the same as I had had only a short time before.

When the concert was over, we dashed up to the chorus members with the cry, "Can you speak Eng-
lish? German? French? Well, “who can?” I usually found myself at the hub of a group of students, one of whom spoke some English. The others shouted questions to him in Russian and all listened intently to my answers.

This went on until someone in the Glee Club started singing “Give My Regards to Davy” at which time everybody stopped talking and joined in. This in turn called for a Russian song, usually a youth song. This exchange of songs went on until it was time to leave.

Sexless Compartments

In order to go from Moscow to Leningrad, it was necessary to take the “Red Arrow” train, a sleeper with compartments that slept four and with no discrimination as to sex. As these compartments were small, only two could stand on the floor at one time. Each compartment had a sliding door which was kept open until retiring.

As we travelled, I noticed a boy of eight or nine at the other end of the car. As he walked past me, I stopped him and offered him an American penny which he took and looked at for a full two minutes, then raced back to where his mother was. Ten minutes later he walked up and handed me a small card. On it were some gaily colored pictures of small boys and a Russian inscription which said “Happy New Year.” I thanked him, and with a smile he ran to his mother again to look at his penny.

Often in our post-concert singing, we did a song which was familiar to our Russian audience and then their faces glowed as they merrily joined in on the refrain.

Bathing: 2,645,100
Lining: 1,947,600
II.

The Record for 1960

THE RECORD FOR 1960

119,647 TOTAL CONSIGNMENTS
272,645 HEAD of Livestock
$16,751,863.18 TOTAL DOLLAR VOLUME

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LIVESTOCK MARKETING COOPERATIVE

February 1961
While in the Ag-Dom sponsored Swedish Exchange Program the author had an opportunity to study agriculture in Sweden both academically and on the farm.

I Was A Swedish Aggie

by Ronald L. Beck, '61

Sweden? What does it mean to you? A cold, remote, Scandinavian land where free love is the rule? These were perhaps my views until Ag Dom's Swedish Exchange Program gave me the opportunity to take a first hand look. A luxurious nine-day cruise in June '59 took me to Sweden as Cornell's fifth representative to the Royal Agricultural College.

Sweden is somewhat larger than California with a population of less than New York City. From its southern tip washed by the Baltic, to the Land of the Midnight Sun in the Arctic north, it is a country of beauty, excellent prosperity and wonderful people.

My first objective on arrival was to gain a little knowledge of Swedish agriculture before the fall term at the College began. The Andersson farm in the southern province of Skane was chosen for this purpose.

Skane varies from a perfectly flat to a gently rolling topography, is very fertile and devoted to intense agriculture. Mr. Andersson's 130 acres produce sugar beets, wheat, barley, oats, canning peas, and hay. Holstein dairy cattle are also important in the area.

Mechanization here is on a par with the U.S. Nearly all tractors, combines and other machines used are Swedish made.

Remodeling the barn for hogs, harvesting the grain, putting in straw, and discing the stubble were some jobs done during my six weeks stay.

Between jobs we bathed in the warm waters of the west coast or drove through the countryside in a new Mercedes Benz. A traditional Krafaskiva or crayfish party was held. Another event was the celebration of the 70th birthday of Mr. Andersson's father. This turned out to be a festive three hours spent at the dinner table and followed by a dance. Each course of the six-course meal was accompanied by wine or a drink of domestic concoction.

The fall term at the Royal Agricultural College or Ultuna as it is called, began in late August.

Ultuna is located just outside the city of Uppsala. About 200 students are enrolled in the four-year course leading to the degree of Agronom, comparable to a B.S. in Agriculture. Courses in most agricultural fields are offered. The institution is government supported so the only costs to students are personal, such as food and housing. But since I was an exchange student, my expenses were paid by the Swedish Department of Agriculture and students at Ultuna.

A typical day at Ultuna begins about 8:00 a.m. by rising and preparing breakfast in your room. No greater extent.

The examination system is very different. Prelims or quizzes are practically unheard of. An oral exam at your convenience some time after completion of the course is the general rule.

At 11:00 all troup to the cafeteria in the Student Union build-
The main building of the Royal Agricultural College (Ultuna) where the author studied for one term.

Before lecture or lab again at 12:15, there's time to go upstairs to the lounge. First, straight to the mail basket to get that letter from home. Then read the papers or have a quick game of billiards and it's back to class.

Labs are conducted in much the same way as here, usually ending at 4:00 p.m. but sometimes 5:00 or rarely 3:00.

Preceding dinner is the period for sports activities which are many and varied. Rowing is popular on the close-at-hand river, Fyris. Other sports include soccer, track, handball, skating, skiing, cross-country, gymnastics and ping pong.

Dinner is served from 4:00 to 5:30 p.m. Thursday never brings the question, "What's for dinner?" Invariably it will be pea soup and pancakes. On special occasions hot Swedish Punsch (35%) accompanies this meal.

In comparing Swedish food with American food one can expect fewer salads and vegetables, more fish and potatoes, and more pork than beef.

Before returning to our rooms for the evening some felt that a few hands of Bridge were necessary. Often this turned out to be quite a few.

Assuming that we returned home on schedule and studying proceeded per usual, when 8:30 arrives it's a coffee break. Frequently fellows from several rooms would gather in one for an hour's bull session. The topics of which could, and often did, range from international politics to Ingemar Johansson.

The student body is well organized. Its union arranges exchange programs with Norway, Finland, Denmark, England, Poland, and Germany, as well as the U.S. Needless to say, here is a wonderful opportunity to exchange ideas.

The Student Union puts on dances nearly every week. Some times, these are in the form of a dinner-dance exchange with the Veterinary College or Forestry College in Stockholm. In early December, a formal dance party is held called "Lucia." As you can see, dancing is very popular. In type, it ranges from old folk dances to the waltz to rock and roll.

Uppsala, with 80,000 people, provides many recreational opportunities. Its university, with a student population of 8,000, is always buzzing with activity. The city has several theatres which show many U.S. films.

Several special events also merit mention. The first is "Baby Week" in October when freshmen arrive. And in December, the annual awarding of the Nobel prizes in Stockholm. Every Cornell student in the exchange has had the privilege of attending this event.

At Easter Vacation, students from several Swedish universities get together and go north on a skiing trip. Last year's excursion was a wonderful ten days of sun and snow in the mountains.

I must put special emphasis on spring—the student's season. On the last of April, all Uppsala students gather in town to welcome and celebrate the coming of their favorite season. The long, dark winter has ended.

June marked the end of the school year and my final days in Sweden. It was truly an adventure and a worthwhile experience. Just one more thing remained for me to do—a six-week honeymoon in Europe with my American bride.

This year's Swedish representative at Cornell is Olle Hakelius, whom I'm sure many of you know. If not, get to know him and more about Sweden. Olle spent the fall term at Alpha Gamma Rho and is at Alpha Zeta for the spring.

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ALUMNI ASSOCIATION

Building The Class of 1965

by Bernard A. Curvey

BUILDING plans for the class of 1965 are now being made in the College of Agriculture at Cornell University. Many people will play an important role in assembling this new class.

The Admissions Committee in the Office of Resident Instruction will act as the administrators of this project for the College. Early in the year the desired specifications were sent out to the high school guidance counselors, vo-ag teachers, alumni association members, parents and students. The Admissions Counselor from the Office of Resident Instruction served as a field representative to visit high schools and other groups to clarify these specifications.

A large number of the prospective student's applications are filed now and the admissions committee is in the process of reviewing completed applications. Students will be notified of the results as soon as their applications are completed and have been reviewed. This process begins early in February each year and continues through the early part of May. After the applications have been reviewed and the students who have been accepted are notified, the class of 1965 will start to take shape.

Millions of New York State residents will finance the tuition for this new class and will also provide several scholarships for those who need extra financial aid.

The Faculty of Cornell University will do their part for this new class by careful revision and preparation of lesson plans. Teaching material must be brought up to date each year to assure that the student is kept abreast of the fast moving pace of new ideas and modern technology in Agriculture. The Faculty will present the material the best way they know how, but every student must decide how much time he will devote to each subject. The student is actually responsible for the molding of his own career. A class adviser is available to help, but the student will make the final decisions.

The Alumni Association and its members will play an important role in identifying many of the applicants for this new class. The next few months will be busy ones as far as pre-college counseling is concerned. County chairmen and county keymen will be busy making revisits to the high schools in their area, counseling and interviewing prospective students, offering help to known applicants and making early plans to attend the College Open House to be held at Cornell University on May 6.

Each year the Alumni Association's committees take the responsibility of visiting the guidance counselor, parents, and students in their area to inform them of the educational offerings and admission requirements in the College of Agriculture.

High school students who have not made their decisions as to whether they will go on to college or what college they plan to attend, should do so in the very near future. If students planning to attend the College of Agriculture have any questions that cannot be answered in the College Announcement or brochure, they should talk to their guidance counselor, teacher, or an alumni member from the area, or write to Professor Leigh Harden, 195 Roberts Hall. Cornell University, Ithaca, New York.

Science Youth Program

by Professor F. K. Tom

THE COLLEGE of Agriculture is sponsoring a special Agricultural Science Youth Program for vocational agriculture students and other high school students who are interested in learning more about the work of the College.

Eleven departments are participating and will offer a wide variety of interesting events. Among them are: analyzing a farm business problem, the important principles of feeding dairy animals, agricultural opportunities for rural youth, the importance of water in vegetable production, current social changes in communities and groups, opportunities in plant breeding, effect of plant diseases and insects on farm income, farm ponds and forests, efficient use of farm machinery, labor saving devices, and others. A complete listing of the scheduled events is available upon request.

In addition to the above events, visiting students will be able to see the same exhibits that were put up by the College for Agricultural Progress Days. A packaged lunch will be available at nominal charge.

Any high school student desiring to attend this program should contact the agriculture teacher in his school.

Natural Science Program

by Professor Paul J. VanDemark

THE HIGH SCHOOL Natural Science Program was organized by the College of Agriculture Faculty to stimulate greater enthusiasm for science among high school students, as well as convey to the college-bound youth a greater appreciation of the range of the natural sciences offered within the College of Agriculture at Cornell. This year's program, to be held during the week of March 27, finds the College of Home Economics and the Veterinary College participating along with the College of Agriculture. The program consists of a series of demonstrations and lectures presented by selected faculty members, outstanding as teachers as well as leaders in their respective fields of research. Alumni may help by making sure that every interested youth in their area has an opportunity to participate and to discover the challenges of science and the opportunities to study at our State Colleges at Cornell.

We need a permanent title for our alumni page. We figured that the 900 heads in the Alumni Association were better than the few we have here. Please send your suggestions to: Bernard Curvey, 195 Roberts Hall.

12
Purchasers Pick Plastic Packages

More and more of our nation’s products are being squeezed out of or shrunken into plastic packages. The new generation of homemakers will find everything including their shirts and butter surrounded by plastic.

by Carole J. Wedner, ’61

TWO newly married coeds, marched proudly into the super market for their first attempt at large-scale shopping. Before them on every side stretched an array of colorful packages of every size and shape, each crying out for individual attention in the crowd.

From almost every shelf in the store, packages made of plastic demanded recognition.

Many products which are semi-solid and can be squeezed through a small hole are being packaged in soft, flexible, but tough polyvinyl tubes. When squeezed, these tubes release small quantities of their contents.

Ready-for-use icing is a boon for amateur home cake decorators. The icing comes in many colors and flows from the plastic squeeze tube in an even line. “They’re so easy to use,” said one homemaker. “You can regulate the flow and turn out a beautiful cake.”

Many coeds find that cuticle remover in a squeeze tube also does a beautiful and quick job. Home repairmen and amateur builders are aided by glue and other viscous materials which are now packaged in plastic tubes. And next summer you may be squeezing butter onto an ear of corn from a tube.

A close cousin to the plastic tube is the plastic bottle. Its uses also run the gambit of products, ranging from soap to nose drops to machine oil. Some of these bottles are also the squeeze-type and deliver a fine spray of liquid when pressed. Others are firmer and hold liquid without the danger of breakage.

Glass and Plastic Bonded

Even glass bottles are becoming partly plastic. Plastic-coated glass, where the plastic has been bonded to the glass as a part of the container itself, “makes the ideal pressure package” proclaimed Modern Packaging Magazine in February of last year.

Plastic is topping many all-glass bottles too. Plastic caps snap securely on medicine bottles, making it impossible for curious children to sample the contents.

Elongated film pouches for ice cream and ice bars are now dripless. These keep the ice from melting and dripping down clothing. The ice bar is eaten by squeezing up from the bottom of the pouch.

Ice cream is also being packaged in pint and quart plastic packages. These are reusable packages, and have a snap-on lid which closes easily if all the ice cream is not used up at once. According to Modern Packaging this package has boosted the sales of ice cream 60 percent.

Plastic Film

Plastic film also has pushed up sales of many products. This film can be tissue thin or stiff and heavy depending on the requirements of the product being wrapped. Its uses are as wide as the array of the super market itself and more and more uses are found constantly.

Meat, vegetables, and fruit have been wrapped in polyethelene film for a long time. The film can be put over the product and heat-sealed. This has enabled prepackaging of meat and produce and aided the growth of self-service.

A new boon to attractive meat, fruit, and vegetable wrapping is shrink film. “You can hardly see the film,” says Dr. Richard B. How, associate professor of ag marketing. “A western New York company has invented a machine which shrinks the film to the package for easy wrapping. It’s expensive, but will eventually come into use.”

“We tested shrinkable film for marketing young roasters,” stated marketing specialist Bob Reid. “The film makes a good tight package. It was found successful for merchants of heavy fryers.”

Plastic film made into bags also has its share of the package kingdom. Almost every item of clothing imaginable can be purchased in a plastic bag. This makes the merchandise easy to see, yet the customer can not handle it. “I get so annoyed when an article of clothing I want to feel is all sealed in a plastic bag,”

February 1961
WHAT'S IN THE TRIANGLE?
CASH!
FOR USED BOOKS
NEW & USED BOOKS
SCHOOL SUPPLIES AND ACCESSORIES
Triangle Book Shop
The First Store in Collegetown

WHAT'S IN THE TRIANGLE?
CASH!
FOR USED BOOKS
NEW & USED BOOKS
SCHOOL SUPPLIES AND ACCESSORIES
Triangle Book Shop
The First Store in Collegetown

one senior Home Eccie said, “I don’t mind if it’s a slip or something like that and the size is marked plainly on the outside, but when it’s a cotton blouse or sweater I like to feel the material before I buy it. I must admit sometimes I open the package.”

Champagne is breaking into the plastic bag field with a “chill pack.” Modern Packaging explains that this “cools champagne without an ice bucket or refrigerator, a boon for Bon Voyage gifts sent to ships with champagne at just the right temperature.” The bottle is wrapped in a polyethylene bag. Six or eight ice cubes inserted in the bag reportedly chill the contents in 30 to 60 minutes. A slotted gift carton allows for the bulge when the ice cubes are inserted.

Simple to prepare meals to go with the champagne come frozen, in “Boil-in-bag” plastic bags. These foods—anything from goulash to creamed spinach, to chicken-a-la-king—need only be removed from their outer wrapping and dropped, still in the bag, into boiling water. In a matter of minutes the bag is removed from the water, cut open, and a piping hot dish is ready to serve.

A product still to enter the food realm, is the water soluble packet. This is now used in the soap field for easy measuring and convenience. A packet of bleach, for instance, can be put in the machine with the soap. It dissolves when it gets into the water.

Especially efficient for packaging large, bulky items are the “blister packs.” The film—plastic or acetate—gives a “beautiful view of the product and plenty of protection,” says W. George Gress, Director of Purchasing of the Gillette Safety Razor Company. Like plastic bags and film, these packages afford maximum viewing and minimum handling.

New Plastic Egg Carton

Soon to be market tested in Syracuse is the plastic egg carton. The carton is made of polystyrene, a stiff plastic, colored on the bottom and clear, for easy visual quality check, on the top. Bob Reid explains that this is a sealed egg carton in which each egg has its own cell. “Since it’s a sealed carton we can surround the egg with carbon dioxide and maintain a high quality egg for a long time.”

Opening the carton does not expose all the eggs either. The carton is designed so that a section of the top can be torn off, exposing only two eggs, and leaving the others still sealed in.

“Coming developments . . . are limited only by the imagination of present-day package planners,” says Modern Packaging. The limits of uses of plastics are endless. Next time the coeds attempt a shopping spree, even more plastics will invite attention.
Editorials

CAP Days Commentary

AFTER LOOKING over the tentative program, this year's Ag Progress Days (nee Farmer's Week and later, Farm and Home Week) looks to us like the most exciting event of Cornell's year. With the theme "Our Dynamic Agriculture", the program is divided into three sections: Dairy Day, March 21; Farm Forum Day, March 22; and Food Science and Industry Day, March 23.

Complete with special programs for women, Ag Progress Days has something for everybody. It will give visitors a comprehensive picture of the advance-ment being made at the Ag and Vet Colleges. To those of us on campus, it will be the one time during the year when we can find out what everybody else is up to.

We are particularly anxious to hear three of the discussions scheduled for CAP Days: challenges in obtaining profitable milk production per cow; increasing farmer's marketing power; and a label program for New York State quality eggs.

Of extreme interest to Countryman readers will be our special Ag Progress Days issue. Last year we probed into "Agriculture 1970". This year we are taking a look at what we have to go through to get to 1970 with "The Great Issues in Agriculture."

We can only echo the sentiments of Deans Palm and Poppensiek in saying "We invite you to occupy 'ringside seats' to see and hear about scientific and technological developments that will help shape the future of agriculture in our State."

Speak Softly and Not Again

A g-Domeon Council is again sponsoring a student referendum. But this time, more than a name is at stake. On February 24, 1961 the students of the College of Agriculture will decide whether or not they want a Dean's List.

We have long been in favor of this type of scholastic recognition. There are others who feel that a Dean's list is not necessary. But the pros and cons of this particular question are not the main considerations. The basic issue in this referendum, we feel, is the degree of influence students will have over student affairs.

Dean Palm said that the students in the College could have a Dean's List if they wanted one. Ag-Dom volunteered to find out about the demand. The results of the referendum will show more than how many people want the List, it will show, in effect, how much support the Dean can get from the student body.

According to the amount of interest Dean Palm has shown in student affairs, and his willingness to get to know students' problems, we think that student opinion can become more important in governing student affairs. The paradox, however, is that student opinion has always had this power. The problem, it seems to us, has been in getting a definite declaration of this opinion.

Now, with the February 24th referendum, student opinion can have a voice. The College can have a Dean's List almost for the asking. But if the voice isn't loud enough, we couldn't blame anybody for not trying to hear it again.

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From the College Press

- MICRO-METEOROLOGY - a young, almost unknown science to soil researchers, will play a growing part in helping farmers perfect their soil management and increase crop yields, according to Prof. E. R. Lemon.

- BEST SILAGE - Farmers should fill their silos quickly and solidly to get the best possible silage, College of Agriculture research shows.

- DAIRY PRODUCTION COSTS - A survey of dairy farms in southern New York shows it costs the average hill dairyman 10.6 cents to produce a quart of milk, while he receives only 9.7 cents a quart.

- MEAT RADAR - An ultrasonic "seeing eye" that lets people look right through a steer's hide at the steaks underneath was put to practical use for the first time to judge steers at the International Livestock Exposition.

- FUTURE FOREST NEEDS - Prof. E. W. Foss said that the 60 per cent of all forest land in the U.S. that is now poorly managed will have to meet the wood needs for the future growth of America.

- RUSHED COWS - Prof. William G. Merrill says the invention of the milking parlor, which saves farmers time, has meant bossy is being rushed to the dinner table.

- EISENHOWER GOWN - Mrs. Dwight D. Eisenhower has contributed one of her formal gowns to the historic costume collection at the College of Home Economics.

- DIGESTION STUDY - A better understanding of digestion in chickens is being sought under a new grant made to Prof. Robert Young.

- PLASTIC CHERRY - To find out how real cherries will react in flowing water, Prof. Richard Guest will use 10,000 three-quarter inch plastic balls in a series of tests designed to prevent scald.

- FARM SURPLUS PROBLEM - Prof. Max Brunk sees development of new products as a major step toward solving the farm surplus problem.

- RADIATION FROM PEACETIME USES - Prof. Cyril Co- mar says the radiation dangers that may accompany peaceful uses of atomic energy will be "far offset" by atomic energy's benefits to man.

- MOLASSES IN FEED - Farmers are urged by Cornell feed specialists to use molasses this winter to stimulate cows and heifers to eat more low-quality roughage than normal.

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The "proof of the pudding" is in these summaries of D.H.I. herds which changed over to the Beacon Program. The following tables clearly show consistent increased production, increased butterfat, increased income over feed cost. These D.H.I. figures have been accumulated since the 1956-57 test year and include 1959-60 results.

**FIRST YEAR ON BEACON**

Average Increases for 1,476 Cows in 36 Herds

<table>
<thead>
<tr>
<th></th>
<th>Milk (lbs.)</th>
<th>Fat (lbs.)</th>
<th>Income Over Feed Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total 1-Yr. Increase</td>
<td>724</td>
<td>26.9</td>
<td>$16.47</td>
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**TWO CONSECUTIVE YEARS ON BEACON**

Average Increases for 773 Cows in 20 Herds

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<th>Milk (lbs.)</th>
<th>Fat (lbs.)</th>
<th>Income Over Feed Cost</th>
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</thead>
<tbody>
<tr>
<td>1st yr.</td>
<td>610</td>
<td>22.7</td>
<td>$16.54</td>
</tr>
<tr>
<td>2nd yr.</td>
<td>708</td>
<td>33.1</td>
<td>$27.60</td>
</tr>
<tr>
<td>Total 2-Yr. Increase</td>
<td>1,316</td>
<td>55.8</td>
<td>$44.14</td>
</tr>
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**THREE CONSECUTIVE YEARS ON BEACON**

Average Increases for 250 Cows in 7 Herds

<table>
<thead>
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<th>Milk (lbs.)</th>
<th>Fat (lbs.)</th>
<th>Income Over Feed Cost</th>
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<tbody>
<tr>
<td>1st yr.</td>
<td>488</td>
<td>20.0</td>
<td>$5.56</td>
</tr>
<tr>
<td>2nd yr.</td>
<td>807</td>
<td>26.5</td>
<td>$31.14</td>
</tr>
<tr>
<td>3rd yr.</td>
<td>1,004</td>
<td>40.1</td>
<td>$20.01</td>
</tr>
<tr>
<td>Total 3-Yr. Increase</td>
<td>2,299</td>
<td>86.6</td>
<td>$56.71</td>
</tr>
</tbody>
</table>

**Call in your Beacon Advisor**

He can help evaluate production capacity and roughage quality, help you feed out the extra profit making ability inherited by your cows—for more milk, greater return over feed cost. Ask your Beacon Advisor about this real money maker for dairymen today.

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Ithaca, New York

*

Starch Continuing Survey On Request
A Look at Farm Progress

G.L.F. takes this opportunity to salute Cornell on the occasion of its 1961 Agricultural Progress Days, March 21-23.

Those of us who have become so accustomed to think of the time as Farm and Home Week may lapse occasionally and make reference to the old name, but it will be a slip in name only.

Certainly the new title is definitive. Agricultural Progress Days provide the showcase where farmers can see the things that are happening or about to happen in their business of farming.

And things are happening. Mechanization, to be sure, but mechanization is only one part of the long-time drive toward more efficient farm production. There are other vital elements—breeding, to develop cows that will give more milk, and corn that will produce bigger yields. Nutrition is part of it. So is control of plant enemies, weeds, bugs, and diseases. It gets into how to plan a barn, how to handle materials more efficiently.

The leadership for these advances has been provided in large measure by agricultural colleges like Cornell, a fact which is quite evident to people in G.L.F. who have worked over the years in association with the people at Cornell toward one goal . . . a more prosperous agriculture.

Cooperative G.L.F. Exchange, Inc.
Ithaca, N. Y.
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Cover story—The design, composed of a black and red line intertwined into a knot, is symbolic of conflict and depicts the theme of this Agricultural Progress Days issue—"Great Issues in Agriculture." In the grip of the knot are the symbols of extension, resident instruction, and research—the three areas in which the College of Agriculture endeavors to resolve these "great issues."

The interpretation comes from the drawing board of Miss Sirje Helder, a 1960 graduate from Pratt Institute, Brooklyn, with a bachelor of fine arts in advertising design. Miss Helder is presently employed as a graphic designer by Fred J. Brauer, Inc., Industrial Designer, New York City.

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From the President’s Desk

I take pleasure in welcoming guests of the New York State College of Agriculture to Cornell University's annual Agricultural Progress Days.

"Our Dynamic Agriculture" is an especially appropriate theme for this event in view of the vast changes taking place in agriculture — changes to which Cornell is proud to have contributed through teaching, research and extension work. But even greater change lies ahead as agriculture faces the great dilemmas of the years ahead.

The problems which face us on a state, national and international level are huge. New York State farmers compete with producers from other areas as never before for the great eastern markets. Nationally, we have an overabundance of certain foods, an unequal return to the farmer on his investment and other equally pressing economic and political problems. Internationally, we are concerned with feeding the world's billions.

If these problems are to be solved, all of us in the field of agriculture must see that it continues to be dynamic and progressive. It is our belief here at Cornell that the problems can be solved and our hope that Cornell may continue to play a leading role in meeting the challenges before us.

Deane W. Malott
President, Cornell University
MODERN agriculture is America's greatest business and the many factors that have promoted dramatic progress in the past have opened up great possibilities and challenges that range across the broad complex of modern agriculture.

With the striking developments that are taking place, consider the changes in our agriculture. Many operations formerly carried out on the farm have "spun off," and now are a part of the agricultural businesses taken from the farm through processing, marketing, and ultimate distribution to the consumer. It is this total complex of the farm and the business associated with it that comprise modern agriculture.

In this context, agriculture employs about one-third of the gainfully-employed men and women in the United States, whereas farming alone requires slightly less than 10 percent. All phases of agriculture offer many wonderful opportunities for useful and satisfying careers, regardless of one's interest—farming, farm machinery, dairying, food processing, the biochemical laboratory, farm credit, food distribution, international shipment of agricultural commodities, teaching, research, or extension. These and many other phases of modern agriculture afford competent men and women careers for outstanding service and a profitable future.

New York State's agricultural economy is strong and varied. Our farms produce commodities worth nearly a billion dollars annually. Dairy and livestock farming account for 72 percent of our farm income, with a variety of crops providing the remaining 28 percent. The agri-businesses associated with the farm add billions of dollars to the total worth. Consumers in our State, in turn, pay an estimated five billion dollars a year for food and beverages.

The national and the State trend toward fewer, larger farms continues. Over the past 60 years, the number of commercial farms in our State has declined from 225,000 to an estimated 70,000. Yet New York farmers are producing more today than ever before through higher yields per unit of production. Building and maintaining the family farm enterprise as an efficient, economical unit is a continuing problem for farmers. With our increasing reliance for food and fiber production on fewer farmers, the importance of their training in the fundamentals of scientific agriculture, as well as farm management becomes more essential.

Science is the cornerstone of a modern technology that has made a large share of this progress possible. It has been said that of all the world's scientists who have ever lived, 90 percent are alive today. Our knowledge doubles every ten years. Our educational and communication systems have developed to the point where space barriers have been effectively reduced. Agricultural progress in the United States has advanced until, paradoxically, some, who do not understand agriculture, feel that it has become a national problem. In some areas of production it has become a pressure on our population, not vice versa.

Like the capabilities of other segments of our economy, agricultural production of many commodities exceeds the demand. A few, particularly the cereal grains and sorghums, continue to mount in storage, involving an investment of several billion dollars. We live in an era of abundance, a part of which is rightfully attributed to the results of research and extension activities of the colleges and the U.S. Department of Agriculture, as well as to trends in the efficiency of modern farming.

The question is sometimes raised as to whether production research should be continued in view of surpluses. In my judgment, we must continue research in all phases of agriculture, if for no other reason than to remain competitive. The future will call for greater application of science to all aspects of agriculture. Greater emphasis will be placed. I believe, on basic research as a companion program to applied investigation in our experiment stations. While we guide our program today, we must be searching for the knowledge that will be vital to our efforts tomorrow. Further, the conduct of research in our universities affords the great opportunity for the training of men and women who will be our future scientists.

A growing demand from many world areas for technical assistance points up another important role for our dynamic agriculture. In many parts of the free world today, our Nation is engaged in a vast effort to help undeveloped and underdeveloped areas develop their own basic resource—a strong agriculture. It will provide a firm base upon which an industrial economy can be built. This is of increasing importance to world peace, as well as to the development of international trade.

American land-grant colleges and universities have shouldered an important part of the technical assistance program during recent years by sending staff members to live and work in other lands. In addition, they have admitted thousands of foreign students for undergraduate and graduate study. At Cornell University, for example, 40 percent of all our foreign students are studying in agriculture. Ideas know no geographical boundaries. We are convinced of the great and expanding role of our College of Agriculture in world agriculture and plan to develop this area as one providing great opportunities for American-born students, as well as those from other lands.

We have within our grasp the ability to continue U.S. agriculture in its enviable role of world leadership, and the American people have the imagination and the fortitude to direct it to new levels of accomplishment for mankind everywhere.

In our own State, agriculture has a bright future if we can keep it competitive with other areas. Farmers, cooperatives, agricultural industries, the College, and all other interested groups, working closely together, will assure a strong agriculture in our Empire State in the years ahead.

by Charles E. Palm, Dean
College of Agriculture
DAIRY DAY

- Symposium: The Challenges in Obtaining Profitable Milk Production per Cow. With discussions on breeding, feeding, and general operations.
- Forum: Adjusting Farms and Marketing to Bulk Milk Handling. Covering quality control, efficient layout, and costs.
- Fashion and Its Implications—Special Program for Women. Also held on Farm Forum Day.
- Research on Parade. A presentation showing over 100 new products developed from agricultural research.
- Annual Rice Debate Stage. Resolved: "That the production of all agricultural commodities should be free of government controls."

FARM FORUM DAY

- Our Dynamic Agriculture. Speech by Charles E. Palm, Dean, College of Agriculture.
- Panel: Increasing the Market Power of Farmers . . . Through marketing organizations, market expansion, and adjusting supply.
- Keynote Address. By George McGovern, Special Assistant to President Kennedy and Director of the U.S. Food for Peace Program.
- The Proposal to Manage Milk Supplies. Discussions on production controls—pro and con.
- Eastman Stage Contest. This is the fiftieth anniversary of the speaking contest.

FOOD SCIENCE AND INDUSTRY DAY

Morning Program—Theme: Product Improvement and Product Development.

- Vegetables—Lectures on improving color of french fries and potato chips, breeding vegetables for processing, and others.
- Fruit—Featuring discussions on new apple varieties, apple processing, and the future of the apple juice industry in New York.
- Poultry—Lectures on egg packaging and new poultry and egg products. Panel: Do We Need a Label Program for New York State Quality Eggs?

Afternoon Program—Theme: Operations and Problems in Food Industry.

- Chemical in our Foods
- New Food Processes
- Mechanical Fruit Harvesting and Handling
- Forum: High Quality Pork Through Breeding and Feeding
- Quality Foods for the Consumer—Panels on meats, poultry, dairy products, fruits, and vegetables
- Keeping Dairy Cattle Healthy

CENTRAL EXHIBITS—Judging Pavilion from 9:00 a.m. to 4:00 p.m. on all three days.
Dispensing with the Dispensible
by Zilch

Zilch is tempted to say "welcome again to Farm and Home Week"...but times do change, don't they? In any case, Zilch does welcome you and hopes that you will inspect with satisfaction the simple words of this humble author.

There is one part of this joyous occasion, however, that has withstood most of the ravages of "progress." That part being Zilch's annual parting words to the friends of the Countryman and members of the staff who have proved immeasurably dispensable and who will be replaced after this month.

These parting words have traditionally taken the form of a last will and testament. And with all due respects to the legal structure of such a document, Zilch will have a go at it.

To the Editor-in-chief: After reading some of the garbled, anti-semantic, literary attempts of this "wild bull of the campus," Zilch wonders how the Countryman has managed to maintain any semblance of grammatical correctness. To him, Zilch grants one copy of The Elements of Style; a thousand-pound bag of Purina Chow rabbit food; and the hope that all his spelling errors will be small ones.

Managing Editor: Already departed from behind these painted walls of ivy, dear ol' Phoebe is spending most of her time trying to stop a defective engagement ring from turning her finger green. Zilch leaves to her, and the man who is about to put an 'r' in her M.S., a three-week correspondence course from the Home Ec College's Family Relations and Child Development Department.

Business Manager: Now developing his theory: The balance sheet—a deceptive tool, this digital despot will be the inheritor of volumes I, II, and III of the Countryman's classic: Unpaid Bills—Unlimited.

Advertising Manager: His bold deceptions, and savage subterfuge have made him a legend in advertising circles and among down-town Ithaca merchants. For him: a copy of The Art of Small Talk; and the reminder that magazines aren't meant to have more ads than mail order catalogs.

Associate Editors: Him: an engraved copy of the old journalists adage: "If you're not an authority, quote one." Her: the latest edition of the Cornellian...editor; and four feet, five inches of the Editor's desk—a dimension comparable to her height.

Circulation Manager: Zilch promises him that he shall forever be known to have been "Entered as second class matter, postage paid at Ithaca, New York."


Board of Directors: They just don't understand us! We're not really radical, we're just exploring new frontiers! Zilch has nothing to give to them. After all, what do you give someone who has everything?

Ag-Dom Rep: Zilch reminds him that its better to "walk softly and carry a big stick" than to stamp loudly while waving a wet noodle.

To Trudy, a glamorous ray of sunshine in ETI's Vis Aids section, a fond farewell from a "fast buck."

The Countryman Staff: If you don't know to whom you owe your loyalty, you might find yourself branded with a large "Z"—and that doesn't mean Zorro!

LITTLE MAN ON CAMPUS

Before That Trek
To Cortland . . .

Stop off at Bartholf Mobil to gas up the old jalopy. Not only will the friendly service please you, but the location is so convenient—just off campus on the Cortland road, where Dryden Road and a mess of others come together.

Bartholf Service Station
Maple Ave.
4-9053

March, 1961
Argentina's livestock industry is making a "comeback" after suffering through the ruinous policies of the Peron regime. In South America we saw a livestock industry recovering from the ruinous policies of a former dictator. In cities and villages and on farms of three other South American countries—Uruguay, Chile and Peru—we talked with key government officials, businessmen, people on the street, and farmers. Although many of their economic and social problems seemed almost overwhelming to us, we were impressed with their impelling desire to help themselves and to make more rapid progress in the years ahead.

We believe there will be great agricultural and industrial developments in these countries in this decade if an effective damper can be put on inflation and if their economies can be reasonably free. And these developments will increase their wealth, raise the standard of living of their people, and increase their trade with the United States.

Before continuing, perhaps I should explain the editorial "we" in this article. Last October and early November, I had the privilege of accompanying the then Secretary of Agriculture, Ezra Taft Benson, on a trade development trip to South America. In the Secretary's party on this trip were ten press, radio, and television representatives. We had the opportunity to discuss trade with presidents and ministers of agriculture and to become better acquainted with the agriculture of these countries. Everywhere we went we received a warm and cordial reception.

World's Largest Trade

I was often asked upon my return whether trade between the Americas is really important to us. Actually, this trade represents the largest in the world, and much of it is agricultural. U.S. agricultural exports to South America and to other parts of the world amounted to more than 4½ billion dollars in 1960. These exports cut down on our surpluses and strengthened prices here at home. It is interesting to note that without the exports under Public Law 480 alone, our government's investment in surplus farm products would be about twice as much as it is now. Commercial agricultural exports for dollars are even more important to our farmers because they are much larger.

Evidence indicates that our Food for Peace and other export programs are helping to build permanent markets for U.S. farm products. When expected industrial and agricultural developments materialize in these countries, the standards of living of the people will improve. Per capita incomes and population may expand faster than domestic agricultural production. With such progress, exports of U.S. farm products to South America should increase in the years ahead.

One way to foster South American progress will be more research, particularly in agriculture. For example, during the Perón regime in Argentina, agricultural research was brought practically to a standstill. One of President Frondizi's top agricultural advisors told me the stifling of research had cost Argentina 15 years of progress. I couldn't help thinking of arguments advanced occasionally in the U.S. favoring cutbacks in research until our surpluses are absorbed!

Two-Way Trade Street

Our government has religiously followed a policy of not dumping food commodities on the world markets to interfere with normal marketings. The U.S. is de-
In each of the five South American countries, Secretary Benson made the Minister of Agriculture an honorary life member of the 4-H Clubs of America. Here he presents a 4-H tie clasp emblem to Manuel Casanueva, Minister of Agriculture in Chile.

W. B. Ward

Vising trade programs that are mutually advantageous to our country and to those countries with whom we trade. Building a two-way trade street is vitally important.

One of the hottest subjects of current interest revolves around this topic of two-way trade, and sugar is the commodity most often mentioned. Several South American countries asked why they couldn't get larger export sugar quotas from the U.S. now that the Cuban quotas have been eliminated. They would be willing to buy more U.S. food products (wheat, for example) if they could sell more sugar to us. Under the U.S. Sugar Act, most of the Cuban sugar quota went to the Dominican Republic. Because the Dominican Republic is governed by a dictatorship, the people in the countries we visited could not understand the U.S. position. Believe me, it was difficult to explain, law or no law. There is hope that the Sugar Act will be amended soon to permit increased quotas to some of the South American countries that have a sugar surplus. Brazil, for example, is the world's third largest sugar producer.

One thing that impressed me was the fact that U.S. laws dealing with trade are vitally important to our relations with countries abroad.

It is in the best interest of the free world to recognize the principle of comparative advantage and for countries to produce those things which they can produce best and import those which they produce less efficiently. The U.S. policy under the Eisenhower administration was to move in the direction of a more liberalized trade policy and the use of competitive markets as the best means of moving our agricultural products. President Kennedy also proposed a reduction of trade barriers as part of an expanded and long-term foreign market program.

Responsible people in the five South American countries are worried over the use of Cuba as a base from which communists are further infiltrating their own and other Latin American countries. We saw considerable communist activity on our trip. (Communist newspapers and signs reading "Yanks—Hands Off Cubal"; a strike and riot of university students in Montevideo, and hard core communists at work in the universities. One Latin American newsmen told me that "a university is a place you go to practice your politics.") Top government leaders in the five countries, however, are strongly anticommunist.

At the time this article was written, Peru had broken off relations with the Castro regime. Several other countries, including the United States, have since taken the same action. Despite the efforts of communist propagandists, U.S. prestige in the countries we visited is high.

Land reform is a "burning issue" and communists use it to the hilt.
AUDIO ORNITHOLOGICAL

A phonograph, a few records from the Ornithology Laboratory—and any room can be transformed into a swamp, an open field, or “Dawn in a Duck Blind.”

By Jane P. Doyle '62

Far above the rush of traffic, in a city apartment, an elderly man sat quietly, head back and eyes closed, listening to early morning sounds of birds and insects.

A few years ago this scene wouldn't have been possible. Now, thanks to the Cornell Laboratory of Ornithology and the teamwork of its staff members, anyone can enjoy the sounds of marshes, woods, and meadows within his own home. All the equipment needed is a phonograph and one or two of the Laboratory's bird song recordings.

These recordings, produced by the Laboratory from its extensive collection of natural sounds include not only bird songs, but frogs, toads, insects, and even the early morning sounds of a duck marsh.

Since they first appeared, these Cornell records have been heard by people all over the United States and in many foreign countries. Although intended primarily for listening pleasure or as learning devices they are sometimes used in unique ways.

Mr. Richard C. Davids, in an article for the Christian Science Monitor, tells of a growing hobby—bird calling with records. With his phonograph placed near an open window, Mr. Davids plays one of the bird records. Often within a few minutes a bird will call in response and may even come close to the window, looking for the sound of the intruder.

According to Dr. Peter Kellogg of the Laboratory, who was a pioneer in this field of “bio-acoustics,” the technique is especially good for beginners because it is selective. “Not all birds respond to the recorded call” he explains. However, if a bird does respond, it will only be attracted to the call of a member of the same species.

This method of attracting birds is not used only by amateurs. Professor Kellogg began using it many years ago to lure birds to his microphone.

Once, while playing the song of a Mockingbird he heard a noise at the window. There sat a Mockingbird. Suspecting that the bird might have responded to the sound he moved a speaker out of doors. When the record came on, the excited bird first hopped around the loud speaker. Finding nothing, he then tried song as a means of intimidating this new threat.

Later, Kellogg tried this method on other birds.
Increases income over feed cost

Are you feeding out all of the milk producing potential inherited by your cows? So often herds with outstanding production capabilities just don’t deliver when it comes to figuring net profit per cow. Many low producers are overfed—and valuable feed is wasted. Other cows—with high potential—are underfed which prevents them from producing to capacity.

Beacon’s Hi-Speed Dairy Program matches the feed to the cow’s need and does away with rigid grain to milk ratios. This scientific feed programming has been tested at the Beacon Dairy Research Farm, and proved by hundreds of successful Eastern dairymen who find that returns over feed cost are consistently increased.

Let’s look at the records

The “proof of the pudding” is in these summaries of D.H.I.A. herds which changed over to the Beacon Program. The following tables clearly show consistent increased production, increased butterfat, increased income over feed cost. These D.H.I.A. figures have been accumulated since the 1956-57 test year and include 1959-60 results.

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Headquarters: Cayuga, N. Y.
A division of Spencer Kellogg and Sons, Inc.
March, 1961

First Year on Beacon
Average Increases for 1,476 Cows in 36 Herds

<table>
<thead>
<tr>
<th>Milk (lbs.)</th>
<th>Fat (lbs.)</th>
<th>Income Over Feed Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total 1-Yr. Increase</td>
<td>724</td>
<td>26.9</td>
</tr>
</tbody>
</table>

Two Consecutive Years on Beacon
Average Increases for 773 Cows in 20 Herds

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<tr>
<th>Milk (lbs.)</th>
<th>Fat (lbs.)</th>
<th>Income Over Feed Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st yr.</td>
<td>610</td>
<td>22.7</td>
</tr>
<tr>
<td>2nd yr.</td>
<td>706</td>
<td>33.1</td>
</tr>
<tr>
<td>Total 2-Yr. Increase</td>
<td>1,316</td>
<td>55.8</td>
</tr>
</tbody>
</table>

Three Consecutive Years on Beacon
Average Increases for 250 Cows in 7 Herds

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<tr>
<th>Milk (lbs.)</th>
<th>Fat (lbs.)</th>
<th>Income Over Feed Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st yr.</td>
<td>488</td>
<td>20.0</td>
</tr>
<tr>
<td>2nd yr.</td>
<td>807</td>
<td>25.5</td>
</tr>
<tr>
<td>3rd yr.</td>
<td>1,094</td>
<td>40.1</td>
</tr>
<tr>
<td>Total 3-Yr. Increase</td>
<td>2,299</td>
<td>86.6</td>
</tr>
</tbody>
</table>

From the Virginias to Maine
and found that it functions well, especially among small, wary landbirds such as the thrushes.

However, a previous tape isn’t always needed to attract birds. Sometimes recordings are made in the field and then re-used on the same individual, thus obtaining an even better recording.

**Painted Bunting Call**

Charles Sutherland and Warren Brockelman, both ’63, tell of the time last summer when they were attempting to tape the song of a Painted Bunting, a bird not then in the Laboratory’s collection.

“One day in late July,” Sutherland and Brockel- man relate, “we arrived at the Savannah River Refuge in South Carolina and found a number of individuals calling. On our first tape the bunting was 50 yards away. By playing this tape back, we attracted the bird to within 20 feet of our equipment.

“Unable to locate the rival bird” the men continue, “but still hearing a call, the bunting responded with loud, clear singing. We took advantage of this and taped several minutes of his song.”

**Searching to Identify Bird Calls**

The Library of Natural Sounds, from which the records are made, had its origin more than 30 years ago in the need of a young Cornell instructor. The instructor, and later professor, Peter Kellogg, was looking for a way to aid students in identification of birds and bird calls.

Working with only a recorder and microphone, Kellogg made several recordings. Anyone hearing the beautiful reproductions on American Bird Songs will find it hard to believe that those first attempts almost ended in failure. Wind, insects, and even the whirring of the machine nearly drowned out the faint chirps.

Once, a bird obligingly landed on the microphone and began to sing. When it had finished, Kellogg hurried to play back the recording and found to his dismay that the shuffling of the bird’s feet on the sensitive microphone completely drowned out the song.

Later, at the suggestion of Mr. M. Peter Keane, the microphone was suspended in front of a saucer-
shaped parabolic reflector about 30 inches in diameter. This large disc focuses the sound on the microphone, increasing the energy entering the microphone as much as 40 times. This has the same effect as moving the recording apparatus 40 times closer to the bird.

Cooperation Among Scientists

Though the idea of recording birds has been fostered by Kellogg, many others have shared in building up the library. Dr. A. A. Allen, also of Cornell, is not only an expert on the subject of bird photography, but has also taped thousands of hours of natural sounds. Persons familiar with An Evening in Sapsucker Woods, or Dawn in a Duck Blind, will also remember his interesting commentary on the various songs and calls.

Every year Dr. Kellogg receives many requests for excerpts from the recordings. Not all requests can be filled but anyone who wishes copies of any bird song to be used for scientific purposes may obtain them by sending his request, along with sufficient tape to the laboratory. In this way, Cornell cooperates with scientists all over the world.

Such cooperation sometimes pays special dividends. “In 1950” reports Dr. Kellogg, “I received a series of recordings made in Africa by Miles E. W. North, an amateur ornithologist who was then a district commissioner in Nairobi, Kenya. Although the bird songs were technically excellent, poor equipment had garbled the sounds enough to make them almost unusable.”

An acquaintance of North’s in Chicago, Kellogg relates, learned of this problem and donated two thousand dollars to Cornell. “We then sent him a set of high quality equipment.” North later became a Research Associate of the Laboratory and the recordings which he made have been made into a record, Voices of African Birds.

Probably the recordings which please Kellogg most are those made by his students. Each year several graduates and undergraduates are sent into the field. Last summer Chuck Sutherland and Warren Brockelman, armed with a map and a list of southern birds not in the library, spent two months traveling and recording. When they returned in late August, they had taped more than 100 species including 20 never before recorded.

Recording has come a long way since scientists first captured the sound of a bird—but the field of bio-acoustics is still growing. Each year, new uses are discovered for this medium of research. Whatever advances come, however, the Laboratory of Ornithology will play a part in their discovery.

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March, 1961
Great Issues in Agriculture

“Our dynamic agriculture” presents grave problems along with tremendous progress. Many of these problems might well be called today’s “Great Issues in Agriculture.” The Countryman asked the Directors of Research, Extension, and Resident Instruction to describe some great issues in their major areas of College work; and seven College of Agriculture professors to explain issues in fields with which they are associated. To lead off this special section we asked Secretary of Agriculture Orville Freeman to give us an overall look at our nation’s agriculture.—Ed.

Secretary Freeman: The Goals of U.S. Agriculture

ALMOST daily since I became Secretary of Agriculture, representatives of the press and news media have come to my office. They all ask some form of the question, “Have you a solution for the farm problem?”

There is no easy answer, no ready formula, no one program that will “solve” the problem. There are goals, yes; objectives certainly—and it is our aim, in cooperation with Congress, farm groups, farm leaders, and all who are interested in the welfare of agriculture, to develop and pursue policies and programs that will achieve these goals and objectives.

The three major goals, as I see them, in a positive constructive approach to the problems of U.S. agriculture are:

First, the production of enough food and fiber to provide high living standards for all our consumers and customers at home and abroad now and in the years ahead.

Second, opportunity for the operators of efficient family farms to achieve parity of income without exploiting either consumers or taxpayers.

Third, the effective, efficient, and wise use of our agricultural abundance so that it may fully serve the needs of humanity, both at home and abroad.

Mankind is about to enter—as we in this country have already entered—a new age: The Age of Plenty. Only 15 years ago at the end of World War II much of the earth was so devastated that it seemed there could never be enough food to meet even the minimum needs of a hungry world. This was, in part, the result of war, but it was also a manifestation of a condition that has been chronic throughout history.

In all of history, one element has been constant: Scarcity. It is not pleasant to read the history of man’s endless struggle against hunger—his agony of starvation. Historians have recorded as many as 20 famines in various parts of the world during a single century. It has been only in recent years and in only a few countries that agricultural abundance has ever been a major economic problem.

In our nation, and in some other lands, agriculture has now broken through age-old barriers that hitherto prevented abundance. All over the world people awaken today to the hope that their long sought wants and needs for food, shelter, and clothing can be fulfilled.

Only when this goal has been reached, or is well on the way to being reached, will humankind begin to achieve that permanent peace, the desire for which lies deep in the hearts of all men.

As President Kennedy said in his Inaugural Address: “All this will not be finished in the first one hundred days. Nor will it be finished in the first one thousand days, nor in the life of this Administration, nor even perhaps in our lifetime on this planet. But let us begin.”

For those of us who have the welfare of U.S. agriculture at heart, we can begin by helping our people generally to reach a deeper appreciation and better understanding of the job agriculture has done, is doing, and can do. The productive achievements of our farmers constitute an outstanding success story—perhaps the most important success story that has been written by any major segment of the national economy.

Too few of those who live in the cities and towns know the immense
contribution agriculture has made to their standard of living. Too few appreciate the problems our farm people have. Too many misunderstandings exist between labor and agriculture, between consumers and farmers. Though U.S. consumers are better fed, and at lower real cost, than ever before, and better than consumers in any other country, our agriculture is referred to more often in terms of surplus or subsidy than in terms of success.

The Research-Surplus Conflict

by W. Keith Kennedy
Director of Research

Agricultural research is the foundation of the high standard of living the American people enjoy today. Never before has the working man spent so small a portion of his working day earning the food he and his family eat. In 1914 when bacon cost only 27 cents a pound the working man had to work three times as long to get a pound of bacon as he does today; two and one half times for a loaf of bread or a pound of beef — still longer for a pound of poultry.

It is indeed a paradox that while we in the United States have an abundance of wholesome, inexpensive food, two-thirds of the world's population go to bed hungry or inadequately nourished. Everyone agrees that it is wasteful to continue to produce more agricultural products than we can consume, but is curtailing production research the answer? Or, should we be searching for better ways of capitalizing upon our efficient agricultural industry?

Rather than lose the tremendous advantage we have in agricultural production let us explore ways of using "Food for Peace" for better distribution of the food sorely needed by people in other parts of the world. At the same time we should continue to search for ways of bringing agricultural production more in line with our needs without creating an inefficient and weakened industry.

In recent years the New York State College of Agriculture has devoted an increasing percentage of its research effort to methods of marketing our agricultural products, and to the development of new products with the aim of expanding the sale and use of our commodities. The College plans to continue to place a high priority on marketing research and product development, but it also must maintain a well-rounded program in production research.

Production research increases the potential for raising the incomes, and the new technology derived from production research paves the way for reducing costs. The reduction of costs is imperative to a strong agricultural industry because:

1. Marketing problems will be decreased if costs can be reduced or at least maintained at the present level. All products are in direct competition with each other for the spending income of every family. Consumers will make adjustments in their purchases of food products as price changes occur. Once a family decreases its purchases of any food product because of high prices, it is difficult to re-establish the lost market.

2. Interregional competition for markets already is extremely keen. The other regions will continue to conduct production research because they are anxious to reduce costs in order that they might obtain a greater share of our large metropolitan market. New York farmers must employ the latest technology if they are to meet this competition. While interregional competition for our most important product, milk, currently is not as great as it is for our other agricultural products, any relative decline in the efficiency of New York dairymen might hasten its development. With possible changes in processing and transportation, this factor could become extremely important in a very short period of time.

Discontinuing production research for even a few years would be disastrous because:

1. New plant and animal diseases, insect resistance to pesticides, and new plant and animal nutritional disorders are constantly arising. Even with a vigorous research program our scientists are hard-pressed to keep ahead of these new problems. For example, new races of oat diseases develop in the South and West and are transported by wind into the East. If our plant breeders did not continuously develop varieties with resistance to these new diseases, in five years our farmers would be unable to grow a satisfactory crop of oats. If our entomologists were not constantly devising new means for controlling insects, a salable crop of several important fruits and vegetables could not be produced.

2. A research program cannot be turned on and off like a faucet. It requires ten years of intensive and continuing effort to develop a new forage variety. Each year thousands of crosses and selections are made and discontinuing the program for one year might mean a complete loss of the breeding material or at
Changing Role of Extension

by Maurice C. Bond
Director of Extension

The title of this presumes change. No one doubts changes in knowledge or changes in problems facing people. Everyone recognizes changes in the vocations of people living throughout rural America.

The basic purposes and objectives of the Cooperative Extension Work have not changed. However, changes in programs have been underway since the inception of Cooperative Extension Work. The first state appropriation to support some extension work was in the judicial district in southwestern New York. This was obtained through the efforts of local people who desired to have the assistance of the College of Agriculture for the people in Chautauqua County. The geographic area supported by state appropriations was soon broadened.

The problems of people have changed greatly, but they still want

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1. Need to adjust milk supply to consumer demand.
2. Need for class price adjustment in the Northeast markets.
3. Need for improved bargaining techniques as farm numbers decline.
4. Need for equitable sharing of surpluses in Northeast markets.
5. Need for efficient handling of milk during transition from can to bulk handling.
6. Need to direct merchandising to changing consumer habits.
7. Need to meet the challenge of new products such as concentrates and the ever-increasing competition of other foods and products with those produced by dairymen.

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the knowledge of new developments, new techniques, and the results of research from the landgrant college. This is true throughout the United States as well as in New York.

The wartime situation has caused substantial changes in the extension programs. In World War I, County Agricultural Agents participated in the all-out effort to increase food production for urban dwellers and our armed forces. Home Demonstration Agents carried on an intensive program on the preservation of food for use in the home. The emergency aspect of the Home Demonstration Program during World War II was quite different. Great changes had occurred in the kinds of food people ate and the sources from which they were obtained. In World War II, County Agricultural Agents were deeply involved in problems of man power, cooperated with selective service and gave assistance in connection with priorities and shortages in connection with farm machinery and equipment. Very little vestige of the war-time services by County Agricultural Agents appear now in the Extension programs of the 56 counties in New York.

Commercial farmers today are much more specialized than formerly. Farms are highly mechanized. Farmers are deeply concerned with the application of new technology in their crop and livestock enterprises. This has resulted in a specialization on the part of County Extension Agents to meet the needs of the most important types of agricultural and home problems in each county.

Specialists at the State College endeavor to have a broad understanding of the problems of each particular agricultural industry and the ways in which new developments in a specialized field fit into the overall problems. The programs are developed on the type of farming basis. The dairy farmer in concerned with soil, forage crops, as well as the management and care of the dairy herd and the marketing of both milk and livestock products. The fruit and vegetable farmer is concerned with both fresh and processing outlets for his products. In some industries, the problems center largely around specific crops such as potatoes or the production and marketing of other vegetable crops.

One new aspect of Extension work comes about from the growing interdependence of producers on suppliers and on marketers and their products. The Cooperative Extension Service has a responsibility to help bring mutual understanding among these groups. Bankers and other credit agencies need to have an understanding of the changing methods, problems and needs of farmers if they are to provide the necessary credit services. The need for trade needs to have information regarding new varieties of crops in order that supplies may be available as farmers change from one variety to one that is better adapted, more disease resistant and more productive.

Marketing agencies and consumers need to understand the particular qualities and appropriate uses of food products for both fresh market and for processing. Understanding makes it possible for each supplier, marketer, and producer to do his job well and on time.

In recent years more emphasis has been given to problems of management and marketing. These areas are of increasing significance to producers, firms engaged in marketing, homemakers and young people. Extension programs will continue to change if they are to meet the changing needs of the people they serve with needed information.

Paradox of Student Enrollment

ONE OF the most important problems with which colleges of agriculture have been concerned in recent years has been that of reduced undergraduate enrollment. This situation is most surprising in view of the increased demand for college education and the low tuition fees charged by most of the colleges involved. According to statistics gathered by the U.S. Department of Health, Education and Welfare, the undergraduate enrollment in degree programs in landgrant colleges of agriculture in this country was 45,853 in 1948. In three years it fell to 34,774, and since 1951 it has more slowly decreased to a figure slightly under 32,000 for 1959 and 1960. There are many college administrators who feel that the decrease has come to a halt and that an upswing is in the offing as a result of the generally increasing number of people of college age. It is with some degree of pride that our college can say that its enrollment has not followed the country-wide pattern. It has continued to rise, even though it has done so very slowly.

An attempt to pinpoint the reasons for the general loss in agricultural students is difficult in that many factors have been involved, some definite and some indefinite, and some varying in importance from one region of the country to another. It has often been said that in economically good times enrollment in agriculture is apt to fall and that conversely, it is likely to rise when other employment opportunities are not highly favorable and people tend to think more of the security of farm land ownership and opportunities to produce food. In recent years, with the tremendous impact of nuclear fission, business machines and space vehicles, high school students have had their interests directed toward the physical sciences.

Talk of farm subsidies has made many young people feel that agricultural occupations involve dependence upon government for livelihood. Publicity given to farm surpluses has convinced some that the field of agriculture is already overcrowded. The list of such intangible forces is almost endless.

Without doubt, one of the most important reasons for the failure of colleges of agriculture to attract students has been, and still is, a lack of understanding on the part of the public, including high school students and their counselors, as to both the importance and the scope of agriculture. Thus, there has not been an awareness of the breadth
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of educational opportunities available in our colleges. In correcting this situation, the public must be made to realize that agriculture does involve food production on a large scale. We have an ever-expanding population to feed, a demand for higher and higher quality to meet, and foreign commitments in production and technical skill to fulfill. The production of food is an extremely important area of endeavor in this country, and it will continue to be so as far into the future as can be seen.

But a second, and an extremely important, truth of which the public must be made fully aware is that the modern concept of agriculture includes far more than the mere production of meat, poultry, fruits, vegetables, grains, and feeds. It embraces the whole complex of rural and suburban living—its sociology, education, and economics. It includes all of the supporting and contributing biological and physical sciences, such as biochemistry, zoology, and many others.

Agriculture demands a knowledge of the conservation of wildlife and other resources. It encompasses all the business activities inherent in the production, sale and distribution of agricultural chemicals, and, eventually, the processing, marketing, and distributing of human food.

Underlying many of these phases of agriculture is the enormous field of agricultural engineering with its design and use of tractors, loaders, spreaders, ventilating or drying equipment and a host of additional items.

The need for well-trained manpower in all aspects of agriculture is already great and it is constantly increasing. The College, through brochures, conferences with its admissions counselor, press releases, and many other means, is attempting to inform the general populace of New York, particularly high school students and counselors, of the educational opportunities which it offers. The task is enormous.

There are approximately 1,100 public and private high schools in New York. All of them have counselors who are giving advice to an estimated 150,000 high school seniors this year. Only when a large portion of these people, whose numbers are expanding in every state each year, are made aware of the full meaning of agriculture will colleges of agriculture, including our own, reach their capacities in enrollment. And only then will they receive the public support, both financial and moral, which they so richly deserve.

Cornell Countryman
Farmer in the Suburbs

Olaf F. Larson, Head Department of Rural Sociology

SUBURBIA, "Urban sprawl," "rural-urban fringe" and "megapolises" are among the terms being introduced into contemporary vocabulary to identify certain population shifts and residence patterns which have been rapidly developing in recent years. A reflection of the concern for the consequences within cities may be found in several proposals before Congress for the creation of a Department of Urban Affairs in the federal government, a counterpart of the U.S. Department of Agriculture.

Outside of cities these changing population patterns have led to a whole set of complicated problems which involve both the newcomers and the established residents, farmers and non-farmers alike. What does happen to farms and farmers caught in the suburbanization waves from our cities? What kinds of problems do such farmers face? What kinds of adjustments do they make? These are questions of concern throughout the United States, but nowhere are they more pressing than in the heavily urbanized Northeast.

Two basic changes take place with the growth of the non-farming, suburban population. First, changes in land use affect individual farm enterprises and opportunities to enter or stay in farming. Second, increases in the total number of people and in the population density affect the farmer's community and his other group relationships. The impact of the changes in land use on the farmer will vary a great deal depending on his individual situation and characteristics. Further, the adjustments he is free to make to the changing land use situation are an individual matter to a great extent. There is more sharing of the effects of the changes brought about by the increase in population numbers and density, and the decisions which will facilitate needed adjustments to the new situation are a group matter or may even be made in such a way that the individual feels he has little influence on the outcome.

We have some measure of the scope of the two basic changes mentioned. A recent report from the U.S. Department of Agriculture estimates that about one and one-third million acres, of what in many cases is the best agricultural land, is being shifted each year into various non-farm uses.

About two-thirds of the great increase in the nation's population since 1950 has taken place in what the U.S. Bureau of the Census calls "standard metropolitan areas." In general these are counties which include a central city of 50,000 inhabitants or more, although in some cases adjoining counties are also included in such areas. The significant fact is that within these standard metropolitan areas about 95 percent of the total population gain has been in the outlying parts and only 5 percent has been in the central cities. There were 168 of these metropolitan areas in 1950. A Census study made in 1959 reports that for these areas the central cities had grown only 1.5 percent since 1950, the rural farm population had declined over 7 percent, the urban centers other than the central cities had grown by 25 percent, but the rural nonfarm people had skyrocketed by 117 percent.

Considering only the Census-defined rural population within these metropolitan counties, farm dwellers in 1950 had been outnumbered by non-farming rural residents nearly three to one, but by 1959 they were outnumbered about seven to one.

Urban sprawl increases farm land values; then higher assessments and higher taxes are likely to follow. This may make use of the land for agriculture uneconomic, forcing the farmer out of agriculture or to a farm in a less costly location. For some farmers, the sale of the land may provide a higher retirement income than they would have had without the suburbanization trend.

Needed farm enlargement may be hampered. To cite New York's most extreme case, the average value of farm land and buildings in Nassau County was reported by the 1959 Census of Agriculture at $8,570 per acre, as compared with $3,165 four years earlier and the average of $144 for the state as a whole.

Non-farm land use may adversely affect farms through depletion and pollution of ground water, rapid runoff, highway relocations, traffic, and complications in maintaining line fences. Non-farm people may object to some of the normal farming practices and activities and to some of the noises and smells connected with livestock and poultry operations.

Farmers remaining in a sub-


March, 1961
Farm Power in the Market Place

HAVE YOU heard or read that farmers do not have bargaining power comparable with labor or industry? If so, you are tuned in on one of the current issues in farm circles. Perhaps issue is not the best term because Democrats and Republicans, Farm Bureau, Grange, and Farmers' Union, East, Midwest, and Far-west, in fact, everyone concerned with agriculture, seem to agree that farmers need more bargaining power.

The farmers' problem, so the analysis runs, is that they have little to say about the prices they receive for their products. They meekly ask the potential buyer what price is offered. Or, worse yet, they consign their products to distant markets without even having an opportunity to refuse the price offer.

How many dairymen deliver milk for a month or even longer before they know what price they will receive? These examples serve to indicate that the typical farmer in a particular instance has little, if anything, to say about the price he receives.

Conversely, on the buying side, farmers pay the prices asked, no more than which they offer. The prices they pay for feed, machinery, fuel, automobiles, and most everything else are stipulated by the sellers. Oh yes, any self-respecting farmer will bargain when he trades tractors or automobiles. He may bargain a bit with the feed merchant, but by and large farmers, like most of the rest of us, expect to pay the prices established by the seller. In most circumstances a farmer would be about as effective in bargaining for the price of many farm costs as he would in trying to buy a four-cent postage stamp for three cents.

It is clear that the individual farmer has little, if any, influence on the prices at which he sells or buys. If the individual farmer has no price power, it must follow that farmers as a group have none.

Some of us would want to disagree with reasoning from the individual to the group. Although an individual farmer's production of a commodity is so small in relation to the total that his production essentially has no effect on price, this is not true of all farmers. Their total production does affect price, so they do have something to say about price. Even so, we must grant that farmers have little to say about their prices.

This, so the analysis continues, is the opposite of what labor and industry do.

Labor, through its unions, bargains with employers for wages and a host of fringe benefits and working conditions. Organized labor works only when wages and other employment conditions have been agreed upon. Labor has bargaining power through its organizations.

Industry, on the other hand, sets the price at which its products will be sold. Where so-called "fair trade" laws are effective, industry may even stipulate the retail price.

By and large, however, retailers may sell products at whatever price they choose, but they find that they cannot replace these goods without paying the prices set by the manufacturers. So industry determines its costs of production and sets selling prices which cover these costs. Industry then has bargaining power through its size and ability to administer its selling prices.

The above analysis is elementary and incomplete. Some labor goes without jobs, some industrial products cannot be sold at the prices set, but by and large, both labor and industry have more control of their economic well-being than do farmers. Therefore, so the reasoning runs, farmers should have more bargaining power.

The author prefers the term "market power" to bargaining power because it is power over price which is wanted regardless of whether it is obtained by bargaining or by other means.

How can farmers obtain market power? They cannot gain great size like industry and still remain individual farmers. So the answer is to do like labor does—get together and operate as one entity rather than as thousands or millions of individuals. Farmers can get together in cooperative or other organizations and solve their price problems.

Now this idea is not new. It is about as old as the marketing of farm products. Many groups of producers have joined together in cooperative organizations and have had something to say about their marketing. But, most of these are not national in scope and their...
Great Issues

Market power has been limited and circumscribed. Others, because of peculiar circumstances have had considerable market power. Some fluid milk cooperatives have improved prices over what they otherwise would have been. Others by regulating the volume of sales, the utilization of the product, and by other means have been able to affect prices. Their success has been limited and certainly not nationwide.

The idea of gaining market power through cooperative monopoly was tried widely about forty years ago. The principal salesman of the idea was Mr. Aaron Sapir who advocated that if all producers of a product would get into a national cooperative or system of cooperatives, it would be easy to exercise real market power. Many cooperatives were formed with large numbers of members who were bound to the cooperative by long-term "iron-bound" contracts. These usually required that members must market their products through the cooperative for five years or pay prohibitive penalties.

Some of these cooperatives were never sufficiently well organized to test their affect on market power. Some were.

Some had enough market power, primarily by keeping members' products off the market, to be able to influence prices upward. A few did this so well that farmers increased production a great deal in order to take advantage of the good prices created by the cooperative.

Those who were not members of the cooperative were able to sell all they produced at prices near those established by the cooperative. The cooperative sold only what the industry could not buy from non-members. As a result, surpluses accumulated and members did not get paid for part of their production because it had to be held off the market in order to influence prices. Instead, they had to raise additional capital to provide storage space for the accumulated stocks. Eventually the cooperative could no longer expect its members to support a good price primarily for the benefit of non-members. They lost market power because they could not control supply.

In more recent years many aspects of pricing farm products have been assumed by government through one or more programs. In some cases, prices have been affected by price support programs and in others by marketing orders and other means. However, supply has not been controlled and farmers continue to be dissatisfied with their lack of market power.

Many farm leaders and organizations continue to search for ways and means to acquire and exercise market power. These vary from naively advising members to hold commodities off the market to consolidation of the bargaining power of several cooperatives in a product market. In between are the attempts at bargaining by individual cooperatives and the market power created by marketing orders.

All are seeking to acquire some market power for farmers. As of now the future direction is not clear. The lessons of the past should help prevent repeating some of the errors of the past.

Farm Surplus - Its Cost and Cure

Kenneth L. Robinson,
Department of Agricultural Economics

The U.S. has a "farm problem" mainly because total farm output during the past two decades has continued to rise more rapidly than the population has increased. Rising output relative to the growth of population has caused prices to decline.

Some of the price disadvantage has been offset by a larger volume of sales per farm; however farmers generally have not fared as well as urban workers during the past decade.

Expressed as a percentage of total production, our present overall farm surpluses are relatively small. In the past few years, agricultural production has exceeded consumption by a margin of only five to eight percent annually.

But this average figure does not tell the whole story. Physical surpluses are confined to a small group of commodities, mainly wheat, corn, cotton, and grain sorghum. These four commodities now account for about 85 percent of all governmental holdings of farm products. Butter and cheese surpluses have been almost eliminated in recent years. Cotton stocks have also declined.

Wheat and feed grain surpluses, however, have continued to rise. The build-up in grain stocks has been due to a combination of favorable weather and the adoption of improved production practices. Increases in yields have more than offset reductions in the acreage planted to these crops. Any proposed solution to the surplus problem must deal especially with these products.

The United States now has not one but many farm programs. These have been developed and modified over a period of three decades or more. A number of programs, such as those relating to marketing services, research, education, credit, farm cooperatives, and soil conservation receive widespread support from both political parties and consumers as well as producers.

Conflict centers mainly around those designed to maintain or raise farm prices. Programs in this category include the price support loan and storage program which applies to some, but not all farm products; acreage controls which now apply only to wheat, cotton, tobacco, rice, and peanuts; surplus disposal activities including those designed to subsidize exports or to give away farm products either at home or abroad; land rental programs which provide funds for retiring cropland; and direct payments for sugar and wool.

 Commodities which account for only about one-half the total cash receipts of farmers are now supported. The list of supported commodities includes most grains, cotton, tobacco, peanuts, soybeans, dry beans, butter, cheese, and dried skim milk. The non-supported list includes fruits and vegetables, eggs and poultry, hogs and beef.

No substantial changes have been made in the number of commodities supported during recent years. Support levels for nearly all commodities were reduced between 1956-57. A wide range of support levels exists at present.

Efforts have been made to reduce surplus production during recent years, first by enforcing acreage allotments on producers growing the major surplus commodities (in-
eluding corn until 1959), and second by offering rental payments to farmers who retire additional crop land under the soil bank program.

Production has continued to rise despite these two programs. Higher yields have offset most of the effect of reduced acreage. Moreover, on land taken out of wheat and cotton, grain sorghum, barley, and soybeans were planted, thus adding to the production of these crops.

While acreage control programs have not "solved" the surplus problem, they undoubtedly have helped to hold down increases in production of wheat, cotton, and rice. The soil bank has had a similar effect as farm output might have been even greater if additional land had not been retired under it.

Surplus disposal programs have expanded greatly during recent years due to the accumulation of large quantities of commodities in government storage. Congress has been generous in appropriating money for subsidizing exports and selling surplus commodities for foreign currencies. In addition, increased quantities of farm products have been made available through the school lunch program and to states for distribution to families on relief.

I N THE history of our country, no institution has been looked upon with greater favor than the "family farm." During the recent presidential campaign a leaflet entitled "Agricultural Policy for the New Frontier" was distributed by Mr. Kennedy. The following is quoted from page two of this leaflet:

"Likewise the assurance of a fair return to farmers must include a recognition of the importance of the family farm as an efficient unit of agricultural production, as an indispensable social unit of American rural life, and as the economic base for towns and cities in rural areas." There is nothing new in this statement. Anyone who expects to get votes in a rural area must endorse the family farm.

But, what is a family farm? Here we find some difference of opinion. Some say it is a farm where no labor is hired. Others would say that a family farm is one where most of the work is done by the farmer and his family. Still others would say that it is a farm where the manager has callouses on his hands. I have found the most useful concept to be that "a family farm is not large enough to justify one person spending most of his time on management rather than labor."

Using this definition, there are several kinds of family farms which might be described as follows:

SUBSISTENCE — These farms emphasize production for home use, selling only a small part of the total production. This was the family farm of pioneer days, with the spinning wheel in the cabin. This kind of family farm is history as far as

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Great Issues

Northeastern United States is concerned. And I am glad of that. One problem which subsistence farmers had was toothaches, and no money to pay a dentist.

RESIDENTIAL — These farms produce almost exclusively for home use, but the "farmer's" main job is something else such as construction work, law business, or teaching. This is a far cry from the pioneer's subsistence farm. It is a lot of fun for those who like it. There are many of these "farms" in New York State today. Their total contribution to the food supply is small, but they are becoming an "indispensable social unit of American rural life."

COMMERCIAL — The family commercial farm is where most of our food is produced. Emphasis is on production for sale. The commercial family farm may hire some labor, but not so much that the farm operator must spend a large part of his time in directing the workers.

PART-TIME — This is a combination residential farm and a commercial farm—a man with two jobs. A few people need two jobs, but most are finding one is enough.

Let's look at the family commercial farm. What has happened to it over the years? A study made by Cornell's Department of Agricultural Economics reveals changes in the family commercial farms of the Town of Dryden in Tompkins County since 1907. In 1907, the average family commercial farm in this town had 11 cows, an average equipment investment of $436 and an average total capital investment of $6400.

In 1957, the average for these items was 35 cows, $9650 equipment investment and $40,000 total capital. Had the family farm disappeared from Dryden. The answer is no. In 1907, the average labor force on the farms was the operator and nine months of other labor (family and hired). In 1957, the average labor force was the operator and 11 months of other labor. There was only two months difference in the average labor force.

This is also the picture nationally. In 1910, the total farm labor force in the United States was 13.6 million man equivalents. Seventy-five per cent of this labor force was the farmers and their families and 25 per cent was hired.

In 1960, the labor force on farms in the United States had declined to 7.1 million man equivalents. Seventy-three per cent of this labor force was the farmers and their families and 28 per cent was hired. This proportion of the farm labor force which is hired — about one-fourth — has been a stable item in an unstable world of work.

In New York State the census counted 153,000 farms in 1940 and only 82,000 in 1959. In the United States the number of farms declined from 6,100,000 in 1940 to 3,700,000 in 1959. But, the labor force remains three-fourths "farmer and his family."

The amazing thing is that this reduced number of farmers supplies us with such an abundance of food that over-production is one of our worries. Of all the problems which man has for himself, too much to eat is one of the nicest.

Why does our farming remain in family units, when most other business has gone into larger than family units? The answer is in the effect of mechanization on farming, and on other industries.

Once shoes were manufactured in family shops. The old-time shoemaker did the various jobs of making shoes in sequence and finally had the satisfaction of looking at a product which he had made himself. When machinery came along, shoemaking was divided into many jobs which could be done simultaneously. The number of jobs to be done at one time was far more than the number of workers in a family, and the family shoemaking shop disappeared.

In most of agriculture—for example potato growing—the mechanization of the job did not change the sequence. Mechanized potato farms must plant before they harvest. In mechanized potato growing there is no more than in hand labor growing. So potato growing remains as compatible with the family labor force as before mechanization.

In some kinds of farming such as chick hatcheries, mechanization made it possible to do the various jobs simultaneously and the number of jobs to be done at once is beyond the number of workers in a family. Chick hatcheries are no longer family farms.

In most of agriculture planting must precede harvest, and the mechanized family farm is the most efficient food producing unit which the world has ever seen. It is the envy of most of the world.

Training Americans to Go Abroad

some even get college credit for travel study courses. Various types of student exchanges help to bring about better understanding between peoples of the United States and other countries.

The United States is striving to help peoples of the developing countries to increase their food supplies and improve their standards of living.

According to a recent report by the U.S. Committee on the University and World Affairs, about 50,000 foreign students and scholars are studying on American campuses and more than 15,000 U.S. students and faculty members went abroad last year to study, teach, do research, or assist foreign institutions. Sixty-eight U.S. universities are carrying out nearly 100 contracts under the International Cooperation Administration (ICA) in 33 countries, primarily to strengthen the educational foundations of the countries.

Cornell has a long history of close working relations in agriculture with other countries of the world. When I first came to the University as a graduate student 31 years ago, I soon learned about the Cornell-in-China program. Several Cornell professors went to China for teaching and research in agriculture. Many students from China and other far away places were coming to Cornell for training. More recently the Cornell-Los Banos ICA contract with the University of the Philippines has provided for exchange of many faculty members from the two universities.

Kenneth L. Turk
Head
Department of Animal Husbandry

There is a growing interest today toward foreign service in agriculture by both faculty and students. This interest has increased rapidly during the past couple of decades, with larger numbers of students, and more international scientific and technical cooperation amid the emerging nations of the world. Thousands of students go abroad each summer.

March, 1961
and increasing numbers of Filipino students have come to Cornell.

We have a good record in sharing our staff and facilities with our friends around the world. We can do more in the future as we give greater attention to educational programs that will improve student training for foreign service in agriculture. Some shifts in education in the United States are needed to attract highly qualified persons for overseas work.

Frequently students and others ask me the questions, “How do I go about getting a job in foreign agricultural service? What are the opportunities? Do I need advanced degrees?” Certainly there must be evidence of good opportunities in foreign service in agriculture before we embark on intensive training programs. Those who wish to go abroad on a career basis want some assurance of the stability of the positions to which they are appointed. Also the positions must offer sufficient career opportunities to be attractive.

Perhaps the greatest opportunities for jobs now and in the years ahead are with the ICA, which administers our technical assistance programs under the U.S. State Department. Unfortunately, many of these assignments at present are of too short duration. Longer-term assignments will make these opportunities more attractive.

Several of the foundations such as the Rockefeller, Ford, and others, have extensive programs of research and education in many countries of the world, cooperative with the local governments and with the ministers of agriculture. The Food and Agriculture Organizations of the United Nations (FAO), as well as privately owned corporations and farms offer many opportunities for foreign service.

On an assignment in Latin America last year I met U.S. citizens who are college graduates in agriculture serving in the following jobs: owner and operator of a beef cattle ranch in Mexico; many ICA agricultural advisors in Colombia, Ecuador, Chile, and Brazil; manager of a group of large farms in Venezuela; supervisor of research for a private organization in Brazil; manager of a feed mill in Mexico; United States Agricultural Attaches in Argentina and Chile; about 30 research specialists in agricultural sciences with the Rockefeller Foundation in Mexico, Colombia, and Chile. These and many others illustrate just a few of the jobs now held by United States technicians and scientists in Latin America.

The same situation applies throughout the world.

Recently you have been hearing about the Youth Peace Corps. This is a scheme to send young college graduates into underdeveloped countries of the world for personal aid in education, agricultural development, health, mechanical and engineering training. This program, if it develops, may be attractive to some students.

In general, there will probably be more opportunities in foreign service in agriculture for students with advanced degrees than for those with the B.S. degree. This is especially true of work with ICA, FAO, and the various foundations.

Those who will be working in any of the programs to aid agricultural development in the developing countries of the world must recognize that the qualities of personality, character, and leadership are essential. In working with the nationals of another country one must have a sincere interest in people, as well as the ability to get along with them. And it is highly important that one learn and appreciate the culture, customs, traditions, and philosophies of the people with whom he is to work. These are all fully as important, if not more so, than skill and training in agricultural technology and science.

Learning and using the language of the country in which one works is a “must” for a successful foreign service career. One must fully recognize his responsibility to help people help themselves.

Under a vast majority of conditions in low-income countries, intelligent, broadly educated generalists are likely to be more effective than highly trained specialists. They must be able to see the whole field of agriculture and be willing to lead the way by doing.

Educational programs in other countries must be integrated into the economic, social, and scientific structure of the country.

Our most satisfactory solutions are to help develop in the people of these countries the knowledge and skills they need to solve their own problems by growing their own food and developing their agricultural industries. Investing in people of the emerging nations through education in its various forms certainly is one of the most effective procedures that can be used to provide long-term aid and good international relations. In the years immediately ahead there will be unprecedented opportunity for education to serve mankind everywhere.
Milk Quotas - Dairymen Must Choose

Leland Spencer
Department of Agricultural Economics

DAIRY farmers in the New York-New Jersey Milkshed and elsewhere in the nation are considering an important proposal. A national committee recently suggested a new plan for keeping milk production in closer adjustment to market demand. Whether this plan goes into effect or is merely put on the shelf will depend in large measure on how dairy farmers feel about it after they have considered the difficulties involved as well as the probable benefits.

Briefly, this plan would assign a base or quota to each producer, according to the quantity of milk he delivered in a recent period such as the last year. Then marketing certificates would be issued to producers by a designated agency, probably the U.S. Department of Agriculture.

Certificates given to each producer would entitle him to sell a given quantity of milk during the coming year, quarter or month at the market price. In total the marketing certificates issued would equal the quantity of milk which the administrative agency thought could be sold at an "acceptable" price. Certificates would be allocated to producers in proportion to their established bases, say at the rate of 95 percent, 98 percent or 102 percent of base depending upon conditions at the time.

Any milk delivered by a producer in excess of the quantity represented by his certificates would be subject to an assessment at a uniform rate per 100 pounds throughout the country. The assessment rate would be set at a level considered high enough to discourage excess production. It might be as much as a dollar or more a hundredweight.

Dealers who receive milk from producers would be required to deduct the assessment and pay it over to the administrative agency. The funds collected in this way would be used to cover costs of administration and to help offset losses on surpluses that had to be disposed of by the government. The prices that farmers receive for excess milk would be reduced by the amount of the assessment.

The committee recommended that the bases and certificates not be tied to the farms or to the cows but that farmers and others be allowed to buy and sell them without restriction. Presumably the bases and certificates would have substantial value. If the assessment rate were $1.00 a hundredweight, the privilege of selling 100 pounds of milk daily for one year at the base price instead of the excess price would be worth nearly $365. Certificates probably would be good for only one year but the bases might be given permanent status. In that case a daily base of one hundred-weight might be worth several times $365. Market prices for bases, especially in the early years, probably would be lower than the calculated value because of uncertainty about the future.

The Committee recommended that no attempt be made to reduce milk production below recent levels because this would be too difficult. They felt that it would be more practical to hold production about where it is while market demand increases along with population growth. In this way a gradual rise in dairy prices would be brought about. Quicker benefits to dairymen could be obtained by raising the level of dairy price supports while using the base-excess plan as a brake on production.

Another recommendation of the Committee was that the present national price program for dairy products, as well as the school lunch and other programs for expanding consumption of dairy products, be continued.

In recent years Uncle Sam has purchased huge quantities of butter, cheese and non-fat dry milk to prevent the farm price of milk from falling below specified minimums which dairy farmers consider too low to provide adequate incomes. Products thus acquired have been disposed of in non-commercial channels such as school lunches and in relief programs at home and abroad.

Annual surpluses disposed of in this way have been equivalent to about 2 percent to 8 percent of our total milk production in different years of the last decade. At higher support prices, the surpluses would of course be greater, especially so if no restraint on increased production such as the suggested base plan were used.

Dairy farmers naturally are reluctant to become involved in any program that has the appearance

These adult chickens are part of a research project now being conducted in the new poultry research building. The still unfinished research headquarters, located to the rear of Rice Hall, is to be used for research in poultry genetics, nutrition, physiology, and product development. The chickens above are being used in research on the preservation of semen for artificial insemination of poultry.

Richard Mandell

March, 1961
of limiting their traditional freedom to operate their businesses according to their own best judgment. The suggested base plan would limit the farmer's freedom only by requiring him to either own certificates equal to his production or to accept a reduced price for milk delivered without certificates. One important effect of the plan would be to increase the amount of investment required of dairy farmers. What dairy farmers are being asked to decide is whether they wish to accept this mild form of discipline in exchange for some improvement in dairy prices and incomes. By most standards, the incomes of dairy farmers are low—though perhaps not lower than the incomes of so many other important groups of farmers. Considering the requirements of the job, dairy farmers surely are not doing as well income-wise as industrial workers, business executives or professional people.

The outlook appears to be that milk supplies will continue to exceed the quantity that can be sold at satisfactory prices—unless the suggested base plan or some other effective method is used to help farmers gear their output to the needs of the market.

Fortunately dairy farmers have complete freedom to make the choice that lies before them. There is no indication that any organization or agency intends to push them into such a program unless they show a real desire to try it.

Freeing the World from Hunger

Richard Bradfield
Department of Agronomy

IN THE foreseeable future, if mankind is to be well fed, he will have to feed largely upon the products of the soil and of the sea. If this be true, the products of the soil will have to be greatly increased.

The amount of increase required will vary with the increase in population. If the population of the world were kept constant for the next 25 years, our job of producing enough food for all would not be too difficult. In many countries, however, the rate of increase of population is already greater than the rate of increase of food supply.

In such situations, consideration of ways of at least slowing down the rate of population increase would seem wise. However, agriculturists have had more experience and, in general, more success in increasing food production than population experts have had in population control. For this reason, we may have to carry a major part of the responsibility for a better-fed world for the next 25 years.

There are two principal ways of increasing the food supply of the world: first, to increase the area of land under cultivation and, second, to increase the yield of crops on the land that is now being farmed.

It has been estimated that there are about one billion acres of land in the humid tropics and approximately 300 million acres of podzolic soils in the north temperate region which can be brought under cultivation. Of these, the tropical area would seem to have the greatest potential. This area is blessed with abundant sunshine, a growing season of 12 months each year, and generally plenty of water.

These very conditions which are so favorable for year around plant growth have, however, in many areas depleted the supply of plant nutrients, and left a residual surface soil which is acid and with a great capacity for fixing and thus reducing the effectiveness of phosphate fertilizer when it is introduced in commercial form. The problems of management of these soils are great. Differences about their value among soil scientists are very great; but the potentials exist. The problem is largely that of finding solutions that are practical and economically feasible under prevailing conditions. This is one of the most important problems before the soil scientists of the world today.

In addition to the difficult technical problems, many very complicated human problems are also involved when farmers move from areas in which they have long experience into a new and strange environment. The potentialities for increased food production in the humid tropics are so great that all these problems must be solved. The surveys and basic research necessary as a foundation for developing economic systems of soil and crop management for these areas should be greatly expanded.

Let us now return to a consideration of possibilities for increased food production in the areas now under cultivation. For many obvious reasons, increased food production for the immediate future will probably have to come largely from such lands.

In most of the less developed countries, the primary food of the masses of the people is one or more of the cereals: rice, wheat, or corn. Such diets are commonly deficient in both protein and vitamins. The production of adequate amounts of fruits and vegetables to balance a cereal diet should not present many serious difficulties in most areas.

To provide the high quality protein needed is, however, a more serious problem. In the less developed countries, where these cereals have been growing under continuous culture without fertilizers for centuries, we find that their yields often fall to a level of about 8 to 12 bushels per acre in the case of corn and wheat and to 20 bushels in the case of rice.

The soils in these areas have simply become "burned out." But such soils are still capable of responding quickly and generously to good fertilizing treatment.

In countries with a limited number of soil scientists and a serious food problem, the work of the soil scientist should be focused primarily on the problems which seem to show great promise for increasing food production.

If we are to be free from hunger, each country will need men with goals like that of Lester Pfister, one of our leading hybrid seed corn producers. His ambition is to produce 200 bushels of corn per acre in 100 minutes of man labor. Such a farmer could produce enough in 5 minutes to feed one adult for one year! If each country which is short of food had a dozen such farmers to point the way, our goal would not seem so remote.

The above is an excerpt from the author's presidential address at the Seventh Congress of the International Society of Soil Science, held in August 1960 at Madison, Wisconsin.
Proud of its accomplishments but never resting on them!

EASTERN Continues to lead the way in '61

Eastern Milk Producers Cooperative is justly proud of what it's accomplished in 1960. Eastern led the fight... in raising support prices, in increasing school milk funds, and most important of all, in getting emergency price relief measures which eased the blow of falling prices to dairy men during the latter part of '60. These things and many more are a part of Eastern's record. But Eastern will never be found resting on its laurels. Eastern Milk Producers realizes the seriousness of challenges facing the dairy farmer in 1961. Great issues are brewing—issues like combined orders, revamped provisions and supply management, to mention a few. And as always, Eastern has already acted... working hard, first, and fast in behalf of the dairy farmer.

Eastern 
Milk Producers 
Cooperative Association 
Executive Offices: Kinne Rd., E. Syracuse, N. Y.

March, 1961
Soviets
Back Up Their
Farm Drive
With Massive
Propaganda

by R. Lyle Webster
Director of Information
U.S. Department of Agriculture

Reprinted from Foreign Agriculture

In the field of information, the Soviet Union supports its agricultural programs in much the same way as the United States does, but there are some big differences in content, approach, and intensity. Agricultural information as used by the Soviet Union is massive and all pervasive while in the United States it is selective and optional. Its purpose is to help achieve production goals in contrast to U.S. programs which are pointed toward the achievement of individual progress. And furthermore, it is all government-controlled. This means that the Soviet government does all the things that in the United States are done by the Department of Agriculture, the land-grant colleges, and all the private media, such as the farm magazines, the newspapers, radio, and television.

These are the major observations of the U.S. Agricultural Information Exchange Team that went to the Soviet Union this past summer to study methods used in that country to disseminate information on results of agricultural research. A Soviet exchange team visited the United States in the autumn of 1960 for a similar study.

In the intensive drive to meet the production goals of the Seven Year Plan—a plan designed to catch up with or surpass the United States—the Soviet Union relies on agricultural information for two principal purposes: first, to disseminate research results as widely and rapidly as possible; and second, to encourage harder work and greater efficiency through recognition, incentive, competition, and rewards.

It is significant that the Soviets do not rely on orders alone to bring about the adoption of new methods. They readily admit that orders are not enough; that there must be understanding, enthusiasm, and acceptance of their programs if the desired agricultural goals are to be achieved. So they supplement the orders with the saturated use of propaganda to bring...
about the greatest possible production by collective and farm workers.

Farm work groups and individuals are all engaged in constant competition. At the beginning of each year all farm workers take a "socialist obligation" to exceed their quotas or goals in the planned production; then they keep track during the year of how well they are meeting their obligation. In a dairy barn I saw detailed charts showing for each cow maid the amount of milk she obtained from the cows that she milked.

When a person does an outstanding job, he is recognized by having his photograph posted on the barn bulletin board, or perhaps in the nearby city.

He may be written up in the newspapers or mentioned on the radio. Sometimes the reward is a trip to the All-Union Exhibition in Moscow, the permanent exhibit of achievement of the Soviet economy.

Much of the responsibility for reaching the minds of the people rests with the Ministry of Culture, which has the task of producing educational and other motion pictures, for printing posters, agricultural books, textbooks, and the like. As members of an agricultural information team, we were most interested in the use of the various media.

Publications

The Russians publish a large number of professional journals and bulletins, leaflets, and brochures dealing with crops and animals. This takes place nationally in Moscow, and there is also extensive publishing in the 15 individual Republics which comprise the Soviet Union. In one office of the Ministry of Agriculture in Moscow, 34 separate agricultural journals are published. This is many more than are published in the U.S. Department of Agriculture, but it must be remembered that in the Soviet Union the government journals are all there are, while in the United States we have government periodicals but we also have a great variety of private farm magazines, agricultural journals of specialized kinds, and the like.

Press

Agriculture is an important topic in the newspapers in the Soviet Union, both nationally and locally. A daily newspaper called Rural Life is published in Moscow, with edi-
tions in seven other cities, and it is distributed all over the Soviet Union. This newspaper is concerned largely with agricultural production and with the problems of people on the farms. In the provincial newspapers we found that from 30 to 70 percent of the space—and prominent space at that—was devoted to agriculture either in the form of how-to-do-it information or exhortations to the farm people to greater production, or in write-ups of outstanding individuals who had done exceptional work.

Books and Libraries

There is a large outpouring of agricultural books of all kinds. In Moscow, the State Publishing House for Agricultural Literature, which is part of the Ministry of Culture, specializes principally in the publication of textbooks, while the Ministry of Agriculture deals more with periodicals and publications.

We found many libraries and book stores. We were told that there normally would be a book store in each raion center, which corresponds roughly to a county seat in the United States. Also, every collective and state farm we visited had a modest library, and it appeared from inspecting borrowers' cards that fairly good use was made of them. Libraries usually had farm periodicals and newspapers.

Radio and Television

Radio reaches all farmers, either through individual sets or through individual speakers which are placed in farm homes and over which programs are "piped" from local radio centers or "knots." These wired sets, of which there are some 29 million, do not give the listener a choice of programs, except, of course, the choice of not listening. The radio fare typically consists of material from Moscow, from the capital of the local Republic and from local sources. Where the local language is other than Russian, which is the case in many places, the programs are partly in the native language and partly in Russian.

While radio is universal, television is less widespread, but growing. There are sets available for group watching on many of the farms. Where television is operating, agricultural programs get high priority in time.

Films, Posters, Exhibitions

Visual media are used intensively. Posters appear everywhere to encourage agricultural production, to advertise lectures, new publications, and books. Educational agricultural motion pictures are produced in large numbers, and every collective and state farm we visited had facilities for showing both educational and entertainment motion pictures on regular schedules. The Soviets have carried the permanent exhibition technique to a high level, with the most outstanding example being the All-Union Exhibition in Moscow. There are smaller exhibitions in some of the Republics, notably Kiev in the Ukrainian Republic.

Research

The content of the tremendous information activity carried on in the Soviet Union flows from the intensive research programs under way in all parts of the Union. Research is carried on widely at institutes and experiment stations to develop new varieties of crops, new and improved breeds of livestock,
mechanization, and new methods of farm production. Once a new crop or breed has been tested, an official order is issued for either the whole country or the appropriate Republic or area. This order decrees the adoption of the new method or variety or breed, and the order sets forth, in great detail, what shall be done, when, and by whom.

To put research into practice as rapidly as possible, the Soviets use very large numbers of agricultural specialists. There are crop, livestock, engineering, and economic specialists in the Ministries of Agriculture, in the regional offices of agriculture within the Republics, in the raion or county offices, and even on the state and collective farms.

Agricultural educational institutions supply many of the needed specialists required to bring about increased production. A specialist in agriculture usually has 15 years of Russian schooling, as compared with the 16 years normally required for a college degree in the United States. Many specialists obtain their degrees through correspondence courses which are offered by the agricultural schools. One academy in Kiev reported 4,000 resident students in agriculture and 4,000 correspondence students. The correspondence courses require 6 years of study for a student to obtain a rating equivalent to a college degree.

There is a conscious effort to keep specialists, farm managers, and others in agriculture up to date on new developments. This is achieved through seminars, refresher courses in the winter, or one-day-a-week courses over a period of months. These are for specialists, farm managers, and even farm workers. We found an instance where 28 “cow maids,” the girls in charge of dairy cows on a number of collective and state farms, were taking a course which the Russians, with an almost Madison Avenue touch, had labeled “the Cow Maids’ University.”

Russian agricultural officials have rather complete access to the press, radio, and television. Agricultural material is used by these media essentially as prepared by the agriculturalists. In the United States, editors and broadcasters pick and choose or even ignore government material submitted to them, but this does not appear to be the situation in the Soviet Union. The reason, of course, is that radio, television, and press are not outside organizations which receive government information, but are in fact a part of the government. The head of the All-Union or national radio and television committee, for example, is a member of the Council of Ministers and, thus, he participates in all major government policy decisions. In the United States a comparable situation would exist if all radio and television stations were in one government organization and if the head of the organization were a member of the Cabinet.

The Russians have adapted their operations to the different languages in the various Republics. They allow the native language to be used in the press, radio, and publications, but they also circulate materials in the Russian language, use Russian on the radio and television as well as the native tongue, and require that Russian be a second language in the schools. As a result of this policy, most people who are concerned with the administration of agriculture understand the Russian language.

In assessing what all this information activity in the Soviet Union adds up to, we reached the conclusion that the Union is engaged in a tremendous effort to apply results of research to their agriculture. Russians are doing the same thing that we in the United States are doing. They are striving to develop and plant better seeds and to breed up their livestock for more efficient production, they are mechanizing their operations, and they are studying the economics of what they are doing. In the United States we say this is the way to farm better. Apparently the Russians believe us.

Mr. Webster was chairman of the U.S. Agricultural Information Exchange Team that spent a month in the Soviet Union in 1960.
You Wear Your Ego

The psychological effects of clothing on the individual have long been of interest to many. When a woman who is depressed buys a new hat she feels relieved and happy again. Why? Mrs. Mary S. Ryan, clothing psychologist, gives some of the answers.

The woman is supposed to be relieved of her depression by a new hat; the designer of ski clothes states that his skiing outfits make better skiers; in an advertisement we read that a child's self-confidence is developed by the proper selection of clothing."

Mrs. Mary S. Ryan of the textiles and clothing department bases much of her research on this philosophy. Mrs. Ryan has been in this field since 1948. She was the first person taken into the TC department from the field of psychology. To this day the Home Ec. College of Cornell University is still the only educational institution with a clothing psychologist.

During her time at Cornell, Mrs. Ryan has conducted many studies on all phases of clothing psychology. Her chief subjects at first were college girls. These studies, conducted several years ago, tried to establish the effect of clothing on these girls.

Color, texture, and type of clothing have their effect on everyone. Mood and action were found to range from gay and perky, to sophisticated, to self-conscious, to depressed, to glamorous.

Glamour is induced for many girls by taffeta satin, and other rich fabrics. It is also produced by low cut gowns.

Dressy fabrics also make some girls feel "feminine, dreamy, and graceful." One girl said, "My white net strapless formal makes me feel like a princess."

"Heels lead to almost a different vocabulary than loafers," said another girl who felt sophisticated in dressy clothes, dark clothes, and black. In contrast to this coed, another was "depressed" by dark wool and gabardine. One coed felt "rather drab" in brown and "uninteresting in skirts and sweaters worn on campus."

by Carole J. Wedner '61

A summer sheath of flowered print. This tailored dress with a slim skirt would make some women feel sophisticated and glamorous, others would feel conspicuous and awkward.

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Cornell Countryman
The mood most often created by clothes was gaiety. This was induced by red, bright colors, taffeta, and silk.

Many girls prefer slacks, old or informal clothes, and rough textures. These give some girls a feeling of poise, ease, and confidence. "When I wear tweed or rough woolens I feel free and easy-going," claimed one girl, and another coed expressed the same sentiments about blue jeans.

**Personality Types**

In one study the girls were first asked to give themselves a personality type and then to describe their favorite type of clothing. Those who described themselves as the "active, country girls" selected tailored or sports clothes and rejected with vigor frills and formal clothes.

Serious-minded girls prefer suits and simple lines and also reject frills and laces.

The conservative girl likes "casual sports clothes of conservative cut and soft colors."

**Feminine Frills**

In contrast to these girls the "feminine" girls prefer frills, lace, jewelry, and dislike tailored and sports clothes. Bright colors and "anything different" were preferred by those who called themselves "artistic."

A group of coeds were asked to describe two dresses in their wardrobes—one which they liked and in which they felt well dressed and one in which they never felt they looked their best. This was done for the effect of such clothes on the girls’ actions and feelings. Becomingness, color, and fit were most often cited as the reasons for wearing these garments.

**Simple But Elegant**

"The dress which I feel best in," said one coed, "is a changeable taffeta with a small figure. It is fairly tailored with a collar and buttons and unpressed pleats. The style makes it simple enough to wear anywhere and the rich material makes it dressy enough to wear anywhere."

---

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*The Rural New Yorker*

March, 1961
These girls were also asked to contrast two similar occasions where they felt there was a great contrast in their appearance. They were then asked if their mood or actions were affected by their appearance. Over 80 percent of the girls felt that there had been a difference.

**Results of Dressing Well**

"A girl who feels that it is important to look well because people will judge her on her looks," found Mrs. Ryan, "or because she will be accepted into the group because of her appearance, is more likely to be affected in her mood and actions than is the girl who wants to be well-dressed because she feels it is her responsibility to her date or to her family, or who wants to dress well for aesthetic reasons."

A casual sports outfit like this puts many girls at ease, makes them feel natural and poised.

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Those girls who felt well-dressed on specific occasions found themselves friendlier, extroverted, and more interesting, while they felt ill-at-ease, worried, nervous, and embarrassed when they did not feel well-dressed.

**Moods of Color**

There's a reason, expresses Mrs. Ryan, for the influence of different clothing types. "A particular color or texture probably influences the mood of an individual because it has become associated in the past with that mood, or with some individual, object, or event suggesting it." Black is a good example of this. It made most girls feel older and more sophisticated. Perhaps this is because they have "seen older and sophisticated women wearing black and have seen black used in magazine illustrations for that type of woman."

"The reason clothing is important is because someone sees it," says Mrs. Ryan. "There is never a point where you don't find a relationship between clothing and humans. After all, each situation, contains interacting humans and they're dressed."
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Dairy Marketing and the College of Agriculture

A College of Agriculture alumnus explains the relationship between the College and New York State's most important agricultural industry.

PRODUCTION and marketing of milk continues to be the most important single agricultural industry in New York State. Perhaps no other single industry is so vital to the economic health of the state.

In recognition of this fact, several years ago both the State of New York and the Federal government enacted legislation to regulate certain economic aspects of milk marketing. Based on this legislation are the milk marketing orders.

The College's Role

Since 1942 the writer has been the administrator of the orders for the Metropolitan New York City area. In 1957 this regulation was extended to cover a large part of Northern New Jersey and much of upstate New York. Throughout this time, representatives of the New York State College of Agriculture made an invaluable contribution to the development of the regulatory program.

The administrator, the assistant administrator, and several members of the administrator's staff have had either undergraduate or graduate training at the College of Agriculture. At most public hearings involving the marketing orders some member of the teaching and research staff at the College of Agriculture has appeared as an expert witness. Many of the major provisions of the market order regulation have been developed by persons associated with the College.

In addition, the four major cooperative groups of dairy farmers, who are charged under the order regulations with the responsibility of representing the interests of all dairy farmers in the milkshed, have relied heavily on the College of Agriculture for trained personnel. They also frequently seek the advice of College personnel in the development and presentation of their marketing programs.

Several graduates of the College also hold responsible positions with the State and Federal agencies charged with the supervision of the milk marketing orders.

Several persons in the dairy industry some years ago recognized the important contribution of the College of Agriculture in the dairy marketing field, establishing the Dairy Marketing Research Fund. Part of that fund has been set aside to endow a scholarship grant each year to an advanced student in the College who has shown an interest in some phase of dairy marketing.

Several past recipients of this scholarship grant have graduated from the College of Agriculture and are now working in the field of dairy marketing.

Marketing Research

At the present time also, research projects are being cooperatively sponsored by the Market Administrator and the Department of Agricultural Economics. In addition, a research project to determine the specific gravity of milk and milk products is being sponsored with the Department of Dairy and Food Science.

Four employees of the Market Administrator's office are doing research work at the College of Agriculture in preparation for graduate degrees. These persons in addition to receiving valuable training are each conducting research on problems related to the marketing of milk.

The results of this research become available not only for use in establishing better marketing systems and regulatory programs, but for the teaching of dairy marketing at the College.

Teaching Dairy Marketing

It is through the teaching of dairy marketing that most undergraduate students come in contact with the economics of dairy marketing. Here, every student in the College of Agriculture has an opportunity to learn about the marketing system for milk in New York. This can be of great value to him. If he becomes a dairy farmer he can use this information in his own business. Of even greater importance, however, is this knowledge as he assumes responsibility for action and eventual leadership in his cooperative organization. If he enters agricultural business, it is a necessity that he know the marketing system for milk. If he enters vocational agriculture teaching or Extension Service work he will be prepared to work with dairy farmers and dairy farm organization leaders. Any person who intends to be associated with New York State agriculture will find knowledge of the marketing of milk most helpful in the pursuit of his work.

Tribute to Spencer

Any review of dairy marketing at the College of Agriculture would not be complete without recognition of the contribution made by Dr. Leland Spencer, Professor of Dairy Marketing. For more than thirty years he has taught, advised, and directed more students of dairy marketing than any other person.

New York State, with its economic dependence on the production and marketing of milk and dairy products has been fortunate to have had at the College of Agriculture a continuing program of research and teaching in the field of Dairy Marketing. It has been doubly fortunate to have the program under the guidance and direction of so able a person as Dr. Leland Spencer.
CORNELLIANS
RECALL B. A.

Retire? Well, yes, it's true that I am finishing 31 rebellious years at Cornell,” rumbled Professor Bristow Adams, as he fished in his pocket for a match to light his cigar for the seventh time. “In '43, when I was supposed to retire, I felt reluctant to leave—now, I'm sort of anxious to get on with my painting, to see if I'm any good.”

Professor Adams, commonly called “B.A.” by his friends, showed a marked artistic ability in high school, even though writing later became his outstanding field. Upon graduation he studied at the Spring Garden Institute in Philadelphia and Corcoran Art School in Washington. He later enrolled at Stanford University and graduated in 1900. While at Stanford, he ran track. He had a mustache which made him look like Robert Louis Stevenson, and at track meets the people in the stands would yell, “Go Gramps, We're betting on you!”

"B.A." had a definite flair for writing even before he went to Stanford and was one of the co-founders of the Pathfinder, a weekly news review, at age 17.

Besides being editor of the Stanford literary magazine and managing editor of the daily newspaper, he later founded the Stanford Chaparral, the first college comic in the west. Once, he wrote an article which concerned several school officials. Some friends of Luella Farmer, later Mrs. Adams, ran up to her and cried, "Oh Luella, they are going to expel Bristow!" Luella said in a casual manner, "Oh no they won't. If anybody knows what the people want, it will be Bristow." He didn't get expelled.

After graduating, he became a free-lance writer and illustrator. In 1902, he returned to Washington, D.C., helped form a publishing company, and edited the American Spectator. He then became the associate editor of Forestry and Irrigation, which brought him into association with the United States Department of Agriculture Forest Service.

In 1914, according to Mrs. Adams, he was traveling around the West with the Forestry Service when a telegram four weeks old caught up with him. The message had been forwarded so much from one place...
to another that there were $8 charges on it. "I felt that no telegram four weeks old was worth $8 to me, so I refused it," said "B.A."

He later discovered that the wire was from Cornell offering him the post of publication and information director in the College of Agriculture. He still had time to accept, and "I have never regretted it," Professor Adams said.

To him, the purpose of the extension bulletins and the use of the press was a way to acquaint farmers with scientific research in an understandable form. Professor Adams believed that simple English was a must when acquainting farmers with a scientific discovery.

One of Bristow Adams' first contributions to the profession was to establish the agricultural editor as a "service man." At the American Association of Agricultural College Editors in Wisconsin in 1915, he said, "The best form of publicity in connection with extension work is that which is furthest from the generally accepted use of that word. Truth which will aid the reader carries its own validity."

He always insisted on news as opposed to publicity. To him, real news was a service to the paper, as well as to the reader, and he would not tolerate what he called "puff stuff."

Professor Adams was one of the first college editors to see value in training schools. For years, he conducted numerous training schools for home demonstration and other groups. He collaborated with weekly newspaper editors in the surrounding areas in countless news writing sessions which he conducted in his humorous and interesting way. "B.A." was once asked if these meetings did any good and he replied, "Well, for a while at least they wrote on only one side of the paper."

By traveling extensively, he observed agricultural practices in many countries, and through numerous speeches he shared these experiences with audiences throughout New York State. "I could listen to you all night long," one man told him after a dinner meeting. The subject, a 12-course dinner served on a tramp steamer, "B.A.'s" favorite means of travel.

In spite of his busy life, Adams found time to give two or three commencement speeches a month. He says, "I still can't fathom how I ever became a commencement speaker, as I played hookey in school on declamation day, flunked a course in forensics at Stanford, and never gave a public talk until I was 40."

For over 18 years, he had a weekly broadcast, "Let's Read a Book," on the Cornell radio station. An Ithaca resident once commented, "Missing B.A. on Saturday would be like missing my breakfast."

Being only human, "B.A." had a tendency to "put things off" till the last minute. One of his co-workers recalls staying up all night to prepare for a meeting on campus. They had breakfast at a bennery at five a.m., and were in time for the opening session at nine.

He was quite interested in extra-curricular activities, and he was a member of the Board of Directors for the Cornell Daily Sun, an unofficial advisor of the Cornell Countryman, and a member of the Board of Managers of Willard Straight Hall.

For 25 years, he was faculty advisor for track athletics. Robert J. Kane, Director of Athletics, commented, "... A head referee of Cornell track meets for over 30 years, he was a suave and elegant trademark in his indoor costume of top hat and tails, and the outdoor uniform of snowwhite flannels, Panama hat, and navy blue sport coat — impeccable always."

Best known on the Cornell campus for their Monday night openhouse for students, Professor Adams and his wife felt that students needed a place where they might hold informal discussions. Over the fireplace in the Adams' home is the inscription, "The time has come, the Walrus said, to talk of many things."

In 1939, when Adams was 64, he said, "I have no desire to retire; I am not looking forward to it. I enjoy the work with the students."

Even after his retirement in 1945, he was a member of the administrative committee of the Cornell Plantations and editor of its quarterly publication.

Upon his death on November 19, 1957, at age 82, President Deane W. Malott of Cornell University said, "Bristow Adams was one of those commanding figures whose presence helps create the stature of a great university... "B. A." was always approachable, especially by the students he so loved and respected; he was always articulate in behalf of his adopted alma mater; the passage of years never hindered his heartwarming youthfulness."

"It can never be commonplace to say of Bristow Adams that he will be remembered."
The forty-seventh annual "Little International," sponsored by the Cornell Round-Up Club will be held on April 29, 1961, in the Judging Pavilion. Showing will begin at 12:00 noon in all classes of livestock — Beef, Dairy, Sheep, and Swine. Students of Cornell will compete for over $200 in prizes and awards. All interested are cordially invited to attend.

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The "Super" in Our Supermarkets

SUPER-human effort by food distributors and processors has moved a SUPER abundance of commodities through our marketing channels.

by Len Kallerges, Grad '61

Take a short walk through a supermarket... any supermarket. There, you might find ham from Holland, lettuce from California, steak from Kansas, oranges from Florida, and apples, eggs, milk, and canned peas from New York.

To do this gigantic job of assembling and retailing takes the concerted efforts of millions of workers in food processing and distribution. Their function is vital. They are dealing with products for which the average family spends a quarter of its budget totaling over $50 billion yearly.

Efficient Food Stores

"The efficient operation of food stores," says professor of marketing Dr. Wendell Earle, "affects the lives of everyone, including consumers, wholesalers, processors, and producers." Efficient food store operation helps consumers by providing the products and services they want in a convenient form, at low cost.

Producers benefit through lowered distribution costs, and larger markets. Retailers, processors, and wholesalers benefit through adequate returns on their investment and labor.

Efficient food stores and the intricate channels that bring food from producers to consumers are also being studied at Cornell. In recent years, Dr. Earle reports, Cornell has put more and more emphasis on the retail part of marketing.

For example, one of the problems now being worked out at Cornell is the development and promotion of the "Bird Dog," a product similar to a hot dog, but made from poultry meat. The developers of the "Bird Dog," Professors R.C. Baker and L.B. Darrah, say that "This product will, in addition to increasing the variety of poultry meat products available to the consumer, also increase the alternative use of poultry products."

Another interesting development is a new type of apple crate that will be packed in the field and be immediately adaptable for retail store display. Its designer, Professor Max E. Brunk, explains that "This would result in lower handling and packaging costs by the grower. In addition, the retailer would benefit by decreasing the labor necessary to prepare the apples for display."

New York State is the nation's second largest apple producer, and the nation's most populated state. A major change in the marketing efficiency of apples is of great concern to the state's apple producers.

Management practices in food distribution are also of concern to the industry. A recent nation-wide survey by Professors Wendell Earle and Neal M. Gold shows that although 95 percent of the retail food concerns believe management development is necessary, only one-fourth have established programs to train new managers.

Food Distribution Program

Cornell recognizes the need for trained personnel in 1958 when it set up the Food Distribution Program under Professor Wendell Earle. He says "The need of the food industry for well trained men with ability and vision continues to increase faster than ever before."

By offering college training in the food distribution area to undergraduate and graduate students, and special students, Cornell hopes to narrow the gap between the available supply of trained men and the needs of the industry.

Extension Program

Another step towards increased marketing efficiency is the establishment of an extension program in food distribution under Professor Leland E. Ott. Its purpose is to provide current information on the latest research findings and managerial practices for food chains, wholesalers, and independent supermarkets. The U.S. Department of Agriculture has this to say about "Extension" work in food distribution. "Extension has long worked with wholesale and retail food firms. The objectives of this work have included the following: better maintenance in quality of agricultural products, increased operational efficiency of marketing firms, improved marketing practices of farmers, and the development and expansion of the market for agricultural products.

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Home Demonstration-253 M.V.R.
Agriculture-212 Roberts Hall
4-H Club-242 Roberts Hall

March, 1961
The Thankful Heart

FULL of pride are we in our abounding crops. We are almost boastful that we can produce so great quantity, and that the nation can inventory so much wealth thereby. It is good to see the granaries full, the bins bursting, the storehouses laden and the barns packed to the beams. We read the figures with much satisfaction. We attain to mastery and we express our power. It is our high ambition to make every new year more productive than the old.

Yet, in the end, that people will conquer and that industry will survive that puts the most art and feeling into its efforts and its products, and the mechanical quantity-production, no matter how honest and “efficient”, will fall into subordinate place. The quality of the product is verily more important than its quantity, because it expresses the soul of the producer; and even in a commercial age, the spirit will hold the leadership. To be keen in the appreciation of the beauty in the product is to exercise the highest privilege of any craftsman, whether farmer or artisan; and if one sees the beauty, one perforce is thankful.

To be thankful for the products of the year, therefore, is not merely a courteous and pious demeanor: it is a necessary result of satisfactory living. In these bountiful days we do not need to return thanks because we have not starved; we need to be thankful that we have known the joy of the earth and that we have seen the miracles come out of it, that we have been filled with the beauty. Let us, then, in due decorum appraise the beauty in an apple, the perfection in an animal, the harmony in the products of the land. We cannot do less than this. We may wish that all men shall similarly be blessed. Our hearts may be full of thanksgiving and prayer.

Liberty Hyde Bailey.
Editorial

Eastman Stagers' Golden Year

In this special Ag Progress Days edition we have explored some of the "Great Issues in Agriculture." These issues may be new in this generation but problems of some kind have always existed in agriculture.

Agricultural issues, or the demands they put on the people facing them, were part of the cause for an institution that was born in the early days of Farmers' Week, lived through Farm and Home Week, and is celebrating its Golden Anniversary this year during Cornell's Agricultural Progress Days.

The institution is the Eastman Stage in Public Speaking.

Prof. G. Eric Peabody has been associated with the Stage since its beginning. He explains that the namesake, Waterville, New York banker A. R. Eastman, first became interested in such a public speaking contest while attending a meeting of eastern New York hops growers in the early 1900's.

After the meeting, Mr. Eastman expressed concern to Dean Liberty Hyde Bailey with the unwillingness of many farmers at this meeting to speak publicly. They certainly had something important to say, but seemed to lack confidence. Eastman was especially concerned with seeing this trait in ag college students.

Mr. Eastman was familiar with the "Agricultural Stage," a small speaking contest held during Farmers' Week. He felt that a public speaking event like this could inspire ag students to develop confidence and leadership qualities. In 1910 Eastman donated money for prizes in the form of Liberty Bonds. The late V. J. Frost, '10, won the first prize in the first Eastman Stage on February 11, 1910.

A public speaking stage, felt Mr. A. R. Eastman, would give confidence and leadership qualities to participants. To test the results, questionnaires were sent this year to 250 past "Eastman Stagers." Professor Peabody, a past "Stager" himself, says the returns show Eastman "alums" in top positions, in all walks of life, from all over the country.

The goals of the Eastman Stage—confidence and leadership—were never more needed than they are today. We salute the Eastman Stagers in their Golden Year.

Farewells, Accolades and Announcements

The March issue is the last one for this writer. For their time and effort in putting out the magazine, I want to thank the most important part of the editorial "we" — the staff; the guidance behind the "we" — the Board of Directors; and the reason for the "we" — the readers.

I am looking forward to seeing the work of the newly elected editors and managers: Editor-in-chief, Jane Brody, '62; Managing Editor, Ernest Smith, '64; Associate Editors, Jane Doyle, '62, and Linda Goldreich, '64; Circulation Manager, Ralph Schoemann, '63; Home EC Editor, Hillary Brown, '63; Photography Editor, Richard Mandell, '64; Secretary, Suzy Gubin, '63; Ag-Dom Representative, W. Stephen Middaugh, '62; and Zilch, '00.

The Countryman takes great pleasure in announcing the winners of the Paul H. Gulden Memorial awards for the fall term: First prize, Robert Gambino, '61; second prize, Gerald Kral, '62; and third prize, Edward Razinsky, '61. The honorable mentions were: Jane Brody and Jane Doyle, both '62; and Linda Goldreich, '64.

Fraternities! Sororities!

Planning a banquet or picnic?

We furnish salads and baked goods of all types.

HOME DAIRY BAKERY AND CAFETERIA

143 E. STATE STREET ITHACA 2-2459

March, 1961
From the College Press

- WINTER OAT RESEARCH — Prof. E. J. Kinbacher is working on two projects which promise to speed up research and hasten the development of a winter oat suitable for growth in New York State.

- GREENHOUSE AND NURSERY CROP BUSINESS—at least one group of agricultural products has no surplus, says Prof. John Seeley. The products: trees, shrubs, and all types of garden plants.

- THAILAND STUDY — Evidence gathered in a College of Home Economics study in Bang Chan, Thailand, may point the way toward better health for future generations of rural Thai.

- CELLS HELP INSECT RESISTANCE — New knowledge of the ways insects adapt to phosphate insecticides has been uncovered by Prof. Robert Patton. His discovery may lead to improved insect control.

- TURKEYS — Many turkeys aren't being well enough fed, Prof. Milton Scott said in a speech at the British Turkey Federation meeting in Harrogate, England.

- STRAWBERRY DISEASE — Summer wilt has caused such a high death rate to plants in some strawberry areas that Cornell researchers teamed up to find a cure. Their findings to date: certain strawberry varieties are more resistant than others.

- EXHIBIT IN EGYPT — An exhibit built for Cornell's 1960 Farm and Home Week has been selected for presentation at the International Agricultural Exhibition in Cairo.

- CRICKET RESEARCH — In an effort to find out how men will react to life without day and night, graduate student Joseph Nowosielski has been exposing crickets to varying periods of light and darkness. The crickets continue day and night activities even when they're exposed to continuous artificial light.

- NEW EGG CARTON — If a three-month market test now being conducted in Syracuse supermarkets pays off, consumers will soon be able to buy their eggs in an all-new carton, which keeps eggs cleaner and fresher than ever.

For further information on any of the above items write to the Cornell Countryman.
THE DAIRYMEN'S LEAGUE...

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The members of this oldest and largest milkshed cooperative are proud to join with their milkshed neighbors in applauding the New York State College of Agriculture for its salute to an advancing agriculture in this Progress Days celebration.

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BUZZZ Is Not All They Say
We’re Going Against the National Trend
... and We’re Proud of It!

The number of students in agricultural colleges across the nation has been declining—but not in the New York State College of Agriculture at Cornell University which has the second highest enrollment of any agricultural college in the Nation. Undergraduate enrollment increased again this year—to 1630. In addition, the College has 750 graduate students from all parts of the world.

Approximately one out of five Cornell students (20 percent) is enrolled in the College of Agriculture. Compare this with the national figure—only three percent of all students in U. S. colleges and universities are in agriculture.

Why? The College of Agriculture at Cornell has kept up-to-date with the fast changing times. It offers students extraordinary opportunities for a liberal university education with more than 50 diverse areas for specialization within the range of modern agriculture. A word of appreciation is due alumni and high school counselors for their interest in recruiting highly qualified students.

New York State College of Agriculture,
a Unit of the State University
at Cornell University
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All Students Are Created Equal

For some reason not understood by anyone familiar with the Colleges of Agriculture and Home Economics, “aggies” and “home eccies” are often looked down upon by those of the Lower Campus.

Those who know the Colleges—who know of the faculty’s high caliber, of the administration’s personal attention to every student, of the excellent varied yet specialized education the student receives—find such an attitude unjustifiable. And, indeed, it is. But nevertheless, this attitude exists. On the ladder of social prestige, the Upper Campus’ rung is, rather paradoxically, below that of the Lower Campus.

The question now is why. If not founded upon any existing inferiority, then where does the explanation lie? Strangely enough, it lies within the Upper Campus student himself, not in his abilities or achievements or lack of them, but in his own attitude. He is too often on the defensive, too often attempting in vain to refute the mocking criticisms of his so-called “superiors.” And even worse, he frequently takes no defense at all, and thereby reinforces his assailant’s opinions.

Few students enter these Colleges with a feeling of inferiority. More often it is generated during the freshman orientation period or at some time early in the student’s college career, at a time when he knows little about the college he attends and therefore can offer little in its defense.

There is but one way to remedy this situation. A positive attitude must be created in the mind of the incoming freshman before his arrival on campus. This attitude must be founded upon an understanding and knowledge of the college he will attend. Give him some facts with which to answer his critics. Let him reply “Why, I’m surprised to hear you say that. My college is this and has that…” rather than “Lay off it. You’re talking through your hat.” Let his reply be a rebuttal, not a defense.

How can someone gain an understanding and knowledge of an institution he has seen but once in his life, if at all? A difficult task, I must admit, but not an impossible one. It means reaching the incoming student during the summer, either by mail or personal contact or both.

One suggestion for achieving this is already being executed. The Countryman is planning a summer issue designed especially for the incoming freshman. It will in part replace the “Guide to Upper Campus Activities” but it will go far beyond the activities level. It will incorporate all facets of Upper Campus life and its relationship to Cornell University as a whole. It will be for the students by the students, a direct communication of personal experience as well as factual information. It will attempt to describe an Upper Campus education in its entirety, what the Colleges do to give it and what the student must do to get it.

Another suggestion is a pre-school contact program which, by the way, would be a worthwhile project for Ag-Dom. This program involves gathering a large group of interested students who will be able to meet one or more Upper Campus freshman before his entrance in the fall. An orientation meeting for the group may be held in May, when most acceptances are in, to explain the program’s objectives. Further arrangements can be made in order to reach those accepted during the summer. And for the few who cannot be contacted personally, a letter is a reasonable substitute.

This plan is similar to Raven and Serpent’s Junior Grandmother-Granddaughter program. The latter’s limited success is attributable to its ill-defined objectives and lack of orientation. Both of these failings are easily overcome and avoided by the suggested plan.

I am sure there are other means of improving the Upper Campus student’s attitude toward his own situation. All suggestions are welcome and you are encouraged to offer them. Letters may be addressed to the Cornell Countryman, 490 Roberts Hall. Let us attack this unfounded and unreasonable attitude at its roots and erase it once and for all.

J.E.B.

gracious dining
over the
lake

CATERING TO
PARTIES AND BANQUETS

Taughannock Farms Inn
Taughannock State Park
Ithaca 4-0010
Where the discrete meet
Kissed
In The Midst
by Zilch

ODE TO SPRING:
Spring is sprung, the grass is riz;
I wonder where the birdies is.
With this little note of pastoral pleasure, Zilch once
more comes bounding over the fields of green, to
spread joy and cheer to all those who read his sage
and kindly words. It is obvious that Spring is well on
its way to taking over the happy hamlet of Ithaca
for the Zilchian signs of Spring are becoming more
and more numerous.

For instance, as the calendar wends its way sum-
mer-ward, have you noticed that coeds are beginning
to look more like female people and less like grizzly
bears. One friend of Zilch likens this phenomenon to
the emergence of a butterfly from its wintry chrysalis.
Zilch has also noted that Profs are beginning to smile
again, robins are courting, and SILO members are
hunting up the salamanders for their annual feast.

Theoretically, in Spring a young man's fancy
lightly turns to thoughts of the opposite sex. Apparent-
ly this Spring is no different from any other. Some
industrious Aggie has racked his brain to come up
with a new tradition and, by George, he's done it.
Zilch has observed that starry-eyed look in several
sneaker-clad lovelies coming from Mann Libe by way
of the "foot bridge." It seems as though the big deal
now is to be kissed in the mist of Triphammer Falls.
I imagine this inferno being kissed in the midst of the
mist. But what if he missed the Miss? Kissed on the
wrist? Ah, bliss! Of course, this could go on for hours,
but Zilch will curtail it for now and let some other
clever wag think up new parodies.

This brand new type tradition admittedly brings
up some problems not normally encountered. Coeds
and/or guys who wear glasses and/or contact lenses
will be at a disadvantage without windshield wipers.
The fluctuation of water flow over the Falls is such
that at times one may stand directly under the dam
and still not receive the invigorating spray. Such a
revolting development may remove the spirit of ad-
vventure from the whole project. Then, too, that spray
does a good job of taking the starch out of one's collar
and those who like their collars well-starched will, no
doubt, shy away from the whole proposition. Needless
to say, Zilch is available to fill the role of the im-
petuous male and is at the beck and call of any
desirable coed.

Zilch came across one interesting piece of noth-
ingness amongst the Countryman's many press re-
leases. It seems a Prof in the poultry department has
decided that most of the turkeys aren't very well
nourished leaving them scrappy and unfinished. Zilch
would like to contest this statement by saying that
most of the turkeys he has seen in Mann Libe during
study breaks look pretty well fed and definitely not
scrawny. To this, at least one coed will reply
"feathers."

Someone has finally managed to beat Zilch to the
punch at making a nasty dig at our beloved ex-editor.
It seems that the odioriferous habits of the aforemen-
tioned clod managed to reach the ear of a well known
deodorant company, and naturally they sent him a
free sample. This only goes to prove that oft-quoted
expression, "Even your best friends won't tell you..." but
strangers will.

Oops, I tink I tee an ex-editor a-tweeping up on
me. Bye kiddies.

LITTLE MAN ON CAMPUS

crystal, stainless
silver, china, teak...
in home accessories
of good design at

Contemporary Trends
115 North Aurora St.
Rainmakers
In Research

What happens to rain and the soil it hits is important in agriculture and conservation. To quantify the relation of rain to soil, researchers are applying artificial rainfall to laboratory soil samples.

by Elizabeth Pomada '62

TO MANY, rain is just another form of water. But to George R. Free, project leader of the U.S. Department of Agriculture and Associate Professor at the New York State College of Agriculture, rain has many different forms—from fast, heavy summer thunderstorms to gentle, light April showers.

Prof. Free has always been concerned with the run-off of natural rainfall and the erosion of soil. "Various types of rain have different effects on soil," states Prof. Free. When agronomists and conservationists consider rainfall in terms of the soil it hits, they want a formula or equation to predict how much water the soil will retain.

With rainfall data from all over the country, particularly from New York State experimental stations at Arnot, Geneva, and Marcellus, and with the aid of Purdue University researchers, Prof. Free is attempting to find such a formula. Machine-made rain has been applied to standard soil samples in the laboratory to extend the formula's use to other soils.

Precipitation Pounds the Premises

Soils may be melted completely by falling rain or they may resist a rainfall's energy. A crust may form on soil depending on its resistance to the action of rainfall: its water stability. This occurs most often when the soil lacks vegetation.

Protecting the soil from the impact of raindrops is important. This can be done with crops or mulch which, incidentally, will also help maintain the soil's ability to hold water. "You can't put too much emphasis on what occurs on the soil's surface — that's where the water makes up its mind: whether it will run off or go in," says Prof. Free. A crust is a partial seal of the surface which increases the amount of runoff.

A rainfall's energy, and therefore, its bad effects, are directly proportional to the rain's drop size, intensity, and amount.
Energy falls from above

On a bare soil surface, an inch of rain falling in ten hours on one acre of land has enough energy to move about 390 standard size cars ten feet. A more powerful thunderstorm, with an inch of rain falling in twelve minutes on one acre, could do the same to about 770 automobiles, Prof. Free reports. And because the intense, large-dropped thunderstorm of summer also falls faster than a light spring shower, the thunderstorm is really 100 times more powerful. Drop size is particularly important because a rain's actual energy depends on the raindrop's weight and velocity.

Although much information on the energy of rainfall has already been collected through actual field observation, Cornell scientists are simulating rain on soil in controlled laboratory experiments. They're trying to find out exactly what rain does to the soil on which it lands.

Actually, Cornell's "rainmakers" might better be called "rain-simulators". One laboratory gadget used in gathering their data consists of pans of soil rotating under an eight foot high nozzle which sprinkles "rain". By this means, different soils may be compared.

Drop size, intensity, and amount of "rainfall" may be alternated and controlled with a second setup. This consists of a 30 foot high pan from which is suspended hypodermic-like needles at variable angles. With it, the maximum terminal velocity of a natural rainfall may be obtained in the laboratory.

Erosion by raindrops

The researchers are also studying the erosion tendencies of natural rain on field plots under controlled conditions. There is a close correlation, they find, between a rainfall's amount of energy and its highest intensity and the erosion which results from it.

Movement of soil by the impact of raindrops is a very old phenomenon which has left marks everywhere without attracting much attention. The marks, ranging from sand on freshly picked spinach to actual downslope movement of soil in the fields, have been observed or studied by many. Prof. Free is now working on what actually happens in making the marks and what is the effect of the raindrop's impact.

Perhaps the data he collects will produce the magic formula needed to predict rain's damaging effects on soil. The next step will be to condition the soil through proper management in preparation for rain, Cornell's "rainmakers" may give farmers and conservationists the formula they seek.

A dense crust formed on this pan of soil after exposure to natural rainfall.
HOME ECONOMISTS are greatly needed in Israel today, reveals Nureth Rosen. She is one of four Israeli graduate students at Cornell studying in this field. These girls plan to earn their Master's degrees in two years and then return to Israel to establish a home economics college.

Nureth's companions, Rachel Avishar, Billa Zamir and Ruth Melchoir competed with other Israeli students in rigorous exams and interviews to study in the United States. They are here on Point 4 International Cooperation Association scholarships. This program, supported by the U.S. government, gives scholarships to students of many countries for study in America. The grant is accompanied by an allowance for books and living expenses.

Final decisions on the recipients of the awards are made by a committee in Israel consisting of I.C.A. representatives and members of the Ag office and the government.

Each of the four girls chosen is studying in a different Home Ec department—Ruth is majoring in Food and Nutrition, Rachel in Child Development and Family Relationships, Billa in Home Economics and Management, and Nureth in Textiles and Clothing, and Housing and Design. These are the only courses the girls are taking, except for two who are enrolled in English classes.

A diverse curriculum planned

At the new Israeli university, each girl will instruct in her field of specialization. The school will be an extension of the Agricultural College at the Weissman Institute in Rechoval.

Thirty girls are expected to enroll in the school. The first term will be spent at the University of Jerusalem. Here they will take courses in the humanities and sciences. Then off to Rechoval for the Home Economics courses.

Graduation is in three years with a B.S. degree in Home Economics.

"As there are no 4-H clubs, few high school courses, and no academic degrees in Home Ec, the new institution must introduce this practical science to girls who have had no previous experience," explains Nureth in perfect English. Her speech, incidently, results from studying the English language since the fifth grade, a requirement of every Israeli student.

Establishment of a school is necessary to meet the growing demand for Home Economists. This need arises from the hundreds of immigrants who flock to Israel yearly, many of whom are illiterate. Countries with a literate population, like Poland and Russia, will not give visas to Jews or allow them out of the country.

"Some people arrived from Morocco, where they lived in caves, ate raw plants from the ground, were ignorant of any nutritional standards, and used primitive farm-
ing methods. How can Israel progress while there are people within her borders who are ignorant of the basic necessities of life?"

Extension workers are needed to teach these people modern ways of living. This is one of the objectives of the Home Ec college. It will be difficult to communicate with the people for they speak many different languages. Usually the only Hebrew they learn is from their children who attend school, unless night classes are formed to instruct the parents.

As the people arrive in Israel, they are placed in small villages and are expected to carry on their trades. If they are unskilled, it will be the job of the Home Economist to help them acquire a skill and teach them to live intelligently in a modern community.

The other fields of study at the school will be preparing girls to enter nursing careers, teaching in the high schools, and working at the University to carry on the work of its founders.

Training at Cornell

These founders are enjoying their stay in the United States. Upon their arrival here, the girls went to Washington which was “so hot” they couldn’t imagine “how tourists can complain about our weather.” After many meetings in the Capitol and a glimpse at the monuments, they traveled to Ithaca to face “the coldest weather in the world.”

At Cornell the girls’ majors are closely related to those courses they studied in college in Israel. This makes comprehension of the work here easier. Sociology and psychology are being applied to Child Development, biology to Food and Nutrition, economics to Home Economics and Management, and architecture to Housing and Design.

The girls feel that with their training at Cornell, they will be able to return to Israel in two years and establish an outstanding school of Home Economics.
BEEs have a unique means of communication. Researchers find that the queen bee secretes hormones which convey messages to the entire bee colony.

The queen is at all times surrounded by a circle of worker bees. Each worker "licks" the queen and occasionally seems to take something from her mouth.

Some time ago, Dr. Butler, in England, decided to investigate the queen bee to see what causes the workers to cluster around her. He discovered there were certain biologically active materials, or "social hormones", secreted by the queen which the workers needed. When the queen was taken from her colony, the workers attempted to restore order by producing queen cells. These cells sometimes developed into another queen and the colony returned to normal.

Bee surgery

What Dr. Butler did not know, however, was whether the effect on the colony was due to the queen's removal, or to the removal of the substances she produced. The only way to answer this question was to remove only the substance and leave the queen in her colony.

Professor Roger A. Morse of the Cornell Entomology Department, and Research Associate Norman E. Gary successfully removed the gland from a living queen bee using a technique called micro-surgery. It is this method that has enabled Cornell's apiculturists to see how the social order of a colony is affected when a live queen minus her mandibular gland is present. Their findings will help determine what holds a colony of about 75,000 members together with the queen bee as the center of attraction.

The operation to remove the mandibular gland is a simple one. The queen bee, once taken from her colony, is anesthetized with carbon dioxide gas. The sleeping bee is placed on her side on a wax-covered plate. A paper collar is fitted around her neck to hold her in place. A "v" shaped incision is made through the cuticular wall of the bee's cheek and the flap of cuticle is folded back. The gland, the size of a pin head, is then removed with delicate forceps. The cuticle is replaced and the operation completed—no bandages needed! In fact, the survival rate of queens operated on in this way has been quite high.

The queen is then replaced in her original colony. Now some interesting things happen. First of all, queen cells produced by worker bees start to develop into new queens to replace the one which was operated upon. This process normally occurs when a queen is very old, too old to produce enough social hormones.

Ovaries may develop in workers

A second effect of gland removal in the queen is the development of ovaries in workers. Normally, a worker is a female who has suffered a nutritional deficiency and does not develop into a sexually mature female bee. When the queen bee no longer has her mandibular gland, perhaps ovaries develop in the worker bees.

Finally, Dr. Gray found that the attraction of the queen depends on the secretion of this particular
Mot All They Say

by Tina Bloomstein '63

They Say

When she is deprived of the mandibular gland, the worker bees no longer surround her in their normal fashion. They no longer look upon the queen as the mainstay of their society and "decide", if they can be called capable of making a decision, to build more queen cells.

You may be wondering what the nature of the secretion is. It has been isolated from the mandibular gland as a white, waxy, crystalline substance technically called an unsaturated fatty acid. This chemical is classified as an ectohormone — a glandular substance secreted to the outside of the body.

Hormone transfer is very efficient

To test whether the mechanism of food-sharing is the one involved in communicating messages, an experimenter fed one bee a small amount of radioactive material. He found that the substance was transmitted to the whole colony of 75,000 bees in only 24 hours.

The isolation of the mandibular gland and its hormone has helped considerably in discovering why a bee colony is so efficient only in the presence of the queen.

These findings may have other applications. Perhaps the most immediate one will be in the bee-keeping industry. Since a single queen lays all the eggs in the hive, the colony's growth is dependent on her alone. Some of the eggs she lays are fertilized and some are not. Those not fertilized develop into drones. Those fertilized differentiate into workers and queens.

Beekeepers find that their success depends upon the quality and care of their queens since a healthy queen survives the winter better and builds up the population faster in the spring. Also, a larger crop of honey is produced and trouble with swarming decreased.

According to Dr. Morse, the discovery "will be a big step toward understanding the interactions among other animals." It is now understood how bees manage to live and "talk" with one another. One day, perhaps, scientists will uncover the languages of some of our higher animals and even manage to talk to them in their own tongue!

New queen cells are formed by the workers when they don't receive enough mandibular hormone.
View From Martha Van

by Hillary Brown '63

Picking a perfect perfume

Perfume, like everything you buy, should “fit” you right. Companies market a wide variety of fragrances to suit all types of skin. A perfume that enhances your friend might very well detract from you, due to the chemical make-up of different types of skin. So when purchasing your next bottle of perfume, place a dab on your hand, wait a minute, and then sniff. If it’s as fragrant as it was in the bottle, buy it. If not, sample again on a different part of your hand until you’re satisfied.

Styles—who’s to blame?

If women don’t like sack dresses or the short hemlines that are today’s vogue, they shouldn’t blame fashion designers alone. A fashion expert finds that consumers themselves help set the style. Fashion is not based on the whims of creators. In America it is influenced by three groups: designers, manufacturers, and consumers. American women, as consumers, affect fashion by demanding what they want at a price they can afford. So, next time you women complain about a strange new style, remember, you influenced its creation.

Scour your stones with toothpaste

“Her teeth shone like diamonds”—and so came the practice of cleaning these precious stones with toothpaste. To keep your ring sparkling, place a dab of white toothpaste on the face of your diamond, brush, and rinse.

Hard water causes clogging

It may be a nuisance to use nothing but distilled water in your steam iron, but home management specialists say it pays off. In fact, the kind of water you use may determine how long your iron will last and give good service. Minerals in hard water, which raise the alkalinity of Ithaca’s water supply, gradually clog the steam valves and vents of an iron, even when water is treated with package softeners. If your iron does become clogged, you can buy bottled fluid to clean out the vents.

Ice cream, you scream

All Americans are screaming for ice cream. Last year they consumed about 3.8 gallons apiece. The half-gallon container is the most popular size and must be stored properly. Ice cream is best stored at a uniform temperature of 0°F or below. Fluctuations in temperature cause it to lose its smoothness and become coarse and dry.

Gown collection growing

A new “first lady” gown has been added to the historic costume collection at the Home Ec College. Mamie Eisenhower has contributed a formal gown which she wore to a dinner party given by Sir Winston Churchill in London in 1951. The strapless ice-blue silk taffeta gown was sent with a stole, gloves, and ruffled arm bands. The costume collection of the Textiles and Clothing department is open to all visitors.
The Indian People Cry...

We Want More Food

A familiar plea in many underdeveloped countries. But, finds an agricultural economist, increasing food production in these areas presents many complex problems.

India is faced with a yearly growth of three to four percent in food demand. This is the result of a continually increasing population, a population which is expected to double from 400 million to 800 million in the next generation.

It also stems from a higher income level achieved through economic development. The average Indian now has more money to spend on food items.

If India fails to meet the growing demand, agricultural prices will start rising. The inevitable result of rapidly rising prices is political discontent. Therefore, something must be done to increase the food supply in proportion to the increasing demand.

Mellor sees the problem

This is India's main agricultural problem as seen by Assoc. Prof. John W. Mellor of Cornell's Department of Agricultural Economics. Dr. Mellor recently returned from India where, for over a year, he studied the factors influencing the country's agricultural conditions: farm size, labor force, crop yields, supplies, technology, research, and extension.

Research was carried on through the agricultural division of Balwant Rajput College in northwest India. Aside from his own investigation of labor utilization in Indian agriculture, Dr. Mellor was there to help the College develop a teaching and research program in agricultural economics.

Cooperating farmers supply data

Thirty farms typical of this northwestern area formed the core of field research. For one year, Dr. Mellor collected information from cooperating farmers on production patterns and the economic influences on farm business in the region. Most of the farmers are illiterate and keep no written record of their farms' progress. Therefore, to obtain accurate data, Dr. Mellor and his colleague, a Balwant Institute professor, made regular visits to each farmer eight times during the year.

With data gathered and analyzed, Mellor's next step is interpretation. The agricultural situation is somewhat circular. Farm incomes are dependent upon crop yields, crop yields on the quality of seed and fertilizer used, and the grade of seed and fertilizer on the farm income. However, Dr. Mellor feels that this circle has been overemphasized. It obscures other very important factors and blocks truly effective solutions.

Yields are important

Crop yield, it is true, is the most important factor in determining farm income. Improvement of yields, says Mellor, may be approached in two ways. One means is to increase the general standard of present farm practices. Farmers who feel no immediate need to increase production must be inspired to produce more. Better use can be made of the labor force. Another way to improve yields is through technological change — introducing improved inputs (seed, fertilizer, etc.) and production practices.

Technological change, however, needs a firm foundation on which to stand. Good seed and fertilizer must be available at the time and place they are

April, 1961
needed. Improved farm implements are also necessary. Extension work is important to demonstrate improvements under village conditions and to teach farmers how to apply them.

**Higher yields not the whole answer**

But crop yield is not the only factor influencing farm income. Farm size plays an important role. Since adequate land is lacking, the size of his farm is out of the farmer’s hands. The future, however, holds promise. More urban job opportunities may help to reduce man-to-land ratios.

Better use may be made of the land the farmers do have. India has a monsoon climate, a dry season and a rainy season. During the Kharif, or rainy season, one-half of the land in this region lies fallow. To increase production on this land is a complex problem. A fodder sorghum to feed milk animals could be grown.

**Further problems arise**

But problems arise in maintaining soil fertility, in improving implements to speed land preparation when wheat must be sown after the Kharif crop, and in improving storage methods. “Each problem,” finds Dr. Mellor, “is easy to solve through research, but all must be dealt with at the same time.”

Dr. Mellor took a close look at a part of Indian agriculture. From his picture, he offers some generalizations about the deficiency in agricultural production and how it may be combatted.

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**FOR A PIZZA THAT’S A TREAT**

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Professor Mellor

Khem Singh, an Indian farmer, draws his plow with bullocks.

There are two approaches to the problem. In the short run, the deficit between supply and demand may be eliminated by U.S. farm surplus. But, in the long run, this solution is “insufficient to care for the full growth in demand for agricultural commodities,” Dr. Mellor feels.

India, and other economically underdeveloped countries, must increase their own agricultural supplies. These gains must be achieved rapidly to ward off any great economic disruptions. If, food is substituted for necessary equipment, industrial growth will be stifled.
It's possible, Dr. Mellor says, to achieve a rapid two to three percent gain in agricultural production. Of course, this falls short of the desired three to four percent increase. But it is undoubtedly a step in the right direction, a step which could forestall any troublesome discontent until further research and extension can bring about additional agricultural growth.

**Good government foretells success**

India has one other factor strongly in her favor. "In a country with heavy population pressures," says Dr. Mellor, "there must exist a favorable governmental framework in order to solve agricultural problems." India has just this. She has dedicated and able people in government, people who understand their country's problems and who devote themselves to uncovering the best possible solutions.

Just why is this kind of government so important? A small hint is provided by the community development program in effect in India since 1952. Originally, the main emphasis of this program was upon social welfare, a factor Dr. Mellor finds all-important to create a "favorable cultural situation for agricultural growth." The program helped develop a "set of attitudes in Indian agriculture conducive to the acceptance of technological changes."

**Producing more is now the goal**

Now the Indian government realizes the need to change the program's emphasis. The major effort is turning toward greater agricultural production. Dr. Mellor sees much potential for the program in this field.

Of course, its possibilities vary greatly from region to region, simply because the barriers to agricultural progress differ widely in different areas. But through intelligent government planning, the various factors limiting to agricultural progress can be removed.

To organize and administer the great range of programs needed is a challenging task. Development of fertilizer factories, seed multiplication systems, farmers' marketing cooperatives, new forms of credit, and large agricultural research and extension programs will, says Dr. Mellor, "ax the abilities of even the most able of governments."

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**LOOK as Good as You ARE**

1. Cornellians today, are a mighty select group. The standards are high. Even those who get in by a narrow margin have to be good . . . academically and socially.

2. Some of the people now at Cornell will be important in your future. Some may know you well, others only slightly or not at all. But, every observing person who sees you—even occasionally—will form an opinion of you.

3. We are all subject to prejudice. Unless we know a person extremely well, we base our judgments on appearance. These impressions may be quite wrong.

4. To further your own interests, always look as good as you really are. To do less is unfair to yourself.

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APRIL, 1961
DEAR SIR, I am a junior in high school. I wish to attend college when I graduate. Will you inform me what the opportunities are in the College of Agriculture and what qualifications I must have for admission?

During the year, hundreds of letters similar to this pass over my desk. Many have been encouraged to write by their parents, their school counselors, or interested alumni of the College.

In the College of Agriculture, we respond to each one with a personal reply. We are glad to receive such letters from young men and women who are interested in continuing their education after they graduate from high school, because we know there is a great opportunity in the field of agriculture for capable men and women with a college education.

We realize that they are in the process of thinking about a career for future livelihood. We know that many of them have thought about science, engineering, medicine, and other intriguing fields of endeavor. As they have come in contact with these spectacular areas of our present-day scientific age, they may have overlooked the fact that all of these fields have a place in agriculture. Whatever their interests—physics, mathematics, engineering, chemistry, biology, business, accounting, general science, teaching—they can find rewarding careers in the field of agriculture.

The selection of a college by a student, and his admission to college, is a highly personal experience. It is important to match one's interests, abilities, motivations, ambitions, and objectives to the educational offerings and demands of the college. That is why we strongly recommend that young men and women interested in college visit the campus and talk over these factors, see the classrooms and laboratories, the dormitories and other living arrangements, investigate the opportunities for personal development through extra-curricular activities, and find out about the costs.

The major criteria for admission to college are interest, objective, academic preparation, and extra-curricular activities. Information about these is gathered from a variety of sources, principally the application for admission, the school report, and personal conferences with the student.

The interest and objective of a student is very important. We do not expect that he will know exactly what he wants to do or that his ideas will not change. We do expect, however, that he will show some evidence of interest in agriculture, the sciences that contribute to its development, the industrial and commercial enterprises that serve it, or the educational and other professional services that are so important to agriculture.

An interest in agriculture and the desire to be associated with it in some capacity—either through a career in agricultural science or work with farm people—is the most important consideration and receives a great deal of attention when an application is reviewed.

Students in the College of Agriculture are candidates for the Bachelor of Science degree. They are all required to take a minimum of twenty-four credit hours in science and the majority take more than that. Their preparation from high school, therefore, should put some emphasis on mathematics and science subjects.

All applicants must have four entrance units in English, and have developed considerable proficiency in this subject. Poor achievement in English is a definite handicap in securing admission to the College. For the four-year course a student should have completed chemistry or physics in addition to general science. If these subjects are avoided, it can only suggest a lack of interest in, or ability for, this type of study. Vocational agriculture may be presented as part of the entrance units. It is important that a student have a well balanced program of preparation in high school. He should not only have been exposed to such a program but have done well in the subjects.

Extra-curricular activities are significant for a number of reasons. Participation is an indication of all-around development. Ability to work successfully with people is important if a student is to make good use of his college education in many lines of agricultural work. Extra-curricular activities cannot be accepted, however, to offset a poor academic record. They are a very favorable factor, but only in proper balance with academic work that indicates ability to carry the College program successfully.

The decision on admissions is based upon a combination of all factors which are needed for successful educational experience in the College. The standards of the College are high. Each student takes courses in his freshman year with students from all other colleges of the University. He must have good high school preparation to compete successfully.
 Poke them with a stick, kick them, step all over them. Do what you please, they'll still pay you no mind. Some people have tried ignoring their presence, others have even gone as far as using poison. Still they persist and increase in numbers.

When the dandelions roar it can be sensed everywhere. Be especially on the lookout in the spring. Notice how they peer forth on some corner when the grass begins to take on a fresh green color. These bright little heads need only a day or two of warm, sunny weather to show themselves. By the time spring has begun in earnest, the dandelions have leaped forth from the grass setting the turf aglow with their golden faces.

Green grass is a pleasant sight to see after months of bleak winter snow. But green with splashes of gold may create some differences of opinion.

There are those who favor the dandelions for purely aesthetic reasons. The bright yellow flowers certainly do set the landscape aglow. Their persistent flowering brings continual delight. Even the fuzzy seed heads provide a pleasant pastime for the idle who vigorously blow on them and watch the little "parachutes" float through the air. Incidentally, this is a wonderful way to spend a dead hour. There is satisfaction in knowing you have aided Mother Nature's process. However, the wind does a commendable job, so there is no need for you guys to blow the seeds all over the campus.

Tonic-loving people watch for the first signs of the dandelion in the spring. While the leaves are still young and tender, they cut the plant off at its roots, being careful to leave the taproot intact... heaven knows why. When a shopping bag full has been collected, they hurry home and boil them, waiting impatiently for a dish full of tasty "greens." The final results look something like spinach but have a distinctive flavor all their own. The juice is savored for its high content of healthful vitamins and minerals. After a meal of dandelion greens you will no longer have to ask yourself: "Have you had your iron today?" Also, if your roommate looks anemic, boil a pot-full of these greens and watch his or her color (as the case may be) change.

Many people feel the dandelion is a nasty noxious weed. When it roars across a lawn it indicates the homeowner's laxness in his lawn care. More people are against the dandelion's very existence than are against early closing hours in women's dorms. Some people go as far as spending an entire Sunday afternoon with an asparagus knife in hand digging out this plant. They have been known to cry out joyfully each time they happen to dig out an entire taproot.

It's a funny situation. There are people who like this plant, some people eat it up, and some just can't stand to see the contrasting colors it produces on their lawn.

On the campus, the lion's roar is sensed every spring. No one seems to care. There are no remarks about the beauty the yellow flowers lend to the landscape. The interesting addition of dandelions to the M.V.R. cafeteria menu is lacking. Occasionally someone will mention their weediness... A voice of experience.

The only people that actually work at cutting down the incidence of the dandelions are golfers. (Something about too many dandelions spoiling the flight of the ball.) They have been known to practice their chip shots by hacking away at the dandelion plants on campus. But, they don't really help for the roots are left behind.

If you want to rid the campus of the dandelion weed (assuming it's considered a weed) simply single out some cute coed, then pick her a bouquet of dandelion flowers. To add to the bouquet, use the leaves that are found surrounding the flowers. And don't forget to dig deep. Get the whole root, it makes a wonderful bouquet handle.

by Robert B. Gambino '61
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From the College Press

- CHROMOSOME STUDIES—Dr. Tanjore R. Thyagarajan of India, a research associate in the College of Agriculture, is trying to find out whether chromosomes exist in yeast cells.

- REFRACTOMETER RESEARCH—Cornell scientists are looking at the plants instead of checking the soil to determine crop irrigation needs. They've found that a refractometer measures the amount of sugar in plant cell sap telling whether the plant does or does not need water.

- FRUIT SURVIVES DEEP FREEZE—New York State peach trees have gotten used to Northeast cold winters, it seems. Evidence of the newly-acquired hardiness comes from the Cornell orchard.

- RURAL WATER NEEDS—Prof. Harry Kerr hopes the winter's snow doesn’t disappear too fast. Reason: thousands of rural New Yorkers have dry wells and need a gradual thaw so the ground will soak up water.

- OPERATION ADVANCE—Key community leaders from five southern New York counties have visited Cornell to launch Operation Advance. This is an educational program designed to further the effectiveness of leadership on the community level and to broaden public understanding of political, economic, and social problems.

- MITE CONTROL CHEMICAL—A new and more effective way of killing mites has been found at the College of Agriculture. The nonpoisonous cosmetic additive called Cellosize kills the mites by bursting open their bodies.

- NAA APPROVED—The U.S. Department of Agriculture has approved for commercial use a plant regulator (NAA) that can encourage fruit to drop off trees or keep it on longer. The hormone, naphtaleneacetic acid, was tested at the College of Agriculture.

- STUDENT RESEARCH—Eight high schools in New York State and one in Pennsylvania are cooperating with Cornell in a unique research program. High school teachers and selected students do original research under the guidance of Cornell professors.

For further information on any of the above items write to the Cornell Countryman.
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In response to many requests for information on the fuel cell, Allis-Chalmers has developed a miniature model. This **Fuelectric** power unit produces usable direct current from inexpensive chemicals such as alcohol and hydrogen peroxide. It is being mass-produced as the first educational device offered in this field. It is available to science teachers and others at a nominal cost.

The fuel cell offers exciting opportunities in many applications. It has an efficiency of 60 to 80%, produces little heat, no noxious fumes, and operates silently.

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**ALLIS-CHALMERS** delivers the dollar-making difference
Tried Defining Agriculture Lately?

Liberty Hyde Bailey, Dean of the College 1903-1913, was behind the plow that broke the ground for Roberts Hall in 1906.

Webster's New Collegiate Dictionary defines agriculture as "the art or science of cultivating the ground; the production of crops and livestock on a farm; farming."

In the past ten years, more than 2,000 men who graduated from the New York State College of Agriculture at Cornell University have rewritten this definition many times—reflecting in their chosen careers that today's agriculture is a highly specialized business.

College placement records indicate the following career breakdown for these graduates:
- 4 percent went into nonagricultural work
- 10 percent chose public service jobs in agriculture
- 13 percent chose 27 different areas of agricultural business
- 14 percent went into farming as a vocation
- 21 percent continued in a graduate or professional study
- 26 percent went into the armed services immediately upon graduation. Indications are that they have been absorbed in the above fields at a later date.
- 12 percent did not report their job choice

General consensus among these graduates is that certain fundamental policies fostered and developed by Liberty Hyde Bailey (shown with another era's farming symbol) are being followed today. However, they feel that as modern agriculture changes and expands, the College of Agriculture must continue to meet the challenge. They are rewriting the definition of agriculture as progress demands.

NEW YORK STATE COLLEGE OF AGRICULTURE,
A Unit of the State University,
At Cornell University
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Peace Corps: You Too Have a Part

A NEW IDEA has captured the imaginations of thousands of young Americans—the Peace Corps. Agriculture can and will play a large part in its administration. But it is best to know just what the Corps is before we determine agriculture's place in it.

The Peace Corps, says President Kennedy, "will be a pool of trained men and women sent overseas . . . to help foreign governments meet their urgent needs for skilled manpower." But the proposed Corps is really much more than this. It is not only something to aid underdeveloped countries or boost American prestige abroad. It is something for each participant, he on the receiving or giving end of the line. As stated in a recent New York Times editorial, "the Peace Corps is, among other things, a great adventure in education."

What can be learned from such a venture? The most important thing is mutual understanding, understanding of different ways of life, of different kinds of people, understanding of each other and of yourselves. Brotherhood follows directly from mutual understanding and assistance.

The Corps is your opportunity to participate creatively, to channel your skills in a useful direction. Participation forecasts a change in your values. You learn, as Bob Ballew expressed at a Peace Corps discussion, that you can live without cokes and Ivy Rooms and can sleep with a blanket that hasn't been washed for a year. But if you learn nothing more, participation will necessarily make you a better person, a better citizen of the world.

What can the Corps accomplish in terms of filling needs abroad? The proposed projects cover much ground. Building of machinery, roads, dams, and developing farm lands and orchards are designed to increase productive capacity. Teaching and extension work are important to convey much needed information. Fighting disease, improving sanitation, and many more will work to raise living standards throughout the world.

This is where agriculture comes in. Economic development is coincident with agricultural development. Technical assistance, in turn, is critical to agricultural advance. Dr. John Mellor, a Cornell agricultural economist, describes the Corps as a terrific opportunity for people with competence in technical agriculture. Your skill may be in economics, agronomy, bacteriology, education—all are needed. It seems strange that with this great need for agricultural assistance only 20 percent of Cornell applications come from Agricultural students.

Will you qualify for foreign agricultural service through the Peace Corps? The requirements are by no means easy to meet. The application blank states, "volunteers should have technical ability, physical stamina, and emotional stability." The words "skilled" and "competent" are emphasized; blundering idiots will do more harm than good. Volunteers "must be able to adapt themselves to an unfamiliar way of life and to work overseas with peoples of all colors, races, and cultures." As Dr. Mellor says, a real sense of maturity is vital. Right now there is no language requirement, but fluency in a second language will be very helpful.

No volunteer will be sent abroad until he is ready. He will be thoroughly trained, among other things, in American and the host country's history, government, and foreign relations; he will learn to speak the native tongue and understand the society's culture and customs.

The Peace Corps forecasts success by its nature:
1) Its size is controlled. About 5000 active volunteers will probably be maximum.
2) These volunteers will be answering specific requests by the host countries and will have the ability and training necessary to do a good job.
3) The Corps is not a top down government project. It is leaning heavily upon ideas from universities, institutions, and the common man.
4) It is not only for those with secure futures. Although volunteers receive only a subsistence wage while abroad, they will be paid a comfortable bonus based on length of service when they return home.
5) It is aiming for a mutual "you" and "we" participation; reciprocal projects in the U.S. are being considered. As Dr. Muller in the government department states, "We too have a lot to learn."

Much of the program's success depends upon you. The role of agriculture will be great. Even if you cannot participate directly, you can help by encouraging those who can. You can suggest ideas directly to Washington, be they specific project proposals or administrative plans. If you do nothing more than gain an understanding of the program, you will not be shirking your duty as a citizen of the world.

J.E.B.

To the Editor:
"Tis true that "All Students Are Created Equal."
However, your editorial of April '61 has stimulated reminiscences of my undergraduate days when Ag students were held in the same low esteem, and perhaps justifiably so at that time. I had the opportunity to observe Ag students in my required courses. By reason of their provincialism, and lack of academic preparation, they stood out in sharp contrast to the students of other colleges of the University, most of whom came from cities or had contact with them.

Such a situation existed for some time, though in progressively decreasing degree, and was the basis of the low estimation. However, these disparities have been completely eliminated for some years as a result of improvements in transportation, communication, and educational facilities in rural areas.

To gain admission to the College of Agriculture, high standards in qualifications must be satisfied. After admission, the student is subjected to a well rounded curriculum in both liberal arts and the sciences. The result is a worldly individual on a par with the students of any other college at Cornell.

So you can rightfully blow your horn to destroy those false "Walls of Jericho" by which you are detrimentally distinguished from the rest of the University. Let all know that agricultural courses require as much ability and worldliness as do courses in the other colleges.
GREETINGS and salutations, Ag-type people. Zilch apologizes for his premature greeting to Spring in last month’s issue, but we felt sure that Spring would be here by then.

The whole problem stems from the insistence of that bird-watching editor of ours, that all copy be on her desk a good three weeks before you lucky people read it. This means that April’s issue was actually written in the middle of March which, by some strange quirk of nature, was also the middle of a blizzard.

Being a very optimistic soul, Zilch naturally dreamed of April and croci (singular, crocus) and robins, etc. This libido-easing bit of information which you are now reading in May, was actually written in mid-April—surprisingly enough in the midst of another blizzard.

Needless to say, this is a rather discouraging set of circumstances around which to write a fittingly seasonal tribute to May. However, being in his usual far out and away condition, not to mention that fiendish editor harping for a Spring-like philosophical whimsey, Zilch will once more try to shame Spring into putting in its belated appearance at the cloudy burg below Cayuga’s waters.

Although March may not always be synonymous with blizzard, Spring is definitely flahoolie with SILO. SILO, for those of you unfortunates who are not familiar with this fine old institution, is the Society for the Inebriated Lovers of the Outdoors. Meeting on Saturdays, they quietly ponder the problems of the world, agriculture, death, youth, religion, and other similarly deep problems—like who’s going to buy the next six-pack. Although their primary goal is the encouragement and advancement of serious drinking, they also do a commendable job of bolstering the tobacco industry and never pass up an opportunity to play a rousing game of Casino. SILO is looking forward to its annual Mother’s Day clambake. Last May, a toast was raised to every mother from Eve to Jackie Kennedy.

Despite the slog and snow, Zilch is happy to note that such adventurous pros as “Screaming” Stan Warren, R. T. Clausen, and R. Fisher have their students galloping across the multicolored fields. Forging Spring’s swollen streams, wading through snow banks, scrambling up and down ravines, clipboards flying, boots leaking, Zilch salutes you ceaselessly searching students in your never ending quest for knowledge. May you receive an 80 in all your scholastic endeavors.

With the coming of Spring Weekend, our lovely, whipcracking editor has consented to sponsor a special contest to commemorate the occasion. It’s called “Win a Zilch for a Weekend”. No box tops, green stamps, or labels necessary. Just an application to Zilch, Cornell Countryman, 490 Roberts Hall. And if you don’t win this time, cheer up. There’s always Fall Weekend.

Zilch leaves you with a message which has inspired untold millions in every corner of this evershrinking earth. “A closed mouth gathers no feet.” Zilch, of the foot-shaped mouth, bids thee a fond adieu until the man with the large key once more opens the closet door.

Countryman Elections

THE Countryman is pleased to announce the election of Judith L. London ’62, Patricia A. Parker ’63, Andrew D. Voninski ’64, and Virginia Wolf ’61 to our editorial staff and Nancy L. Dunhoff ’64 and Joseph Lonski ’64 to our business board.

Oval Diamonds

Only an oval shaped diamond can enlarge a diamond’s appearance so dramatically. See this radiant oval diamond ring with its shank of elegance.

PATTEN’S JEWELER’S

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Ith. 4-1562
Dr. Comar sees

A New Approach to Atomic Energy

by Judith L. London '62

IN A WORLD filled with appall at the menacing effects of nuclear testing, the beneficial role of radiation is often overlooked.

Professor Cyril Comar, chairman of the Department of Physical Biology at the New York State Veterinary College at Cornell University, is searching to add to the list of peaceful uses of atomic energy.

Radiation, describes Dr. Comar, is now being applied to every aspect of biology. The field of medicine is making widespread use of it. In the diagnosis of disease, radioactive iodine is used to discover different types and degrees of thyroid malfunction.

Radioactive dyes are used to learn about liver disease. After the dye is ingested by the patient, a Geiger counter determines how fast the radioactive element is taken up by the liver and disappears by excretion. An abnormal rate, too high or too low, indicates something is wrong.

Radiation therapy
The therapeutic uses of radioactivity consist of external and internal radiation. Gamma rays are administered externally to destroy malignant tissue. In this case, both cobalt and cesium in their radioactive forms are sources. Internally, in the direct contact method, for example, a very thin tube is inserted through a tumorous tissue and a radioactive solution is circulated through it. Or, a radioactive wire can be threaded through the tumor. The local radiation from the wire or tube destroys the tissue that is nearby.

Other radioactive isotopes are used in experiments as tracers. Here the isotope is given to an animal in varying quantities. Different physiological processes such as thyroid or kidney function are studied by using Geiger counters and other means of detecting radiation.

An especially important tech-
nique is autoradiography. This is based on the fact that radiation darkens film, just as light does. Therefore, the location of the radioactive element in tissues or even cells can be visualized.

Through other types of experimentation, researchers can estimate how much radiation is lethal to an animal. Radiation exposure is measured in units called roentgens. A single, whole-body exposure of three hundred to eight hundred roentgens would probably kill 50 percent of the individuals exposed. Lower roentgen levels can cause the growth of malignant tissue.

Comar conducts Cornell research

Dr. Comar leads the research team at Cornell which is investigating radioactive fallout and how it contaminates food. What are the effects of radioactive elements on food and human beings? By what pathways do these isotopes enter from the atmosphere? These are but a few questions that the radiation workers are trying to answer.

The peaceful uses of radiation have increased substantially in the last decade. The outlook for the future is encouraging. As Dr. Comar states, “Given the proper tools and method, the next 10 to 20 years will be the Golden Era of Understanding in the biological sciences. To find these tools and this method is essentially what we, as scientists, want to do.”

Before That Trek
To Cortland . . . .

Stop off at Bartholf Mobil to gas up the old jalopy. Not only will the friendly service please you, but the location is so convenient—just off campus on the Cortland road, where Dryden Road and a mess of others come together.

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A Tour Through Russia

reveals that fear, mistaken impressions, but also enthusiasm underlie the Russian way of life.

THE RUSSIAN’s impression of America is almost a mirror image of the American’s idea of Russia, explains Professor Bronfenbrenner of Cornell University's College of Home Economics. Professor Bronfenbrenner, a social psychologist, spent a month in Russia last summer. He traveled in the U.S.S.R. without an escort, under a grant from the Society for the Investigation of Human Ecology. Since Professor Bronfenbrenner speaks Russian, he was able to communicate directly with the people. He found that the Soviets view the United States much as we picture them, as a nation with a single purpose and goal; they find it difficult to realize that in the United States, many opinions are expressed about one idea.

In October of 1960, Dr. Bronfenbrenner gave several talks about his trip to Russia. He spoke of the "vitality of Russian society and the vigor of the individual’s commitment to the Communist system.” He was surprised to see the enthusiastic attitude with which the Russians supported their government and their scientific and educational advances.

By questioning many people in restaurants, parks and public conveyances, Professor Bronfenbrenner discovered the Russians’ zealousness and pride for Communist life. The rare criticism was supplied only by the students under twenty-five years of age, or citizens old enough to recall the days before the Revolution.

Discontent beneath the surface

The Soviet citizens have precise, logical replies to any criticism, which Dr. Bronfenbrenner feels, is a mask that deceives even themselves. The Russians hide their discontent in order to survive, he says.

Beneath the Russian exterior are strains of fear, anti-Semitism, and a feeling of infringements on individuality, Dr. Bronfenbrenner noticed. Where humor and flexibility are observed in the United States, they are not found in Russia.

The Russians also feel that Communism will be accepted universally, with open arms, once other na-
tions are aware of the truth about the Communist system. Those Russians that Dr. Bronfenbrenner spoke with strongly denied that they would try to bring this acceptance about by force.

The Russians feel that all American actions are part of a larger design. Professor Bronfenbrenner says, “We must act, not react,” to destroy the Russian’s traditional picture of the United States.

Strategy of dissonance

Specifically, he suggests a “strategy of dissonance, which would encourage them to call into question their distorted picture of America.” To get the Soviets to listen to us and believe us we must criticize our own problems as a show of our free thought, and allow free travel in the U.S.

Here, in the United States, Dr. Bronfenbrenner concludes, we should reflect more upon our beliefs and concentrate on explaining our ideals to neutral countries.

A different way of life

There are, Dr. Bronfenbrenner found, distinct differences between the United States and Russia. These differences are in part reflected in the way children are cared for. The Russians run collective nurseries that take care of pre-school children during the week. In the United States, this is often considered cruel as it breaks up the family.

However, the Soviet solution of keeping children in government nurseries is a logical one. Under the conditions in the U.S.S.R., where both parents are working, the state can supply superior food, medical attention, and better supervision for these children. The United States and the U.S.S.R. do not solve their problems in the same way because the natures of the two countries are different.

Professor Bronfenbrenner’s interest in psychology might be traced to his upbringing on Russian literature, as it tends to probe deeply into the workings of the mind.

He also had an interest in music. Majoring in psychology and music at Cornell, he received his Masters degree in education at Harvard and his Ph.D. at the University of Michigan.

After returning from his informative trip to Russia, Dr. Bronfenbrenner says he is now more aware of “the strength and humanness of our way of life in the West.”

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IF WE were plunged into total darkness would we know when to get up in the morning and when to go to bed at night? Could we follow a normal pattern of day and night activity? Jozef Nowosielski, a Cornell graduate student, is trying to determine whether the normal day-night pattern of activity is built into animals, and, if so, what causes it.

Jozef is using crickets for his experimentation. Crickets are more active at night than during the day. However, Jozef finds that even when there is no light, the crickets follow a day and night pattern of activity.

Internal mechanism

The rhythm is probably established by a mechanism inside the insect, Jozef explains. “When I put the crickets in constant light, they follow a normal day and night period of activity for at least three weeks. However, the whole cycle is slightly over 24 hours long. If activity was due to an external force, such as the rotation of the earth or cosmic rays, the cycle should be precisely 24 hours.” Therefore, the cycle of activity is probably internally controlled.

Jozef describes this mechanism as a “biological clock” which is built into the animal. “The only parts we are studying,” he says, “are the hands of the clock.” In one of his experiments, he gives crickets which are kept in darkness, one 10 minute light dose a day. This keeps them on a perfect 24 hour schedule. The light, Jozef explains, sets the hands of the clock.

Cockroaches show rhythm too

Dr. Janet Harker in England has done work with cockroaches and claims to have found a hormone which regulates the day-night activity rate. Jozef is trying to duplicate Dr. Harker’s work to see if there is a hormone or some other internal mechanism which causes this activity in crickets as well as cockroaches.

Dr. Harker, who contends that the activity of cockroaches is regulated by a hormone, has done ex-
Clocks

by Virginia Wolf '61

Experiments where she transplants the hormone-secreting ganglion into headless cockroaches. The result is a rhythmic activity. Jozef has planned a transplant experiment similar to Dr. Harker's. However, since headless insects are sluggish and may give abnormal results, Jozef will use cricket nymphs with heads.

Nymphs, or immature crickets, do not seem to show the rhythm of day and night activity that adult crickets do. This is characteristic of crickets but not of cockroaches. When transplanted ganglia are placed in the nymphs, it will be easy to detect whether they begin to carry on a rhythmic activity. If so, the specific rhythm-controlling hormone may be secreted by ganglia.

Dr. Harker found that large changes in temperature affect activity. When she cooled cockroaches below 4 degrees Centigrade for two hours, their night activity started two hours later than normal. This indicates that the hands of the clock are slowed down by cooling but the clock is still able to work. However, slight changes in temperature do not affect activity. Therefore, the mechanism is not a simple enzyme reaction because enzymes are very dependent on temperature changes.

Jozef thinks that there may be some genetic control involved in the clock mechanism. He has two batches of crickets, one liveliest in the evening, the other liveliest at night. The tendency toward evening or night activity might be carried by genes. Furthermore, work done on Drosophila, the fruit fly, also indicates that heredity plays a part in an insect's activity.

The crickets' blood sugar increases at night during their active stage. The highest sugar concentration occurs about eight hours after the light goes out. This indicates that blood sugar might be involved in the cricket's rhythm of activity.

Hormone probably causes rhythm

It is well established that living organisms have rhythms, but the control and relationships of the factors involved is not clear.

Jozef speculates that the hormone is important in the insect's rhythm of activity. The light impulse comes through the simple eyes of the cricket. Jozef determined this by blacking out the ocelli or simple eyes and noticing a change in the activity period. The light impulse probably passes to the brain, then to the ganglion. The ganglion is then stimulated to secrete the hormone. From here, the hormone may go to the muscles or the nervous system and cause an increase in activity. The difficulty in isolating the hormone is due to the pinhead size of the ganglion. It would take several thousand cricket ganglia to yield a minute amount of hormone.

Crickets and cockroaches are not the only living things that have biological clocks. Work at Princeton University has been done on the biological clocks in plants, fruit flies, birds, and even squirrels. Man also seems to function on rhythms — rhythms of breathing, day and night activity, and body temperature, to name a few.

When man goes into space where day and night are non-existent, will he function in the normal rhythmic pattern? If his clock is a built-in mechanism, his rhythm pattern will probably persist.
Where The Birds Are...

SPRING'S gentle footsteps tread delightedly upon an almost forgotten world, a world of buds and blossoms and bees and, of course, birds! These creatures of the sky can hardly be avoided. Come spring and you are pleasantly greeted by their vocal emanations at 6 a.m. every day. And should you heed their distracting calls and darting-about, you may bump head-on into some easily irritated professor or trip over an innocent crack in the sidewalk.

But, as Confucius say: “If you can’t fight ’em, join ’em.” And since the course of evolution has limited man’s sky-reaching capacity to a rather expensive mechanical invention, the airplane, the next best thing we earth bound mortals can do is try to understand our winged precursors—to know what they are and what they’re doing.

The effort yields delightfully surprising results. It reveals a world of birds full of fascination and wonder. The Cornell campus is simply swarming with avian activity. Everything from real estate allotments, to home construction projects, to hot and cold wars, to courtships, engagements, and marriages is executed in the hands—correction—wings of our local bird population.

Activity never ceases. The territory to be occupied by each bird until next winter is apportioned. Nests are built to house the young. Intruders are threatened by hostile displays and physical encounters. Females are “wined, dined, and danced” by the males according to the “all’s fair” rule of love and war. Mates are chosen, and the young procreated.

Each species is characterized by its own song and mode of courtship, it own type of nest and habitat, its own flight pattern, and, of course, its own form and coloration.

Anyone named Phoebe? Ever hear your name called and turn around to find not a soul in sight? Don’t worry. You’re not on the brink of insanity, nor is there someone hiding in the bushes trying to convince you that you are. Rather, a bird of your namesake is pretentiously announcing its presence to the world. The Phoebe Flycatcher, a small gray creature, stands straight as a soldier and persistently wags its tail up and down. This bird has a particular affinity for the bridges spanning Cornell’s gorges.

There are many other egotistical aviators inhabiting the Cornell campus this spring:

“Flick-a, flick-a” squeaks out a brown-backed woodpecker of the same name. Marked by the bright yellow of its underwings and tail, the Flicker’s flight is deeply undulated like the profile of a wavy ocean.

The Blue Jay introduces itself with a harsh slurring “jecah”. A member of the crow family, the Jay is a bright blue bird with white belly and crested head—a shocking contrast against its green environment.

An insect eating aerobat frequents tree trunks all over campus, climbing backwards as well as forwards in search of food. A clear “chick-a-dee-dee-dee” confirms your guess that this gray bird with black cap and bib is the Blackcapped Chickadee.

Alumni Field is inhabited by a noisy pasture-breeding plover which vainly cries “kill-dee”. The Killdeer has a brown back, white belly, and two black breast bands.

Then there are the birds who seem to have forgotten which class of animals they’re in:

The Nighthawk sounds like a spectator in Yankee Stadium as it emits a “Bronx cheer” at the end of its courship display. A brownish-gray bird with broad wings and white patches, the Nighthawk nests on the roof of Rand Hall. You may often see one flying over Tripammer Bridge.

A bird become bat—that’s the Chimney Swift with its blackish color, long curved wings, very small tail, and alternating wing beat. These “cigars with wings” are in and about nearly every chimney on campus.

An overgrown butterfly? No, that’s the American Redstart which flits about much like its insect friend. You can easily recognize...
the male by his black body broken up with bright orange patches on the wings and tail.

The Catbird, slaty gray with a black cap, "mews" much like our familiar four-legged friend.

Next time you see a raccoon in a tree, take a second look. It may be a Cedar Waxwing, a brown-backed, yellow-breasted bird with a raccoon-like face mask. This aviator gets its name from the bright red waxy covering on its wing tips. With its yellow tail band and large crest, the Waxwing is as handsome as the best of Cornell's hairy chested men.

And there are those birds which seem to be the result of some evolutionary mistake:

The White-breasted Nuthatch has been appropriately dubbed "the upside-down bird", for it climbs down tree trunks head first. A beady black eye stares slyly from a white cheek, giving the bird a sleuth-like appearance.

Creeping isn't reserved for infants. The Brown Creeper descends trees as if they were spiral staircases. Once you find this well camouflaged bird, you can't mistake its characteristic crawl.

You can see the Spotted Sandpiper around Beebe Lake and the creeks teetering up and down between each step as if it were too delicately balanced on its slim legs.

These birds far from comprise the total number of species that any Cornell novice can identify if he keeps his chin up and his senses alert. Many of the better known species, such as the sparrows, robin, crow, and pigeon, have been neglected in order to describe some intriguing characteristics of the lesser known birds.

To the avid bird-watcher and to those inspired by this brief resume, I recommend Peterson's "A Field Guide to the Birds" for a more complete study. The enlightened eye is much more appreciative of the wonders of the bird world, and of the entire natural world for that matter!
BEGINNING with the Hoover Farm Board, the economic problems of agriculture have received political treatment for more than thirty years. The end is not in sight.

The aim of the Farm Board was to adjust supply of certain crops to market demand at prices satisfactory to farmers. It failed in its objective due, in large measure, to the fact that it operated during a period of worldwide price decline and almost universal depression. Large quantities of certain crops, especially grains, were purchased and kept off the market at a loss in excess of $500 million without making a dent in improving farm income.

When the Roosevelt administration took over, the Farm Board was discontinued. Many new attempts were made by the federal government to put money in farmers' pockets, including plowing under cotton and killing little pigs.

The AAA came into existence as the vehicle for government payments to farmers who reduced production. It operated during a time of serious depression when farmers were hard pressed for cash. The AAA in its original concept was not long for this world and was declared unconstitutional by the Supreme Court in 1935. The proponents of the program, incensed by the Court's action, cast about to find a vehicle that would meet Supreme Court objections.

At a famous meeting held in the Department of Agriculture in Washington, an alert newspaper correspondent remembered that Congress had passed a Soil Conservation bill. He suggested that the intent of the outlawed AAA could be implemented if done in the name of soil conservation. His suggestion caught fire and out of it grew payments to farmers for so-called soil conservation practices, including liming, fertilizer, mulching, ditching, and about everything imaginable.

Out of the dark days of the early '30s the Farm Credit System, as we know it today, had its birth. Bill Myers, an authority on farm finance with broad experience as professor of farm management, initiated this lasting benefit.

The late Dr. George F. Warren of Cornell and Dr. Rogers of Yale gave President Roosevelt convincing evidence that the depression was primarily a monetary problem, not a problem of overproduction. On this basis, the President revalued the dollar, increasing the price of gold to $35 per ounce. Immediately, this put new life in the general price level.

Failing to learn the lesson of the infamous Farm Board, the Commodity Credit Corporation came into existence to buy farm products either directly or indirectly through nonrecourse loans. Today we have a Corporation loaded to the brim with commodities—notably wheat, corn, and cotton—not needed and not wanted in the market place stored at a cost of well over a million dollars per day.

Early in World War II, Congress guaranteed farmers support prices to assure the country of ample food supply. These supports were to continue for two years following the war. The war is still on as far as price supports are concerned.

The pattern continued largely unchanged during the Truman and the Eisenhower administration. The latter accomplished much toward reducing the strong arm of government in the affairs of farmers.

President Kennedy is a man of great capabilities, dedication, energy, and political know-how. He has filled key positions in the Department of Agriculture with keen and able men, but men who have philosophies quite foreign to those of most New York farmers.

They believe that government must rule agriculture with an iron hand and make the decisions, commodity by commodity, as to what is best for farmers. The announced intentions are to go back to the early days of the Roosevelt administration and make use of farmer elected committees. It is reasonable to assume that these committee members will be on per diems and expenses. The programs they concoct will be presented for action by Congress and the major commodities dealt with independently of all other commodities.

Hopefully, President Kennedy will detect the flaws in this approach at an early date. Otherwise farmers are likely to be saddled with government controls the likes of which they have never yet known.

In terms of the space age, I liken much of the political treatment that agriculture has received, beginning with the Hoover Farm Board, to the launching of satellites. Satellites put into orbit beyond the atmosphere eventually are destined to come back into the atmosphere and burn up.

The political programs in agriculture are launched into space beyond sound economic atmosphere. They orbit for so long and then come back into economic atmosphere and burn up. A new suit of clothes is put on the old program and shot back into orbit to eventually follow the course of its predecessor.

In spite of the appeal of "pie-in-the-sky," farmers will do best to work for the free market system in contrast with a highly regimented, highly controlled agriculture which, in the words of Charles Shuman, President of the American Farm Bureau Federation, can only result in "comfortable peasantry" for farmers.
NOTHING adds more cheer to a room than a vase of brightly colored blossoms—be they from a favorite beau or the result of a walk in the woods. To add hours to the life of your cut flowers, floriculture specialists in the College of Agriculture offer these ten suggestions:

1. Because stems which are just cut absorb water freely, cut off at least one-half inch of stems on a slant using a sharp knife or shears.

2. If a milky fluid flows from the stem, place the end in boiling water for 30 seconds or char it in a flame. Otherwise, the fluid plugs the water-conducting tubes of the stem.

3. Remove excess foliage and any foliage that will be below water. Excess foliage increases water loss; leaves which are under water will decay.

4. To start water flowing into the stems, place them in warm water which moves into stems faster than cold water. Suggested temperature is about 110 degrees F.

5. Use a commercial flower food to increase flower life.

6. After the flowers are placed in warm water, wrap them in a piece of paper or plastic. This prevents rapid air movement and reduces water loss. The flowers will become crisp in about two hours and may then be arranged.

7. Wash the container with soap and water to get rid of the bacteria that clogs the stems' water-conducting tubes.

8. Avoid excessive heat which reduces flower life.

9. Keep flowers cold when not in use. Using a cold room or refrigerator at night will double flower life. Two exceptions are orchids and gladioli, which should not be kept at temperatures below 50 degrees F.

10. Do not mix flowers with fruits and vegetables, which produce a gas that shortens flower life.

And may you enjoy them for as long as they shall live.
Farm Organizations Mean:

More Market Power for Farmers

Farmers can achieve stronger bargaining positions through greater organization.

This was the theme of a panel discussion held by Cornell experts during Agricultural Progress Days. Prof. Bennett A. Dominick, Jr., of Agricultural Economics, was chairman of the session. Prof. Max E. Brunk, also of Agricultural Economics, analyzed the ways farmers may achieve market power through marketing organizations. How expansion of markets may serve this end was brought out by Prof. Herrell F. DeGraff, Professor of Food Economics. Kenneth L. Robinson, of Agricultural Economics, discussed how market power may be attained by adjusting the supply of farm products.

Why do farmers need greater organization? Farmers today, says Dr. Brunk, are looking for more market power. They want to be able to control the supply of and demand for agricultural products. They can attain this power through marketing organizations.

Progress creates overabundance

Farmers have too little market power because there is an abundance of agricultural goods in this country, Dr. DeGraff points out. The reason for this overproduction is too much progress in agriculture at the present time. The better farms and ranches are fully capable of combining high-cost production factors into large volume output at low cost per unit. This progress is literally flooding the market with more food than this country alone can consume. Dr. DeGraff feels that one solution is for the farmers to practice scarcity or limit production.

To influence prices, says Dr. Robinson, farmers must seriously consider methods of “adjusting supply—controlling or limiting output or sales.” If farmers are to be effective in raising prices, Dr. Robinson sees no alternative but to accept supply-control measures. This is the key to successful bargaining. A marketing organization can initiate such measures.

Each farmer would have a marketing quota—a license to sell so much and no more. Dr. Robinson says, “a farmer who produced in excess of his quota would be compelled to keep the over-quota production at home, store it—provided it was not perishable, divert it to a secondary or lower-priced market, or perhaps market it only after paying a penalty on over-quota marketing.”

Farmers lack control of price

Dr. Brunk explains that farmers have comparatively little to say about the price they receive for their products. This determination of price usually results from factors beyond the farmer’s immediate control. Industry, to a great extent, has its hand on these controls. One of the fundamental differences between agriculture and industry is that much of industry produces to fill orders, but the average farmer produces to use resources. Then, with product in hand, the farmer seeks a market for his output.

According to Dr. Dominick, farmers who are more organized in merchandizing and selling can obtain improved returns for their products. Under existing circumstances, farmers sell individually to large buyers. These buyers have a more complete grasp of existing marketing conditions and are in a better bargaining position than is the farmer.

Dr. Dominick explains that through organization, farmers would employ skilled representatives to sell their products. They may then obtain more realistic prices for their products, prices based upon actual market conditions. At the same time, organizations could offer more services to wholesalers and other buyers, bring about distribution efficiencies and meet market requirements more precisely.

Countermeasures to protect farmer

According to Dr. Brunk, agriculture today is trying to build a series of organizational countermeasures to offset the market power which the buyer has gained through organization. Such measures are exacted through exercising control over supply and demand.

In addition to these primary functions, organizations may do the following for their members:
Farmers
by Andrew Voninski '64

1. Provide needed services when they are not otherwise available.
2. Reduce both the costs of goods and services through volume trading.
3. Improve the quality of goods or services.
5. Carry on an advertising program.
6. Provide the means of bargaining with large distributors or dealers to a better advantage.
7. Give farmers the opportunity to become better informed about market conditions and supply and demand.

But before farmers can develop marketing organizations, there are many problems which they must overcome, finds Dr. Brunk.

- The ease of getting into and out of business. It must be made relatively difficult to get in and out of business. This will prevent or check the immediate shift of many new producers into that sector.
- The number and location of producers. The smaller the number of dominant producers, the easier it is for them to come to agreement on issues involving price policies. Agriculture has many producers of given products who are widely scattered geographically.
- The alternative markets which exist for both product and resources. There is more ability to withhold products from market if they can be diverted to alternative uses.
- The financial resources available. Large financial reserves would enable organized producers to withstand the possibility of an occasional overproduction.

- Governmental restrictions on the creation of trusts. Government should permit farm organizations to purchase, acquire, and build facilities, and to merge with processing plants and other related organizations so long as monopolies are not created. This idea was expressed by President Kennedy during his recent message to Congress on the farm problem.

Organizations strong in these points should narrow the gap between the prices farmers receive and what consumers actually pay. And at the same time, they may bring about increased benefits to each by making the marketing channels operate much more efficiently.

BOOKS of interest—

The Farmer's Age—Agriculture 1815-1860
by Paul W. Gates
$6.00

The Finger Lakes Region: Its Origin and Nature
by O. D. Von Engeln
$4.50

Treasury of Waterfowl Paintings by Shortt
Text by Cartwright
$3.95

Cooperative Extension Work—Second Edition
by Kelsey & Hearne
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From the College Press

- EGGS ADD VIM—From now on, eggs are going to have social appeal. Anyone who wants zip, zest, and go-power will be urged to eat them, resolved the promotion committee of the State Poultry Industry Coordinated Effort.

- TERRARIUM HOW-TO — Take a clear glass bowl, some selected soil, readily available plants, and that's all that is needed to make an unusual indoor garden. For full instructions, send for Cornell bulletin E-1029, "How to Make a Terrarium." Single copies are free to New York State residents at Stone Hall Mailing Room.

- WINTER KILLS FISH—Farm pond owners may find unusually large numbers of dead fish rising to the surface of their ponds this spring. The high death rate can be attributed to the Northeast's severe winter.

- AMERICAN FAMILIES—are expected to be the emotional repair shops of the nation, Prof. Robin Williams declares. Each day when the various members of the American family converge upon the home from their separate activities an unremarked national crisis ensues.

- ON LAYING EGGS—Prof. Ari Van Tienhoven of the College of Agriculture will team up with a doctor in France this summer to study physiological changes that bring about ovulation in chickens. They will explore the hormonal and nervous stimuli involved in egg-laying.

- RUSSIAN REARING—In describing the Russian child-rearing practices and the Soviet effort to produce a uniform kind of citizen, Prof. Urie Bronfenbrenner stated: the psychological challenge of a technology that shapes men as well as things may well be a threat greater than economic or military threats.

- SWEDISH SCHOLARSHIP—Frederick Hess of Millerton, N. Y., a sophomore, has been selected winner of the Cornell-Swedish Exchange Scholarship. Mr. Hess will study in Sweden for one year.

For further information on any of the above items write to the Cornell Countryman.
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Cornell Campus Store, Inc.
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Editorial

Be A Part Of Cornell

As “Great fleas have little fleas...” so do great organizations have little ones. Cornell University is no exception.

There is little reason, then, for any Cornellian—whatever his interests and ambitions—to feel like half a fish in an endless ocean. Isolation is for criminals, not college students.

True, academic achievement is the primary goal of most students. However, if it’s a student’s only goal, he’s better off locked in the New York Public Library for four years. No one is interested in a walking encyclopedia—except, possibly, as a museum piece.

Well then, a good way to avoid this antiquated state of affairs is to pay some attention to Cornell’s smaller organizations. The student groups on campus number into the hundreds. Some you may consider worth your while, others a waste of time. The functions of some may fascinate you, others bore you to tears. It is your job to determine which group or groups would hold your interest.

There are groups open to University students in general—Straight committees, CURW, Student Government, and scores of others. There are groups within each college which cater to special interests.

In the College of Agriculture, you will find that many departments sponsor clubs related to their fields, like the Floriculture, Pomology, and Agronomy Clubs. All of these are open to any interested student, but if you’re majoring in the field, these clubs should be especially valuable to you. There are also several less specialized groups in the Ag College—the Cornell Grange, 4-H Club, Ag-Dom Council, and the Cornell Countryman.

But no matter which group you join, participation in it can be a rewarding, enlightening, broadening experience. You will come into working association with people whose backgrounds and ideas are radically different from your own. You will be able to test the meaning and feasibility of your own ideas. You will be stimulated to formulate new ideas. You will achieve a sense of belonging and usefulness. You will further your individual development and find your place at Cornell.

I’m certainly not advocating that every student become a joiner and neglect his studies for group activities. But prerequisite to dealing effectively with people is to be one of them. The fastest way to discover what constitutes people is through contact with them. Student groups provide just this kind of stimulating contact.

If you haven’t already done so, now is the time to become a part of Cornell University. Keep your eyes and ears open for announcements, and compete for one or two of Cornell’s organizations.

J.E.B.

A Director Departs

The Cornell Countryman notes with regret the temporary departure of one of our directors, Prof. William B. Ward. At the request of the government of Argentina, Professor Ward will spend his year of sabbatical leave in that country as a public relations and communications advisor.

He will also work with universities in planning agricultural extension courses and assist in setting up a comprehensive information program in all mass media, including press, radio, and television, for the National Agricultural Research and Extension Agency of Argentina.

Professor Ward, who will be accompanied by his wife and four children, will work under the joint sponsorship of the Argentine government and the U.S. International Cooperation Administration.

We welcome in his stead Assoc. Prof. Charles C. Russell of the Department of Extension Teaching and Information. Before coming to Cornell, Dr. Russell was head of the Department of Journalism at the University of Arkansas. We know he will be a great help to the Countryman this year.

NO CONTEST

NOT, that is for business dairymen in New York and Western Vermont who’ve learned that the best way to higher production in their dairy herds is to use

New York
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Judd Falls Road Ithaca, New York
Co-op = Campus Store

Every Cornellian knows that. But not everyone knows why the bottom half of Barnes Hall is popularly, though incorrectly, dubbed the "Co-op." The answer lies in its interesting past.

by Linda Whitman '61

Everything from books to baseballs—that's the Cornell Campus Store! Cornellians are familiar with the vast array of goods that the Campus Store offers. Many faculty members and students take advantage of the services offered by the Cornell retail establishment. These goods and services were not always so conveniently at hand. The story of the "Co-op"—when it was born and how it grew—is an interesting one.

A basement room in Morrill Hall was the predecessor of today's well-stocked Campus Store. The store was the idea of a group of students and faculty members who saw the need for a convenient source of books, supplies, and other items important to college life. That was in 1895. The new business was planned as a student-faculty co-operative and was called the Cornell Co-operative Society, a name under which it operated for over 50 years.

The new society was joined by nearly 300 students and faculty members. A membership fee of one dollar and one dollar for annual dues were charged to members, and the business prospered. From the beginning regular dividends were paid to the members. By 1905 there were more non-members than members on campus and the society decided to incorporate. Two hundred shares of stock were sold at five dollars per share. Ownership was restricted to members of the Cornell faculty and staff, one share to each. Being a stockholder was actually an honorary position since the return from a share was limited to 6 percent—about 30 cents a year.

When a stockholder severed his connection with the University, he ceased to be a stockholder. He re-

Book-buying time is hectic for both students and Co-op personnel.
turned his certificate to the society and was paid the face value. Many stock certificates were returned as the years passed, and only ten stockholders remained shortly after World War II.

University takes over

These ten offered their stock, plus all assets of the Society to Cornell University. The offer was accepted and the Society became a wholly owned subsidiary of Cornell. The name of the organization was changed to The Cornell Campus Store. A board of eight directors was set up to govern its operations. Today the board consists of nine directors who are Cornell faculty or staff members.

After 30 years—a new home

For thirty years students bought their clipboards and toothbrushes at the store in Morrill Hall. The store moved to the basement of Barnes Hall when Willard Straight opened its doors in 1925. A coffee shop had been in Barnes previously, but it was usurped by the Ivy Room, and in moved the Co-op.

Even these roomy quarters couldn’t keep up with the growing University and corresponding student demand. The need for a larger store became pressing. Finally the other occupants of Barnes Hall moved out and relief was in sight. Work began on the cramped quarters in February 1953, and in January 1954, the store moved back into the two story Co-op we know today.

Another Ivy Room

If you’re a Cornellian, you’ve been to the Campus Store. It’s one of the first places an incoming student heads for. On some days—especially around book-buying time—the Campus Store is more social than the Ivy Room. It’s often the last place visited before leaving the campus, when dividend slips are exchanged for anything in sight. These dividend slips are valued like free money, especially among co-eds.

Incidentally, the “Co-op slip” system began about 1925 and was the first dividend system of its kind in the country.
Behind-the-scenes information about the Campus Store is willingly supplied by Philip J. Krebs, the store manager. Mr. Krebs' office is located, like an inner sanctum, behind the cashier and gift departments. It seems completely removed from the activity of the store just a few feet away. Mr. Krebs, Cornell class of '33, is tall, lean, and even has the classic distinguished grayed temples. He's been with the University since 1935, knows his business, and doesn't mind talking about it.

One thing Mr. Krebs mentioned is the underrated fact that the Cornell Campus Store undersells many other campus stores like Yale, Harvard, and Syracuse. "I'd love to have the students go up to Syracuse and price the same items," he grinned.

Serving the students

"We're here to serve the students," Mr. Krebs said. "Our buyers are always watching for good new items for their departments." He continued, "If a group of students have a particular need, we try to put the product on the counter for them." Evidently that's the way the snack counter originated. The girls of Sage Hall (once a women's dorm) petitioned for hosiery and food. Request granted.

In addition to meeting student needs, the store also supplies many items to the University. That's the reason for the large photography department.

Co-op loves Cornellians

Cornellians find the "Co-op" (an inaccurate term which is used nevertheless) both adequate and popular. And evidently the Campus Store employees are fond of Cornellians too. When asked if the sales personnel had any pet peeves about the Cornell shopper, Mr. Krebs replied with a smile, "Absolutely no complaints. The Cornellians are wonderful! There is no pilfering problem and the students are easier to deal with than those of many other areas."

This mutual appreciation is welcomed by all. It's hard to image hiking down to Ithaca every time a check must be cashed or a bar of soap bought. Especially in the winter!
Strained silence reigns over the small makeshift operating room in the basement of the Artificial Breeding Cooperative Laboratory. All eyes are focused on the operating table. The anesthetist slowly and carefully injects Nembutal into the ear vein of a Dutch Belted rabbit. Slowly the rabbit relaxes and falls asleep. Its breathing is regular.

The needle is withdrawn from the vein, a signal which breaks the spell over the room. Suddenly there is a bustle of activity. Eight students and an instructor quickly and with the efficiency of weeks of experience carry out the tasks assigned to each of them.

These students are all members of a course in animal husbandry on the fundamentals of endocrinology taught by Dr. William Hensel. As part of the course Dr. Hensel feels the students should get an opportunity to do some actual research. This group, one of seven, each working on a different project, is trying to transfer fertilized eggs from one rabbit, the donor, to a non-pregnant rabbit, the recipient. They hope that the "foster" mother will nourish the developing embryos and give birth to live young.

Some researchers expect that this technique of "ovum transfer" may some day be used with cattle to produce more high quality cows and steers. High producing cows may be bred artificially with semen from bulls of proven genetic merit and the fertilized ova removed. These ova may then be transferred to poorer cows which will serve as live incubators.

Experiment has economic value

The farmer can then breed his outstanding cows many times a year and obtain many more calves from them. Since the less valuable foster mothers have no effect on the genetic makeup of the offspring, their "stepchildren" should have the desirable qualities of their genetic parents and be high quality animals.

Enthusiasm prevails among the young group of amateur surgeons. "There are many difficulties involved and many techniques to master but the prospects for success are bright," they say. Through a system of rotation, they all get an opportunity to perform each step of the operation. Repeated attempts at the experiment, they hope, will make all expert technicians.

The day before

On the day before the operation, a Dutch Belted rabbit, who will be the donor, is mated to a normal buck. At the same time, a New Zealand rabbit, who will be the recipient, is mated to a sterile New Zealand buck. This second mating puts the recipient rabbit in the same phase of the estrous cycle as the donor. Copulation sets off a series of hormonal actions even though fertilization does not occur. The recipient's uterus will then be prepared to accept the transferred ovum and will nourish it until parturition, or birth.

There is always the problem that the recipient's mate is not sterile or the recipient herself was pregnant before the operation. To be sure that the young she produces are actually foster young which developed from the donor's ova, the recipient is always a New Zealand rabbit. The New Zealanders are all white, and under normal breeding conditions will produce only white offspring. Dutch Belted rabbits, the genetic mothers, are black and white. If the New Zealand progeny have the characteristic Dutch Belted color pattern,
then they must be foster offspring.

On the day of the operation the donor and the recipient are carefully weighed to determine Nembutal dosages. This drug has a very narrow and critical tolerance range and therefore must be carefully administered. If too little is given, the rabbit may awaken in the middle of the operation. If she receives too much anesthesia, the rabbit may die. And, the group reports, fatalities due to overdoses sometimes occur.

When the donor is unconscious, its abdomen is shaved and washed. An incision is made and the body cavity exposed. The oviducts are carefully flushed to obtain the eggs. The flushing fluid is examined under a dissecting microscope to find the eggs which are usually in the two or four-cell stage of development.

The eggs are carefully picked up with a pipette (desperately needed: a steady hand!) and transferred to the oviduct of the recipient rabbit. Transfer of the eggs marks the end of the operation. The rabbit is sewed up and returned to its cage. Since the gestation period, or time between fertilization and birth, is thirty days, the group must wait a month to find out if their efforts were fruitful. But confidence is not without due cause. “We proudly announce the birth of four rabbits to one of our foster mothers.”

Future possibilities

The jump from rabbits to cows is a big one, but one which could occur in the not too distant future. . . . only a matter of time now before another Aldous Huxley’s Brave New World predictions comes true. . . . step from live incubators to mechanical ones and test tube babies is not big . . . . merely requires some mechanical ingenuity.
Introducing...

A New Home For An

Roger Simmons, research assistant, operates a fraction collector which automatically dispenses accurate and equal amounts of any chemical in a series of test tubes.

Robert Simkin, science teacher, feeds a rat colony used for experimental purposes.

Frank B. Morrison was not only a builder of an industry; he was a builder of men who in turn have left their mark on the various fields of animal science,” commented Dr. James H. Hilton, president of Iowa State University.

Dr. Hilton continued, “His book on Feeds and Feeding has not only been the text for the nutrition courses in our Land-Grant colleges and universities in America, it is used throughout the world by teachers and producers of livestock. I wonder if this country will ever produce his like again?”

As head of the animal husbandry
Frank B. Morrison Hall

department from 1928 through 1945, Professor Morrison built the department into one of the world's largest and best. During his tenure, new livestock barns were built, better livestock was purchased, graduate training programs were strengthened, high-quality young scientists were added to the staff, undergraduate courses were revitalized, and extension programs were made more valuable and informative. And in his honor, Frank B. Morrison Hall, the new home of animal husbandry at Cornell, was dedicated on September 12-13, 1961.

The new building will enable the animal husbandry staff to do a more efficient and expanded job in three main areas—teaching, research, and extension work. Its three acre plot sits at the intersection of Tower and Judd Falls Roads, just beyond the Dairy Bar.

The building contains several classrooms and laboratories, the latest equipment, facilities for extension teaching, and specialized provisions for research projects. Noteworthy is the extensive setup for research in artificial breeding.

Speaking at the dedication ceremonies, Governor Rockefeller of New York concluded, “... we dedicate this building not only to the memory of an outstanding man, not only to agricultural progress, but to a better future for mankind.”
Home Eccie sentenced to KP for admitting that Obie's can cook better than she can!

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Our Alums At Work

The Alumni Association of the College of Agriculture is an active organization with an interesting history. It emphasizes "opening the doors" to those who are interested in agriculture.

The Alumni Association of the New York State College of Agriculture began on the evening of February 25, 1909 in a meeting of students and former students of all classes and courses. Dean Liberty Hyde Bailey addressed the first assembly on the needs of the College of Agriculture. The first organization, the Students' Association of the New York State College of Agriculture, included all present students and all who had ever been students of the College. This feature lasted only a few years and in 1917 an amendment to the constitution changed the organization and name to their present form.

The aims and purposes of the Association were: (1) To promote fellowship among all students, past and present; (2) To advance the interests of the College of Agriculture in all ways; (3) To promote country life interests at large.

Today, these objectives still hold, but the areas covered by these objectives have expanded broadly.

A major activity currently carried on by the Association is helping the College of Agriculture inform qualified students of the educational and career opportunities available through the College.

To assist in this program the Alumni Association has set up a vast organizational network made up of over 400 alumni who cover all of New York State. This group includes the seven officers of the Association, or the directors of this program; twelve regional directors who are responsible for the activities of from three to seven counties; sixty county chairmen that plan and develop a high school contact program in accordance with the needs of the county; and approximately 350 county keymen who work closely with one or two county high schools in their locality.

The objectives of this effort are threefold: first, to promote and develop a better understanding with school guidance counselors about entrance requirements and the wide variety of courses offered by the College; second, to develop contacts and to stimulate the interest of parents, and students who are best qualified for entrance; third, to coordinate the county activities with those of the Office of Resident Instruction for the College.

Other activities of the Alumni Association are to (1) Arrange and schedule boys to attend the "College Open House" activities sponsored jointly by the College and the Alumni Association; (2) Sponsor the annual Alumni luncheon held during Agricultural Progress Days; (3) Award a $50 prize to the sophomore and junior having the highest cumulative average; (4) Elect a member to the board of trustees of the Cornell Alumni Association, and (5) Sponsor this page in every issue of the Cornell Alumn magazine.

There are now approximately 1000 members of the Alumni Association. All former students and members of the Staff and experiment station are eligible for membership and shall become members on the payment of the regular fee of two dollars per year.

ASSOCIATION OFFICERS
(Seated) Donald G. Robinson '41, Vice President; Nelson F. Hopper '39, President; Donald Whiteman '39, Vice President; (Standing) Robert H. G. Greig '36, Vice President; Morton Adams '33 and Russell M. Cary '36, past presidents; (not pictured) Stanley W. Warren '27, Secretary-treasurer.
A Nigerian Village Gains

Pounds from Peanuts

The people of Nigeria owe a great deal to Dr. Hazel M. Hauck for her discovery of an inexpensive food to supplement their protein deficient diet. Dr. Hauck retired this summer from her positions as professor in the College of Home Economics and staff member of the Graduate School of Nutrition. Previous to the Nigerian project she spent a year in Thailand studying food habits and ways to improve them. Because she finds nutritional work on the village level very rewarding, she doesn’t want to give it up with retirement but hopes to do similar work in other needy areas of the world. Ed.

by Jane E. Brody ’62

The hungry, expressionless face of a three-year-old girl weighing less than ten pounds—this is what faced Prof. Hazel M. Hauck, Cornell nutritionist, when she arrived in the Nigerian village of Awo Omamma. The cause? Malnutrition. The reason? A basic diet high in starch and very low in protein and riboflavin.

Under the sponsorship of the Unitarian Service Committee of Boston, Dr. Hauck spent a year in Awo Omamma to teach the villagers how to fight malnutrition, one of the main contributors to a 50 percent infant mortality rate.

Malnutrition, observes Dr. Hauck, is the inevitable result of the ill-balanced diet common throughout Nigeria. The villagers “never think in terms of quality of food; it is just something to fill their stomachs,” she notes. Basically, their diet consists of “fufu”, a starchy paste made from yams or cassava meal, and a soup of dried fish, palm oil, and green leaves. Sufficient body-building protein and the essential vitamin riboflavin are not included.

So began the search for a native food which could provide the villagers with these vital nutrients. The search soon ended. Dr. Hauck observed the village women bargaining for roasted peanuts in the market place. If anything is a good protein booster, the peanut is.

However, these peanuts did not supply enough protein to fill the villagers’ body needs. They were consumed as between-meal snacks in very small quantities. Traders obtain the peanuts in the green raw state. Then they roast them in hot soil, and grit clings to the riboflavin-rich skin. Before the peanut can be eaten, the skin has to be peeled away and much of the food value is lost.

New way of roasting

It was a challenging task, notes Dr. Hauck, to increase native consumption of the peanut in its most nutritional form. The ready roasted nuts are too expensive for the villagers to buy in large quantities. Dr. Hauck realized that buying the peanuts in the raw state would cut their cost in half. The peanuts then had to be roasted in a way that would not render the skins inedible. Large iron pots found in every village household are suitable utensils for roasting peanuts without spoiling the skin, she found.

But by far the most difficult problem was getting the Nigerians to accept and utilize these changes and to eat what is good for them. Awo Omamma consists

Peanuts in small amounts are displayed by woman trader in market place in Nigerian village. Once consumed only as between-meal snacks, the peanuts are used as a major food staple in Awo Omamma to enrich the daily diet.
Cassava is displayed in quantity in the village market place at Awo Omamma. The starchy foods—cassava and yams—have long been the basis of the native diet.

of twenty kindred groups. Dr. Hauck worked with mothers from four kindreds. With the aid of a local girl as interpreter, she explained what she wanted to accomplish to these women. Each one was then given some peanut flour to use in preparing her meals for one day. The next day she reported how she had used the flour and what other ingredients she included in her cooking.

Dr. Hauck discovered that the natives liked the taste of the peanut flour. One barrier was now crossed. It's rather difficult to get people to eat something they don't like, no matter how good it is for them. At the same time, Dr. Hauck gathered valuable information about the natives' eating habits.

Ground-up peanuts and cowpeas, another inexpensive source of protein, are now used instead of starchy yams to thicken soup. Dr. Hauck had little trouble explaining the need for these "foods for growth" to the poorly nourished villagers. In a country where children are loved and valued, anything which reduces infant mortality is readily accepted.

Infants are especially susceptible to malnutrition. The starchy food they receive as a supplement to breast-feeding provides none of the protein, minerals, and vitamins essential to growth. Also, "because of prejudice in some areas of Nigeria, animal food is not given to children," says Dr. Hauck.

Better use of resources

But dietary improvement is certainly not dependent upon extended use of expensive animal foods. Rice and other cereal grains, if substituted for cassava and yams, can substantially increase the protein content of the Nigerian diet, Dr. Hauck concludes. "Agricultural production should certainly be improved, but enough food of a suitable kind already is produced so that serious malnutrition need not be common—if the people know how to use their resources," she adds.

Dr. Hauck finds that the satisfaction derived from nutritional work at the village level often stems from small but meaningful gains. In Nigeria, the ten pound three-year-old was the symbol of success. She was fed peanut flour and after a few weeks had gained two pounds. At this time, Dr. Hauck visited her. In serious cases of nutritional deficiency, very often the first sign of improvement is a smile. When this little girl, once completely apathetic, smiled, onlookers burst into applause.

For mere peanuts, the health of 18,000 Nigerians has been improved.
Guldin Awards

Bird-call recordings, clock-work crickets, and starving Indians were the subjects of prize winning Countryman articles last term. The Paul R. Guldin Memorial awards are monetary recognition for outstanding Countryman articles which encourage more adequate rural leadership.

Last spring, Virginia Wolf '61 won the first prize of $75 for her article, "Crickets, a Key to our Clocks." Jane E. Brody '62 wrote "We Want More Food" which won the second prize of $50. Jane P. Doyle won the $25 third prize for her article, "Audio Ornithology."

Honorable mentions were awarded to Andrew Voninski '64 for "More Market Power for Farmers"; James Sample '63 for "Music Pierces the Iron Curtain"; and Tina Bloomstein '63 for "Buzzz Is Not All They Say."

Congratulations to all and best wishes for future successes.—Ed.
Estimates indicate that if the history of the world were compressed into the time span of a single day, the history of man would fill less than a minute of that day. The only record of life during that long period before man's existence is in the form of fossils—the remains and imprints of plants or animals in stone and hardened mud.

In 1922, Dr. L. C. Petry started a collection of New York State plant fossils at Cornell University. Dr. Harlan P. Banks, head of the Department of Botany, is now in charge of this collection. Dr. Banks, and all other paleobotanists (those who study ancient plant life), want to find out what sorts of plants are represented by fossil remains. The ancient plants are considered the ancestors of the plants we now have, and paleobotanists try to determine the relationships between the two.

According to Dr. Banks, New York is very rich in plant fossils. Much of the rock exposed to the surface is of a time period known as Devonian. This time period, the age of the very earliest land plants, was about 325 million years ago.

It is supposed that plant life began in the sea. As time went on plants evolved to the land and developed more complex structures. The Devonian rock (so called because it was first studied near Devon, England) contains the impressions and remains of these very early land plants. Sometimes the impressions only look like a straight black line, but often they show the marks of leaves or branches coming off the stem. It is this type which especially interests Dr. Banks. "We are interested in fossils with a little character to them. If they have no distinctive features, then it is impossible to identify them."

Dr. Banks mentions that there are many places in New York particularly rich in good fossils. "If
When Dr. Banks is not out hunting fossils, he spends much time at Cornell in a room completely filled with them. Shelves filled with rocks containing embedded or imprinted fossils go right up to the ceiling. In addition, boxes of rocks are under the tables, on the tables, and even on the chairs.

New York Devonian fossils make up most of the collection, and it is on these that Dr. Banks does his research. There are also fossils from the other time periods which are used in teaching.

Dr. Banks wants New Yorkers to send him any plant fossils that they find. “We sometimes get them sent in by school teachers and a few interested fossil hunters, but we would like to hear from anyone who finds them. Anyone who would like to have plant fossils identified can send them to me at the botany department at Cornell,” he offers. If possible, he will tell you what it is. At the same time, you may help unravel some of the secrets of the past.

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you connect Albany and Buffalo by an imaginary line, the bulk of the rocks south of this line are Devonian, and may contain good fossils.”

There are several places especially good for fossil finds. One of these is new road cuttings. The blasts split rocks and expose new fossils. When Dr. Banks hears about a new cutting he goes out to the area to search for fossils. Carrying a pick and digging into rock, he is often mistaken for a prospector. “People’s first thought is that I’m looking for gold.” It’s difficult to explain that fossil hunters have no economic purpose in mind.

Two other places are rich in plant fossils. One is the quarries whose rock is used in building new roads. The other is in any exposed shale. The shale, which readily splits into layers, will often have excellent imprints of Devonian plants.

Plant with leaf scars found in marine rock.
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Some straight talk about a career at American Oil

by Roger Fisher

"This Company recognizes the value of varied experience, and encourages you to broaden your knowledge."

Roger Fisher, B.Ch.E. from Cornell and Ph.D. candidate from Princeton, is one of many young scientists and engineers at American Oil shaping the future for himself, his Company and the industry. At 26, he has earned a Fulbright Scholarship and will take a year's leave of absence to continue his graduate research on solids mixing at the University of Osaka, Japan.

"American Oil is looking for broad-gauge research people," Roger adds. "In the long run, the Company benefits as well as the professional who continues to grow in his own or in several fields of research."

Roger's present assignment at American Oil involves applied research—to plan, design, build and operate bench scale lab equipment, to study the kinetics of catalytic cracking. His is one of many diversified projects at American Oil Company. Chemists, chemical engineers, physicists, mathematicians and metallurgists can find interesting and important work in their own fields.

The ability of American Oil to attract bright young scientists and engineers like Roger Fisher might have special meaning to you. For complete information concerning career opportunities in the Research and Development Department of American Oil, write D. G. Schroeter, American Oil Company, P. O. Box 431, Whiting, Indiana.

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This month

WE GIVE THANKS...

for 100 years of higher public education made possible by the Land-Grant Colleges. Because of these institutions, America has achieved the highest level of mass education in history.

On July 2, 1862, President Abraham Lincoln signed the Morrill Act which made the Land-Grant dream a reality. His philosophy was: “If we could first know where we are and whither we are tending, we could better judge what to do and how to do it.”

During the following months the celebrations of this centennial will emphasize that the 68 Land-Grant colleges and universities in the United States:

- Educate one out of five students enrolled in all the colleges in the U. S.
- Conduct the world’s largest off-campus educational program—the cooperative extension service.
- Pioneered research and came up with such scientific achievements as hybrid corn, streptomycin and dicoumarol.
- Furnish nearly half the Nation’s reserve officers through the Reserve Officer Training Corps programs.
- Were among the first to open their doors to women and developed home economic courses for them.
A new, highly controversial book has just reached the hands of Zilch. It contains the "one and only solution to the farm problem." Since the farmer is subject to order as to how much to plant, and how much he is to receive for his production, there is a great price-cost squeeze. The author urges that the farmer create his own industry by making full use of his natural by-product, alcohol. To this, Zilch replies, "Cheers!"

Much to the distress of Zilch (and others), one prof in Ag Ec has changed his policy. "This year we will abolish the honor system in this class. Previous experience has proven that the profs have the honor and the students the system."

Beans to the coed who has posted on her door a sign reading, "No man was ever indispensable—except Adam."

And thus Zilch will leave you with the question in your mind, "How did he find that out?"
FOOTBALL players get better food than anybody on campus, according to George Tebbetts, sophomore guard of this year's Big Red football team. When you hear the pre-game breakfast menu—fruit juice, cereal, salad, a 12 ounce steak, toast and jam, and milk or tea—you'd probably agree with him.

At one time men swallowed lion's teeth to make them strong. They drank blood and believed that violent muscular exercise requires a large amount of meat in the diet. Cornell still has a training table but Frank J. ("Doc") Kavanagh, the head trainer of the team, says "There are no magic foods which produce super power of agility. The same meat, milk, eggs, vegetables, fruit, and grains that are fundamental to the health of every person are needed by football players, too." The athlete's cult has been maintained, but has it been for physiological or psychological reasons?

Rewards for rigor

The significance of eating rare meat as a symbol of manly vigor and strength is obvious. In the course of his training program, the athlete must frequently work hard and forego many pleasures. Accordingly, his need for gratification is accentuated. Some of this can be met by giving appetizing foods such as special desserts and rare beef. This provision makes him feel that training has its incidental rewards and helps prevent him from "going stale." The training table may provide some of the sense of security and reassurance generally obtained from the age-old practice of rituals.

"Doc" Kavanagh says all his training rules are based on straight common sense. He plans a diet "well balanced in carbohydrates and proteins, one that avoids greasy foods and too many spices. Wholesome foods like salad and meat are always served."

Watch those calories

The main problem on a training table is a calorie one. Most players have to keep their weight down for maximum speed and efficiency. But after each man reaches his own best weight, the only real regulation is "no between meal snacks." "If they work hard they'll keep their weight down." Pork, which takes too long to digest, spices, which may cause inflammation of the internal mucous membranes, and coffee, which "steps up" the nervous system, are all on the "out" list—along with cigarettes, alcohol, and late nights. "Doc" believes that "The average kid who wants to play football—and play well—will live by the letter and not break rules." So no checks are made—which makes the rules "psychologically more bearable," according to Bernie McHugh, senior tackle.

Plenty of protein

The trained athlete requires no extra protein. However, there is evidence that during rigorous training the diet should contain liberal quantities of protein in order to permit the muscle mass to increase rapidly without cost to protein sources elsewhere in the body. Vitamin pills are not necessary—a well-balanced diet provides all the vitamins needed for strong, healthy bodies. Sugar in the form of dextrose is sometimes given to players during the game. This is for extra energy. "Doc" Kavanagh says that "the liver can only store up just so much energy—you can't crowd it in." It's also a morale booster. Water intake is regulated as a weight factor. But during a game, water and salt pills may be taken when the player is using up salt and water quickly.

Atmosphere for appetites

Vance Christian is the Hotel School grad student in charge of the training table. He sees that the red and white room is set up with table cloths, silver, and the finest variety of good foods possible. His philosophy behind this is that "If a morale factor is great, one of the best ways of maintaining morale is food." Properly prepared and seasoned (according to the regulations of the coaches), attractive food, music, a bulletin board, and, of all things, liquor labels on the wallpaper make the Statler South Lounge their room. Vance plans meals that "go together" and are in caloric balance.
Heroes

by Elizabeth Pomada ’62

Two off-the-cuff examples of training meals are:

- orange juice
- tossed salad
- green beans
- small baked potato
- roast sirloin
- whole wheat bread and preserves
- watermelon
- milk or tea
- grapefruit juice
- jello salad
- spinach w/chopped eggs
- duchess potato
- Swiss steak
- bread and jam
- lemon chiffon pie
- milk or tea

The training table is a personal project to Vance. He plans menus he himself would enjoy at the same time he regulates the starch and fat content of each meal. By cutting down on potato calories, he can easily give the men a morale-building cherry pie à la mode every once in a while.

Athletes eat speedily digested food for two reasons. First of all, says an ex-coach of the Columbia football team, food must be absorbed before it’s of any use. Secondly, energy is required to digest, absorb, and utilize food. When blood goes to digestive organs rather than muscles, the speed of the player is handicapped. Psychological upsets can retard digestion. In training programs the ability to rest and relax before and after meals is as important as endurance and dexterity during performance.

We like it, we like it

What do the players themselves think of the training table? Vance Christian has been told more than once to “keep it as it is.” “Excellent,” rhymes George Telesh, senior halfback, “excellent. We abstain from filling ourselves with candy, pizza, and pastries and we learn to like tea—although I like tea anyway. I eat as much as I can”—the 172 pound halfback loses 5 to 10 pounds per game and is one of the few who have to gain—but before a game I relax and slow down. You have to be light on your feet and your stomach while playing.”

George Tebetts says “We find our own ideal weight and keep it with ideal food.” Bernie McHugh claims the team food “has to be better than what everybody else eats because we need lots of protein.” Bill McCall, a 230 pound sophomore tackle, likes it because “They don’t have what you’d call a fat man’s table or anything else—they don’t make you overly conscious of the weight you know you have to get rid of.”

Bob Palmisciano’s own private preparation method is to drink lots of orange juice for vitamin C two days before the game. “Then I get mentally prepared and physically relaxed for the contest.” Tony Pascal stays away from bread. He thinks that “When you’re in training you should always leave the table a little hungry—this keeps me ‘lean and mean.’” While in the Infirn, Ken Kavensky admitted that he missed the training table most of all.

Contented kickers

So you see, the adequate, sufficient, and appetizing variety served at the training table does keep the team happy and satisfied. The cult aspect includes prohibitions and added attractions. How much of this is nutritional and how much is psychological is hard to tell.

Would the training table diet be effective for the average sedentary student? Only if he adjusted his intake to his needs. Few normal students require as much protein as the athlete does.

The Oxford crew in the 1860’s trained on a diet of red beef or mutton, bread, tea and beer, with a little jelly or watercress as a treat at the evening meal. Instructions were given that no vegetables were to be eaten. Cambridge, on the other hand, suffered no restrictions regarding potatoes, greens, or fruit. From 1861 to 1869 there was an unbroken succession of Oxford victories. So much for nutrients and neuroses in athletics.

November 1961
Drive along the outskirts of any large city. Chances are you will see lines of pastel colored housing developments invading the countryside. When only yesterday fertile farms with sprawling fields characterized the landscape, you now see factories and subdivisions randomly situated throughout the rural landscape.

Everyday, a Fortune Magazine committee found, 3000 acres of land are chewed up by orange bulldozers. The greatest proportion of this land surrounds the large metropolitan centers due to the rapid development of suburban areas. This spectacular growth along our "urban fringe" is affected by the decreasing demand for manpower in rural areas. Mechanization forces rural people to seek employment in urban areas.

Another factor is the population explosion which is greatest in metropolitan areas. The population of the United States has increased by 30 million during the last decade and is expected to increase by another 40 million by 1975.

Agriculture hit hard

Agriculture has suffered from this explosive urban growth. Concern increases over the encroachment of agricultural farm land by non-farm operations. Will we be able to feed our growing future population on a decreased farm acreage? According to Erling D. Solberg of the Agricultural Research Service, 17 million acres of our flattest and most fertile farmland have been converted to non-agricultural uses since 1940.

Valley Stream, Long Island, is unrecognizable if you haven't seen it in 30 years. Urban developments have usurped the one time fertile farmland.
He estimates that if urbanization continues at the present rate for another fifteen years, no less than 100 million acres of farm land will be buried under concrete and asphalt.

Urban-conscious society fails to realize that there is a wide range in soil fertility. Much of the acreage used for industrial and suburban expansion has been our best farm land. According to recent forecasts, there will be a 40 percent increase in food demand in less than 15 years. It is therefore very important to preserve prime farm land by diverting industrial and residential development to areas of lesser agricultural importance. The United States must have the foresight to insure our future generations a bountiful food supply.

The Greenbelt concept is a step forward in meeting this challenge. Many rural communities have adopted this plan in which land is set aside from urban development to limit the outward growth of an urbanized area. This preserves the rural land in the belt for agricultural and residential purposes. By using this principle, industry and agriculture will not conflict.

Not only will the Greenbelt plan rescue agriculture from the pollutive effects of industry, but it will also serve to keep the region well-planned, scenic, and efficient.

Taxes will be less too

Farmers in these areas have to pay higher taxes on their land, because of increased real estate values and a growing demand for public works in the community. In conjunction with a Greenbelt plan, an arrangement can be made where-by the farmer’s tax assessment will be reduced. He must agree, however, to keep his land in the Greenbelt zone. Rural zoning is another method used in controlling urban sprawl. Zoning ordinances in the rural areas create suburban type-residential zoning districts, and open country zones.

Professor Lawrence S. Hamilton of the Cornell Department of Conservation predicts that the 1961 Federal Housing Act will modernize the field of rural planning. Under this plan, technical and financial assistance will be provided for communities who wish to maintain a rural zone for conservation, agricultural, or scenic purposes. The tools for effective regional planning are available, but the necessary action must be taken.

Act now, or pay later

Open land around cities is disappearing at a rapid rate. We must act now if portions of this land are to be preserved for the future.

The question now remaining is whether man, influenced by his selfish economic interests, will realize that if our future generations are to live in a pleasant environment and to enjoy a bounteous food supply, planning will have to be done now. The land which is developed today is lost tomorrow.
Too tired to read at the end of a day, Machooka explores Trumansburg countryside.

**A Lonely US Summer Turns Into...**

Long summer days turned out less lonely than expected for an African undergraduate with a long vacation to spend in America. The student was Stephen M. Machooka '64 from Kenya, East Africa, one year into his education and already the holder of the Cornell record for the mile run.

Professor Paul R. McIsaac '47, electrical engineering, and his family had been host family to Steve during the school year. But mer meant his college, Agri required work in farming. He himself ten miles from cam the farm of H. William Smi Trumansburg.

Hard work had whittle pounds off his usual 132 b summer, and shown him the magic to US farming. The and others too, helped int Steve to off-campus Americ

The fields and the barns are his home by day.

He shows Mrs. Smith a stew, his favorite dish.

He studies at night for the coming year.
Sunday is a big day. Baptist Church members invite Steve into their homes where he finds people who, in his words, "Speak from their heart."

Farmer Smith and his son, Bill, introduce Steve to the hard work and reliance on weather that make US farming like that all over the world.

Adapted from The Ithaca Journal
Pictures by Sol Goldberg
Reporting by Jervis Langdon III
As Appearing in Alumni News

...Days of Discovery

The eldest of ten children, Machooka enjoys and is enjoyed by the farmers' youngsters.
One Year Later . . .

. . . and all is well. A '61 alum finds the world a campus without books.

by Robert Gambino

"Wait 'til next September" they said. "There will be no more beer blasts and wild parties, and those all night bull sessions will be a thing of the past. Before you know it you'll be married and you'll have to settle down and live life like a normal person."

College is what you make it, and when you leave you've left it. Life doesn't end after college as some people think. If a college graduate can make the transition onto the tread mill of life from the fantasy of college without faltering, the better it is for him. But, who can do this? There are few who are so physically, mentally, and socially constructed that they make the transition with ease.

After graduation your education continues, your scope of understanding expands. However, there is one catch...you have to keep an open mind. How many of you believe that after a number of years at your vocation you will still have that "keen open mind" you had as a college student?

I graduated last June and I have no overpowering desire to return to school. Shucks, this is almost a lie... I want to return to school. However, I don't want to return as a "Sophomoric College Kid" but as a student... fully aware of the world around me, without the apron strings.

Right now I'm working in the Utica area as Assistant County Agricultural Agent for the Oneida County Extension Service. I like the work; the challenge of working with homeowners keeps me on my toes. I'm meeting people all the time, exchanging ideas and becoming more mature. My outlook on life hasn't changed—just my application of these philosophies. The Extension Service offers creative responsibility to any willing individual. It's the same as being back in college I guess, because it's freedom with responsibility, only now spoken by a man.

Mr. Gambino, who was a floriculture major at Cornell, is presently working in extension. He is shown discussing greenhouse practices with an orchid grower.

Richard Mandell

Alumni Awards

Jennifer Patai '63 and Lawrence A. Menahan '62 were the winners of the Alumni Prize contributed by the Alumni Association of the College of Agriculture.

The prizes of $50 each are awarded by the College faculty at the close of the sophomore and junior year to the students who maintained the best scholastic record during their two or three years in the College.

Jennifer is a genetics major who wants to do research in medical genetics following graduate work. Lawrence plans to continue his studies in animal nutrition on the graduate level next year.
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Charm On The Farm

Yes, females have their fingers in everything. Even the practice requirement isn’t sacred.

by Linda Goldreich ’64

A blue-eyed blonde isn’t what you’d expect to see seated on a tractor. You’d probably be surprised too if you saw her hop down and help unload bales from the hay wagon.

Yet this was a common occurrence on the Laberge dairy farm in Vermont where Elizabeth Jordan worked at farm chores this summer. Liz, who stands just five feet tall and weighs less than 100 pounds, is a pre-vet major at the Cornell College of Agriculture. Why farm work? To fulfill her practice requirement, she explains.

Liz worked under the new rule that all girls, as well as boys, must obtain credit for practice work in farming or their fields of specialization. Until the fall of 1960 all boys had to fulfill a practice requirement, but only girls majoring in floriculture were responsible for it.

The 1959 revision requires practice work of both male and female students who entered the College after the fall of 1960. The amount of credit needed was reduced from 40 credits to 25 in some departments, and to 12 in the others. For example, both male and female pre-vets are required to obtain 12 credits in farm work before their sophomore year.

Prepractice preview

Professor Shapley, in charge of student practice, helps place students on farms to gain experience with animals. He suggests that the students learn farm skills, the business of farming, and meet the people in agricultural areas, explains Liz Jordan, who entered her sophomore year this fall.

Elizabeth is from New York City and had never been on a farm before this summer. She found the farm course, given by Professor Shapley one afternoon a week in her freshman year, invaluable for the farm work she did this summer.

On a dairy farm set in the beautiful Vermont countryside, Liz worked with animals, both large and small. The large ones were quite a bit larger than Liz. But this was no drawback to the little blonde who milked cows, washed milking machines, cleaned barns, drove tractors, and unloaded hay like the rest of the boys.

You may wonder if petite Liz had the strength needed for farm work. She did find ways to do heavy work efficiently. When asked if being a girl is a disadvantage in farming, Liz replied that “a man doesn’t just pick up a cow and throw it” any more than a girl would.

On the 333 acre farm, Liz got to know the family and neighbors well. She found that “people go out of their way to help you.” Visits from 4-H representatives and extension workers were frequent and fun.

College contact helps farmer

The Laberge family spoke a great deal about the University of Vermont and Cornell. Liz feels that contact with college students who work on farms makes farmers more aware of the technological advances developed by the colleges.
The farmers are interested in improving their farms and appreciate extension and college information, she adds. Mr. Laberge wrote to agricultural colleges and received helpful information about artificial breeding as well as test hybrid corn seeds.

A variety of tasks compose farm work, says Liz, who performed her job seven days a week, from 7 a.m. to 8 p.m. with an extra three hours off on Sunday. "Just visiting a farm and not working at the chores wouldn't be the same," she explains.

It's a valuable experience to meet the kind of people she will eventually work with, and the animals she will care for, says Liz. This added to her interest in veterinary medicine.

A job in journalism

Meeting people is an exciting and integral part of practice work in journalism as well as in pre-veterinary farm work. This summer I worked as a typist in the Editorial Department of Consumers Union, a non-profit organization which publishes the magazine Consumer Reports.

The work I did was varied and I learned a great deal about writing and publishing a magazine. During my twelve weeks of employment, three issues of Consumer Reports were written and published, a book, "The Medicine Show," was finished and distributed, and work was begun on the annual "Buying Guide." I was very proud when I saw the issues I did work for sitting on the newsstands.

Proof-reading, notoriously a boring task, was fun and informative at Consumers Union. When I didn't understand a symbol or word, the staff helped me out. I typed corrected manuscripts, often at several stages of their development. I noticed how corrections were made and sentences clarified. Gradually, the stories assumed the form they would embody in the final printed magazine.

Jack of all trades

I made paste-ups for the "Buying Guide." These are pages of copy pasted in the proper order with style corrections as well as additions and subtractions of material. I did some odd jobs in other departments as well. When my hands were photographed as part of an illustration for the magazine, I got an inside view of the photography studio. I also toured several departments, including chemistry and electronic engineering, where Consumers Union tests many of the products they write about.

Experience a good teacher

Consumers Union offered me practical experience and a chance to observe journalism in its natural setting. The three months I worked there were among the most rewarding in my life. I realized journalism is a field which vitally interests me. I also learned about the publication of a magazine and met many people whose friendship and guidance I will always value.

Lady in the laboratory

The field of bio-chemistry too, has a practice requirement which must be completed before the senior year. Susan Atlas, another Cornell sophomore, worked as a laboratory technician. She did research in the Microbiology Department of Long Island Jewish Hospital, New York.

Susan had previous experience working on weekends and summers in Haskans Laboratory, New York, since her junior year in high school. However, she explains that this summer was the first time she had a project to do on her own. It involved much more responsibility, she adds.

Susan worked on a pilot study of microbial calcification, the formation of "calcium pearls." She used one marine alga and one marine bacterium. The eventual purpose is to relate microbial calcification to human calcification. Susan explains that the "basic driving force of this type of research is that biochemical systems are similar for all living things."

The laboratory work was a direct application of the chemistry she

Linda Goldreich '64, discusses a problem in journalism with her major advisor, Prof. Charles C. Russell. This summer, Linda saw journalism in action while fulfilling her practice requirement.
Susan Atlas, sophomore biochem major, was a lab technician. Studied last year, Susan explains. She used qualitative chemistry and special techniques of titration. Susan feels the discipline of the technical work she has done will help her in her future career. She explains that the practice work makes her college courses more meaningful. Her current school work relates directly to reactions she saw and used in her research.

The results of the research on calcification, that there is a "definite correlation between the amount of calcium present and the algae's ability to grow," enabled the hospital to get a grant for further work on the project.

At Cornell this year, along with her regular studies, Susan is continuing her research in a special projects botany course. From a comparison of the work she did this summer for credit with the work she had done previously, Susan concludes that she would like to work in "pure research" as a career.

All learn by doing

Susan, as well as other girls interviewed, found their practice work worthwhile and plan to continue it even after the requirement is filled. By their enthusiasm, the girls conveyed other purposes of the requirement. They enjoyed the work, found the people interesting, and have some insight into what the future offers.

Even those who were disappointed gained valuable knowledge. They learned that all is not peaches and cream, a fact worth recognizing. They were forced to see if they had selected work that really interests them. And there is no better way to find out than to dive right into your proposed field.

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14
Cornell's Legend of the Little White Father

Dr. Erl A. Bates served Cornell and the world as a great educator and humanist.

No observant Cornellian could spend four years here without wondering about the curious little man with keen, dark eyes. He's often seen crossing the Ag Quad, in a broad, flat-brimmed Quaker hat, and a string bow tie. Who would guess that this thin, quaint figure embodied Dr. Erl A. Bates, great educator and humanist.

Unfortunately, the Upper Campus will no longer see Dr. Bates. He has just retired after 40 years as a Cornell ethnologist, authority on Indians, and extension agent. During his long and fruitful career, Dr. Bates received world wide acclaim. He was recipient of the New England medal for the outstanding contribution to American education. Like Charles Darwin, he received the Tyler award for adding to the knowledge of primitive society. He's also being selected for a chair of Immortale of the International Institute of Science in Paris.

Dr. Bates' outstanding work has been with the North American Indian. He devised the Bates Plan, which accepts the American Indian as a product of his environment and seeks to raise his standard of living within that environment.

At the College of Agriculture, Dr. Bates enabled many Indians to gain educations by stimulating interest and procuring funds. Some, such as Alec White, an Iroquois, went on to receive M.A. and even Ph.D. degrees under the impetus of Dr. Bates. For his great work as founder of the Indian Welfare movement in New York State, the doctor is affectionately called by the Indians, "Little White Father."

Wide range of interests

Dr. Bates' interests do not end here. They range from horticulture to pioneer days to politics. In each successive field he gained recognition. He was vice president of the State Federation of Horticultural Societies and Masonic Scholar, to mention only a few.

As an extension agent, he spent much of his time on the road, inspiring development in backwater rural areas. As Mrs. Blanche Monrow, former scheduling secretary, puts it, "I think he ate more grain supply than any other person on the staff."

Born in Syracuse, Dr. Bates studied at Syracuse University, Bellevue Hospital Medical School, in Leipzig, and in London. He launched whole-heartedly into his many fields almost immediately, and carried a heavy schedule even in his youthful days.

"A living doll"

But this is only part of Erl A. Bates. He's not just a scholar; he's a sensitive human being. His friends call him "a living doll." He is never too busy to cast a warm smile, relate a humorous anecdote, or lend a sympathetic ear to both staff and students.

Now, in retirement, Dr. and Mrs. Bates, a former Home Economics professor, plan to spend their well deserved leisure fishing in the South.

Dr. Erl A. Bates has become a legend at Cornell. He is one of those rare people who used individualism and academic brilliance to serve mankind.

by Barbara Pollack '64

November 1961
The Countryman congratulates Miss Dorothy Ann Scholl, Agriculture '64, for attaining the highest average of any University freshman last year. Her 92.56 average places her scholastically above every student in the College of Agriculture, too. And she achieved this rank while working her way through school as a technician in plant pathology.

Dot, as she is known to friends, received the Alpha Zeta scholarship key and $200 in honor of her achievement. This award is presented annually at the Honundeh-kah Barbeque to the highest ranking freshman in the College of Agriculture.

A science teaching major, Dot is excited about her future profession. "This summer I constructed a cat skeleton to use as a teaching aid in biology," she relates.

Dot, a native of New City, N.Y. and 1960 graduate of Clarkstown High School, was editor of her high school newspaper, "The Ramshorn," treasurer of her junior and senior class, and a member of the National Honor Society. She also holds the New York State Regents Scholarship.

Commenting on her recent award, Dot says, "Throughout my years at Cornell, I will try to do the best that my ability allows." We think she is off to an excellent start.

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I chose a career, not a job!

by Pete Vossos

"I found a satisfying job right from the beginning—and more important, American Oil is diversified enough to offer varied opportunities for the future."

Peter Vossos earned his Master of Science degree at Iowa State, ’58. As a physical chemist, Pete’s immediate project is studying fundamental properties of asphalts with the objective of improving their performance in roofing and industrial applications. About his 2 1/2 years at American Oil, Pete adds, "This is a company that’s big enough and dynamic enough to be doing important work, but not so mammoth that you get lost in the crowd."

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The First Farmer Was The First Man . . .

and, according to Emerson, all historic nobility rests on possession and use of land.

The graduating seniors of the New York State College of Agriculture, '62, do not feel Mr. Emerson's statement is complete. They know that today's agriculturist must be trained in many areas before possession and use of land is economically profitable.

While receiving this training, eighty of the above seniors have achieved an academic nobility by ranking in the upper 27 per cent of the 292 students in the class. Their quest for knowledge is as concentrated as their areas of specialization are varied.

Most of the credit for advances in agricultural practices is due to the "know-how" these young Americans obtain through study and experimentation in Colleges of Agriculture such as ours at Cornell.

With the tools the college makes available, the graduates face their related agricultural careers with confidence.
Cornell Countryman
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Advice on Arts Courses

Walking through the hallowed halls of Balch the other day, I overheard a perplexed coed’s conversation with her roommate. “I don’t know what to do. I have three more social science hours to complete. Should I take history or government?” she queried. “I took history and loved it,” was the reply. “Well, should I take History 104 or 106?” the coed asked.

Roommates are good for many things. But they’re not always the best ones to tell you how to utilize your Arts hours to your greatest advantage. A course or professor you enjoy may not be equally suited for you. Individual tastes vary greatly—even between the closest of friends.

I’m sure many of you suffer from “pre-registration pangs.” How do I know which course to take if they’re both described the same way in the catalogue? Which would I enjoy more: government in theory or government in practice? Will I be getting a history of facts or a history of ideas? I have an appointment with my advisor in an hour and I still don’t know what to do. Maybe he can help me. But how would he know about Arts College courses? He’s a professor of animal husbandry.”

You’re right. He probably doesn’t know a thing about the courses causing your dilemma. Well, what do you do—pick something out of a hat? No, you can’t afford to make mistakes when you’ve got so few credits available to you. There’s a much better solution: the Student Academic Advisors.

These advisors are honor students majoring in one of the seven Arts College departments presently participating in this program: economics, English, government, history, mathematics, psychology, and sociology.

Each student is familiar with most of the courses in his department. And if he can’t answer your questions, he will send you to an advisor who can.

What can a student advisor tell you? He can probably answer all the questions posed above. He can tell you where a professor places his main emphasis and what he expects of his students, whether he lectures from a well-organized outline or off the top of his head, to what level of maturity the course is geared, and many other bits of information you’ll find helpful in making the proper choice.

How can you get in touch with one of these advisors? Just call the department you’re concerned with and ask for the name, address, and phone number of a student advisor. Or if you feel hesitant about calling a perfect stranger, walk into the department office and write your name and phone number on the list posted for this purpose. A student advisor checks this list daily and will contact you immediately.

The eyes of other Arts College departments and other colleges are on this program. If it is used frequently and successfully this year, they may establish similar setups for their respective fields. Wouldn’t you like to know more than your advisor can tell you about those ag courses you’re thinking of taking? Here’s your chance to start the ball rolling. Use the present Student Academic Advisor Program effectively, and your college may have one next year.

But remember, you’re not just furthering a good cause by using this program. You’re gaining from the knowledge and experience of others around you. Be sure you use your precious Arts hours wisely. Contact a student advisor before you have to decide on a program, and perhaps next time those “pangs” won’t plague you.

J.E.B.

Letter to the Editor

Aggie in Sweden

TO THE EDITOR:

As the 1961 Swedish Exchange Scholarship student, I should like to direct this letter to those sophomores who are eligible to apply for this scholarship in 1962.

I left New York City June 21, on board the Swedish American Line’s M.S. Kungsholm. Immediately, I knew I was going to have an experience I would never forget. During the days on board there were many activities—from indoor gymnasium swimming to trap shooting off the stern. Every evening there was dancing, various games of chance, and many other activities to suit different tastes. Besides all the fun, the friends I made, both American and Swedish, was one of my most rewarding experiences. I now have many addresses all over Europe as well as America, and I feel free to stop in at any one of them any time.

From the boat I went directly to a farm in southern Sweden. This also proved to be a wonderful experience. The farmer and his wife took me to many places in the area. When I began to know my way around, they let me use their car to make my own excursions. Of course, it wasn’t all “eat, drink, and be merry” on the farm. There was also work to be done. Although most of the exchange students before me worked on the farm for two months, I worked for three, and didn’t leave until September 28. I came directly to school at Uppsala which is about 45 miles northwest of Stockholm.

During my first day here I participated in Dag Hammarskjold’s funeral as part of a student honor guard. Since then I have been taken on a number of student tours to Stockholm and other cities surrounding Uppsala.

You can study almost any phase of agriculture here. I will be taking courses in agricultural marketing, genetics, microbiology, milk composition, and national economy. I will also study Swedish, although I am picking up a great deal now just by listening to conversation and asking questions.

Social activities assume considerable importance here. The school is quite small (250 students), but there is a large university and several home economics schools nearby. Therefore, there’s dancing two or three times a week, or you can enjoy an informal social gathering almost anytime at the International Club. There is also ample opportunity for horseback-riding, seasonal sports, and other athletic activities.

So far I have had a very busy and interesting time in Europe and am looking forward to much of the same. I’ve begun to plan travel trips, possibly to Russia, and definitely to the Continent and England.

If anyone has any questions about life here in Sweden, I would be glad to answer them. Also, Leslie Small, last year’s exchange student who is now at Cornell, should be contacted. Best of luck to all those who try for the Scholarship.

Frederick F. Hess
Kronasen 4
Lantbrukskogskolan
Uppsala 7, Sweden

There will be an open meeting for all sophomores interested in the Swedish Exchange Scholarship Program on December 7 at 7:30 in Warren 131. Hear a talk, see slides, get your application.

CORNELL COUNTRYMAN
Most of us know that we inherit characteristics from both our parents through genes in the chromosomes of our mother's egg and father's sperm. The chromosomes are located in the nuclei of these initial cells. But do you know that there are some things inherited only through the cytoplasm of the cell?

Dr. Adrian M. Srb, world renowned geneticist of the College of Agriculture, recently spent 12 months in France, working on these extra-nuclear genes. "One of the few firm attributes you can use in defining life is reproduction. You can't conceive of it without thinking of a system of inheritance," states Dr. Srb, who is probing into the problem of unusual genetics systems.

His work is sponsored by the National Institutes of Health. They want to know what makes each cell different, whether it's environment or heredity." In the instances studied by Srb, the differences are hereditary but not due to chromosomal genes. "There are aspects of cellular differentiation both in normal growth differences, like those between skin and nerve cells, and in the sudden abnormal growth characteristic of cancer," observes Dr. Srb. The chromosomal genes in the cells of a given being appear to be the same. Where then does the differentiation come from, if not from the chromosomes?

Previous work a clue

Before Dr. Srb's work, a few instances of maternal inheritance were known: all progeny were like the mother and unlike the father. This was a clue that cytoplasmic genetic systems may exist, since the female contributes chromosomes and all the cytoplasm which goes into the fertilized egg, while the male contributes just chromosomes. These scattered instances were found by chance.

Higher plants offer a few examples of maternal inheritance — cases in corn, onions, and sugar beets that have turned out to be useful tools in breeding hybrids. The phenomenon has been used practically but with little understanding of its basis.

Dr. Srb is working with the bread mold Neurospora to get enough instances of maternal inheritance to see whether he "can induce a series of changes in the bread mold that represent changes inherited by non-chromosomal genes."

Microorganisms, like Neurospora, are convenient to work with. Each sexual generation is only two weeks long. Each cell has only one of each kind of chromosomal gene. Genetic analysis in Neurospora is therefore easier than with the majority of organisms, where each kind of gene is represented two or more times in each cell. Dr. Srb also finds Neurospora convenient because it can act either as a male or female in experimental matings.

Non-chromosomal inheritance shows up when one culture acts differently when used as a male than when used as a female. Since the Neurospora will also reproduce asexually, the experimenter can use genetically identical organisms as both male and female.

Only females show factors

Dr. Srb finds that the heritable cytoplasmic factors he studies are reduplicated and reproduced as long as the culture is used as a female. When used as a male there is no inheritance of these factors, and the cytoplasmic factors are lost. Pokey-ness is an example of such a factor. It results in a slowing of the growth rate.

Using a dye substance called acriflavin, Dr. Srb has induced a series of mutations that show maternal inheritance. The fifty isolations successfully accomplished in France provide a relatively large number for study. Only two had been observed up to this point. "In some cases there's been enough
Normal Neurospora surrounded by mutant forms.

preliminary work to give an idea of the nature of the chemical alterations resulting from mutation. It seems to be a change in the cytochrome systems which act as mediators of respiration in the cell,” according to Dr. Srb. Now he wants to find out whether these fifty instances all represent different elements in the same system or whether they represent a series of independent systems. Geneticists know about genes and chromosomes. They constitute the most important part of heredity. Is there something more? Do these examples point to one new theory?

**Luxurious lab**

Dr. Srb worked in Gif-sur-Yvette, just outside of Paris. The Sorbonne’s well equipped lab where he did his research is on the grounds of a picturesque ancient chateau, complete with elegant formal gardens. As a guest of Professor Boris Ephrussi, Dr. Srb conversed daily with three of the half dozen or so scientists in the world highly competent and interested in his research subject. M. Ephrussi experimented with yeast, Philippe L’Heritier with fruit flies, and Georges Rizet with a kind of dung mold. All three are also working on “extra-nuclear genes.”

Dr. Srb is a versatile individual. He majored in literature at the University of Nebraska. Later, he discovered he “could do more original work in science” and switched in midstream to genetics, which he studied in Stanford’s graduate school. After receiving his Ph.D. in biology in 1946 and working at Stanford for a year, Dr. Srb joined the staff of the plant breeding department here at Cornell. He still reads a fair amount of literature with great pleasure and has an active amateur’s interest in music. “Piano playing,” he finds, “is one way to relax.”

**All research is applicable**

Dr. Srb designates his work as pure research. He says, “This unusual kind of heredity offers a challenge. We don’t know the scope of its importance or the rules of the game.” He defends this pure research (that is, experimentation that has no immediately obvious application) because “any bit of knowledge you accumulate has worth and can ultimately be applied.”

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December 1961
Ice Fishing - For Fun and Profit
by Michael Dahlberg '62

When you have a pike on your line, fighting for its life, you experience the thrill of ice fishing. The discomfort of cold winds, snow, and bright sun glaring off the ice all seem worthwhile.

Hundreds of ice fishermen converge on Oneida Lake on a weekend to pursue the abundant fish and the thrill of catching them. The anglers and their shelters give life to the otherwise barren surface of the ice.

Little gear needed

You need little gear for ice fishing. The necessities include warm clothes, a fishing license, a spud or axe to chop holes, bait and container, and “tip-ups.” The “tip-up” is the actual fishing apparatus. It is simply a stake with a wire on the end of it. For fishing, the line is uncoiled off the vertical, stable stake, and strung through an eyelet of the wire into the water to the correct depth. A lowered wire, indicated by an attached flag, indicates a strike.

The equipment often includes a sled, hand-warmer, ice shanty, and wind-breaker—frequently nothing more than a used Christmas tree. The ice shanty is the symbol of the ardent and comfortable ice fisherman.

The walleye pike or pikeperch is the prize species taken. Its fighting ability is notorious but its taste is well worth the struggle. The scrappy yellow perch are caught in greater numbers than any other fish. Occasionally a lucky angler can fill a burlap bag with perch in a day. Other fish caught through the ice include the lawyer (ling, burbot), pickerel, northern pike, and rarely, catfish and silver bass.

Lawyers are popular because they are large and abundant. But they are disliked because most people find them unpalatable. Unlike the other fish, which anglers eat, the lawyers are usually left on the ice where they are consumed by hungry gulls.

The ice fisherman’s lament is the mudpuppy, a four-legged aquatic salamander which has an offensive habit of stealing bait minnows off the fish hooks. The fisherman’s solution—keep that hook off the bottom.

Danger—beware!

But all is not milk and honey out on the ice. Many a fisherman has had a frightening experience. A plunge into the icy waters is common to adventurous “early birds” who gamble with the weak ice. They are often accompanied by their equipment and automobiles. Thin ice is found at the mouths of streams and in weak areas formed where the ice pushes and cracks. Oneida Lake’s fierce snowstorms are another source of danger.

The annual “freeze-over” usually begins in December. The shore and bay waters freeze first because the shallow water cools more rapidly. Waves in deeper water retard this freezing.
The "freeze-over" may be directly followed by more freezing, snow, melting, or a combination of conditions. A snowfall may be great enough to discourage all fishing by burying "tip-ups." Slush usually forms temporarily on the ice, sometimes making travel difficult and filling fishing holes. The conditions vary much each year but they usually allow fishing for most of the "freeze-over," from December to March.

**Added attractions**

Some find the diversity of color, structure, and content of the lake ice as interesting as the fishing itself. The white, blue, and black ice may be as smooth as a mirror or corrugated, usually varying in different areas. Anything that can float in the air or water might be found preserved in the ice. The shoving ice often forms into elongated ridges.

The ice melts away along shore in March, and the water opens. As this open water grows, animals and plants appear which were dormant or hidden during the long winter. The process continues outward until a wind shoves the ice upon the shore and islands where it forms crystalline stratified ridges. The "tip-ups," bait buckets, and shelters either sink or become part of the fascinating pot pourri which can be found washed up on shore in the spring.

**Practice good management**

Considerable care must be taken to keep this central New York State lake the excellent fishing area that it is. The Oneida Lake Association is very active in this project.

Drs. J. L. Forney and A. W. Eipper, Cornell University biologists, are conducting a long-term fishery research program on Oneida Lake. It is aimed at determining management methods.

New regulations have recently been enacted for Oneida Lake due to increased fishing pressure and more scientific knowledge of the lake's fishing populations. The legal number of ice fishing lines and limit of walleyes per day have both been reduced from 15 to 10 per person. Also the sale of Oneida Lake pike is now illegal.

Oneida Lake ice fishing is a sport with discomforts and present and future problems. But the challenge is being met with the vigor needed to assure the future of the unique and delightful experiences that ice fishing can provide.
Dairyman Crockford using his most versatile farm "tool"

King Crockford uses GLF Farm Advisor Harold Pritchard to help with his most important farm operation: planning—figuring the ways that make the Crockford-Sexauer farm near Auburn, N. Y. run smoother, bring in more money.

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Cooperative G.L.F. Exchange, Inc., Ithaca, N. Y.
Alumnus Advises

How To Get Ahead

Brains are only part of the story. Willingness and hard work spell success.

by George Abraham '39

Today, it takes more than brains to get ahead! To find your place in the business world may be a bigger job than you think. Opportunities are great, yet it's still hard for some graduates to find (and hold) a job in this land of opportunity. Why?

After being in business for nearly a quarter of a century, I'd like to pass along a simple tip or two that might guide a student who's ready to spring for employment.

(1) The thing you should think least about is wages. Sound odd after spending thousands of dollars for an education? No. Experience is what you're after first. Once you get it, you're on your way. Not many bosses are going to start you out high, just to break you in. If they did, you'd break them. Start low, if necessary, and work up. Most successful men have done this.

(2) In applying for a job, better learn to write a good letter. Sounds elementary, but not. 1 in 10 students know how to cook up a good letter. Make it concise, original, tight, neat and DON'T PUFF YOURSELF UP TOO MUCH! A sharp employer can size you up from a down-to-earth letter, and interview.

Letters should be typed, written on good paper, addressed to the employer in person, never "To whom it May Concern" or to "The General Manager." Unnamed letters are food for the wastepaper basket. And if you happen to start in business for yourself, choose a good letterhead. This is the cheapest piece of promotion you can have. People judge you by the letter and the letterhead you use.

(3) When writing, send along a portfolio listing citations, articles written, honors, experience (if any). Send this first class with your letter, not separately. You've got to build an image in the human mind miles away, and these are cards up your sleeve.

(4) It's not always easy to tell what kind of job you want, but you should have some idea. Want it hard enough, and you'll get it! Once it's yours give it your best. Hard work is still the old fashioned American way to get ahead. Do extra things. If I were a boss here's one test I'd use to hire a man. First I'd drive a nail into a board and leave it on the road. I'd ask the applicant to drive up the road. If he drove around the board, I'd give him less consideration than if he stopped and picked it up.

(5) Once you land a job and get experience, keep your eye open for better things, if you're not content. The "Another-day-another-dollar" man is an unhappy man, and he seldom gets any farther than the time clock. There's nothing morally wrong with using your present position for "experimental" purposes if you still give your boss a full day's work. Good men climb and move around as they mature, gain experience, and find the job they like better.

(6) My final advice is: Don't be a college booby. Educated fools stand out like a sore thumb. In other words, don't be a "know-it-all," just because you have a degree. Remember, your boss may not have finished high school, but he may still be a great success. If manual labor is ever needed, do it willingly. Perseverance, a keen interest in your work, plus a college training will land you on top.

Happy Landing!

About The Author

George Abraham, better known as "Doc," specialized in floriculture at the College of Agriculture. He and his wife, Katherine, write the "Green Thumb," a column which appears in a number of weekly newspapers. His interest in journalism began on the staff of the Cornell Countryman. In addition to journalistic pursuits, he and Katy operate a greenhouse at their home in Naples, New York.
African Women Advance Higher Education

by Hillary Brown '63

African and American women educators have similar educational difficulties. Educated women in both areas present the same sociological problem. They complete their schooling but cannot always apply it. Consequently, the societies are deprived of a valuable source of knowledge.

Another difficulty common to both is financing education. The cost far exceeds the average income of African families. In the U.S. this holds true although on a smaller scale.

The educated woman in both cultures has not commanded the full respect she deserves. The status of women students is finally beginning to rise and their role in society acknowledged.

These and other related problems were discovered at two workshops set up last April by the International Cooperation Association in Africa. The group consisted of seven women educators from the U.S. who are specialists in various educational fields. Dean Helen Canoyer of the New York State College of Home Economics at Cornell University represented the fields of higher education and home economics.

One workshop for Central and East African nations was held on the Royal College Campus in Nairobi, Kenya, and the other for West African nations was on the Ibadin University College campus in Ibadin, Nigeria.

Attending the workshops were 37 delegates from 14 African nations. Each woman is headmistress of a school or outstanding educator within her country.

Workshops are successful

The meetings proved very successful. This was the first time these women met as a group to iron out their problems and to initiate educational policies by the workshop technique. The main group was divided into smaller discussion sections each conducted by one of the seven American women. Each one could then concentrate on a specific area. Within the groups the women discussed their own experiences and were amazed to learn that many of them had to cope with identical problems. This was surprising since some women taught in small rural schools while others came from educational centers in the large cities.

The group which Dean Canoyer conducted discussed the problems generally related to domestic science. These included embroidery, house cleaning, health and nutrition, and how to provide educational opportunities for the junior high school girl. No one was given formal instruction. Rather, each problem was discussed in turn, with major participation from the African women themselves.

Women, it was found, are still not treated on an equal basis with men. Scholarships are invariably offered to men only. In competing for jobs, men are chosen in preference to women. Many intelligent girls who graduate from secondary schools cannot afford to attend college and are not given jobs. This creates a disciplinary problem, for girls are not able to apply themselves toward any worthwhile purpose.

Therefore the African women educators are trying to provide educational opportunities for qualified women in hopes that with this training they will be able to get jobs. Even with the many obstacles facing them, these women and most Africans are strongly aware of the need for education.

Unfortunately, the great distance women must travel to attend schools and the shortage of facilities creates a great dropout and "wastage" problem after the elementary grades. This in turn limits the output of teachers, leaving a gap in the teacher-student cycle. Because these countries have emerged so rapidly from their tribal status to a state of educational awareness, there aren't enough qualified people to occupy the top positions in the school system.

African education is gaining its greatest momentum at the present time and needs an educational philosophy and the proper methods for its support.

To further this goal, 16 of the 37 women educators were invited by their American friends to visit our schools and to observe teaching methods during a three month study tour. While staying at Cornell they visited classes in Ithaca High School, at the State...
University College in Cortland, the Sherwood Central School near Auburn, as well as in the College of Home Economics.

The Agency for International Development sponsored the trip for the African women. In September, after a brief orientation in Washington, the women traveled to Ithaca. Dean Canoyer and many of the faculty and alumni served as hosts, welcoming their guests in their homes. The harmony which developed immediately led to an interchange of ideas and observations. Many of the African women felt that the age of automation, the American housewife was free from domestic responsibility.

**Women are the same everywhere**

The guests’ curiosity about daily life led them to exchange notes on home management, recipes and foods, fashion styles, child rearing, and infant care with their American hosts. The informal discussions and the close contact made them realize that women the world over share the same daily routine, in spite of cultural differences. Their main interest centered around the family and its relationships, and the women heard lectures on this subject.

A tour of the Cornell campus greatly impressed the African women. They felt that Cornell students were particularly fortunate because they receive an education and at the same time are surrounded by the beauties of the natural world.

Following their stay at Cornell, the women traveled throughout the country making stops in California and North Carolina. They will return to their own countries about December 8, better informed about educational philosophy and methods in the U.S. They hope to apply this new found knowledge to education in their own countries.
A Cornell study proves that honeybees secrete an odor on their stingers. Once you are stung, the odor attracts other bees, who will continue to sting you until the odor is washed away.

Statistics prove that a good breakfast makes you alert. Therefore one-third of the daily food requirements should be eaten in the morning whether nourishment is through a conventional meal or hamburgers.

A new electronic device lets scientists see the quality of meat on animals while they are still alive.

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The supply of Christmas trees being grown far exceeds the demand. In N.Y.S. it is estimated that less than one-fourth of the trees reaching marketable size will be sold because of poor quality.

Because the nation is watching its waistline and drinking skim milk, there is a new approach to cattle breeding. Cows with low-fat, high-protein milk are now more popular than cows with high-fat-content milk.
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Good reasons why I chose American Oil

by Don Anderson

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The fact that American Oil attracts talented college graduates like Don Anderson may have special meaning to you as you plan your career. Don is one of many young scientists and engineers at American Oil who are growing professionally in a wide range of research projects. There are challenging opportunities in many areas. Chemists, chemical engineers, mechanical engineers, physicists, mathematicians and metallurgists can find interesting and important work in their own fields.

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In the beginning...

January 1962
Did you read these . . .

Quotable Quotes in 1961?

Our industry, our high standard of living, our whole national economy, stand on the shoulders of American farmers. Agriculture is the base of our economic pyramid. — Orville L. Freeman, Secretary of Agriculture.

What would the world be like today if our rivals could match our food production capacity, rather than live on subsistence diets? This question cannot be taken lightly because the mastery of science and its application is not a unique possession of any nation. — Charles E. Palm, Dean, N.Y. State College of Agriculture.

Today's farmer is a combined scientist, engineer and good businessman. No longer should we use the term “farmers and businessmen.” It should be “farmers and other businessmen.” — W. B. Camp, member, U.S. Chamber of Commerce Agriculture Committee.

American agricultural superiority is just as much a deterrent to Mr. Khrushchev as the Strategic Air Command. He is aware of our great agricultural productive capacity in contrast to his lack of resources to feed his people adequately. — Frank J. Welch, Asst Secretary of Agriculture.

Political, social, and economic developments throughout the world affect our commercial farmers. Consequently the successful operator of a commercial farm must have some understanding of these forces. He must be able to understand and evaluate happenings that originate well outside his own business. — J. Earl Coke, Vice President, Bank of America.

The New York State College of Agriculture recognizes and is trying to meet the challenge stated or implied in each of the above statements.
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Editorials

January Cover:
Land Grant Centennial

This year Cornell University is commemorating the centennial of the Morrill Land Grant Act which provided funds for universities teaching “agriculture and the mechanic arts.” Our cover tells a picture story of Cornell’s beginnings. In the center is Justin S. Morrill, the man responsible for the Act. Liberty Hyde Bailey (upper left), Dean of the College of Agriculture 1903-13, was behind the plow that broke the ground for Roberts Hall in 1906. You will learn more about Dean Bailey in a later issue.

With this issue, the Countryman begins a series of five articles outlining the history of the University, emphasizing how Cornell has fulfilled the dreams of its founders and the provisions of the Morrill Act.

From very humble beginnings—“several pieces of parchment and 200 acres of woods and cow pastures”—the College of Agriculture at Cornell grew by leaps and bounds until today it boasts of the largest undergraduate enrollment of any agricultural college in the world. And its successes are not measured in numbers alone. The College has served, and will continue to serve the people through teaching, research, and extension. Through the years, it has met the challenge of our changing agriculture.

Awards Abound

With due respect to its fellow agricultural college magazines, the Countryman proudly announces its receipt of two first place awards this year. The March 1961 cover capped the First Cover Award for us. Through the contributions of several staff members, we won the trophy for Popular Presentation of Technical Material.

The Countryman, in competition with eight other agricultural college magazines throughout the country, received half of the awards presented. These awards further the Countryman’s long standing reputation as a prize-winning publication. This year’s staff will make sincere efforts to keep up the good work.

Compet Elections

The Countryman congratulates the following people recently elected to its staffs. To the editorial staff, we welcome Nancy Neal ’65, Roberta Matthews, Barbara Pollack, Steven Reinheimer, and Paul Roman ’64, Zita Beiderman ’63, and Michael Dahlberg and Elizabeth Kopsco ’62. Our new artists are Nancy Felthousen ’65 and Richard Wallach ’63. Tina Wasser and Cheryl Kutzner ’65 are now editorial assistants in advertising and secretarial work, respectively. Special thanks go to Robert Benedict ’65 who has managed the Countryman’s circulation all fall.

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Don't Rely On PILLS

by Roberta Matthews '64

Mary college awoke suddenly. She had slept through the alarm again. No time for breakfast this morning. Guess her vitamin will have to do. And a prelim at two o'clock cut lunch out of the calendar, too. She could only squeeze in a cup of coffee. At dinnertime she was so relieved about her prelim that she just wasn’t hungry.

Could Mary depend on that one vitamin pill she took in the morning? Could it provide the nutrients she missed in those three skipped meals? And if this schedule was repeated frequently, could a pill insuro her health throughout the term? Too many people believe that once they take their daily vitamin, meals are just extra.

Take only what you need

The role of a vitamin pill is not to replace meals, but to supplement them if the diet is poor. In the average family, planned meals provide the nutritional requirements of the Recommended Daily Allowance. The R.D.A. specifies the quantity of nutrients a healthy person needs to maintain his good health. Therefore, unless your doctor recommends that you supplement your dietary intake with pills, you are investing in useless drugs.

When you use vitamin pills as a substitute for food your body lacks other essentials not found in the pills. For example, your body won’t function properly without carbohydrates and proteins, and these substances can only be ingested through food sources.

How can you be sure your diet supplies the proper amounts of nutrients to meet the R.D.A. specifications? A balanced diet, or one including the Basic Seven food groups, will insure your body of a substantial supply. For an adequate daily diet you should include ample foods from the following groups:

- Milk and milk products: provide protein, calcium, and riboflavin.
- Vegetables: source of vitamin A, B complex and C, iron, and some calcium.
- Fruits: one which is citrus to provide vitamin C.
- Eggs: 3 to 5 per week yield needed iron, vitamins A and B complex, protein, and calcium.
- Meat, fish and legumes: sources of protein, A and B vitamins, iron, and thiamine.
- Cereal and bread: supply protein, iron, thiamine, and niacin.
- Butter or fortified margarine: provide vitamin A and some D.

Many foods are enriched with iron, thiamine, niacin, or other nutrients not plentiful in natural food sources. Bread, milk, margarine, and cereals, for example, are labeled when nutrients have been added. Daily portions of each will supplement these nutrients in other foods to meet the R.D.A. requirements.

Only 30 are essential

Nutritionists have estimated that there are 30 essential vitamins and minerals. Eighteen are required in trace amounts and are contained in various foods. This is true of sodium and chlorine, the elements forming ordinary table salt. If you buy iodized salt, you are also getting sufficient iodine in your diet to meet the R.D.A. Potassium, formed in the intestinal tract, is another element which doesn’t need to be supplemented by pills.

When you buy vitamin pills, you pay for the amount of each ingredient that is present in the pill. Therefore, vitamin pills which are advertised as containing 35 nutritional additives are usually wasteful and unnecessarily expensive.

The labels on all vitamin pill bottles list, by law, specific amounts of all ingredients incorporated in the capsule.

January 1962
Select a well-balanced meal when you have the choice.

Pills don't correct poor eating habits.

The amounts are usually percentages of the R.D.A. requirements. A well known brand claims that each pill contributes to 1 1/2 of the R.D.A. for thiamine. A well planned diet can provide the same amount of this vitamin. If you take a vitamin pill and also eat a balanced meal, the extra amount will not be stored in the body, which can only use a certain amount of nutrients each day. Any amount over this requirement is excreted. However, when your diet is irregular, you should supplement it with vitamin pills. This is especially important when you are losing weight or have been ill.

**Beware of excesses**

The following list gives the 13 important supplements and the daily minimum of each that a person needs. Considering the foods you eat, notice the wasteful surplus of vitamins that you may be taking in the form of a pill. Of course, needed quantities may vary slightly with the individual. An I.U. is an international unit, a measure of vitamin quantity.

- **Vitamin A**—2,500 I.U.’s
- **Vitamin B₁ (thiamine)**—1.6 mgs.
- **Vitamin B₂ (riboflavin)**—1.8 mgs.
- **Vitamin B₆**—2 mgs.
- **Vitamin B₁₂**—8 mgs.
- **Vitamin C**—50 mgs.
- **Vitamin D**—400 I.U.’s
- **Niacin**—14 mgs.
- **Folic Acid**—3 mgs.
- **Iron**—10 mgs.
- **Calcium**—1000 mgs.

Consuming excess amounts of water soluble vitamins is not physically harmful, for they are not stored in the body. These vitamins include the B complex, C, E, and K. Fat soluble vitamins, though, are stored in the body and can be harmful. Extremely high amounts, as 12,000 I.U.’s of Vitamin D and 25,000 I.U.’s of A daily over a long period of time, can cause illness. There is usually little danger of this unless vitamins are used carelessly or excessive doses of these nutrients are consumed without a doctor’s authority. So, before you take another pill, sit down and analyze your diet. If it doesn’t meet the R.D.A. requirements, change it. And if it is adequate, try to break the vitamin pill habit.

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John Burroughs (rear, center) entertained many visitors at his cabin in the woods.

John Burroughs: Nature's Lover

by Elizabeth Kopsco '62

A boy raised on a New York farm became one of our foremost authors in the field of nature literature.

The writings and work of John Burroughs have had a lasting influence on natural history literature. He was one of the first people to write entertainingly about nature. His essays, written in a pleasant and interesting style rather than in a strictly scientific way, established a new form of literature known as the nature essay. An example of Burroughs' style is his description of the cardinal flower in his essay called "Flowering Plants."

"But when vivid color is wanted, what can surpass or equal our cardinal flower? There is a glow about this flower as if color emanated from it as from a live coal. The eye is baffled and does not seem to reach the surface of the petal; it does not see the texture or material as it does in other flowers, but rests in a steady, still radiance. It is not so much something colored as it is color itself."

Born April 3, 1837 on a dairy farm near Roxbury, Delaware County, John Burroughs spent most of his early years helping his family with farm work. One spring morning when he was about 8 years old, young John noticed an unusual bird flying through a woods near his home. This was an exciting event to John. He realized that birds from distant lands stopped close to his home during their migrations. He began to keep notebooks, recording the animals and plants he observed when he was outdoors. So began his keen interest in nature, an interest which he kept throughout his life.

He spent most of his married life on a fruit farm at West Park, New York. Here, with an abundance of material around him, he wrote several books about the activities of the natural world.

In 1895, Burroughs built a small cabin in the woods near West Park. He intended to use the cabin, Slabsides, as a quiet retreat where he could write and entertain friends who enjoyed out-of-door life. As his fame spread, more and more people came to visit him. He sometimes had so many visitors call on him at Slabsides that he had to seek a quieter place to write. He spent the summers of his later years at Woodchuck Lodge in Roxbury, but came to Slabsides every fall and spring. There he gathered more material for his essays, including the first one on Slabsides, "Wildlife About My Cabin."

Although he traveled widely during his lifetime, Burroughs wrote most of his natural history essays about his native New York State, particularly the Catskill and Hudson River Valley regions. He believed that "the most precious things of life are near at hand, without money and without price."

Since Burroughs' death in 1921, Slabsides has been open to the public. Many visitors come to see the cabin every year. Recently I visited Slabsides and had the opportunity to meet and talk with Elizabeth Burroughs Kelley, one of Burroughs' two grand-daughters. Mrs. Kelley has written a biography of her grandfather, and remembers many of the people who came to see him. Some of Burroughs' more prominent guests included Henry Ford, Theodore Roosevelt, and the naturalist John Muir. Girls from Vassar and other colleges came to Slabsides for field trips. Their visits were recorded in old photographs which still hang on Slabsides' walls.

Burroughs' influence is great

Burroughs' writings have influenced later nature authors. Mrs. Kelley said she has heard writers such as Roger Tory Peterson, Rutherford Platt, and Edwin Way Teale each acknowledge his indebtedness to John Burroughs and his essays for exciting his interest in nature.

Speaking of her grandfather, Mrs. Kelley told me that he enjoyed entertaining visitors in the cabin during the times he stayed there. She pointed to a twisted piece of wood on the mantelpiece of Slabsides' fireplace. "He sometimes waved this stick over a visitor's head," she said. "Then he explained that this would make a Slabsides guest come back again to see him."

As I said good-bye to Mrs. Kelley and thanked her for showing me the cabin, it seemed that John Burroughs was there too, waving his "magic stick" over my head. I had enjoyed my visit very much, and I knew that I would return someday to revisit the New York naturalist's country and his rustic cabin, Slabsides.
Agronomists and architects playing football on the same team, philosophers and dairymen living as fraternity brothers—this is Cornell. Cornell has stood for nearly 100 years, unique in the Ivy League and among the nation's universities.

How did this diversified institution come about? Why does Cornell offer such a far-reaching curriculum, from animal nutrition to aesthetics? The answer lies in the philosophies of three men: Justin Smith Morrill, Ezra Cornell, and Andrew Dickson White.

Morrill, a Vermont storekeeper, was directly responsible for the Morrill Land Grant Act, the centennial of which will be marked July 2, 1862. As the Green Mountain State's sole member of the U.S. House of Representatives from 1854 to 1866, Morrill saw a great need for pioneer America to make higher education available to all.

Morrill believed that the gates of higher education were closed to the working class. In an early speech before the House, he said, "More than four-fifths of our population are presently engaged in agriculture and mechanical employments. . . . Is it not of grave importance to give this vast force an intelligent direction?"

Thus, Morrill presented a bill to the House in 1857 proposing to grant large tracts of federal land to the states. Under the act, the states would sell this land and use the proceeds to establish state universities. The same bill was sponsored in the Senate by Senator Benjamin F. Wade of Ohio.

Morrill pushes hard

Despite heavy Southern opposition, the bill squeaked through both houses by a narrow margin. But its final passage was blocked by President James Buchanan's veto. In a lengthy veto message, the President said the bill was impractical, expensive, unconstitutional, and dangerous to existing colleges.

But Morrill, a typical New Englander, did not give up easily. He presented the bill for a second time in late 1861, and it passed both houses by healthy majorities. Its passage was aided by a Congressional quirk—the temporary absence of Southern congressmen. President Lincoln's signature made the Morrill Act law on July 2, 1862.
This article is the first in a series about Cornell University by Paul Roman '64. The series, commemorating the centennial of the Morrill Land Grant Act, begins with a personality sketch of Cornell’s founders.

by Paul Roman '64

Thus lands were meted out to the states, and the acreage allotted to each was determined by Congressional representation. New York, the most populous state, received nearly a million acres. The State Senate first appropriated the money from the land sale to an institution called the People's College, located at Havana, Schuyler County. Another institution, the New York State Agricultural College, existed only on paper at the time, and was to be located at Ovid. This institution began seeking funds from the Morrill Act. By 1864, the clamor for funds was nearly chaotic and the Senate was assigned to solve the problem. Among the senators in the chamber were Andrew Dickson White, a college professor from Syracuse, and Ezra Cornell, farmer, inventor, and philanthropist from Ithaca.

Controversy leads to union

With these diverse backgrounds, rather than a common interest, a controversy first brought the two men together. Cornell, a powerful and influential Senate figure, introduced a bill that would split the appropriation between the People's College and the New York State Agricultural College. What followed is best expressed in White’s own words:

"On this I at once took ground against him, declaring that the fund ought to be kept together at some one institution . . . the State had already suffered sufficiently from scattering its resources; there are already over twenty colleges in the State, and not one of them doing anything which could justly be called university work."

White gets his way

Many months passed before White and Cornell saw eye to eye on the matter. But White managed to delay Senate action until he had convinced Cornell that the one-institution idea was feasible. Cornell was persistent. The State Agricultural College should receive part of the Morrill appropriation, and he even offered $300,000 of his own fortune to the college if such action was taken. But White's eloquence eventually prevailed, and Cornell agreed that all the land grant money should go to one institution. He consented to give the new university $500,000 and his 200-acre farm in Ithaca as a building site.

Another long round of controversy ensued in the Senate. The outcome: Cornell University was chartered in September, 1865, as the state's land-grant institution. But Ezra Cornell's business sense dominated the scene. He presented a rider bill which would give him the power to locate the state's land grant wherever he pleased. He chose to locate 500,000 acres of land grant in Wisconsin and Minnesota woodlands. As a result, the University received nearly $10 an acre for land grant property, while other states were satisfied if they got 50 cents an acre.

Thus the experiment began. Cornell University consisted of several pieces of parchment and 200 acres of woods and cow pastures. It was truly a challenge, but White and Cornell were much too busy to worry. There were buildings to build, professors to hire, and students to attract. The two men had no time to look back. They had a large task—they were founding an institution where any person could find instruction in any study.

"Stands our noble Alma Mater..."
Would you think of putting a piece of garbage in your drinking water? Probably not, but that's just what's happening to the water you eventually drink.

Water pollution is becoming a tremendous threat to your health and recreation. It makes your water unfit for consumption, ruins the natural aesthetic value, and kills fish. It can cause diseases such as typhoid, dysentery, and skin infection. Professor Lawrence Hamilton of the conservation department notes that, "Pollution is the number one water problem in the East."

Contamination abounds

Millions of gallons of municipal and industrial wastes are pumped into the Hudson and Mohawk Rivers and the Barge Canal every day. The steep cliffs of the scenic Hudson River converge on a flowing cesspool. The guilty cities include Utica, Troy, Cohoes, Schenectady, Menands, Albany and many others.

Oneida Lake, famous for its wall-eye pike and bass fishing, lies in the center of New York State. Recently, this lake was a launching site for full-scale war against pollution. The vigor of this attack led to nationwide recognition of the problem. A coordinated armada of Oneida Lake Association members and residents recently conducted a complete survey of the uses of the lake by its nearly 4,000 residents.

The information will help determine future anti-pollution moves. Plans are now in progress for a full time anti-pollution law. Generally the lake is in good condition now, and now is the time to plan for the future.

In northern New York State we have pure crystal clear mountain waters. But close inspection of certain streams reveals that rivers through many of the larger towns contain an unpleasant potpourri of garbage, papers, furniture, car tires, metal-work, algae, and other foreign matter. The problem exists only near towns now. The streams do produce fish, but we should use foresight. What will it be like in ten years?

Radioactive wastes are dumped into the ocean from atomic energy plants. The radioactivity is long lived, and the large volume of the ocean can't be used to rationalize the problem of this source of contamination.

In coastal waters of the state estuarine pollution—from rivers into the ocean—affects important shell-fishing and waterfowl resources.

A gradient exists between organically fertile waters and organically polluted waters. Too much organic material causes extensive growth of algae, weeds, and bacteria which invade the aquatic habitats. The dead plants use up oxygen, and plant "scum" collects on the surface and shores. This means unhealthy conditions for fish and people. The organic pollutants are mainly domestic, but they also include detergents, insecticides, and wastes from animals, factories, and other sources.

Industrial waste is a major pollution culprit. Its toxicants and oxygen-consuming wastes probably represent about half of our pollution.

Game fish hit hard

Eventually game fish die or leave a polluted body of water. They are replaced by less valuable coarse fish. Right now this is happening in Onondaga Lake in Syracuse. Here again, industrial waste is responsible. On the other hand, some people argue that the most important use of this water is as a dumping ground for factory wastes.
Much work is being done in the state to control pollution. Since 1950 about $11 million has been spent on trunk sewage, and about $89 million on sewage treatment plants. The Temporary State Commission on Water Resources Planning took a survey of pollution violators in 1957. Results: 17 upstate cities and 74 villages had no sewage treatment plants. Many others needed plant improvement.

Since then, great strides have been made. In April 1960, there were a reduced number of cities and villages which had no treatment facilities. Even New York City, which has many sewage treatment plants, still needs improvement.

**Government aids control**

Both the state and federal governments contribute to water pollution control, according to Charles Gates, Professor and Head of Sanitary Engineering at Cornell University. He is the project director for a study of the sewerage needs of our 12 southwest counties. His study is part of the detailed attack on the pollution problem in the state.

Also active is the New York Water Pollution Control Board which classifies all the state waters in a comprehensive program to stop pollution.

The Federal Government recently passed a measure providing $570,000,000 to expand and strengthen the control of water pollution throughout the country. It provides for grants to states, counties, and local communities to construct sewage disposal and water treatment facilities. The measure also provides for law enforcement against polluters and for research.

The cost will be great, but many cities and villages of the state desperately need more waste treatment facilities. Pollution can be reduced and many of the waters can be improved, but you, the people, will have to wholeheartedly support the necessary measures.

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January 1962
**Challenge: The Common Market**

by Steven Reinheimer '64

Almost every time you pick up a newspaper or magazine, you come across an article concerning the European Common Market. Why is this subject of such interest and concern? Before you can appreciate the problem which the United States in general and agriculture in particular is concerned with, you must first understand the purpose and structure of this organization.

Unity is its main impetus. In 1957, six countries took a significant step toward the political and economic unification of Western Europe. The Treaty of Rome formally established the European Economic Community—or Common Market—of the Inner Six: Belgium, The Netherlands, Luxemburg, France, Italy, and West Germany. Among the treaty’s ultimate goals are the elimination of trade restrictions among its members, and the establishment of a common tariff toward non-member countries.

**Growth exceeds expectations**

Nothing less than phenomenal can describe the growth of the European Common Market since its inception in 1957. During the past four years, internal trade of the member countries has expanded by over 44 percent. Still more remarkable is the fact that of the total $12.5 billion increase in world trade, the European Economic Community accounted for over $7.5 billion. The industrial growth of the Common countries is expanding at a rate greater than three times that of the United States.

Professor Rolf Wagenfűhr of the Statistical Office of the Common Market estimates that the per capita Gross National Product of the Common Market will rise from 38 percent of the United States figure in 1960, to 61 percent by 1972. At this rate of growth, the European Economic Community will become the most powerful economic bloc in the world. Great Britain’s recent decision to apply for membership is symbolic of the great economic pressure exerted upon her by the Common Market.

As yet, the proposed agricultural phase of the Common Market has not been implemented. The member countries are, however, beginning to set up a common agricultural market. This will undoubtedly affect the American agricultural export trade. The following figures illustrate how critical the situation can become. Last year, according to *Fortune Magazine*, we exported $4.8 billion worth of farm products. Over 40 percent of this was shipped to Western Europe. Our two biggest customers are West Germany, who bought $355 million worth of agricultural commodities, and England, who bought $510 million. No wonder American exporters fear the present trend of events.

Since the Market’s inception, members realized that the integration of agriculture would require special treatment. The farmers in the Common Market countries were already protected by their respective governments. If trade barriers are removed, the member countries need safeguards for their farmers against competition from other market members, and especially from external competition of non-market exporters.

National support systems would have to be supplemented by a compromise solution acceptable to the member countries. Agricultural production is expanding rapidly within the Community and if the Common Agricultural Policy is based on a high level of protection, the exporters to Common Market countries will be put to a great disadvantage.

The objectives of the Common Market Agricultural Policy are to integrate the agricultural markets of member states into a common market. This will give it the characteristics of a single national market in order to secure “an equilibrium between production and the possibilities for domestic and foreign proposal.”

The Commission has outlined specific programs for six major commodity groups—wheat and other grains, sugar and dairy products, meats and eggs, fruits and vegetables—and is in the process of preparing proposals for other foodstuffs. There will be different types of market management, applying to

The countries of the Common Market hope to increase their agricultural self-sufficiency through the union. These efforts may present difficulties in maintaining overseas markets for American agricultural goods.
specific groups of commodities. For grains, sugar, and dairy products, a system of support prices and variable import levies will be set up.

The greatest danger to American exporters, states a *Fortune Magazine* economist, is the variable import levy, or variable fee system. This system tends to equalize import prices with the desired domestic price level. This means that if a member of the European Economic Community had a surplus in a commodity, the Common Market would then raise tariffs on that commodity to all non-market countries. Such an action would severely restrict American grain exports. The greatest threat under this system comes from France, who has a growing agricultural surplus. France is presently producing two times as much wheat as it can consume. By instituting the variable fee system, the Common Market will limit the amount of wheat coming in from non-member countries. France will thus be able to get rid of her surplus at above foreign export prices.

**England's entry may increase threat to U.S.**

If England, the world's largest importer of grain, were to join the Economic Community, the U. S. would be in a critical situation, suffering a great reduction in price and volume for her surplus wheat and other grains. Secretary of Agriculture Orville L. Freeman recently expressed concern over this prospect. In respect to the variable fee system, he said, "If there are no limits on this system, it would effectively offset any competitive advantage that agricultural suppliers may have."

Other commodities, excluding fruits and vegetables, are to be protected by a fixed tariff supplemented with a variable fee system. Seasonally adjusted tariffs, in addition to a fixed fee, would protect fruits and vegetables. Secretary Freeman fears that "the effects of the variable fee system plus higher tariffs would be to insulate the agriculture of the Six from outside competition... and in a matter of years, the result would be a serious drop in our exports."

According to Professor K. L. Robinson of the Cornell Department of Agricultural Economics, the extent to which United States exports will be affected depends on the amount of increased production in the Common Market countries. Dr. Robinson predicts that our exports to Europe in such commodities as cotton, tobacco, and soybeans will not be too seriously affected by the Community. Europe will, however, become self-sufficient in commodities like wheat.

**U.S. can meet the threat**

What can the United States do to alleviate this situation? If the Common Agricultural Policy were to be carried out, the probable decrease in American exports of grains and other foodstuffs will cause a critical domestic surplus situation. According to Eric Johnston, former President of the U. S. Chamber of Commerce, the only alternative which the United States has is to apply for admission to the European Economic Community. He believes that competition from Common Market countries will force us to apply, to avoid the loss of our export market and deny ourselves the imports we need.

Professor Robinson holds a less radical view. He believes that U.S. membership is highly improbable and could only come about in the distant future. Dr. Robinson predicts that certain agreements will be negotiated with the Community so that non-market countries will face lower tariffs.

Secretary Freeman is presently fighting to preserve America's traditional foreign markets. He believes that United States exports should be able to enter West European markets under reasonable trading conditions.

These negotiations have far more than just economic implications. The nations of the Free World need liberal trade policies. Only by increasing international trade, will they remain strong in the struggle against forces which threaten their existence.

*...and in a matter of years, the result would be a serious drop in our exports.*

---

*The market countries aim to export and import as a single economic unit.*

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*U.S. can meet the threat*

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DEAR ALUMNI:

We have missed seeing many of you in recent years. If you are near Ithaca in your travels, we would love to have you drop in and say hello. You don’t have to call or write ahead. We like unannounced visits.

If you haven’t been on Campus for awhile, I will attempt to bring you up to date. This year we have the largest enrollment in our history—1818 students. This also gives us another first, that of being the largest agricultural college in the country. But we don’t want to “puff up” our chest too much about this; the margin is so slim that the position could change any day. Besides, numbers are not our main goal, but we are rather proud of the fact.

The 680 new students who matriculated this fall make up the largest group of new students to enter in the history of the college. 455 enrolled as freshmen and 64 as transfers into the 4 and 5 year courses. 134 entered the two year program, and 27 are special students. Our gang really makes up quite a cosmopolitan group. We have students from 27 states other than New York, and from 29 foreign countries.

This year, 271 women are enrolled in the College of Agriculture. The number of applications from women increases every year. We hope to accommodate more women in the future, but with the present shortage of dormitory space, we cannot admit more than our quota. However, with the addition of Morrison Hall, our new animal husbandry building, and other buildings, we can accommodate more qualified men students.

The College of Agriculture again has an outstanding crop of athletes. We are very proud of the records some of these men have turned in. undefeated cross country runner, Steve Machooks, 64, from Kenya, broke several records since coming to Cornell. He has been called one of the finest running prospects in the nation. He currently holds all cross country records at Cornell and is the all time Cornell one mile record holder, a record which he set as a freshman.

First string halfback James Lampkins, 63, was our outstanding representative in football. Jim was awarded the Hatchet Man award for the best defense of the season. Besides defense, Lampkins also had the best rushing average for the year and made the longest scoring run by Cornell since 1956.

We also have five men who are captains or co-captains of major sports. These are only a few of the many agriculture students who participate in 21 intercollegiate sports.

The College has received two new scholarships for entering students for September of 1962. An annual scholarship of $100 is provided by the Western New York Section of Food Technologists for a student specializing in dairy and food science.

The David Kennedy Johnston Fund provides scholarships and grants-in-aid for students specializing in animal husbandry. With these, the number of scholarships in the College of Agriculture for entering students totals 44.

Our Alumni Regional Representatives have been very busy this fall. Many have met with the County Chairmen from their regions. The County Chairmen and their Keymen have been busy too. These men have contributed a great deal of their time to get the true story of agriculture across to the people of New York State. The Admissions Counselor is leading the hectic life of a traveling “salesman” himself. All expect to see many more incoming applications than in previous years.

We hope that each of you is doing his share to inform and encourage prospective students who have shown academic ability during their high school careers.

We hope we will have the privilege of seeing you on Campus in the near future. But, in case we don’t, we wish you a very happy and prosperous New Year.

Sincerely yours,

Bernard Curvey
Admissions Counselor
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- The role of agriculture in the destiny of developing countries
- Our agricultural economy in a competitive world
- Problems facing the scientist in plant growth
- Capturing solar energy with crops
- Radioactive fallout and food
- New aspects of dairy herd improvement
- Taking a new look at feeding the dairy cow
- Mechanization of stall barns
- Evaluating harvesting and feeding equipment
- A century of agriculture at Cornell
- The origin and development of government programs affecting agriculture

The programs for March 21 and March 23 will be held in Alice Statler Auditorium. The March 22 program will be in James Law Auditorium (Vet College).
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Professor of Merit

Presented to an outstanding professor in the College of Agriculture (or Home Economics) for 1962 will be inscribed on the plaque given to this year's Professor of Merit. The award, initiated in 1947-48, is presented each year to one professor in Agriculture and one in Home Economics who is, according to students of the respective college, their most outstanding teacher.

How is the deserving professor chosen? Ten candidates are nominated by the Ag-Domecon Council. These ten names are next sent to Ho-Num-De-Kah, the senior men's honorary, which narrows the field down to five. The five finalists are then submitted to members of the Senior Class, who select the Professor of Merit. Once selected, the recipient joins ten years worth of meritorious professors who are unable to receive the award again. Those honored in Agriculture thus far are: Profs. L. C. Petry, N. C. Brady, C. H. Guise, L. B. Darrah, C. H. Freeman, T. C. Watkins, G. E. Peabody, K. L. Robinson, T. R. Nielsen, and R. A. Martin.

One of Ag-Domecon's responsibilities is to represent the student body. Posters will be placed at many locations in the Colleges of Agriculture and Home Economics so that students can inform the Council of their nominations for the Professor of Merit.

This award is one of the nicest ways that you students can say thanks to a faculty member who has served in your best interests. So be sure to let Ag-Domecon know who your Professor of Merit may be.

D.W.

Professors are People

The above editorial asks you to nominate a faculty member you consider worthy of the 1962 Professor of Merit Award. Do you know any professor well enough to make such a nomination? How well do you know the Professors of Merit of the past?

Many of you are missing out on one of the most enlightening, rewarding, satisfying aspects of college life—your professors. What they say outside of class may be just as valuable—if not more so—to your education as the material they present in class. For the knowledge they can impart to you is not limited to the subject area they teach.

The interests of most professors are very wide. They have pursued courses of study other than their major fields. They have traveled; they've been to interesting places and met interesting people. Their wit is quick; their ideas are stimulating. Conversation with them acquires the perspective of an adult, of someone who speaks from experience as well as ideas. To be materialistic for a moment, your professors are the ones whom you will probably ask to write your employment and graduate school recommendations. What can they say about someone they hardly know?

But most important, your professors are people—pleasant, intelligent, interesting, warm, friendly people. They can give the facts, words, concepts you learn some meaning, for meaning lies in people. Yes, your professors can round out your education, supply it with the meaning it should have for you in later life. So why not get to know them better? And there's no better time to start than right now.

J.E.B.
Cornell Catches

Growing Pains

Criticized mercilessly and opposed at every step, Cornell University nevertheless developed a unique character. This article is the second in a series commemorating the centennial of the Morrill Land Grant Act.

by Paul Roman ’64

“Probably no institution of learning ever founded in this country has had more bitter enemies and more devoted friends than The Cornell University.”

These words preface a pamphlet published in 1872 entitled, What The Cornell University Is and What It Is Not. It summarizes well the troubles the University encountered during its early years.

Why was the University criticized? In the first place, Cornell was the only land grant college in the nation that was under private control and receiving both private and governmental support. Allegedly, this was the use of public money for private gains. Also, there were many people in the state still bitter over the fact that Cornell had received the land grant instead of the State Agricultural College at Ovid.

Secondly, Cornell University was one of the few colleges in the country that received private support and yet was not affiliated with a religious denomination. This infuriated a great many people, who felt that the lack of religious connections indicated a heathen atmosphere.

Coeducation is criminal

Thirdly, Cornell became one of the first coeducational institutions in the nation when it began admitting women students in 1872. The Victorian attitudes of the day included a belief that coeducation resulted in immorality. Ezra Cornell believed that women should have an equal opportunity for education. Susan B. Anthony, the great suffragette, also fought for admission of women to Cornell. After visiting the University in 1869, she wrote: “I visited Cascadilla Hall, smelt tobacco smoke, and saw that ladies were needed there.”

A final point for opposition was the University’s philosophy of teaching—a philosophy that was radical in the annals of traditional education. The Cornell system was based on the liberal education of the industrial classes. It recognized science and modern language as subjects equal in status with philosophy and the classics. The University had also initiated the elective system, where a student chose the courses he felt were best suited for his intellectual tastes. Nonresident lectures also had their beginning at Cornell. This program brought such men as Louis Agassiz, James Russell Lowell, and Bayard Taylor to the campus.

They stuck to their guns

These were the sources of criticism of the new University. And the criticism came, hot and heavy, “from every petty school and teacher that hoped to gain favor by hanging on the skirts of a sectarian college.” But Cornell’s founders and professors were a stubborn lot. These men were dedicated to principles they believed necessary in giving young people a complete education. They would not give an inch to any of their denunciators, which resulted in the loss of many supporters and potential students. But the University today is living proof of the validity of their beliefs.

The University had received the land grant on the condition that it would offer instruction in agriculture, among other subjects. One of the two professors first elected to the University faculty was Dr. George C. Caldwell, professor of agricultural chemistry. The University had also established a farm for the purpose
of agricultural studies. (The massive barn stood on the site of Comstock Hall.) But it was nearly five years before a competent professor of scientific and practical agriculture was obtained.

Educators hard to find

Joseph Harris, a prominent agricultural editor, was named professor of agriculture in 1868, but he never appeared in Ithaca to assume his duties. In early 1869, Lewis Spaulding was appointed farm director and assistant professor of agriculture. It was soon found that his teachings were very elementary and consisted mostly of the observation of farm work. He remained at the University one year.

John Stanton Gould, president of the State Agricultural Society, and Frederick Holbrook, Governor of Vermont, were appointed lecturers in agriculture in 1869. Gould gave two lecture courses in general agriculture and farm mechanics for several years, but Holbrook failed to teach a single class.

George Geddes was named professor of agriculture in February, 1870, but it was found that his general interest in agriculture was much greater than his scientific knowledge of the subject. In June, 1871, Henry H. McCandless, an Irish professor, was appointed to the post. He was unfamiliar with American agricultural demands and also proved inadequate for the job.

Roberts to the rescue

Finally, in 1873, the University appointed Professor Isaac P. Roberts of the Iowa Agricultural College to be assistant professor of agriculture. Roberts was a farmer and a scientist. He directed the University Farm efficiently and instigated a great deal of research. An excellent lecturer, Roberts taught his students that present farming methods were useful only until new ones were found.

It was with Roberts’ appointment that agriculture got its genuine start at Cornell. In the following years, men such as John M. Comstock, Henry Hiram Wing, John M. Stone, John Craig, and James M. Rice joined the agriculture faculty. The agricultural department became the Cornell College of Agriculture in 1888 and Professor Roberts was named dean.

The college classrooms and laboratories were located in Morrill Hall until 1893, when the agriculture building, located south of Lincoln Hall, was opened. This building is now the northeast wing of Goldwin Smith Hall, and the engraving of a pipette and flask (symbolizing the Babcock test for milk) still grace the entrance to the wing. It is interesting to note that literature and philosophy courses are given today in rooms once used for cheese and butter making.

The University Agricultural Experiment Station was established in 1887 with the passage of the Hatch Act by Congress. Student enrollment climbed steadily, with 174 students in the College of Agriculture in 1898.

White finds a “horse doctor”

No college on the Cornell campus was completely supported by state funds until the establishment of the New York State College of Veterinary Science in 1894. Its director, Dr. James Law, had been “found” in Scotland by Andrew Dickson White in 1868 and persuaded to come to Cornell. Dr. Law became known throughout the nation as a great scientist and veterinarian, and the University is credited with many of the early discoveries in veterinary medicine.
The school also spent its early years in Morrill Hall until it moved to James Law Hall in 1896. That structure was demolished several years ago to make way for the new Industrial and Labor Relations quadrangle.

A college forested and felled

The New York State College of Forestry at Cornell came into existence by an act of the legislature in 1898. Dr. Bernhard E. Fernow, chief of the U. S. Division of Forests, was appointed director of the college and professor of forestry. Four assistant professors were also appointed. The state granted the college a 30,000 acre tract in the Adirondacks for use in experiments and demonstrations. Fernow and his associates inaugurated scientific forestry practices on these lands. Surrounding landowners, who objected to tree cutting in the wild area, directed great criticism at the college and the state. The practices continued, but pressure and criticism became so great that the University was forced to dissolve the college and dismiss its faculty in 1903. This sad chapter in Cornell’s history demonstrates the power of scientific ignorance on the part of the public.

By the turn of the century, Cornell University was widely recognized as an excellent institution of learning. The former criticism had subsided and many universities were following the Cornell pattern. The pains of growth were nearly gone. The period of refinement and development had begun.

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February 1962
Fallout and Our Food

A leading Cornell scientist, optimistic about radiocontaminants, says not to make drastic diet changes.

by Dr. Cyril L. Comar
as told to Anne Comar

In today's world, radiation crops up frequently in the course of conversation. An area causing particular concern is contamination of our food supply. Many of you are asking, "Should I change my dietary habits?"

Before you can answer this question, you must know something more about radiation: what is it? where does it come from? what does it do? Radiation is the transportation of energy without a material carrier (such as the radiation of light rays from desk lamp to desk). We are interested in that radiation which has enough energy to affect biological tissues. Fallout is radioactive elements released from a bomb.

We cannot see, feel, hear, or smell radiation, but we can measure it. Natural background radiation is our yardstick. Through it we can determine what effects may be expected upon human beings. For example, there are certain areas in India and Brazil that have a natural background ten to fifteen times higher than the rest of the world. And, as far as we know, the populations are living as normal a life as we are.

Medicine adds most radiation

Individuals are affected by radiation from several different sources. Using natural background radiation as a base equaling 100, we can determine relative dosages from other sources. Weapon tests through 1958 added five units; medical applications added 100 units; and peacetime uses of atomic energy, such as radioisotopes, power reactors, and research, have added less than 0.1 units. Although medical sources add the most, people feel the benefit derived from such treatment outweighs the risk involved.

A change in diet would be aimed at altering the amount of radiation obtained through food consumption. This is the radiation produced by nuclear weapon tests. To understand food contamination problems, you should be aware of the different paths available to radioactive materials in the food chain.

Plants may become directly contaminated from the atmosphere by fission products sticking to leaves, fruits, or seeds; this material may also be washed down by rain for direct absorption by basal parts and surface roots of the plant. Heavy root mats in some pastures may trap fallout and also make it available to the plant (and thus animals) without the radioactive materials even touching the soil. These processes may be very important because they permit radioactive materials to by-pass the soil, which might trap them or slow their progress through the food chain. This direct contamination is dependent entirely on the rate of fallout and not on the amount accumulated in the soil.

Radioactive materials may also enter the soil and get into the plant through the roots, just like any other soil nutrient. In soil entry, the radioactive substances are diluted or may be rendered unavailable to the plant by fixation to the soil minerals. Fission products in the soil will move downward only slowly; therefore crops with surface roots will be likely to absorb the largest amounts from soil deposits.

Men can take in radiation indirectly through consumption of animal products. The grazing animal effectively collects contamination from plant material and concentrates it in animal products. Many factors influence the relationships between the amount of radiation eaten by the animal, and the amount deposited in the tissues and secretions to be used for food. Two such factors are the metabolic behavior of the specific element, and feeding and management practices.

Fish products are not important contributors of radioactive contamination to the human diet. This is true even for the Pacific Ocean which has concentrations ten times higher than other oceans, because the radioactive materials are greatly diluted by ocean waters.

Research now being conducted has produced several small-scale remedial measures and is searching for more. These should be undertaken only when decided necessary by responsible authorities, because change of food procedures or dietary habits may well do more harm than good.

The removal of recently contaminated annual crops would not be highly effective. But what would be effective is removal of the grass sod. For variable effectiveness, depending on the nature of the land, you could scrape off several inches of surface soil. Or, for small-scale high effectiveness you could spray an asphalt emulsion onto smooth soil and remove the hardened crust. Farmers could deep plow. And, ex-
ternal contamination of raw fruits and vegetables can be reduced by surface treatments such as washing or skimming.

To reduce the amount of Strontium 90 in milk without change in flavor or composition, scientists can use ion exchange resins. These remove the strontium ions present by replacing them with other, stable ions. Since strontium 90 is relatively concentrated in bran, cereal products are reduced in contamination if the bran and outer layers are discarded.

The element which travels through the food chain and offers the greatest danger is strontium 90. This is the element which causes concern about radioactivity in milk.

Milk not highly contaminated

Milk has been used to evaluate food contamination because it is always available, can be easily worked with, and contains important radiocontaminants. Although milk is used as an indicator, this doesn't mean it is a major contributor of these contaminants. As a matter of fact, since the dairy cow puts 10 times as much ingested calcium as strontium into the milk, the calcium from milk is the least contaminated of all sources of calcium. So, dairy products supply 80 percent of our dietary calcium, but less than 40 percent of the dietary strontium 90. This is of utmost importance, because calcium is preferentially utilized relative to strontium in practically every step of the food chain from vegetation to human bone.

Therefore, paradoxically, if a diet is changed to cut out milk, the amount of strontium in the body will increase because the more highly contaminated element would be used for bone formation. Milk constitutes most of children's diets so its removal would prove quite harmful. This would be even truer for older people because milk constitutes such a small percentage of their diet normally.

Be realistic about radioactivity

Once radioactivity has reached you, it may have either "somatic" or "genetic" effects. Somatic refers to such effects as induction of leukemia or bone tumors and shortening of life span, while genetic effects are those which affect offspring conceived after the exposure of the individual.

Scientists refer to radiation in units termed rads. Natural background radiation supplies from seven to ten rads over a lifetime or 0.1 rad per year with no noticeable damage effects. As close as can be estimated, the individual exposure from fallout is 0.005 rad per year, with the radiation being delivered on a long-run basis. A man would be killed if totally exposed to 600 rads at one time, while he might not be affected at all from the same dosage spread over time.

Relatively speaking—that is, comparing different sources of radiation to that produced by natural background sources—recent testing has added a little less radiation to the earth then did the testing up to 1958. To be realistic, we must assume that any amount of radiation must produce some harm. But, as you can now see, this addition is insignificant in terms of individual well-being. To change your diet drastically would probably do little good, if any at all, and might do a lot of harm.
A researcher places a potato in the difference meter. By passing two light frequencies through the sample the scientist can tell if the potato has a hollow heart.

The rephobiospect is used to judge the maturity of apples. The apple is placed under the sphere. A curve is made on the chart. By testing thousands of apples in various stages of maturity, the scientists have identified the curve that represents a rich, ripe, mature apple.
Sensitive instruments—long known to be indispensable for making quantitative measurements—have been adapted to scientific research in a new way. They are being used to test the quality of food. Instrumentation research is the job of a group of Agricultural Marketing Service scientists at the U.S. Department of Agriculture. Some of the instruments they use are shown on this page. These machines are completely objective and do not injure the product which they measure.

The advantages of taking the human element out of food testing are also being explored at Cornell. The vegetable crops department of the College of Agriculture operates a set of instruments which make various measurements on fruits and vegetables.

The Shear Press is an instrument which detects variation in food textures. The food sample, like an apple, is placed on a platform. Then a metal cylinder of the proper size is lowered until it comes in contact with the sample. The various components of texture are measured by the pressure exerted on this cylinder, and are mechanically recorded on graph paper. The graphs of different samples are correlated with each other, giving clear cut evidence of the apple's comparative texture—whether it's more fibrous, mushy, or mealy than other members of its variety. This machine is already an old hand at measuring differences in food quality. However, it is currently being perfected along with the development of new instruments.

One promising instrument is an "electronic nose" which is being developed by Drs. Walter Wilkins and John Hartman of the College of Agriculture. The "nose" consists of a small bore of coated metal wire serving as a smell-sensitive zone. This bore is partially immersed in a liquid. Another piece of metal is placed in the same liquid, and both are attached to a battery. When the device is exposed to vegetable vapors, changes in current result. Differences in electrical response are used to measure various vapors. This instrument, and other "taste" instruments are used in conjunction with human tasting panels. The Cornell researchers hope that the use of instrumentation research will give a fast, inexpensive, accurate index of flavor quality.
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Activities

Ag-Domecon Council

Ag-Domecon Council, the student governing body of the Colleges of Agriculture and Home Economics, is the oldest continuous organization on the Cornell campus. Started as a debating club in 1891 by Liberty Hyde Bailey, in 1900 it became the Ag-Association which sponsored social events, supported athletic teams, was instrumental in forming an honor system on the Ag campus, and founded the Cornell Countryman. In 1929, the foundation of the Home Economics College spurred another change—to the present Ag-Domecon Council—to unite the interests of all Upper Campus students.

Today, an active Ag-Domecon Council represents and serves student interests, coordinates student activities, and promotes better student-faculty relations. Some of its current functions are: participation in Sub Frosh Weekend and Cornell Day, the coffee hour, the Professor of Merit Award (see editorial page), student opinion polls, and the Swedish Exchange Program.

Cornell Countryman

You are now looking at the work of the Cornell Countryman staff. But this magazine is only the finished product; it represents just a small part of what we do in and about 490 Roberts Hall.

Editorial staff members write the copy, proof it, select the pictures, and write the headlines and cap-

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Watch for notices of our first spring meeting. Or, even better, climb up to our garret any afternoon after 4:30 and join us for a cup of coffee and some casual conversation. We look forward to your visit.

4-H Club

The Cornell 4-H Extension Club is a social and service club open to any Cornell University student. It strives to develop and maintain an interest in rural life while providing an educational and social life for the student.

The recreation team, the club's most prominent committee, holds monthly square dances on campus and at 4-H Clubs in the surrounding area. This spring the club is having a sub-frosh weekend to acquaint interested high school 4-H'ers with University and college life. This program is new this year, and if successful will be continued.

The 4-H Club meets the second and fourth Wednesdays of each month at 7:30 p.m. in the Warren Student Lounge. Everyone is welcome to come.

Pomology Club

The Cornell Pomology Club was organized to further interest in the field of pomology. It is made up of pomology majors and anyone interested in this field of agriculture. Monthly meetings are held at which interesting and informative speakers present new developments in pomology.

The apple vending machine in Plant Science Building has been owned and operated by the Pomology Club for the last ten years. A brand new machine was just installed this fall. With the profits derived from apple selling, the club sponsors a scholarship. Also, in the last two years the club has contributed one half of the money for the Swedish Exchange Scholarship.

On the social side, the club sponsors a Christmas Banquet and, in the spring, a chicken barbeque for members, friends, and the pomology department staff.

CATA

The Cornell Association of Teachers of Agriculture—CATA—is a campus organization composed of prospective teachers of agriculture. The club is designed to acquaint its members with the field of agricultural teaching.

CATA is primarily a professional organization, and its program includes such activities as guest speakers from the fields of agriculture and education, field trips to various high school agriculture departments, and an annual panel discussion by seniors who have returned from student teaching. The social activities of CATA include several parties and picnics during the academic year.

Anyone interested in CATA is cordially invited to attend meetings of this professional organization. The meetings are held every first and third Thursday in the Stone Hall Conference Room at 7:30 p.m.

Poultry Club

The Cornell Poultry Club is a member of the National Collegiate Poultry Club. Its purpose is to foster fellowship among students and faculty of the Department of Poultry Husbandry. Membership is open to all students of Cornell who are interested in poultry. Regular meetings are held on the second Thursday of every month.

Club activities include fall and spring student-faculty picnics, exhibits during Activities Fair, an educational trip in the spring, and the annual sale of barbequed chickens during Agricultural Progress Days. We also hold a social event for club membership during the spring term, and each year a team represents the Poultry Club at the Eastern Intercollegiate Poultry Judging Contest. In addition, the club makes an annual award of a $300 scholarship to an incoming freshman, and contributes to the Argentina Exchange Program fund. We would enjoy having anyone interested in the club attend our next regular meeting. The meeting dates will be posted in Mann Library.

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February 1962
Farming - What A Life!
I wouldn’t trade it for the world.

by Harold Hawley ’36

I usually wince a bit when someone makes reference to farming as a “way of life.” It seems inconsistent to talk of a highly commercial agriculture, such as ours has become, as a way of life. Yet, let’s face it, there are few, if any businesses or industries which, to so great a degree, combine the business, the home, and the family into one big package.

When Mary says “I do” to John, she marries more than a man if that man is a farmer. She marries the business with all its pains and pleasures, and becomes a full partner to a degree not true in any other occupation. And her children, while they may not necessarily grow up to be farmers, will surely be “farm kids”—and this is more than designation of where they live.

They’re on the spot as various things are done, so they see and learn a great deal easily and naturally. Because they can help, and know they’re appreciated, these “farm kids” will develop ability and a sense of responsibility seldom found in non-farm youngsters. They know the score because they’re part of whatever takes place.

Mary’s responsibilities are all-inclusive—the farm as well as John and the children. The sudden shower becomes Mary’s concern because she knows the hay is not yet under cover. The arrival of old Bess’ calf is exciting and important to her, too. She knows that the future success of the herd means a good living for the entire family and a college education for those “farm kids.” Who will deny that her loving touch and motherly care is what sees the newborn lamb through that first cold night?

When she decides to forget a new rug because the money is short and the farm needs a new mower, well sir, she has become a full partner in the business. Even the recreational activities of the family will be modified by the farm because farm work limits the amount of free time the family has. Equally important are the facilities it offers for built-in recreation.

If they are available, its streams and ponds will make swimmers, fishermen, skaters, or boating enthusiasts of the youngsters as well as their parents. The slopes of the back pasture are great for skiing or coasting; the wild game just invites hunting or trapping.

A degree of “togetherness” almost unattainable by families in other walks of life is a natural for farm folks. Some suggest that the stability of marriages among farm people may be traced in part to this closeness. I suspect that any perceptive farmer would frankly admit that he would be lost without his wife, a woman of so many roles—partner, mother, counsellor, playmate, bookkeeper, errand boy, homemaker, and even an “extra hand” in a pinch, as well as wife and lover.

Today, those who hope to participate in a successful commercial farming venture must be more thoroughly and more formally prepared than before. And preparation doesn’t end as long as further progress is desired. As our farmer-businessman assumes his place in church, community, and agricultural affairs, his growth and development may again be determined by the interest and cooperation of his family. It takes time to be a leader in these affairs, and the willingness of the family to “cover” for him in part determines the contribution a farmer can make.

The good woman who is supposed to be behind every good man finds herself involved in the trials and triumphs of the various groups and causes which her husband supports. The combined training, talents, and tastes of the farmer and his wife—and, as the years go by, of their children—will largely determine their success and their contributions.

It’s difficult to find a parallel in other walks of life where the business, the home, and the family are so closely interwoven and interdependent. Because this big package which we call farming contains all this and much more, many of us feel no hesitation in calling it “the good life.”

About the Author

Yes, Mr. Harold Hawley—B.S. from Cornell, M.S. and Ph.D. from Purdue—is a farmer. His wife was a nutrition major and has a B.S. and M.S. from Purdue. In 1946, after several years as a price analyst, Hawley bought the farm across the road from where he was raised. He then bought his father’s farm and one other until now he owns and operates 725 acres. He’s presently milking over 70 cows and has over 70 heifers.

In 1959, the Ford Motor Company awarded the Ford Farm Efficiency Award for Dairymen to Hawley for being the most efficient dairyman in the United States. But Hawley’s activities are by no means limited to his farm. He’s a member of the school board, director of the Auburn GLF Feed Plant, director of the NYS Farm Bureau, and chairman of the policy execution committee for the Bureau. He leads a full and hectic life and loves every minute of it.
BEWARE THE FALLING BAROMETER

The Weather and How It Affects You

Clothes may not make or break the man, but the weather often does. Yes, what you are—or, at least, how you feel and behave—is frequently determined by what's happening in the atmosphere around you.

The man of the house awakes one morning. He growls "G'morning" to his wife, ignores the children, cuts himself shaving, and complains about the coffee. His wife, who usually doesn't mind, reprimands him for reading the paper at the table, burns the toast, and forgets to make the children's lunch. The children come late to school, find the teacher picking on them for every little thing, and are detained after school for misbehaving.

Barometer is to blame

What's gotten into everyone today? No, it's not something they ate nor the dream they had last night. But had someone bothered to check the barometer, he may have noted that the pressure was falling.

What's falling pressure got to do with the way you feel? Lots. Studies by noted physicians and climatologists show that falling pressures go hand in hand with bad tempers. At such times, the majority of the people are depressed, irritable, restless, and forgetful. Clarence A. Mills, medical climatologist, finds that bus and streetcar passengers forget more packages, the dog catcher increases his haul, the friendliest pups snaps when you try to pet him.

"Braying" for rain

Even the old proverb makers recognized weather's effect on an animal's mental condition: "Hark, I hear the asses bray, We shall have some rain today." More than likely, it's the falling pressure, typical before a rain storm, which upsets the animals.

We're subject to daily pressure changes, too, regardless of the weather. The sun's gravitational pull is greatest at 2 p.m. and after midnight. It's no wonder, scientists say, that forenoon, when the pressure is slowly rising, is the best working time for most people.

A recent survey reveals that over 50 percent of the people are seized by an unconquerable drowsiness around 2 p.m. At this time of day, their work efficiency is far below normal. They just can't seem to do anything right. Is it just coincidence that this is the time when the sun's pull is greatest and atmospheric pressure reaches its ebb?
How do scientists explain this apparent correlation between your feelings and the pressure? Some say that your body acts like a sponge. When the pressure falls, body tissues absorb more and more water from the intestines. Your thirst increases as this absorption continues, and you drink more to make up for the liquid removed from your digestive tract. The end result—your tissues expand, you gain weight and feel clumsy. The circumference of your thighs can increase as much as an inch in just 24 hours.

Your Bulging Brain

This increase presents no problem in most parts of your body because your skin stretches easily to accommodate the expanded tissues. But your brain is encased in bone which, like a new girdle, simply does not stretch. Consequently, pressure builds up in your head. Your thinking becomes fuzzy, your orientation poor. You may feel frustrated, despondent, and irritable. The suicide rate rises rapidly at these times of falling pressure. Headaches and fainting spells are common. On the other hand, rising pressure clears up the mental atmosphere. Spirits soar and optimism takes over.

Another theory relates your mental condition to the imbalance of positively and negatively charged particles in the air.

An excess of positive particles causes the headaches, depression, and fatigue common on warm, windless, smoggy days when the barometer is falling. No one really knows what these charged particles do to your system, but their effects have long been recognized. Since 1931, atmospheres containing excess negative particles have been used to relieve high blood pressure, asthma, and hayfever.

Pressure, researchers find, is not the only weather factor which affects your emotional stability. Temperature, too, plays a large part. Work efficiency increases with the temperature up to 80-85°F and then falls off sharply above 85°F, finds Edwin G. Dexter, education professor at the University of Illinois. As the temperature increases, so does your irritability and restlessness. The crime rate shoots sky high on hot, muggy days. June may well be the time of romance and marriage, but it's also the peak month for crime, insanity, and homicide.

'Hot' Tip from Shakespeare

Shakespeare, who was certainly no medical climatologist, recognized that hot temperatures breed hot tempers:

“I pray thee, good Mercutio, let's retire.
The day is hot, the Capulets abroad,
And, if we meet, we shall not 'scape a brawl,
For now, these hot days, is the mad blood stirring.”

Neither does your memory escape from temperature's effects. In an experiment with rats, Mills showed that the higher the surrounding temperature, the longer it takes a rat to learn how to get from one end of a maze to the other. The absentminded professor is twice as forgetful on hot days.

Everyone is not affected by weather changes to

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the same degree. Slender people, observes Chicago physician William F. Peterson, are more sensitive to their environment than are heavier people. There seem to be distinct chemical differences between slender and large boned individuals. The blood volume of a slender person is not as great, and rapid shifts of blood between the skin and internal organs accompany weather changes. This puts a greater strain on his heart and nervous system. Unsettled weather, then, has a greater affect on him than on his opposite—the stable, adaptable, large boned person.

Girls the “stronger” sex?

Girls appear more resistant to atmospheric conditions than boys, finds Dexter. But this may be simply because girls practice a bit more emotional restraint than does the “stronger” sex.

You don’t have to take weather’s effects sitting down. The Bank of England used to lock up its important files on oppressive, foggy days because the clerks made many more errors than usual. Perhaps someday we’ll develop air conditioners which stabilize the pressure as well as the temperature and humidity.

But meanwhile, we just have to live with what the weather dictates. Life can be so much more pleasant, notes Mills, if you realize that short tempers and sudden flareups are often caused by nothing more than the weather.

And next time you’ve got an important decision to make or a perplexing problem to solve, check the weather first. You’ll probably be better off in the long run if you do it on a clear, cool day when the pressure is rising.
Forcing Spring into February

by Robert Gambino '61

Spring is mythically personified in Persephone, daughter of the Greek gods, Zeus and Demeter. She was kidnapped by Pluto who married her and took her to his home in the Underworld (better known today as Hell). Here her life was understandably unhappy. However, she was allowed to return to Earth each year for a short time, and with her return came warm days, blossoming flowers, and singing birds. This was Spring.

Capture Spring now

You may easily capture the breath of Spring in the dead of winter. All you need is a pair of clippers, some patience, and some imagination to practice the art of "forcing" flowers to bloom.

Flower buds on most spring-flowering trees and shrubs are fully formed in the fall. They need only a short period of cold weather to prepare them for bursting into bloom. Thus branches of these plants may be brought indoors for forcing anytime after January 1.

Choose flower buds only

When choosing shoots to use for forcing, you must distinguish between flower buds and leaf buds. Flower buds are usually "fatter" than leaf buds. Also, on some fruit trees, the flower buds are borne on "spurs," or small, short branches. Look for these spurs on older shoots of fruit trees to be certain of obtaining branches that will provide a rich display of flowers.

Select interestingly shaped branches for display purposes, but remember to be judicious when pruning, so as not to deform or harm the plant.

From bud to bloom

Now the fun begins. The ends of the shoots and branches will need to be crushed to facilitate water uptake during the forcing and blooming period. A hammer can be used for this, but an old shoe or stone will do just as well.

Next, soak the branches in water overnight. A large container like a bathtub is ideal. If this is inconvenient, the upper portions of the branches can be wrapped in moist newspaper and left for a few days with the crushed ends placed in a container of water.

Following this soaking, the branches should be placed in a can or pail and left in a relatively cool, draft-free area for the actual forcing process. A room with a temper-
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Convincing proof that Beacon pays off? Sure is, but here’s more. Some of the herds had been on Beacon Dairy Feed Programming more than one year — some as long as four consecutive years, ever since Beacon first introduced Programming in 1957. You’ll see in the table that the longer on Beacon — the more extra income per cow (as much as $39.08 more in the fourth year compared with records for the same cows before they went on Beacon).

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<table>
<thead>
<tr>
<th>PROGRAMMED HERDS INCREASED PERFORMANCE EACH YEAR</th>
<th>One Year on Beacon</th>
<th>Two Consecutive Years on Beacon</th>
<th>Three Consecutive Years on Beacon</th>
<th>Four Consecutive Years on Beacon</th>
</tr>
</thead>
<tbody>
<tr>
<td>MILK per cow</td>
<td>759 lbs. more</td>
<td>759 lbs. more</td>
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</tr>
<tr>
<td>FAT per cow</td>
<td>57 lbs. more</td>
<td>57 lbs. more</td>
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<td>57 lbs. more</td>
</tr>
<tr>
<td>INCOME per feed cost</td>
<td>$17.81 more</td>
<td>$39.08 more</td>
<td>$63.03 more</td>
<td>$81.16 more</td>
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Some straight talk about a career at American Oil

by Roger Fisher

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"American Oil is looking for broad-gauge research people," Roger adds. "In the long run, the Company benefits as well as the professional who continues to grow in his own or in several fields of research."

Roger's present assignment at American Oil involves applied research—to plan, design, build and operate bench scale lab equipment, to study the kinetics of catalytic cracking. His is one of many diversified projects at American Oil Company. Chemists, chemical engineers, physicists, mathematicians and metallurgists can find interesting and important work in their own fields.

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- Combustion phenomena
- Solid propellants for use with missiles
- Design and economics: New uses for present products, new products, new processes
- Corrosion mechanisms
- Development of new types of surface coatings
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COVER: The drawing is symbolic of “Agriculture’s Golden Century.” The wheels of progress (the circles) have moved in well-defined directions (arms of star) guided in large part by the land grant institutions. The long arm (upper right) points toward an unknown yet progressive future. Nancy Felthousen ’65 is the cover artist.

Represented for national advertising by Littell-Murray-Barnhill, Inc., 369 Lexington Avenue, New York 17, N.Y.

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March 1962
ONE HUNDRED YEARS of agricultural progress wrought by the land grant colleges and universities of the United States—this anniversary is the theme of 1962's Agricultural Progress Days.

The land grant institutions, Cornell University among them, owe their existence to the Morrill Land Grant Act. In 1862, Abraham Lincoln's signature to this act initiated within each state the development of "at least one college, without excluding other scientific and classical studies and including military tactics, to teach such branches of learning as are related to agriculture and the mechanic arts."

According to Cornell Prof. Emeritus Richard Bradfield, the land grant institutions are "one of the best investments the United States government ever made. They have trained agricultural leaders for teaching, research, extension, and industry. As a result, the agriculture of the United States is the envy of the world."

Under the theme "Agriculture's Golden Century," Cornell's Agricultural Progress Days will highlight the economic and political aspects of agriculture. Henry A. Wallace, former Vice President of the United States and Secretary of Agriculture under Franklin D. Roosevelt, will be a featured speaker. He will discuss the origin of government programs affecting agriculture, and trace the development of today's agricultural programs. How these programs affect the farmer and consumer and what the future role of world agriculture will be are two subjects Mr. Wallace will examine.

In 1912, exactly fifty years ago, Mr. Wallace's father, "Uncle" Henry Wallace, then editor of "Wallace's Farmer," addressed the students of the College of Agriculture during Farmers' Week (a former name of Ag Progress Days). He congratulated the students for being American heirs to the twentieth century in New York State. "The advantage we have in the twentieth century is not greater gifts of genius, but multiplied power with social evolution from the more simple to the more complex," he extolled.

Other features of the program will center around scientific progress in dairying. Prof. Cyril A. Comar, head of Cornell's new Radiation Biology Field Laboratory, will discuss fallout contamination of food.

Nor will the international aspects of agriculture be neglected. Dr. Karl Brandt, internationally known economic analyst and associate director of the Food Research Institute at Stanford University, will speak on agricultural commodities in international trade.

Lloyd H. Elliott, president of the University of Maine, will give the centennial address entitled "The Land-Grant Heritage." Former dean of the College of Agriculture, William I. Myers, will review the College's role in the land grant movement.

The program will also include a discussion by Dr. Gerhart Niemeyer, professor of political science at University of Notre Dame, on agricultural failures in Communist countries and how these failures affect world politics.
Challenge of a Changing Rural Scene

• One hundred years ago, there were about 200,000 farms in New York State. Today there are half that number.

• One hundred years ago, 70 percent of New York’s land was in agriculture. Today, only 50 percent is devoted to the production of food and fibre. At the same time, average farm size has increased 35 percent.

• One hundred years ago, 90 percent of the population lived on farms. Today, 90 percent live in and about cities. And, in this time, the population of New York State has tripled.

• One hundred years ago, one hour of farm labor produced one seventh as much food and fibre as the same labor does today.

• One hundred years ago, one American farm worker was producing enough food and fibre for only five people. Today, one farm can feed 26 people.

All this, and much more, represents agricultural progress. But this progress has been far from painless. Each change was cloaked in a complex of problems. Food for more people had to be produced on less farm land by fewer farmers. The productivity of our agriculture had to grow by leaps and bounds.

We needed improved soils, better breeds of livestock and field crops, increased capital investment, and more efficient farm management. Farmers had to sell their goods in urban markets, and purchase machinery and other capital inputs from industry. Farm produce had to reach the consumers in edible condition and be available to them throughout the year.

These were only a few of the many problems to solve. And each solution presented a myriad of new problems. Yet, the development of our agriculture has been continuous and the success of this development overwhelming. Today this development continues, for there are still and always will be new problems and new fields to explore.

Leading us along the path of progress have been the land grant institutions. Through the cooperative efforts of teaching, research, and extension, these institutions are responsible for major agricultural advances from the development of hybrid corn to packages for frozen foods. The College of Agriculture at Cornell, as a land grant institution, has played a major role in the agricultural development of New York State. In this issue we will highlight some of the ways in which the College of Agriculture is meeting the challenge of a changing rural scene.
In addition to advances in agricultural technology, the College of Agriculture is taking other steps to meet the changing rural scene. The College's Extension Service has recently instituted an educational program under the code name Operation Advance to help rural New Yorkers improve their public services.

Population migration from rural to suburban areas has weakened the rural governments' tax bases. The lack of industry in many rural areas creates job shortages and places more people on public support. The increased demand for high quality education requires the construction of expensive new schools. These and other social and economic problems face rural governments in the State today.

Educating local leaders

Competent local leadership is the key to solving these problems. The goal of Operation Advance is to stimulate and develop this leadership through education. Education in public policy must respect the fact that action can only take place in a democratic context. Education can raise the level of decision-making, not replace it. Operation Advance does not provide solutions, but rather helps to improve individual judgment.

The students in Operation Advance are community leaders. They include not only leaders in recognized political parties, but other people who propose, initiate, challenge, or even block community action. These individuals are identified by their positions, the power of their convictions, or by their personalities. They are, therefore, a broad and diverse group. They are the people who provide the focus of the program on which citizens can act.

The materials used in Operation Advance consist primarily of objective Fact Sheets provided for each participant. Each Fact Sheet states issues, places the issues in context, presents various courses of action, and reviews the pros and cons of differing positions. Data concerning economic conditions in the particular county are also provided. The Fact Sheets end with general questions for discussion, and the leaders formulate answers for themselves.

The method of carrying on this type of education is through self-administered discussion groups. Each group of seven to fifteen leaders is designed to contain a diverse cross section of interests. No experts or trained discussion leaders are present in these informal groups.

Community cooperation

The county extension office in each of the participating counties lays the groundwork for the project. From this office "core" leaders are recruited within the county, each of whom solicits the interest of a dozen other community leaders for a few informal discussion meetings. The county agent consults with these leaders and provides the materials. The agents do not act as subject matter experts, but they must have some grasp of the framework and objectives of the program.

Operation Advance was started in the spring of 1961 in five counties near Ithaca. Approximately 800 leaders in these counties took part in the pilot program. The informal discussion groups met approximately once a week and discussed Fact Sheets covering education, highways, outlook for local government, taxation, and economic development. The topics were treated interdependently within the context of the community.

The response to Operation Advance in these counties was so favorable that other counties were invited to try it. At present the program is being conducted in 45 counties with an estimated participation of 8,000 local leaders.

Edward A. Lutz

A native of Prattsville, Dr. Edward A. Lutz has been the major author and coordinator of Operation Advance. He earned his B.S. degree at Cornell, the M.B.A. degree at Harvard, and returned to Cornell for his Ph.D. Before joining the University faculty in 1947, he worked for various state and federal government agencies. He teaches an undergraduate course in rural government, which covers topics ranging from governmental philosophy to school systems in Thailand.

Dr. Lutz was visiting professor of government at the University of the Phillipines in 1957-58. He is currently president of the Ithaca school board. He lives with his family on the west shore of Cayuga Lake near Trumansburg.
At the same time "Stage II" is being started in the five original pilot counties. Another five Fact Sheets are being prepared and will be accompanied by a workbook of information pertinent to public decisions in the counties. The topics for the series are Context for Decision, Concepts for Action, Community Growth and Development, Education, and The Public Business.

The first two topics will probe into the issues of the first series more deeply, and view the relation of community activity to the accelerating shrinkage of time and space. In this way, international, national, and regional forces are related to issues of public concern in the community. Another objective of this part of the program is to implement public decisions through methods of managerial control and the process of political action.

The next three Fact Sheets deal with clusters of community activities. "Community Growth and Development" encompasses some of the pressing concerns of many communities, dealing with a wide range of community activity and resources. "Education" interrelates the institutions and organizations concerned with formal education in the community, "The Public Business" deals with the range of activity which has significance to attaining community objectives.

In connection with this whole effort, some advice by Thomas Jefferson has significance:

"I know of no safe depository of the ultimate powers of society but the people themselves; and if we think them not enlightened enough to exercise their control with wholesome discretion, the remedy is not to take it from them but to inform their discretion by education."

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Robert C. Baker

A native of Wayne County, Dr. Robert C. Baker has been on the staff of the Department of Poultry Husbandry since 1949. He earned his B.S. at Cornell, the M.S. degree at Penn State, and a Ph.D. from Purdue. His doctorate was in poultry products technology and he was the first person in the U.S. to receive a Ph.D. in that field.

Dr. Baker has been equally active in teaching, research, and extension. He is largely responsible for the broiler barbecue idea and thus earned the nickname, "Bob-ba-cue" Baker. He has also been instrumental in the development and marketing of many new poultry products. His main hobby is fishing, which he claims started when he caught a 20-pound trout on his first outing.

B.P.

From Brooders to Bird Dogs

by Prof. Robert C. Baker

Fifty years ago chickens were raised on almost every farm in New York State as small back yard flocks. They were fed from the pasture, with table scraps, and a little grain.

Recently, in cleaning out some old files in Rice Hall, I found notes written by Professor Rice about 40 years ago. As the first head of the Cornell Department of Poultry, Professor Rice is considered the father of the poultry industry. The notes, for a field trip of Professor Rice's eight student class to Groton, N.Y., state that the poultry farm in Groton had 800 birds and was one of the largest poultry farms in the East.

We have made tremendous progress in the poultry business in the last 50 years. We have gone from the small backyard flock of 30 or 40 hens per farm to flocks as large as 300,000 birds. To make a living on a poultry farm today, the owner must keep a minimum of 5,000 hens.

Egg production per hen was approximately 90 eggs in 1912; today the United States' average per hen is 209 eggs. Many poultrymen are able to obtain 250 and even more eggs per hen each year.

Hens face technological unemployment

One of the interesting changes in the past half century is the switch from broody hens used to hatch eggs, to the mammoth incubators of today. With our present population of laying hens, we would have to keep over 20 million mother hens just to hatch our present number of chicks for layers. It would take another 100 million mothers to hatch the chicks for our present broiler industry. Today we are using huge force draft incubators that hold up to 100,000 eggs per machine.

The broiler business was non-existent 50 years ago. It wasn't until 1935 that we started to grow chickens just for meat. Before 1935 people ate chicken, but it was a byproduct of the egg business. The growth of the broiler industry in the United States is unbelievable. In 1939 we raised approximately 70 million broilers, and in 1961 we raised over two billion. In 1935 it took at least 12 weeks to grow a broiler to three pounds, and at least four pounds of feed were needed to produce one pound of meat. Today we produce a three-pound broiler in eight weeks with a feed efficiency of 22 pounds of feed to produce one pound of meat.

These tremendous advancements in the field of poultry husbandry—advances unsurpassed by any other form of agriculture—naturally created countless problems. Many of these problems were solved by scientists in the Cornell Poultry Department.

Eating good makes good eating

In the field of poultry nutrition, the department has been particularly outstanding. With the change from the small backyard poultry flock to commercial egg production, a balanced feed ration had to be developed. Cornell researchers did far more than their share in making the hundreds of changes from the first commercial ration to our rations of today.

Until the discovery of vitamin D in the twenties, in which Cornell had a part, hens didn't lay eggs during the winter months because of too little sun. During the thirties at Cornell, we made a gigantic step forward in poultry rations with the discovery that a few parts per million of manganese in the feed prevented a crippling disease known as pellagra. In the forties, Cornell researchers made contribution in the discovery and use of the B vitamins such as riboflavin, pantothenic acid, folic acid, choline, and Vitamin B12. When added to the poultry rations, these vitamins greatly improved egg production and broiler growth.

March 1962
In the 1950’s, Cornell scientists applied the concept of high energy to feeds and greatly improved the efficiency of both egg and broiler rations by producing more eggs and more broiler meat with considerably less feed.

Cornell geneticists, too, have been instrumental in the poultry industry’s rapid advancement. A frequently asked question is whether the nutritionists or the geneticists have done more for its growth. It is agreed, however, that without a bird bred for high egg production or a broiler for rapid growth and efficiency, the nutritionists would have little to work on. Cornell geneticists first worked on mass selection followed by pedigree, family, and progeny selection. Such advancements in breeding have produced the outstanding families of layers and broilers that we have today.

With poultry’s growth in the size of flocks, one of the serious problems has been disease control. Cornell geneticists did much to develop breeds resistant to many diseases. Especially outstanding is their success with the avian leukosis complex.

**We create and solve surplus problem**

In recent years, we have been so efficient and productive in the poultry industry that we have developed surpluses which mean low prices. There is a standing joke in the industry that the nutritionists and geneticists have done their job too well. Of course, the thousands of retired businessmen, turned poultrymen, have had something to do with this surplus.

But Cornell soon went to bat to solve the surplus problem. A few years ago, a food science division was started in the poultry department. One of its main functions is to find new uses for poultry meat and eggs. To date, 31 new poultry meat and egg items have been developed; 10 of these were successfully market-tested. These convenience items include “Bird Dogs,” Chicken Bologna, Chickalona, Instant French Toast, Apple-Egg Drink (Tren), Chicken Sticks, Smoked Chicken, and a “Bake and Serve” Chicken Loaf. Most of these new items do not compete directly with the sale of poultry meat or eggs.

Progress in the poultry industry has been staggering, and further advances will be made in the future. Problems will continue to develop, and Cornell scientists will have plenty of work to do. Although we often think of research as helping only the farmer, this certainly is not the case in the poultry field. The consumer has actually benefited more. Broilers are an example of this, for today the consumer can purchase high quality meat at a very economical price. There are very few people in the United States who haven’t reaped benefits from the progress in the poultry industry.

**GUARANTEED:**

**An Apple A Day**

Except for apples, my grandparents had fresh fruit only during the harvest season. Today’s public must be supplied with quality fruit the year round. To meet the demand of a growing urban population production has to expand continuously, and preservation and marketing methods must be improved.

Fruit growers are human enough to want to make a fair profit for their labors. On the other hand, they fully realize that fruit must be available at reasonable prices or it will price itself out of a market. Adequate supplies of fruit for the present and the future are predicated on reasonable production costs.

To have reasonable production costs we must have high yields of high quality fruit. At the same time, the soil must be adequately fertilized, but fertilizer cannot be used wastefully. Cornell pomologists have designed a scheme of leaf analyses for growers that tells them the nutritional needs of their fruit trees. Leaf analyses in the summer of 1961 tell growers what fertilizers and how much of each should be used in the spring of 1962.

High yields of quality fruit are founded on good control of all orchard pests. Cornell pathologists and entomologists have evaluated countless new organic pesticides. These new materials not only control the
Advances in fruit production, breeding, preservation, and marketing make high quality fruit available to more people in more places. This picture shows the polyethylene packages which have replaced the traditional "barrel full of apples."

by Prof. Robert M. Smock

pests but also increase tree yields. In our search for control, we're focusing our attention on systemic pesticides. These materials are placed on the ground and absorbed by the tree. The insects are killed when they suck the juices from the leaves and shoots of treated trees. One of the main goals of our researchers is to find natural parasites of insects to kill off harmful species.

Production must be uniform from year to year. When I was a boy we had regular crops of Northern Spies and Baldwin. Yes, they were regular—every other year. Cornell pomologists have nearly licked this problem. They developed chemical sprays that reduce the number of flowers on the tree at the time of full bloom. This is called pomological birth control. We are searching for new chemicals which will actually cause very young trees to start flowering.

To keep production costs down, small trees are necessary. Spraying, pruning, and picking costs are thus reduced. Cornell researchers on the Geneva campus are working to supply growers with medium or very small sized trees.

Picking is one of the most expensive items in fruit production. Agricultural engineers at Cornell have already developed a mechanical picker for sour cherries that will remove 200 pounds of fruit from a tree in four seconds. A mechanical grape harvester for juice or wine grapes has been developed at Cornell. Now, Cornell is working on a mechanical picker for apples going to processing plants. Handling also contributes to the cost of the fruit. To eliminate expensive handling, Cornell pomologists and engineers have worked out a scheme for handling fresh market apples in large bulk bins that hold 20 bushels. These bins are moved by machine in the orchard, as well as in the storage and packing house. The next problem was to get the fruit out of these bins without bruising them. Investigators worked out a scheme of submerging the bins in water and letting the apples float out. This resulted in even less bruising than occurred with the old method of small box handling.

We must have varieties of fruit that are high quality as well as high yielding. Pomologists at Geneva have developed a number of new varieties of apples, pears, grapes, strawberries, and raspberries. Work of this kind is never finished. Fruit breeders are always searching for the "perfect" variety.

Fruit breeders at Geneva have developed some very high quality table grapes, but there is no point in producing these varieties until a method is found of storing the grapes for 4-6 months without spoilage. Present research is directed toward a solution of this problem. Refrigerated storage for fruits like apples and pears has been used for more than 60 years. Recent studies by Cornell pomologists have resulted in the control of serious physiological diseases of fruit in storage, like "apple scald."

Refrigerated cold storage will keep certain varieties of apples and pears fresh until January to March. With controlled atmosphere storage, many varieties of apples and pears can be kept for 8 to 12 months. Controlled atmosphere storage involves keeping fruit in gastight rooms with very low oxygen and relatively high carbon dioxide levels. This English discovery has been exploited by Cornell pomologists until now there are over two million boxes of apples stored by this method in the State.

Fresh fruit the year round

Certain fruits like strawberries and raspberries can be kept for only a week under refrigeration. But now, strawberries can be shipped 3000 miles if the refrigerated truck or railway car is charged with 30-40 percent of carbon dioxide gas at the start of the trip. For long storage periods, these fruits are best kept in the frozen state. Food technologists on the Geneva campus had a hand in developing techniques for freezing and storing these fruits. Our fruit breeders developed varieties of strawberries that not only were adapted to freezing storage but contained as much or more vitamin C than oranges.

New York State is famous for its processed fruit products. Twenty-four percent of the applesauce made in this country is produced in this State. Food technologists on the Geneva campus developed methods of producing apple slices that kept their shape after freezing or canning. They recently found that picking R. I. Greening apples much later than anyone dreamed practicable resulted in a very superior canned or frozen...
Modern spraying methods kill fruit pests.

apple slice product. Canned applesauce sometimes has a "canned flavor." Research workers have identified the chemical responsible for this flavor and are now trying to eliminate it.

Drinks from grapes

New York leads the nation in the production of pasteurized grape juice. Our technologists led the way in processing both the pasteurized juice and frozen juice concentrate.

Many feel that the public, and children in particular, would be better off if they drank more fruit juice and less carbonated drinks. Our food technologists have developed a pasteurized apple juice that has natural apple juice color and flavor and is very rich in vitamin C. For people who don’t like their drinks "straight," they have developed juice blends like grape-apple, strawberry-apple, and others.

New York ranks second in the nation in the production of wine. Our champagne is famous, but some complain that our wines do not approach the best European wines in quality. Current research suggests that the time is coming when the quality of our wines will satisfy even the fussiest connoisseur.

Geneva pomologists contribute

Technologists on the Geneva campus are experimenting with atomic radiation as a means of sterilizing and preserving fruits and fruit products. This research is in its infancy and only time will tell what will come from it.

With all this fruit inexpensively produced and well preserved, a change was necessary in marketing methods. Marketing experts at Cornell have helped growers form sales cooperatives so that large volumes of fruits of a specific grade may be supplied to one buyer. They also helped growers attain a marketing order that permits them to levy a tax on themselves to support advertising and promotion.

When I was a boy, apples were displayed in the retail store in a barrel. Today they appear in supermarkets in 3-5 pound bags. Cornell marketing specialists did the pioneer work that started this trend toward prepackaged apples in polyethylene bags. At present these experts are studying a method of handling apples from the tree to the consumer that involves no human handling after the fruit leaves the picker's hand until it is picked up by the consumer in the supermarket.

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Cornerstone for the Future
by Prof. Frederick H. Stutz

Technological and social changes in recent times have greatly altered the field of education, particularly in rural areas. Our educational system is the basis for our society, and America's tomorrow is determined by the education provided today. Therefore, education of the highest quality must be available to all.

Through teacher training, research, and extension work, the College of Agriculture's Department of Rural Education is helping to meet this demand. The department currently has more than 100 students majoring in science teaching, and is solely responsible for producing the State's vocational agriculture teachers. Students are also enrolled in the department's five-year program for elementary teachers. Fields for graduate study include school psychology, educational administration, guidance counseling, and extension leadership.

One of the newer departmental programs is the Junior High School Project. Supported by a grant from the Ford Foundation, this program qualifies college graduates for junior high school teaching after a year of study in the department. Another new project, also Ford Foundation supported, will make it possible for qualified University students to study education in an independent honors program.

The department has been traditionally active in the College's extension programs. The staff has written and distributed the Cornell Science Leaflets (formerly known as the Rural School Leaflets) for over fifty years. First written for use in one-room country schools, the leaflets have been aimed at improving the quality of science teaching in the smaller elementary schools in the State. Today the leaflets are used as resource materials in both rural and city schools.

Graduate education for extension personnel, a field in which Cornell pioneered, is a particular concern of the department. Extension workers from all parts of the country and from many foreign countries enroll in this program each year. More than 150 practicing teachers from New York State take in-service courses in the teaching of science and mathematics. Such courses are also available to those engaged in other types of teaching, administration, and counseling.

The growing commitment of the University to international studies is reflected in the work of the department. A seminar in comparative extension education serves both American and foreign students who plan to work overseas. A course in comparative education is also a regular part of the department's summer session. Department staff members are serving or have served on a number of assignments in low income countries.

Research in rural education

Research in the Department of Rural Education is concerned with basic educational problems such as the nature of the learning process, instruction in critical thinking, the development of student study skills, programmed instruction, and the organization and administration of school systems. A recently completed study examined the role of high school agriculture instruction as preparation for occupations related to agriculture.

Department staff members work closely with the State Education Department, professional teaching associations, and local school boards on problems of mutual interest. Projects include strengthening educational programs in small central schools, evaluation of teaching and curriculum, local school finance, and the orientation of new school board members.

The department staff feels that the teacher should be liberally educated, with thorough training in a teaching subject, and study and practice of the art of teaching. The strengthening of education for the present and the future is best accomplished through teacher education and educational research in a university setting.

Frederick H. Stutz

Serving as both Dean of the School of Education and head of the Department of Rural Education, Dr. Frederick H. Stutz is one of Cornell's busiest professors. He is a native of Ithaca, and earned his A.B., M.A. and Ph.D. at the University. Before joining the Cornell faculty, he taught at various high schools and was an assistant professor at Michigan State College.

In addition to teaching several courses, Dr. Stutz is engaged in research concerning local school curriculum. He has served as president of the Ithaca school board and is a consultant for several high schools in the Ithaca area. Dr. Stutz lists gardening and travel as his favorite hobbies.
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<table>
<thead>
<tr>
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<th>One Year on Beacon</th>
<th>Two Consecutive Years on Beacon</th>
<th>Three Consecutive Years on Beacon</th>
<th>Four Consecutive Years on Beacon</th>
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<td><strong>Milk per cow</strong></td>
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<tr>
<td><strong>Fat per cow</strong></td>
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<td>$30.94 more</td>
<td>$29.40 more</td>
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Worth the "nutrient nick"
Conservation: A Worthy Cause

by Prof. Carl A. Carlozzi

Nothing has been hit harder by the changing rural scene than the land and resources of New York State. More than ten of New York's seventeen million non-agricultural acres comprise land which was once devoted to agriculture. The availability of this land, and the vast potential for its development, presents a challenge to all interested in making the most effective and productive use of our resources.

The Department of Conservation at the College of Agriculture is prepared to meet this challenge. Through its programs of teaching, research, and extension, the department has steadily increased its efforts to meet the changing needs of the people of New York as they begin to develop new uses for non-agricultural land.

In the teaching field, a new program of graduate study involves the cooperative efforts of staff members in many departments and colleges in the University. The program, coordinated in the conservation department, is designed to train students to handle the diverse problems of integrated resources management.

Research resulting from this new graduate program includes studies on the recreational potential of water supply reservoirs, and the potentials for commercial development of privately owned and operated campgrounds. Other studies concern the economics and policy of landowner organizations involved in water resource development.

An increase in outdoor recreation makes one of the major demands upon New York lands and resources. Much of the rural land presently in non-agricultural ownership is used to develop wildlife habitat, small impoundments for fishing, and for other recreation-oriented pursuits.

How rural non-agricultural landowners can make the most productive use of their lands for such purposes has been the goal of recent conservation research. Wildlife research has been conducted on such animal species as the white-tailed deer, ring-necked pheasant, black bear, ruffed grouse, cottontail rabbit, and gray squirrel. Faculty and students also look for effective controls over the damage wildlife does to agricultural crops and forest plantations.

An intensive warm water fisheries research project revealed basic management techniques which owners of small impoundments in New York may use to develop sport fishing and raise bait fish commercially.

The department carries out an active program in extension education which brings the results of its research to the people of the State. New York's twenty thousand pond owners receive a wide range of publications concerned with the construction and management of farm fish ponds. Throughout the State, these pond owners could attend demonstration meetings conducted each summer and fall on this subject.

Through a special contract with the New York State Conservation Department, a wildlife specialist conducts an educational program on New York's Fish and Wildlife Management Act. This act works to insure the proper use of our rich wildlife resource, and to ameliorate the problems between landowner and sportsman.

Foresting the farm

Nor has farm forestry been neglected. The department conducts a research and extension program to help many farm and non-farm landowners foster plantation or woodlot management on their property. These small (under 500 acres) woodland holdings represent a major resource. Seventy-seven percent of New York's commercial forest land falls under such ownership—a ready justification for research in Christmas tree growing and marketing, selection of species for forest plantations, and the management of woodlots to produce timber, cordwood, fence posts, maple syrup, and other products.

We can meet the increasing demand placed on the State's water resources by municipalities, industries,
and recreational developments only through the cooperative efforts of many different fields of specialization. Therefore, the conservation department is active in many cooperative research and extension programs with other College of Agriculture departments.

The rapidly changing pattern of rural land use calls for expanded efforts to develop sound resource management and to serve the changing goals of New York citizens. To this end, one class in conservation sets up the basic pattern for county resource inventories. Such inventories are steps which local and state agencies must take to establish coordinated programs of resource management and decide which problems must be tackled first.

All New York citizens have a great influence in determining how much of our rural land will be used. The conservation department, through a new home study program on Conservation of Natural Resources, helps New Yorkers understand contemporary problems in resource development, and the principles upon which we base our management programs. This course is designed to assist people who have little or no direct experience or training in the natural resources field. Problems which effect both the resource owner and those dependent upon sound resource management must be understood by all before they can be satisfactorily solved.

Carl A. Carlozzi

Extension specialist in wildlife management and general conservation, Carl A. Carlozzi is a native of Cleveland, O. He earned his B.S. and M.A. degrees at Kent State University in Ohio and was on the staff of the Kent State biology department before coming to Cornell.

Mr. Carlozzi's interest in wildlife extends beyond his daily work in Fernow Hall and in the field. His home is in a wooded area near Brooktondale and his daily visitors have included deer, grouse, rabbits, and more than sixty different species of birds. Since he and his wife have three children, Mr. Carlozzi often finds it necessary to institute wildlife management practices in his home.

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Changes in Milk Marketing

by Prof. Richard D. Aplin
as told to Steven Reinheimer '64

The ever changing milk marketing scene is the response to the great migration of our population to urban centers. Increased productivity on our farms and the accompanying decrease in manpower needed in rural areas is accelerating this shift. Our nation's farmers have had to adjust continually to the changes brought about by increased technology which enable only the most efficient to survive the tight price-cost squeeze. So too, milk dealers—those who process, package, and distribute our milk—are in the midst of a difficult period of transition.

What are the major changes in milk marketing? Widespread innovations can be traced from the milk room of the dairy farmer to the supermarket. A noticeable trend among New York dairy farmers has been the rapid conversion to bulk tanks. As of this past October, over 25 percent of the commercial dairies in the state had switched to bulk coolers. This change has had, and will continue to have, profound effects on country milk assembly. Farm-to-plant hauling of milk is becoming a much more important phase of assembly.

As the shift from cans to bulk assembly continues, country plants will tend to be consolidated. Many will be eliminated because milk may be hauled longer distances in bulk than in 40 quart cans.

Country assembly plants are not the only ones to be affected by marketing changes. In the cities, the advantage of large scale plant operations has become more pronounced as new labor saving equipment becomes available and as labor costs rise. This has caused many plants to consolidate to reduce processing costs. Between 1951 and 1961, the number of pasteurizing plants decreased from 1074 to 661 in New York State.

Even more impressive than the changes in the procurement and processing operations are those in milk distribution. In most of our markets there has been a sharp trend from the home delivery of milk to store purchases. This shift, which is more pronounced in urban than in rural areas, has several causes. More people now live near stores, making frequent access to them less difficult. Through better refrigeration facilities, milk can be stored for longer periods of time, making daily delivery unnecessary. Paper containers have made milk purchases at the store less inconvenient. The increasing price differentials between store bought and home delivered milk further encourages the shift.

One of the most pronounced trends in food marketing, the rapid growth of supermarkets, has had a sig-

Richard D. Aplin

An expert in the field of milk marketing, Dr. Richard D. Aplin has been assistant professor of marketing in the Department of Agricultural Economics since 1959. He received the B.S. degree from the University of Vermont and earned his M.S. and Ph.D. at Cornell. He served in the Air Force and taught at the University of Vermont before taking his Cornell teaching position.

Dr. Aplin has been active in extension work pertaining to milk handling practices and operations. He teaches a course in the economics of managerial decisions and is currently involved in marketing and management research. Dr. Aplin is married and serves as a Boy Scout leader in Ithaca.
significant influence on milk sales. Rapid turnover of milk can bring supermarkets a considerable profit although the price per quart is relatively low. Some supermarkets are in extremely strong bargaining positions with milk dealers. In fact, some food chains have developed their own delivery and plant operations which completely eliminate the milk dealers who serve them.

Another trend which has only recently begun to develop is the increase in popularity of specialized dairy stores. These stores specialize in milk and other dairy products. By offering a minimum of services to the consumer and by remaining open on a 365 day-a-year basis, many of these stores are able to sell milk at low prices to the consumer. This sort of outlet is attractive to some consumers.

Labor problems loom

What problems do these changes represent to the milk processing and distribution industries? Labor suffers through a decreased demand for manpower due to plant consolidation and the elimination of many services, a case in point being the declining importance of home delivery. Management faces barriers which make efficient adjustment to new conditions difficult. Most milk distributors serve a variety of customers, ranging from those who desire home delivery, to small food stores and large chains. If a dealer is forced to lower his prices to chain stores and the stores pass on the savings to consumers in the form of lower prices, his sales to other customers are likely to be adversely affected. Another problem management faces is the disadvantage of taking the initiative in responding to changes in the marketing scene. If a company decides to reduce costs and prices by reducing services, it may face increased competition from those who attempt to acquire business by offering more complete service at the lower price.

The inflexibility of labor contracts and arrangements also retards adjustment to the changing market situation. Also, the whole dairy industry has been hurt by the gradual decline of per-capita milk consumption. Although formerly offset by population increase, the present drop in per-capita consumption has been large enough to decrease total consumption of fluid milk. Since the farmer receives a higher price for fluid milk than for milk used in processing, this decrease significantly reduces the dairy farmer's income.

The College of Agriculture, through research and extension, is attempting to help the dairy industry make the necessary transitions as efficiently and painlessly as possible. Studies of the changes on the marketing scene will provide distributors with information enabling them to better anticipate these changes and be in a better position to adjust to them. The College's Department of Agricultural Economics attempts to develop techniques which will help management appraise its operations and suggest changes to make its business more efficient.

The College issues reports and holds meetings with industry leaders, discussing recent changes with them. Recently, Pennsylvania State College and Cornell conducted some management workshops in milk distribution. Four workshops have been held. Each unit is composed of 25 distributors under the instruction of College personnel who discuss various methods of coping with problems.

Future is promising

The cooperation of labor and management are required for making many of the necessary adjustments. Although, up to the present, extension work has been directed toward management, College personnel hope also to work with representatives of organized labor. It is hoped that the College can help both management and labor to understand better the changes taking place, the problems posed by the changes and possible solutions to the problems.

Future trends in distribution costs of fluid milk may be a key factor in the competition between fluid milk and substitute products. Many of the changes that the industry is making, and will continue to make, will lead to lower marketing costs, which should help strengthen the sales of fresh fluid milk and insure our milk industry of a bright future.

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March 1962
In 1958, the College of Agriculture initiated a Food Distribution Training Program designed to train personnel for the food industry. Many of the students who enrolled in the program have entered the dynamic field of supermarket management.

Supermarkets are relatively new institutions. Thirty years ago the supermarket industry consisted of a few hundred large markets scattered about the Far West and Southwest. These markets were somewhat different from the supermarkets of today. They were large selling units with the various departments leased out to individual proprietors. Although the sales of each department were relatively small, the combined sales of the market were large. These markets did not offer self service.

During the Great Depression, a new type of supermarket emerged on the East Coast. These markets were frequently found in abandoned warehouses, garages, or factories. They had bare floors, glaring lights, gaudy displays, and crowded stacks of merchandise. They did not offer the traditional grocer’s services of delivery, credit, or personal attention, but they introduced self service and mass merchandising to grocery retailing.

A simple success story

Why were these new markets such outstanding business successes? The answer is simple. It was a depression period and many people were unemployed. Under the prevailing economic conditions, consumers were very price conscious. The supermarkets offered them prices much lower than those of established stores.

These early supermarkets were independently owned. Although many retail grocery chains were in existence at the time, they operated relatively small stores. The chains were quick to pick up the supermarket idea, but they were not the innovators.

After the depression, the retail food industry began “trading-up” its supermarkets. The supermarket philosophy of low margins and high turnover had been found to be sound. In the years immediately before World War II, the number of supermarkets increased tremendously, and the new markets were much more attractive that the original stores. During the war years, few new markets were opened because of building restrictions. But immediately after the war the industry experienced a renewed impetus. The trend has continued, and retail food sales reached a new peak of $52.6 billion in 1960—more than the combined sales of all gas stations, department, drug, variety, furniture, and appliance stores.

The basic appeal of the first supermarkets was low prices. But the standard of living has greatly increased in the past 20 years. How have the supermarkets maintained their appeal?

The customer is still attracted by the lower prices offered by the supermarket made possible by large volume buying. Rising incomes have resulted in an upgrading of the consumer’s diet. Per capita consumption of flour, cereal products, and potatoes has declined, while consumption of fruits, vegetables, meats, and “luxury” items has increased rapidly. Consumers have generally been spending a smaller percentage of their incomes on food, but have been spending more dollars for food per person far in excess of inflationary trends. The food industry has been both responsive to and responsible for this trend, indicated by better packaging, freezing, precooking, and the whole array of “built-in maid service.”

Many seasonal products are now available all year through the adoption of refrigeration and better processing methods. New merchandising and display techniques, coupled with the customer’s freedom to wander about the store, have resulted in increased “impulse” buying.
A Supermarket

Widespread ownership of automobiles has put the supermarket's best customer, the housewife, on wheels. She is no longer forced to shop at the nearby corner grocery, but can shop in several stores if she desires.

Mass migration out of the cities to the suburbs has stimulated the development of shopping centers, of which the supermarket is an integral part. This shift of customer residence appears to have affected the growth of supermarkets more than population increases.

Small grocer hit by markets

However, the phenomenal growth of the supermarket has had widespread repercussions throughout the food distribution industry. In New York State alone, the number of food stores has decreased by 5,000 in the past decade. Throughout the nation the small grocer is closing his doors because of supermarket competition. The large grocery chains, however, are not monopolizing the industry. Supermarket ownership is about equally divided between chains and independents.

Many small growers of fresh produce and other farm products find it difficult to market their products locally. Few customers are still willing to pay the premium for door to door delivery or make the special trip to the farm when the one-stop shopping of the supermarket is available. In many cases, local producers now find that their major buyers are processors, freezers, or retail organizations located in distant markets.

The development of the supermarket has brought about many changes in the food industry and has probably worked hardships on some people. Yet, with its size and mass merchandising techniques, this marketing complex provides us with the most efficient food distribution system in the world.

James A. Beck

Currently working as a teaching associate with Dr. Earle, James A. Beck is a food distribution specialist in the Department of Agricultural Economics. He is a native of Indiana and earned a B.S. degree in agricultural education at Purdue University. He then came to Cornell and earned an M.S. degree in agricultural economics. He plans to work for his doctorate in the field.

Mr. Beck is married and lives with his wife in Ithaca. He enjoys reading books related to his field of work and sports, including bowling and baseball. This past summer he was a star player on the Ag Economics baseball squad.

by Prof. Wendell G. Earle
and James A. Beck

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Sow and You Shall Reap

by Prof. Thomas R. Nielsen

Every revolution has widespread effects. The continuing technological revolution in American agriculture is no exception. It has produced marked changes in the field of agronomy in New York State. Agronomy includes the study of soils and field crop production, primarily grain and forage crops. Field crops, harvested from 93 percent of the cropland in the State, make the largest single contribution to New York agricultural income. We often overlook this contribution because 80 percent of these crops are fed directly to livestock rather than marketed.

There is, then, a close relationship between field crop production and the livestock industry—primarily dairying—in the State. Because of this relationship, we can understand the pattern of change in agronomy only by looking at the entire farm enterprise.

As farm grows, so must feed

The most stable aspect of farm businesses in recent years has been the labor resource; the operator, his family, and hired help. As production efficiency increases, so must efficiency in labor use increase. In the dairy business this means milking more cows and obtaining higher production per cow. Thus increased efficiency makes more feed per farm necessary. The additional feed required might be obtained by adding adjacent land to the home farm, but this is rarely practical and often impossible. Rather, we must increase feed production on the original land area, that is, increase yields per acre.

Hay is produced on almost 60 percent of the land devoted to field crop production. With this crop, recent changes in farming practices have perhaps been most dramatic. New varieties of alfalfa greatly increased yield potential on those well drained soils traditionally considered suitable for alfalfa. Viking birdsfoot trefoil, developed at Cornell, was introduced in commercial quantity in 1957. It is a long-lived perennial, well adapted to soils too poorly drained for alfalfa, and will probably become the second most important legume in the State.

Agronomists and farmers are extremely appreciative of the work of plant breeders which has led to a host of new and better varieties of all kinds of crops. Two outstanding forage plants, Cayuga alfalfa and Saratoga bromegrass have been developed recently by scientists of the Plant Breeding Department at Cornell. But the shift to alfalfa is far from complete. Of the three million acres of hay in the State, 1.7 million acres are planted to red clover and timothy. As alfalfa replaces traditional hay crops like red clover, soil acidity must be adjusted by liming. In 1960, lime use in New York was 66 percent greater than in 1954. Higher yielding longer-lived forage varieties require greater amounts of plant nutrients, particularly potash, and must be fertilized more heavily.

The emphasis on high yield and efficient production and the large number of alternative forage species and varieties available means research in agronomy must provide specific information. What forage mixture belongs on what soil? How many hay cuttings should be taken to maximize yields and quality without shortening the life of the stand? What is the best way to establish each forage mixture? How much and what kind of fertilizer should be applied? Should part of the hay land be sown to later maturing varieties so that good quality hay can be produced with a minimum amount of labor and equipment? How does over-fertilization affect hay yields in subsequent years?

These questions are certainly not new ones. The new factors in recent years are the urgency with which answers are being sought and the mushrooming number of new species and varieties for which answers must be obtained. Thus, we are faced with an interesting...

Thomas R. Nielsen

Active both in academic and student affairs, Dr. Thomas R. Nielsen has been associate professor of soil science in the Department of Agronomy since 1956. A native of Oklahoma City, Okla., he earned his B.S. and Ph.D. degrees at the University of California at Berkeley.

Dr. Nielsen is chairman of the Student Affairs Committee and has served on the Petitions Committee. He is a member of Phi Beta Kappa and Alpha Chi Sigma. He was named Professor of the Year by Ho-Nun-De-Koh in 1960. Dr. Nielsen's hobby is raising fancy sheep. He resides with his wife and three sons at Snyder Hill.

S.R.

March 1962
Soil acidity requires careful adjustment.

paradox. Even though agricultural surpluses are piling up and many politicians and agricultural leaders are lying awake nights trying to figure out how to reduce production, the individual farmer is more concerned with increasing production than ever. The concern of the individual farmer is being transmitted to agronomists at Cornell with undiminished vigor.

In the above discussion, I have focused attention on dairy farming and hay production. The story is pretty much the same for all livestock enterprises and all crops. The farmer must either intensify production, i.e. obtain higher yields by increasing inputs of capital and using more efficient production techniques, or go out of business. Another alternative might be to accept a gradually decreasing standard of living. Many farmers are, of course, choosing to go out of the farming business. Soils specialists are needed to guide the process of land abandonment so that we abandon only those soils and land areas which are inherently less productive and more difficult to farm profitably.

Cornell contributes

What are agronomists at Cornell doing to adjust to the changing scene? Agronomic research is, of course, pursued vigorously. But this is nothing new. Perhaps the greatest pressures in the present situation are on the extension staff in agronomy. These men must make research results available to producers in the minimum possible time, and the answers must be more specific than in the past.

An example of new developments is the table of "Par" yield published in the 1962 edition of "Cornell Recommends for Field Crops." This table is the result of a revised concept of soil productivity developed under the leadership of Dr. Reeshon Feuer. Dr. Feuer, an associate professor of agronomy and extension specialist, specializes in soil science, but he has an extensive knowledge of field crops and agricultural economics. The word "Par" is used in discussing crop yields in the same way as in describing a golf score. A "Par" yield is one we can reasonably expect, four years out of five (with a 20 percent yearly variation due to weather), when acidity, fertility, and soil and crop management practices are fitted to the soil.

A par yield is what a good farmer who knows his business ought to get in a given situation. Things might

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Soil maps helpful

"Par" yields have been determined for five different forage mixtures and corn, for various soil situations in all five of the geographic regions of New York State where agriculture is important. A farmer in any of these regions can look at the soils map of his farm (or check with the Soil Conservation Service if he doesn't have a farm map) and find out from the table in "Cornell Recommends" what yield he should expect to get on any piece of ground on the farm. The table also makes it clear which of the forage mixtures, or corn, are adapted to a particular soil situation and which are not.

The 1962 table represents the best estimates of a number of people. In subsequent years, more accurate tables covering more detailed soil situations will undoubtedly be published. Larger numbers of field crops will be included. Good new crop varieties are likely to come and go. But the revised concept of soil productivity will stay.

With the detailed information about crops that these data provide, and comparable data about other aspects of the farm enterprise, the astute farmer should be better able to decide where to put his money. He must be able to answer the question, "What should I buy next year?" "More lime and fertilizer, a new seeding, repairs on the barn, a bigger baler, or more cows?" He might, of course, decide to sell the place and go fishing.
Advances in Animal Breeding

by Prof. Robert H. Foote

Quadruplet lambs, born once in a thousand births, are bottle babies.

This land of promise has evolved into one of production, plenty, and prosperity—and animal breeding has played a role in directing that evolution. Animal breeding is concerned with both the productive and reproductive efficiency of animals—efficient reproduction of those selected with inheritance for superior production. Our attention is focused on dairy cattle, because they are by far the most important animals in the agricultural economy of New York State. However, considerable animal breeding work is done with other farm animals. Outstanding contributions in the area of lethal genes, selection for disease resistance, quantitative genetics, and physiology of reproduction in poultry have been made by the Poultry Department.

Extension fosters DHIA

In the area of dairy cattle improvement, Cornell recognized long ago that milk production records were needed as a basis for selection. Thus the Dairy Herd Improvement Associations grew under the supervision of the Extension Division. Today 330,000 milk production records are electronically processed monthly in the Animal Husbandry Department at Cornell, and results and recommendations are sent out to dairymen throughout New York and neighboring states.

New York State was one of the pioneers in developing cooperative artificial breeding as a means of transmitting inheritance of superior sires far and wide. At first, possible improvement was limited by low fertility and lack of knowledge of how to extend and preserve semen. Research at Cornell rapidly leads to improved techniques of collecting and processing semen, and to superior media for preserving sperm. From the humble beginning of breeding a few cows per year to each bull, growth in breeding has been phenomenal. Today it is not uncommon for semen from a single sire to be used to breed 40,000 cows per year. At the same time fertility rose from 43 to 75 percent, a figure believed to be the highest in the world. Improved fertility, in itself, has been worth hundreds of thousands of dollars to dairymen. Studies on the mechanics of sperm cell formation suggest that the potential exists for breeding well over 100,000 cows per year to sires of exceptional genetic merit.

With the introduction of artificial breeding, and the increased emphasis on breeding records which stemmed from it, attention was focused on fertility problems in cows. Cornell researchers studied the feeding and breeding of young females in relationship to sexual development and fertility. The incidence of infectious diseases has been reduced. Studies on the regulation of the estrous cycle and neurohumoral control of ovulation are providing a better understanding of ovarian function and dys-function. Recent findings indicate that the time of ovulation may be synchronized, and we may be able to inseminate whole herds or flocks at one time.

At the same time reproductive performance was improved, geneticists developed more reliable methods for estimating the true genetic merit of individuals. Only the best ones should be saved to reproduce the next generation. Since milk production is a sex-limited trait, evaluation of the bull depends upon progeny testing and upon analysis of ancestors and relatives in the pedigree.

"Doctoring" the figures

Again cooperation paid off. Cornell research made use of the records obtained through the Dairy Herd Improvement Cooperative, with support by the New York Artificial Breeders' Cooperative, Inc. Sires now had daughters performing in many herds, so we could disentangle some of the genetic and environmental effects on records. With elegant statistical techniques, electronic computers, and large numbers of records, we obtained adjustment factors to remove some of the environmental effects from records. Through proper use of these adjusted records, we developed improved methods of estimating the breeding value.

Optimum testing programs for dairy sires were devised, and the principles are being applied in artificial breeding. In 1959-1960 A.I.-sired Holstein cows in New York State were outproducing non-A.I. herd
mates by about 500 pounds of milk—proof of the soundness of this program. Such an increase applied to all dairy cows in New York State would result in a total increase in product worth about $20,000,000. In addition, methods of genetic evaluation of all individuals within the herd were devised to aid the dairyman in selecting his best cows.

A recent scientific paper from another country reported on “new, improved” methods for evaluating potential breeding stock. Students in animal breeding at Cornell have been taught this method for the past ten years.

Cornell is now doing research on breeding and improvement through selection in beef cattle and sheep. In cooperation with the extension service and farmers, we are working to increase the usefulness of genetically superior males through artificial breeding in all classes of livestock. The meat-type animals have an advantage here, since ability to gain weight rapidly and efficiently can be measured in both sexes. New developments in ultrasonics may allow potential breeding stock to be further evaluated without slaughter.

Mindful of man’s lower caloric requirements in the machine age, Cornell has a longtime experiment devoted to selection of dairy cattle for protein and milk yield rather than for butterfat. Scientists are busy looking for a way to evaluate the inheritance of the animal at birth. Such information would be a valuable tool in male selection since, with artificial breeding, so few animals need to be saved to perpetuate the species.

Cornell scientists are probing into an unknown future. We study the hereditary material, desoxyribonucleic acid. We perform biochemical tests of gene potential, and do quantitative genetic studies of the traits of economic importance to producers and consumers. We search for new techniques of breeding better livestock through freeze-drying of sperm from outstanding sires. We attempt in-vitro fertilization of eggs, and the culture and insemination of fertilized eggs obtained from outstanding females.

The integration of knowledge through research with the arms of resident teaching and extension puts Cornell in a position to guide the “apllicator” to a successful breeding program, not merely to behold the results. Yes, this is how animal breeding at Cornell is meeting the challenge of a changing agriculture.

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Robert H. Foote

Currently studying animal inheritance mechanisms, Dr. Robert H. Foote has been professor of animal breeding at Cornell since 1950. He is a native of Gilead, Conn., and earned his B.S. at the University of Connecticut. He received M.S. and Ph.D. degrees in animal breeding at Cornell.

During a sabbatical leave in 1958, Dr. Foote conducted research in Denmark. Since his return, he has lectured to many campus groups about life in Denmark.

Dr. Foote teaches the introductory animal breeding course and is advisor to the Round-Up Club. His particular field of interest is the physiology of reproduction in conjunction with the further development of artificial breeding.

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March 1962
New Face of Farm Finance

by Prof. Robert S. Smith

Proper management is becoming the key to survival on today's commercial farms. The College of Agriculture is helping farmers develop management skills through an extension program in farm management. Many farm families have come to look to the College as a silent partner in their businesses.

Anyone remotely associated with agriculture knows that big changes have taken place in the business side of farming in the last generation. The family farm is still the basic unit of agricultural production, but its financial structure has changed greatly. Capital investment per farm and per man has increased about five times in twenty-five years. Twenty-five years ago the average commercial farmer in New York received or spent about $15 per day in operating his business. Today he receives or spends about $100 a day.

To be successful, a farmer needs more diverse abilities than ever before. It is still true that he must be a combination naturalist, laborer, mechanic, and businessman. But there is much more emphasis on the business side today. Decisions involving hundreds of dollars must be made almost daily on the typical commercial farm.

Most other types of businesses of comparable size in our economy hire management specialists to help them plan and operate their businesses at a profit. Large industrial concerns have production engineers, time-study experts, and programming specialists on their staffs. Many businesses and even government agencies hire management consulting firms periodically. In contrast, few New York farmers can afford to hire management services.

Robert S. Smith

A former county agricultural agent, Dr. Robert S. Smith is professor of farm management in the Department of Agricultural Economics. He is a native of Laconia, N.H., but earned his B.S., M.S., and Ph.D. degrees at Cornell.

Dr. Smith recently returned from a sabbatical leave which he spent in Israel. He acted as farm management advisor to the Israeli Department of Agriculture and assisted in outlining an educational curriculum for student training in agriculture.

Dr. Smith is married and lives with his wife and five children in Ithaca.

Yet the management decisions a farmer faces are more diverse and complex than in any other business of comparable size.

To help farmers make sound management decisions, the extension arm of the College of Agriculture operates an educational program in farm management. Through increased federal appropriations, this phase of extension activity has greatly increased in the past few years.

College works with individual

The base for the program is individual business analysis. Each year about 1,000 farm families in New York keep farm business records under the guidance of county agricultural agents. At the end of the year, the records are analyzed by farm management experts in the College's Department of Agricultural Economics. After analysis of each farm, the College specialist and the county agent work with the farmer to study the strengths and weaknesses of his business.

The next step is to help the farmer plan changes in his business to meet the objectives that he and his family have set for themselves. Some of the work with farmers is done in groups, and some individually. Usually this intensive educational program with any one farmer is limited to three years. In this way, many more families can be helped over a period of years.

Illustrative example

The experience of one central New York dairymen shows what can be accomplished. This man owned a good farm which was showing below average profit because of indifferent management. After three years in the extension program, net income had more than tripled. In this case, the management ability of the farmer was improved by an organized study of his business with resulting increased income to the family. In many cases, increased income does not result, because resources are limited. In other cases, the family has other objectives which are more important than increased income.

Experience in business analysis provides a sound basis on which the farm family can plan and carry out all major management decisions. For example, analysis of the business is the first prerequisite for setting up a father-son partnership on the family farm. The Extension Service provides counsel and advice for many families in this important management area.

A northern New York farmer recently approached the College of Agriculture for help in initiating a partnership with his two sons. Analysis of the business showed that it had economic potential to provide income for three families. Farm management professors,
together with the family, worked out alternative plans for the sons to buy into the business and take over a share of management responsibility. The family then selected the alternative best suited to their situation and is taking the legal steps necessary to put the partnership into operation.

Since the farm family had no previous experience with the problem, they urgently needed expert advice from outside. Experience with hundreds of farm families provided the farm management specialists with the necessary background to give sound counseling.

The educational program in farm management extension carried on by the College can be described in one sentence. It is an attempt to help farm families analyze their resources, clarify their goals and objectives, and utilize the available resources to make maximum progress toward their goals. More and more farm families in New York are looking to the College as a “silent partner” in the management of their businesses.

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March 1962
Food For Thought - And Study

The revolution in the food industry—in the processing, preserving, packaging, distributing of foods—was incited by food scientists. In response to the call to arms of this continuous revolution, the College of Agriculture recently created a food science department.

by Prof. Paul A. Buck

Our grandfathers could live through the winter months by adding to their diet some fruits and vegetables from root cellars, salt pork, baked beans, and dried fish. Today, following the great population shift from rural to urban areas, over 90 percent of the people are not growing or storing their own food. Yet, we can be served food from almost any country at any time of year. And we can purchase this nutritious, appealing food at a reasonable price.

Credit goes to food scientists

How has this change in our food production and storage been possible? Ask the food scientists; they must solve the problems of processing, preserving, quality, and consumer acceptance of food. Food scientists are interested in the mechanical harvesting, processing, and distribution of commercial foods necessary to meet the dietary needs of an expanding urban population.

Food containers must keep foods fresh and in edible condition for the consumer.

Food science is a new science, but not a separate one. It incorporates chemistry, physics, microbiology, physiology, nutrition, and engineering. The field includes the canning, freezing, fermentation, brewing, baking, and confection industries. Neither can food science be confined to any one university, industry, or organization. There are still many people who go to bed hungry each night. We must make our food science knowledge available to those who don’t have three square meals a day. Therefore, extension work is an essential part of this field.

The trend toward urban living not only added to existing problems of getting proper food utilization, but also presented new problems which increase the need for food science. Present challenges to food science fall into several categories:

1) Today, 60 percent of the products manufactured and sold by food companies were not known ten years ago. The food scientist must know more than how to manufacture and sell existing products. He

Paul A. Buck

As one of the two men in the food science department, Dr. Paul A. Buck is a pretty busy fellow. His academic interests are as broad as his field, and include enzymology, nutrition, flavor chemistry, and freezing storages, among others.

A Canadian by birth, Dr. Buck received his B.S. from the University of British Columbia and his M.S. and Ph.D. from the University of California.

His wife and three children must share his love with their dog and stray cats. Ham sandwiches bought for lunch are often fed to his furry, four-legged friends. Skiing and golf are among Dr. Buck’s athletic interests, although his wife claims he’s much better on the slopes than in the sand trap.
must be creative, one of the hardest qualities to develop in most people.

2) Up until 1800 it was possible for one person to have a working knowledge of all the major fields of science—and even the humanities. Since then, scientific knowledge has grown at such an exponential rate that it is impossible for a person to have complete knowledge of all scientific fields. The food scientist must have a working knowledge of his own field and learn from many other fields—a tremendous task.

3) The food scientist must encourage the consumer to accept more nutritious foods, rather than eye appealing foods that don't provide the best nutrition.

4) Convenience foods have gained in popularity, and industries are in greater competition to meet this trend. Again, the loss of quality and nutritional value may be the unfortunate result of such keen competition, and the food scientist must guard against nutritional losses in the products he creates.

Challenge is growing

Never in man's history has the human race been so challenged with important problems about the proper utilization of its food supply. Nuclear war, radiation fall-out, tremendous expansion of the population, angry nationalism, and the race for space are problems that cannot be solved without the knowledge and help of a team of food science specialists.

The future of food science is exciting. We are just beginning to envision what the food industry will be like twenty years from now. Research in agriculture has already made America the most important democratic country in the world. Freed from the task of raising his own food, man is seeking other knowledge while he maintains a high state of health and well being. Therefore, we must expand our sources of nutrition. Food research will, in our future, produce foods which are more nutritious than the popular foods of today. Meat and milk cannot be beat, but they will be part of a bigger team.

The College of Agriculture at Cornell is aware of the revolution occurring in the food industry. Its new Department of Food Science will make vital contributions to research in this field.

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THE FUNCTIONAL FARMSTEAD

Apex of Future Agricultural Production

Robert T. Lorenzen

Born in North Dakota, Prof. Robert T. Lorenzen earned his B.S. in agriculture at North Dakota State University. After serving in World War II, he studied at the University of Wisconsin where he received a B.S. in civil engineering. He then went on to the University of California and earned an M.S. degree in agricultural engineering before coming to Cornell.

Professor Lorenzen is actively engaged in research on farm structures and teaches courses on the subject. His outside interests include aviation, photography, and poetry. He has a collection of more than 1,200 35mm slides, and his poetry has been published in several local magazines. Mr. Lorenzen and his wife reside in Ithaca.

Self-unloading silo saves many man hours.
The farmstead is the focal point of agricultural production, a two-way cross roads serving the land. Through this group of buildings flow the products of the soil enroute to the market, plus the manufactured products required to foster plant and animal growth on the farms.

Within these farmstead structures the forage and the cereals are stored, and perhaps conditioned, to retain quality. This stored fodder and grain are fed to cattle, hogs, and poultry and converted to milk, meat and eggs.

The farmstead provides the specific type of product handling and services the specialized equipment. Above all the farmstead is the farm home, the residence of families engaged in production and service. It must compete favorably with the finest city homes to keep land born talents on the farm.

Today, we face the challenge of a changing agriculture characterized by new products, new processes, and new equipment. These changes gave birth to a changing farmstead concept, and in this realm exists three images.

Pentairy replacing old red barn

The first image is the city cousin's concept foiled by trips to grandad's country home. Romantically portrayed by Grandma Moses, this farmstead scene depicts the red and domineering barn with varied sheds all cloistered near. White clapboards designate the house.

Pressed from the contemporary scene by image number two, this red and massive barn of yesteryear is replaced by structures functional and stern, synonymous with factories. Materials are moved by belt, auger, pipe, hoist and vehicle. Near rows of animals, stanchioned or enclosed in pens, convert the cereals and forage to proteins. Such is the farmstead image of today, existing for production and geared to the economy of the land.

The farmstead image number three is born of fantasy and is the sum of many dreams. For those who dream discreetly, this is the ultimate development of the contemporary scene in which pushbuttons initiate and control automated production. Processes, even unto self maintenance of machines. The "pentairy" concept of milk harvesting, modeled during Agricultural Progress Days of 1960, is a portrait of this image.

The farmstead is at the apex of agricultural production. Progress in production requires a flexible conception of the farmstead. Research, training, and extension of the land grant universities result in farmsteads which are better planned and buildings which are better adapted to their productive purpose. Major areas of importance in the design of farm buildings may be portrayed as follows:

1. Organizing space by systematic arrangement of storage, stanchions, stalls, pens, mangers, and other functional equipment.
2. Planning for efficient movement of materials required for production, including the design and control of material handling devices.
3. Providing an environment which is safe, sanitary, and conducive to efficiency in operation and the production of quality products.
4. Framing a structure which will fulfill the needs of space, materials handling, environment, and in which production may be carried on with utmost economic and labor efficiency.

Development through collective knowledge in these major building areas may best be demonstrated by the saga of milk harvesting and the development of the milking parlor.

Milking was first done by hand in stanchion barns and the milk was carried in buckets to a milk storage room. A man proficient in this task could milk about five cows an hour. The first improvement in this chore was made in the area of materials handling, and came about by the invention of the milking machine. The introduction of this machine increased the average number of cows a man could milk per hour to eighteen. Further improvement in milk handling was achieved by around-the-barn pipelines, which increased the average number of cows milked per man hour to twenty-four.

"Come into my parlor"

The next major improvement of the milking chore was in the organization of space especially fitted for this chore. The milking parlor was established and elevated stalls became common. The agricultural engineering department of Cornell contributed to the design specifications of the elevated stall by determining the optimum elevation of the stall platform. The elevated stalls arranged in tandem boosted the milking rate to thirty-six cows per man hour.

Succeeding the advent of the elevated stall, space was again re-arranged through an innovation originating in New Zealand. Elevated stalls were arranged in herringbone design. The distance between the udders of the cows decreased from eight to three feet by this new arrangement and the average milking rate changed from thirty-six to forty-five cows per man hour.

The most recent innovation for milking cows is a moving platform on which the cow is placed and fed. Milk is harvested as the equipment and the cow move down the line in factory production line style. The milking rate may again be boosted by innovations of this sort.

While this transition in the milking chore was taking place, the production of the cow was also increased by improvements in nutrition and breeding. Thus the combined efforts of agricultural scientists have increased the milk harvest per man hour spent in the milking chore by nearly twenty fold.

Changes in production impose many new requirements on the farm building structure in itself. Larger floor areas must be spanned with sturdy frames. Walls must be designed to contain or exclude heat, light, and air, to an ever increasing degree. Flexibility must be built in to meet the ever changing needs. The old red barn and varied sheds no longer fill this need.
Advertising in Agriculture

One hundred years ago, most farmers were self-sufficient. Today, they purchase millions of dollars worth of inputs from industry. Someone has got to convey needed information about these products to the farmer. There's no one better suited for the job, states an advertising expert, than a person with "a solid farm background."

by Peter Ham '26, Advertising Dep't., DuPont Co.

If you haven't settled on your career, have you thought about the advertising business? No, not soap and cigarette advertising but the kind that helps carry new ideas about new products and new methods to our nation's farmers.

One product of our Ag Colleges which has been in short supply for the past 25 years is graduates who have aptitude and ability in such advertising. Indeed, there has been, and continues to be, a sellers' market for the person who has a solid farm background plus the ability to write and the aptitude to use his writing ability to help industry move the products it makes.

In this context, a solid farm background means farm raised, preferably on a general farm... and proud of it. . . a good Ag College education. Cornell doesn't offer a degree in advertising, I'm glad to say, because the way to learn advertising is to work at it. Cornell does offer the basic education you need—English, history, psychology, economics, and science—plus training in written expression including journalism.

Ability to write means demonstrated ability. It means you've practiced it either as a student or on a job and can put together a scrapbook to prove it.

Aptitude to apply your ability to help sell ideas or products is a little harder to define. But it's easy to identify. The person who has it visualizes the person to whom he is addressing his written message, senses what's likely to interest him as well as what won't, and delights in stating his case in simple language, logically and convincingly. The person who can do this is a salesman at heart, a salesman with imagination, not a salesman who needs a canned speel.

But there are only two ways to sell ideas or products. One is person to person, by oral presentation. The other uses the written word, with or without pictures. This second way includes advertising. Advertising can be as simple as a telegram, the same telegram to a hundred prospects perhaps. It can also get involved, so involved that only you can explain it; and when it does, chances are it's lost its punch. There's nothing hard about advertising except the problem of keeping it simple, clear, logical, and believable.

Why farm boys to do this? Because farmers communicate with farmers better than other people do. And because there are just lots of businessmen who have services or products that farmers can use and who want to tell farmers about them. City-raised boys can, and sometimes do, learn enough about specialized fields of agriculture so they can become effective communicators (and ad writers) in those fields. But in my experience it is only a short time until they give up in despair. It's a rough road for the lad who hears for the first time that a hog isn't always just a pig—that it can be a barrow, a boar, a gilt, a shoat or a sow. Or that any animal that looks bovine isn't necessarily a cow. That a spider isn't an insect. That wild morning glory has half a dozen different names in as many different areas of the U.S.A.

Worse than the lack of the basic education, which a farm boy takes for granted, is the fact that the non-farm boy almost never gets to be a person who really likes to meet farmers on their own ground because he lacks the basic understanding of what makes them tick.

No other segment of American business and industry is changing as drastically and as rapidly as farming. One result is that commercial farmers—the ones who really count as buyers or sellers—are fewer, smarter and better informed. They run big businesses and they must make big decisions. This means they must be well informed, must have facts—simply, clearly, logically, and believably stated. So that's the way you have to present the story on the product you want to sell them. Maybe they won't buy for some other reason, but they won't even count you in the running if your presentation is fuzzy or incomplete.

A farm magazine reported recently that 80% of the potatoes are now grown by 15,000 farmers. Presuming that's accurate, what does such a fact mean to an advertising man? Well, if he's trying to sell potato insecticides and fungicides, for instance, it means he's dealing with people who must know almost as much about potato pests as Ph.D.'s. If he doesn't know as much about potatoes as they do, he can't learn it unless he has a solid background in farming, well overlaid with sciences—botany, biology, entomology, plant pathology, and agronomy—and economics.

Advertising can and often does include motion pictures and television as well as radio, billboards and other posters, booklets and broadsides, direct mail and give-aways as well as "ads" in publications. The gamut of devices is almost endless but none is really complicated. As you use them, of course, your skill in using them improves, and the challenge to use them better never ceases. Advertising can be a fascinating career and agricultural "specialists" are in short supply.
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DEAN’S LIST

The Cornell Countryman extends congratulations to the following people who have been elected to the Fall 1961 Dean’s List. The Dean’s List honors College of Agriculture students who have achieved term averages among the top five percent of their respective classes.

Class of ’65

Class of ’64

Class of ’63

Class of ’62

END OF AN EDITOR

With a tear and a tear sheet, this writer bids a fond farewell to the Cornell Countryman—its cohorts, contributors, Directors, and readers. I wish to thank one and all for their cooperation, assistance, advice, moral support, and whatever else has been included in the past eight issues. It’s been an honor and a pleasure working with you.

To show my appreciation of your efforts, I have a little something for each of you:

To the staff: Each member shall receive an indestructible, unslosable calendar with all deadlines circled in luminescent red ink.

To the contributors: Same as above.

To the Directors: A term-long supply of TV dinners for their entire families to assure all of a substantial supper on Board meeting days. Also, a new book by yours truly entitled “How to Criticize Constructively.”

To the readers: A portable microphone to facilitate our hearing your comments as you leaf through our hallowed pages. And if that doesn’t work, a “Check the Appropriate Comment” postcard addressed to 490 Roberts.

I look forward with sadistic glee to seeing how far the newly elected editors and managers will get with their ear-splitting screams and heart-rending pleas. All they need are ear plugs and crying towels. But best of luck anyway to the new Editor-in-chief Paul Roman ’64, Managing Editor Hilary Brown ’63, Advertising Manager Frank Goetschius ’63, Business Secretary Alice Fried ’64, Associate Editor Steven Reinheimer ’64, Circulation Manager Robert Benedict ’63, Secretary Tina Wasser ’65, Photography Editor Richard Wallach ’64, and Art Editor Nancy Felthousen ’65.
GULDIN AWARDS

Feeding football players, the Common Market, and the pollution problem were subjects of prize winning Countryman articles last term. Their authors received Paul R. Guldin Memorial awards, monetary recognition for outstanding Countryman articles.

Elizabeth Pomada '62 won first prize of $75 for her article, “Food for Heroes.” Second prize of $50 was awarded to Steven Reinheimer '64 for his article, “Challenge—Common Market.” Michael Dahlberg '62 wrote “Pollution Control” for which he received the $25 third prize.

Honorable mentions were awarded to Elizabeth Kopsco '62 for “John Burroughs: Nature’s Lover,” Linda Himot '62 for “Breeding Rabbits for Eggs Only,” and Paul Roman '64 for “In the Beginning...”

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Link-Belt offers industry's most complete line of drive and conveyor chains, chain attachments and sprockets. Also “bonus” services that aid the designer, improve the design: application counsel, field analysis, laboratory service and others. These services multiply the value of Link-Belt chains, but not the price!

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A Unit of the State University of New York
ITHACA, NEW YORK

JOHN Q. DOE

I am pleased to inform you that you have been placed on the Dean's List of the College of Agriculture for the spring semester, 1961. This is in recognition of your outstanding scholastic record for this period which placed you in the top five per cent of your class.

May I congratulate you and wish you continued success in your pursuit of scholastic excellence.

[Signature]
Dean

The above formal notice is Dean Charles E. Palm's way of recognizing and encouraging academic excellence in the New York State College of Agriculture at Cornell.

Eighty one undergraduates received this official certificate of merit for ranking academically in the top five per cent of their class during the fall semester. Their performance reflects the high standards of teaching and research the College maintains through its professional staff.
Agricultural Quotables From
“Progress Days” Notables

“For in today’s world, there can be no viable agricultural policy for America that is not consistent with the needs, the changing patterns of production and distribution, the aspirations and the population growth of countries old and new, around the world.”
—A. T. Mosher, Director, Council on Economic and Cultural Affairs

“The greatest economic weakness of Soviet Russia and her satellites, and even more so of Soviet China, lies in their inability to solve the basic problem of any economic system—namely how to produce adequate amounts of food, feed, and fibers.”
—Karl Brandt, Director, Food Research Institute, Stanford University

“A change in the world situation could come about only if we begin to learn about the kind of attack that threatens us and begin to revise our notion of cold warfare accordingly. The first principle of wisdom would be that we consider ourselves at war not with Russia but with the worldwide Communist movement as such.”
—Gerhart Niemeyer, Professor of Political Science, University of Notre Dame

“In solving the problems of an adequate supply of food and fiber, the land-grant colleges, through contributions to research and learning, have made available the tools of over-production as well. We are quick to admit the blessings of this over-production, however, when we turn to the poverty, ignorance and disease rampant in the world today.”
—Lloyd Elliott, President, University of Maine

“Since agriculture is based on biological processes that cannot be hastened, the most difficult problem is the successful adjustment of farms and farm families to rapidly changing economic conditions.”
—W. I. Myers, Former Dean, College of Agriculture, Cornell University

“Above all, I would urge every Secretary of Agriculture and every President from henceforth to keep continuously in mind that the enormous technical potentiality of U. S. agriculture gives us an unexampled opportunity and responsibility.”
—Hon. Henry A. Wallace, Sec. of Agriculture (1933-40); Vice Pres., United States (1941-45)

“At present and foreseeable levels of contamination, no modifications of diets or food technology to reduce radioactivity intake are needed or desirable. Modifications of diet individually and perhaps misguidedly could do harm that would far outweigh any possible benefit. For example, it is not generally realized that milk calcium has less Strontium 90 contamination than other natural sources of calcium. If the amount of milk in the diet is decreased, the effective Strontium 90 level of the diet is increased because the foods that would then supply calcium would be those that carry a higher Strontium 90 content than does milk.”
—C. L. Comar, Director, Laboratory of Radiation Biology, Cornell University
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"I TOLD HIM THAT TANK WOULDN’T BE BIG ENOUGH WHEN THOSE NYABC-SIRED COWS STARTED PRODUCING."

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Barnes Hall
Editorial:

Value of Extension

For more than 50 years, the people of New York State have benefited from the extension services of Cornell University. In fact the term "extension" has become almost synonymous with "Cornell" to many rural people.

Cornell's extension branch was started in the College of Agriculture, and its pioneering efforts consisted mostly of free information and advice to farmers concerning field crops, animal husbandry, and similar topics. It was later enlarged to include the College of Home Economics, which offered homemaking advice to the farmers' wives. But the Extension Service has grown to include a great diversity of fields, many of them having no direct connection with agriculture or homemaking.

An example of this is "Operation Advance," a venture launched by the Extension Service with the cooperation of finance, government, and educational experts in the College of Agriculture. The object of the program is to promote leadership in rural areas to meet the changing demands on rural governments. The county agent coordinates the local program but the whole project is carried through by local people themselves. The program has been a great success, and the Cornell leaders recently started "Stage II" of the operation—which might well be called "Advanced Operation Advance."

A second example of the diversity of extension work is the extension branch of the School of Industrial and Labor Relations. Instead of sending agricultural experts to the people to solve their farming problems, the School sends labor experts to industries and unions to help them find the best solutions to management and labor problems.

Cornell extension work is based on the philosophy that the people of the State should receive direct benefits from the institutions that they support. One might say that the Colleges serve the people by educating their children, but extension people feel that the obligation of the institutions extends further than this. Formal education today may eventually lead to the solutions of tomorrow's problems, but what about the problems we face today? Thus a great part of the Colleges' research is undertaken with the idea that the research results will serve a real function to the people.

The benefits of extension are not all one-sided however. By having county agents, home demonstration leaders, and experts from the Colleges in the field, the Colleges can get the pulse of the populace and find what improvements or assistance is desired. This gives research work a definite direction and thus time and money are devoted to current problems rather than to research that will not be applicable for several decades.

The field of extension work is limitless. As long as there are people there will be problems, and as long as the Colleges exist, there will be experts to find solutions to these problems. The Colleges must grow, not only to train the leaders of tomorrow, but to provide a better life for the people of today.

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The Farm Problem:

Challenge to the New Frontier

by Steven Reinheimer

Like past administrations, the leaders of the "New Frontier" have inherited many complex and seemingly unsolvable problems. Among John F. Kennedy's principal headaches is the much publicized farm problem. The man selected to tackle this ever-oversized dilemma, Secretary of Agriculture Orville Freeman, has proposed a four point long range solution to the problem. These goals, according to President Kennedy, "are as simple as ABCD."

Abundance of food and fiber must continue to characterize our economy as well as to contribute to the prosperity of the free world. The program will attempt to balance agricultural production with the quantity consumed. Meeting this actual problem will avoid the waste of private effort and public funds, the by-product resulting in adequate farm incomes. Conservation practices must be promoted to insure abundance for future generations. Lastly, Development of rural areas must be stimulated so that all sectors of our population can share in the high standard of living afforded by our booming economy.

You may wonder as to why there is a need for a farm program. Why can't agriculture, like the business and industrial sectors of our economy, function successfully under a system of free enterprise? The need for a government program is evidenced by the following facts: Due to technological advances, farmers produce more than can be effectively used by the economy. High farm productivity supplies cheap food and fiber to our industries, but farmers are unable to share in this prosperity. Thirdly, unlike industry, the millions of individual farm units cannot by themselves plan production to meet the expected demand. Not only do higher prices stimulate increased production, as in industry, but likewise, farmers increase their production during periods of low prices in order to maintain a sufficient income. Lastly, and the crux of the whole problem, is the low income received by farmers. Comparing returns of our most efficient farmers with returns for comparable investments in other enterprises reveals a wide differential.

How does Kennedy's farm program intend to arrive at a solution? Long range objectives are to be reached by a two fold attack on the problem. Conservation and the efficient use of land resources are essential means to the solution of the farm problem. President Kennedy, addressing Congress this year, said that in spite of a predicted population increase of 65 million by 1980, our farms will be able to produce all they need with 50 million fewer acres than we have in cropland today. This presents an opportunity to shift the unneeded farm land from agricultural production to recreation, wilderness, and open space areas. Thus the dual purposes of reducing our agricultural surplus and satisfying the growing demand for outdoor recreation areas will be served.

Implementing his recommendations on land use conversion, the President urged legislation for a comprehensive survey to determine the best alternative use for the farm land taken out of production.

Recent emphasis has been placed on converting cropland to the growing of trees. Future timber land will serve the multifold purpose of coping with the expected increase of timber needs, providing a well balanced ecological base for our wildlife, and serving the mushrooming need for new recreation areas. To promote this program, owners of cropland taken out of production would agree to plant and manage the trees according to prescribed methods. The government would then share the cost of planting and maintenance.

The second major long range program which the Kennedy administration wishes to accelerate concerns the economic development of rural areas. Rural America is characterized by far too much poverty. Evidence of this fact may be seen within walking distance of the Cornell Campus. Many farm homes are over a century old and in dire need of repair. They lack the plumbing and heating facilities common to urban dwellings.

Programs in agriculture must work toward the elimination of this shameful side of our economy. Farms must be consolidated in order to increase the income of those farmers who have stayed on the farm. Industrial and commercial enterprises must be encouraged to locate plants in rural areas, thereby providing employment for the surplus population. With such inducements as tax concessions, cheap electric power, etc, Grain elevators are constantly being constructed, but are insufficient for U. S. surplus.
and abundant cheap labor, industry has and will continue to locate in these underdeveloped areas.

Unfortunately, the above trend is not sufficient to create enough employment opportunities for the displaced farm labor supply. The only remaining solution is to encourage migration from the depressed rural areas to our industrial complexes which offer better employment opportunities. On the surface this solution seems to be a panacea for the whole rural problem. But there are many barriers retarding this migration. Planners fail to realize that to rural people, farming is not just a business, not just a source of income. It is a way of life. Many farm families have had their roots in the soil for many generations and hence are not willing to leave for a totally new and strange environment.

The government has plans to institute industrial training programs for farmers and their sons. Upon completion of their training programs, these farmers will, in many cases, have a difficult time finding suitable jobs. This is due to four major factors. First of all, most farmers would consider leaving agriculture only during times of low commodity prices. This occurs during recessions which also have affected the industrial sector, causing a decrease in employment opportunities. At such a time, job-seeking farmers would tend to aggravate the unemployment problem. Secondly, the cost of movement alone is often too great an expenditure for the marginal farm family. A third factor which limits job opportunities is due to racial discrimination. A case in point would be the Negro sharecroppers common to the South. The fact that farmers are not union members also decreases employment possibilities. Many large industries are essentially closed to non-union workers. There is no single answer to this serious problem. A combination of the aforementioned factors, best suited for the particular area under study, is the best method whereby the rural economy can be rejuvenated.

Having looked at the ultimate goals of the farm program, an investigation of the immediate objectives and the proposed legislation to meet these goals will follow.

**New acreage controls slated**

The demand for farm products in the foreseeable future will fall far short of the estimated production. Three commodities which suffer from severe overproduction causing large government expenditures are feed grains, wheat, and dairy products. Government planners hope to cut planting and thus slash the surplus stocks of feed grains from the present 84 million tons to 48 million by 1966. Feed grain proposals are based on acreage allotments and marketing quotas. Swinging away from the voluntary control program now in effect, the joint acreage allotments and marketing quotas would have to be approved by a two-thirds vote of the producers. If accepted, the growers would have to abide by their allotments or lose their eligibility for price supports.

A multiple plan of attack is being aimed at reducing the wheat glut from the 1.3 billion bu. now in storage, to 600 million by 1967. If farmers approve the Administration's plans, our present wheat acreage would be reduced by 3 million acres. Planting controls would be reinforced by strict marketing controls. Marketing certificates would be issued to each producer to cover his share of the market.

Turning to the dairy industry, we find a critical problem. While per capita consumption of many commodities has declined, the total consumption due to our increased population has managed to keep demand on the rise. This has not been the case with milk production. Not only has per capita consumption been on a continual decline, but total consumption has now begun to fall. Rising production and declining consumption are putting the dairy industry into a tight squeeze, with the government being caught in the middle. Since producers are protected by a parity price, the government has been buying dairy products at a rapid rate. In order to reduce costs to the government, the Kennedy administration is proposing a new program based on allotments limiting the quantity farmers could sell under the support price. Those farmers who kept production within allotments would receive stable prices for all their milk.

In summary, the proposals are aimed at a gradual reduction of government costs by reducing surplus stocks, while improving farm income in the process.

Upon examining the administrative proposals, one may come to the conclusion that severe restrictions are put upon farmers who wish to receive the support prices. The effect of the support program is to subsidize the small, inefficient farmer at the expense of the high volume commercial producer. This may be illustrated by the following example: Large scale farmers, operating at high levels of efficiency, are able to grow their products at low enough costs, and are able to make a fair return on their investment at the market price; that is without government support. Now under the proposed farm program, the millions of small farmers, who were unable to make a profit at market price, vote for the new support program. The large producer suffers due to two reasons. Not only is he losing his share of the market to the smaller, less efficient producers, but he must also accept crop restrictions or receive less for his output than the other farmers.

In view of the above criticisms, it must be emphasized that nothing is being forced upon the farmers. No program can go into effect until it has been approved by a two-thirds vote of the producers concerned.

What effect will the proposed farm program have on the consumers of these products—those who compose over 90% of our population? The Administration's food policy plans to make use of our vast surpluses to assure the less fortunate sector of our population a better diet by means of both direct food distribution.
and the Food Stamp Program. Food Stamps will be sold and given out free depending on individual circumstances, giving needy families a supplementary means of improving their diet. This program will ultimately affect four million people at a cost of 360 million dollars. A second method by which the food surplus will be used to benefit society is by direct distribution. At present, more than seven million people receive some form of public assistance. The aged and the infirm as well as the unemployed are among those who benefit from this program.

Benefits for school children

The National School Lunch Program provides nourishing meals to public school students, affecting one-third of the nation’s school children. Both Federal, state, and local governments finance this program. School children are provided with nutritionally balanced meals, demonstrating the value of a good diet to future food buyers while at the same time increasing food consumption.

An important facet of our national policy which affects the agricultural economy is foreign food aid. Continued distribution of American commodities to feed those in need abroad is urged. The program’s ultimate objective is to make maximum use of food for economic development abroad. At present, the value of our food aid to foreign countries is two billion dollars annually. This food can be used as an effective tool of international diplomacy, stimulating the economic development of friendly nations.

Our abilities to provide food at a low cost to foreign countries should present a tremendous market for our surplus production. The administration, recognizing this, has extensive plans for export promotion, realizing that increased food sales abroad will improve our balance of payments.

As noted in a previous Countryman article, the European Common Market presents a growing threat to our agricultural exports. Unless we successfully negotiate international commodity agreements, we will suffer the loss of our primary agricultural market, Western Europe, which is now aiming at agricultural self-sufficiency.

Many analysts believe that the present farm program offers little in the way of new benefits to the farmer. They claim that farmers are being shuttled off the farms while those who remain are forced to accept tight acreage and marketing controls in order to receive support prices. Some critics often go so far to say that this program is aimed at getting the city votes. Food stamps, school lunches and a possible tax cut due to a decreased agricultural budget are attractive features for urban dwellers. Dr. Kenneth L. Robinson of the Cornell Department of Agricultural Economics believes that Congress will feel out many farm organizations on their views of the proposed program. Many groups, such as the Farm Bureau, are committed to free markets and Congress traditionally has been reluctant to push compulsory acreage allotments and quotas unless there is strong support for such programs.

There are various alternative solutions to the farm problem, some conservative and some socialistic. The final choices will ultimately be with the people and it is their interest or disinterest which will determine the future of the farmer.
Declining populations in rural communities have had many dramatic effects on the whole rural scene. Agriculture has become a scientific business. Increased educational demands have required the construction of new schools, and many other public services have required revamping. One public institution that is rarely discussed has also undergone a change—the rural church.

It is obvious that a church in a community with a declining population would have a shrinking congregation. And a shrinking congregation means an increased financial burden on those who do not move away. Eventually this burden becomes unbearable and the church is forced to close its doors.

An obvious solution to the problem is to unite the churches into one organization. But this is difficult to do at the local level because of the various technical and legal problems involved. With outside help it might be possible, but there was no such help available for many years.

In the early 1930's when the Great Depression was at its height, many rural people were concerned with the financial problems that the rural churches faced. Since the College of Agriculture had always helped them with their farming problems, they decided it would be a good place to turn for a solution to this problem. A large number of requests for advice on church union were sent to the College, and referred to the Department of Rural Sociology.

Not feeling that religious matters were entirely within its scope, the Department in turn handed the questions to Cornell United Religious Work. For several years CURW handled the requests informally, but soon found it necessary to establish a special branch to handle rural church problems. Thus in 1935 the Rural Church Institute was founded as the "extension" branch of CURW.

With the cooperation of the ministry and Cornell sociologists, the Institute developed plans for "federating" rural churches so that organized religion in the rural communities would not be lost. The program has turned out to be a successful venture.

Today the Rural Church Institute is as busy as ever. It has offices in Anabel Taylor Hall and Rev. Stanley Skinner of McLean serves as its full-time director.

According to Rev. Skinner, the vital factor in church federation is to have local people recognize the problem before it becomes too big to handle. In other words, the churches should be federated before any of them are actually forced to close their doors. In this way, a complete reactivation program is not necessary.

Once the assistance of the Institute has been requested by the local citizens, a representative visits the churches interested in merging. He explains what is necessary for them to federate and whether or not it is feasible in the particular situation. He then presents various alternative plans of federation for them.
to consider. A series of joint meetings between the cooperating churches are held, and the final proposal is presented at a public meeting of all the congregations involved. A vote is then taken. If the merger is passed, the approval of the national bodies of the cooperating denominations is sought. If their answer is positive, the federation is complete.

It would seem that the biggest problem encountered in the federation process would be the differences in belief and theology between the cooperating churches. This, according to Rev. Skinner, is rarely the case. The denominations which usually participate in a federation—Baptists, Methodists, Presbyterians, Congregationalists, and Reformed—have basically the same set of beliefs. (Lutherans and Episcopalians, whose beliefs are somewhat different from other Protestants, usually do not take a formal part in a federation.)

Furthermore, Rev. Skinner pointed out, people are not primarily concerned with denomination when they consider joining a church. A recent national study on the reasons for church membership found that the denomination of a church ranked fifth in the order of considerations for joining. The first most important reason for joining is the “friendliness” of a church. Secondly, people want their church to have an effective Sunday school. "A good pastor and preacher" ranked as the third reason, while the proximity of the church was in fourth place.

Federated churches have been established throughout the state and most of them have been highly successful. Federated churches in the Ithaca area are located at Danby, DeRuyter, Ovid, Enfield Center, and East Lansing. A particularly successful venture is the Caroline Valley Federated Church at Brooktondale, which has Cornell's famed wrestling coach, Jimmy Miller, as its lay pastor.

The Rural Church Institute is now affiliated with the New York State Council of Churches, but it still maintains its connection with the University. Members of the Department of Rural Sociology are in close contact with the Institute and the relationship has resulted in mutual benefits. Prof. Olaf F. Larson, Head of the Department, has helped in the coordination of the extension program. Prof. Howard Thomas is a member of the Institute's Board of Directors, and the late Prof. Walfrid A. Anderson served on the Board for several years. Profs. William W. Reeder, Gordon Cummings, and Thomas will take part in the Institute's summer school program this year.

The success of the Institute's program in preserving adequate church facilities for rural people is another proof of the value of so-called extension work. The expert is of little value if he stays in his academic ivory tower, and research that has no application is of little value to the people that support it. When knowledge and research are used to "deliver the goods" to the people as in the case of the Rural Church Institute, the University is serving its true function.
LIBERTY HYDE BAILEY:
From A Trustee's Viewpoint
by the late Dr. Andrew D. White

As one studies the history of the College of Agriculture during the early part of this century, one man dominates the scene: Liberty Hyde Bailey. Because Dean Bailey led such an eventful and dynamic life, it is hardly possible to include his biography in such a limited space as this, and yet the history of the College is incomplete without a full mention of him.

In 1912, Bailey resigned from his post as Dean of the College of Agriculture, a position he had held for nearly nine years. The reasons for his retirement is still somewhat vague and the issue will probably never be solved. At the time of Bailey's resignation, Andrew Dickson White (who had retired as President of the University and was serving on the Board of Trustees) wrote the following piece about Bailey and intended it for publication in the COUNTRYMAN. For some reason it was never published. Now, after almost fifty years, the staff of the magazine has recognized Dr. White's efforts and we present the following article.-Ed.

* * *

In none of the public bodies with which Dean Bailey has been connected has he been more highly appreciated than in the Board of Cornell University Trustees: all of them have felt his ability, prized his services and rejoiced in his success.

It is now several years since it became evident that the old system which bound the Department of Agriculture to the University must be soon outgrown. The Department had increased enormously in its students, its faculty, its equipment, and throughout the State it was more and more clearly seen that some new adjustment must be made. The only question was what that adjustment should be...

As soon as the difficulty began to be understood it was taken up in a businesslike way and in the most friendly spirit by the Trustees and Dean Bailey, the latter from time to time submitting his views both orally and in writing. The whole matter was discussed without the slightest display of hostile spirit on either side; a Committee of Trustees from all parts of the State was appointed, and of these the present writer was made chairman...

The Chairman of the Committee had come with a carefully drawn plan which made Dean Bailey a member of the Board of Trustees and gave him, in various cases, special powers, but both these offers the Dean declined; what he wished was simply that the relations between the Department and the University be made more flexible, more businesslike, more effective: the central point of his argument was that current matters of administration in the Agricultural College not reserved to the University by the law of the
State should be promptly decided by authorities of the College who were most convenient with them and most directly interested in its success, and not obliged to await the decision of the Executive Committee of the University, or, indeed, of the whole body of the Trustees, as had sometime been the case...

All fundamental points were gradually agreed upon, unanimously, by the Dean and the Committee and finally a full plan was evolved, submitted to the Trustees, unanimously accepted by them, and so the re-organization was completed.

It is, of course, not improbable that time and changing circumstances may reveal some defects in this plan, but thus far it has proved successful. The Department of Agriculture is more firmly and satisfactorily established than ever before, the best of relations prevail between it and the institution as a whole, and during the year and more which has elapsed under this new system, Professor Bailey has given his best efforts, earnestly, loyally, and with ever increasing success, to make it a blessing to the Department, to the University, and to the State.

And now that this new organization has shown that it can be made to work well and the Agricultural College has flourished under it better than ever before, Dean Bailey, after yielding, year after year, to earnest requests of Trustees and friends of the institution that he would continue with us, has at last felt it his duty to carry out his long deferred purpose of devoting himself to other branches of his great work, and has resigned his Professorship and the Directorship of the College. This is a matter of deep regret to us all, but the University honors his motives and he carries with him the respect, the admiration, and it may be truly said, the love of all those who have understood his noble career and with the most entire faith, on the part of the Trustees and, indeed, of all conversant with the affairs of the University that during the coming years of his life he will continue to be a source of inspiration and vigor to the great Department which he, more than any other, has developed and strengthened.

Andrew D. White
Chairman of the Trustees' Committee on Reorganization of Relations between the University and the College of Agriculture

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What are the effects of social isolation on monkeys? Can a monkey raised in solitude learn to live with others of his kind? Professor Robert R. Zimmermann and his assistants in the Department of Psychology are searching for the answers to these questions.

The researchers are trying to obtain stable measures of the infant monkeys' dominant or submissive patterns of behavior. Once these patterns have been determined, two groups will be formed, one comprised of four monkeys exhibiting dominant traits, and the other group of four being submissive monkeys. These experiments will determine the infant's behavioral changes as the membership of the group changes. Dr. Zimmermann is also interested in studying the patterns of interaction when a new monkey is added to the group. Experiments involving food competition may also be conducted to study the effects of such competition on interaction patterns.

Since 1930 several primate laboratories have been established to study social interaction processes and other psychological phenomena in rhesus monkeys and other species of the primate order. Dr. Harry Harlow, who presented the Messenger Lectures at Cornell this fall, operates such a laboratory at the University of Wisconsin. Professor Zimmermann received his Doctorate under Dr. Harlow in 1958. Since coming to Cornell in 1959, he has continued the tradition of primate studies and presently has a colony of twelve infant and twenty adult rhesus monkeys in his Morrill Hall laboratory. He is being assisted in his research by Katherine Davis and George Morgan, graduate students in the Department.

Several eleven month old monkeys are being raised in isolation in individual cages and thus have little opportunity for normal interaction. The Cornell psychologists are interested in the reactions of these isolated monkeys when they suddenly find themselves together.

A special playroom has been constructed for these purposes. It is eight foot square with grey walls and multi-colored furnishings. Four shelves, a wire screen, ladder, slide, tree, two bars and flying rings have been provided for the monkeys' play. The toys in the room include a helmet, wagon, doll, and some well-chewed plastic doughnuts.

For purposes of observation, the twelve monkeys are divided into three groups, each consisting of two males and two females. Eight of the infants were born and raised in the laboratory. The remaining four, or the feral group, were born in the wild and taken into captivity at the age of about two months. For observation purposes, each monkey is identified by a number and a color. Their individual haircuts also help the observers identify each monkey quickly.

Each group is tested twice a week. An observation period lasts for 20 minutes and is a carefully controlled procedure. Each group is placed in a start box, which is very much like a miniature starting gate at a horse race.

**SOCIALITY OR SOLITUDE**

by Michael Seif
At the start of the observation period, one of the observers lifts the doors of the start boxes from outside the room. As the action begins the observers speak into microphones of Dictaphone machines. Dr. Zimmermann and his assistants have devised a standardized vocabulary to describe all of the activities of the infants in the playroom. A monkey, for example, demonstrating initiative behavior, may be described as hitting, grabbing, approaching, or mauling another monkey. The monkey being approached may be described in terms such as flinching, escaping, withdrawing, or freezing. A typical observation might be: “Number one slowly approaches number three; number three escapes.”

For the observation, the observers stand on a platform, looking down through a wire screen into the room. Since the action may be extremely fast once the monkeys are released, each observer concentrates on one monkey for five minutes and then watches another, thus observing all of the infants separately during the twenty-minute period. Since there are two observers, each infant is observed for a total of ten minutes.

When the observation period is completed, the Dictaphone tapes are transcribed. Each interaction, which is identified by a number, is tabulated on a specially devised data sheet. From this sheet it is possible to see how one monkey interacts with the others in its group and what preferences some monkeys may have for others. At the end of the experiments, the results will be correlated with the existing data in the field.

The animals are under the care of William Hume, Cornell veterinarian. Their regular diet is supplemented with pediatric vitamins and a special formula milk. A precise record is kept of the health of each infant.

Psychology is a relatively new science. So that it may mature, thousands of individual experiments must be performed and the results combined to hopefully formulate a set of scientific laws. It is toward this goal that the Cornell researchers are working.

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Dean Palm Addresses Alumni; New Officers Assume Duties

by Bernard A. Curvey

Agricultural Progress Days brought many alumni and other visitors back to the Campus to hear the latest in research, to meet old friends and classmates, to hear well-known men speak about the expectations of the future, and to renew old memories of years gone by. The traditional exhibits and classroom lectures were not featured this year, but were replaced by one of the finest collections of speakers to assemble on the Campus in some time.

March 22 was a big day for the alumni, with the annual Alumni Luncheon in the Memorial Room of Willard Straight Hall. Approximately 170 people were in attendance.

After a delicious steak luncheon, Nelson Hopper '39, retiring president of the Agricultural Alumni Association, thanked the members for their interest and support in the numerous activities of the Association during his term. Some of the notables introduced at the luncheon were the Hon. Henry A. Wallace, former Secretary of Agriculture and Vice-President of the United States under Franklin D. Roosevelt; Dr. Lloyd Elliot, president of the University of Maine; Dr. William I. Myers, former Dean of the College of Agriculture; and Daniel Dalrymple, assistant commissioner of the Department of Agriculture and Markets.

Dean Charles E. Palm of the College of Agriculture was the luncheon speaker. He expressed his appreciation to the alumni for the continued support of the College and especially for their interest in informing young people of the educational opportunities in the College. He cited that the College plans to have more than 2,400 undergraduate and 900 graduate students by 1970. This growth, he said, should allow for great expansion of both the agricultural and biological sciences. He also mentioned the College's sponsorship of the National Science Program and the Agricultural Youth Science Program, which bring about 5,000 high school students to the Campus for a one day visit.

Dean Palm stated that the College was fortunate in having increased support from many sources, which has resulted in new funds for research and increased faculty salaries. The new Food Science Building at Geneva and Morrison Hall at Ithaca have also added to research and educational opportunities. The Dean ended his talk by praising the Land Grant College system and citing the responsibilities of these institutions to meet the problems of the future.

Following the Dean's address, the new officers of the Association assumed their positions. Donald G. Robinson '41, of Castile, is the new president. In the vice presidents' positions are R.H.G. Greig '36, Red Hook; D. C. Whiteman '39, Adams; and Robert Everitt '34, Schenectady. The new Executive Committee is composed of Morton Adams '33, Sodus; R. M. Cary '36, Morrisville; and N. F. Hopper '39, Penfield. Prof. Stanley W. Warren '27, Ithaca, remains as secretary-treasurer.
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The College of Agriculture recognizes that it has a responsible role to play in international agricultural development. One of the programs designed to meet this challenge is the summer orientation program for foreign students who have been accepted by any graduate school in the United States for study in agriculture or sciences related to agriculture.

Arriving at Cornell no later than June 30, these students from countries in the Far East, Middle East and Latin America will receive intensive training in English, plus seminars in North American culture, education, and agricultural practices and policies. Before September 1, 1962, they will have toured farms, industries, and cooperatives in New York State, and will have lived for one week as the guest in the home of a farm family.

Your New York State College of Agriculture at Cornell takes pride in its ability to provide such important orientation training to these young students who are so eager to adopt and adapt the proven techniques and methods of agricultural production and distribution in this country.
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More Than Five Cows

To the Editors:

May I comment on Prof. Robert Lorenzen's article in the March issue of the Countryman. He said: "A man proficient in this task (hand milking) could milk about five cows an hour." I was never a good milker, but I am sure that in the days before milking machines I could average better than that with average cows.

Beginning in the winter of 1906 and extending to 1909, I spent about fifteen months supervising milk and butterfat records under the direction of the late Prof. H. H. Wing of Cornell. My first assignment was the lightest—one cow milked four times daily by its owner. . . Another owner lived in a village, but took me by horse and buggy two miles out of town to take the samples of one or two cows. . . my experience ranged up to eighty days at some of the largest Holstein establishments in the State, where the owners were vying to produce the most tested daughters of one bull.

I feel sure that these owners, had they or their hired men not been able to milk more than five cows an hour, would not have stayed in business long. I had a brother-in-law who used to milk ten or twelve cows an hour.

But to support Professor Lorenzen, I recall while I was stationed at one of the large breeders near Syracuse, I took samples at a nearby place where there were four cows on test. . . large mature animals, giving twenty pounds of milk at each milking, four milkings a day. This still stands out in my memory as the longest time I ever needed to milk four cows—a full hour.

Rolla Van Doren, Sp. '05-'06
Chaumont, New York
Much has been said and written in recent times concerning the topic of the effect of modern science on religion. For centuries there traditionally existed an undeniable gap between the two separate fields of knowledge. Science was a menacing mystery to deeply religious people who had no training in the sciences. People who had knowledge of a few scientific principles were looked upon with great suspicion, and many of them were regarded as witches. As modern civilization advanced, people still feared science because it seemed to disprove many of their long-held and cherished beliefs. To have tradition undermined by the findings of science was unacceptable to many people. Therefore science was further rejected, because it seemed so absolutely adverse to religion.

As the years passed by, however, there came to be a change in the attitude toward science with respect to religion. More people became acquainted with the sciences and the scientific method through education. They began to see that science indeed was not subservient, but was actually a key to unlocking and explaining the phenomena of Nature. It could explain things that religion could not—and at the same time it could even strengthen personal religion by showing the marvelous order of the physical world. Science was capable of freeing the tradition-bound minds from false concepts, and enabling these minds to strike out on new and more meaningful paths of their own. Basic philosophies were looked at more closely; they were changed, and instilled with new meaning through the light of science.

Volumes have been written on all phases of this subject, recognizing it as the new basis of thinking for the future. People are giving a great deal more thought and discussion to the science-religion relationship than ever before. And now, the previously insurmountable barrier between science and religion is gradually giving way so that today, there are some points of view that discern similarities between these two vast spheres of knowledge.

Since Cornell University is a center of learning, especially in the sciences, and is fortunate in having faculty members who are both eminent and unparalleled in their fields of study, the Cornell Countryman has conducted a series of interviews to find what the trend is on campus among the faculty concerning the issues of science and religion. There were numerous opinions expressed, and each interview was unique. Some of the main ideas presented dealt with the feeling that a basic personal philosophy is quite different from formal, organized religion, and far surpasses it. Science and religion—religion as a personal philosophy—seem to converge at times, or at least come very close in certain concepts. Science and religion are two separate ways of trying to define the same thing—existence. Religion is the personal philosophy that enables one to treat his fellowman with the consideration and respect that every human being deserves.

The ensuing paragraphs contain the responses from various Cornell faculty members to the question: "Science consists of cold analysis built on logical bases, whereas religion requires a faith or belief which often would not stand the test of logic. With this in mind, how is it possible for a man with a scientifically trained mind to be religious?" The responses are placed in alphabetical order.

Max Black, Ph.D., D. Lit.
Susan Linn Sage Professor of Philosophy

I f faith consists in reliance upon what cannot be rigorously established by observation and reasoning, then faith is also a part of scientific method. Although scientific method is designed to establish the truth, not everything in science is solidly grounded in fact and cosmology, for instance, contains a good deal of speculative hypothesis. A faith which would not stand the test of logic (an irrational faith) is however incompatible with scientific method and no scientist could subscribe to a religious faith having this character. For all its importance, however, scientific method has limited application and has nothing to say about the distinctive problems of ethics, aesthetics or religion. A religious man might argue that religious dogmas and precepts have no logical connections with matters of scientific fact. He might also say that the validity of religious doctrines is tested in the experience and way of life of the faithful. Some analogy could be drawn here with the experiential verification of scientific statements, but the analogy should not be pressed too far: as I conceive of a religious way of life it cannot conflict with the procedures and purposes of science.

William T. Keeton, Ph.D.
Assistant Professor of Biology

Science and its methods are capable only of telling us about the natural world. The scientific method can study the way the world and life came into being, how life is organized, and how it evolved, but it cannot say whether God exists or not. God's existence is not subject to a controlled test, therefore we cannot apply the scientific method.

Only those who interpret the Bible in a very literal sense see conflict between evolution and the religious story of creation. Many Christian bodies understand the Bible as teaching in parable form. Those who deny evolution put severe limitations on God. They seem to say that evolution is too complicated for their "all-powerful" God to have used, or that the time spans scientists discuss are too long for their "eternal" God!

Most Christian churches in this country have accepted evolution. In certain cases, it is only the local parish ministers who are unaware of what the theolo-
Two different ways of apprehending reality...

John M. Kingsbury, Ph.D.
Associate Professor of Botany

Science, by its very nature, cannot explain all the aspects of human existence—beauty, ethics, morality, honesty. Some aspects must be handled artistically rather than scientifically. One must take an intuitive position in these matters, one requiring "metascientific" assumptions made on faith. When speaking of religion, there is a difference between specific dogma and man's relationship with his fellowman and with nature. One may argue the role of faith, narrowly defined, in the former, but students especially should examine the elements of faith in positions they have already taken which are beyond the power of the scientific method to justify.

Because of the contemporary ascendency of science many students fail to realize the importance of using the college experience to ask the fundamental human and philosophical questions in places where they can get useful answers.

Alexander H. Leighton, M.D.
Professor of Sociology and Anthropology

St. Thomas Aquinas dealt with this problem very effectively: "Some things you know by faith. Some things you know by reason (science)."

Science and religion are fundamentally two different ways of apprehending reality. The two separate systems should not be confused. If one feels that science and religion are in collision, then that person has either made a mistake, or does not understand either science or religion.

Science and religion both attempt to understand the "why" of existence, but they move in different directions. Science attempts to relate facts, whereas religion uses other means to interpret the mystery of existence. Neither science nor religion is always right. Both are full of error, but both are correct according to their own criteria, their own premises. However, the underlying premises of both science and religion are unprovable. So, both belief in science and belief in religion are acts of faith, since neither can really prove their position.

Emanuel Kant demonstrated that man cannot know the truth about the universe because he is so bound by his conceptions of this world. His senses limit him to the point where it is impossible for him to know reality.

If individuals take the dogmatic approach with respect to science or religion, then it is due to psychological or cultural backgrounds. To think that science fundamentally undermines religion is to misunderstand both science and religion. Science can undermine specific dogma of religion, but cannot undermine the revelation approach. Therefore, there really is no conflict between science and religion.

Catherine J. Personius, Ph.D.
Professor of Food and Nutrition

We operate all the time on things that are not cold fact. The scientist uses a hypothesis until he disproves or modifies it. There are many things that we thought were right, at one time, and now we have changed our ideas. If we only taught complete truth, we would be quite limited. There are three categories of things that we teach; those that are supported by great experimental evidence; those that have only limited support in controlled experimentation; and those that we believe in, but cannot prove. In all these areas we must be open-minded. We have just as much need to act upon the unproven as upon the proven data, but one should be aware of the basis for our acts.

When we speak of science and religion, we are operating in two completely different realms; yet there need be no conflict between the two. Religion is all the more meaningful when science gives us greater understanding of things we once used faith to believe.

All persons must act according to some philosophy, call it religion or not. Religion is concerned with ultimate values and meaning. This does not necessarily mean organized religion. A person who has a religious philosophy, attempts to act according to it, and continually clarifies and expands his religious understandings, might be said to have a scientific approach to religion.

Alexis L. Romanoff, Ph.D.
Professor Emeritus of Chemical Embryology

Tolerance and respect are the key to this question. Some people need religion. Even scientists among themselves must show tolerance because they do not always agree with one another. Trust others, believe in their integrity, and allow for some degree of variability in the attaining of the same objectives. Perhaps the interpretation of a point could be different, or the emphasis, or the school of training. This is where it is necessary to show tolerance.

Religion is the practical philosophy of life. This philosophy is essential for everyone. If a person is not "religious", but his own philosophy embodies the same Ten Commandments, then that person has "religion". But if a person does not have this philosophy, then he probably has conflict within himself.

The object of religion is to help man to be a better person in society. Religion came about as an urgent need for social justice. Religion is the salvation of the human race. People are much better since modern religions came into being; religion has been responsible for many social improvements.

If people are tolerant, they can live with both science and religion. The scientist and the theologian alike can live side by side, because they both have the same objective. If you respect another person, you will not search for things upon which to disagree. Broadness of education helps, too. From group action to individual action, tolerance and respect are the essence of the matter.

Michell J. Sienko, Ph.D.
Professor of Chemistry

Religion gives a peaceful life. But to accept the "later we will understand" philosophy is to run away from the problem. At what stage should one
stop probing, stop asking questions? Unless one says he won't accept anything, he will stop asking questions. Here, there seems to be an unresolved conflict between faith and logic. The literal interpretation that religion offers does not seem satisfactory. The main excuse for religion is philosophy—and it is difficult to know what this fundamental philosophy really is.

Religion itself almost violates what it is supposed to support. The formal religion in this country appears artificial, synthetic, and without meaning. Yet, unless one has an “accepted religion”, there is a tendency for those around him to show disapproval.

To accept formal religion, an organized body of belief, one must submit to the act of believing, before one can believe. A person should respect his own mind and consider it supreme at all costs. This attitude may prompt the question: for what is there to live? But there are several reasons to live: a person has a mind to preserve and develop to the fullest; a person is responsible for those minds around him. Internal responsibility has evolved in the human race for the preservation of the species. The guiding precepts of an individual should be to do a minimum amount of hurt to others. With these principles in view, a person can live a worthy and fulfilling life.

Leon J. Tyler, Ph.D.
Professor of Plant Pathology

It hinges on how one defines religion and science. Religion is devotion to principles and practices that are believed to be based on truths, whereas, science is devotion to gathering systematized knowledge and distilling therefrom the truths upon which principles of science are based. Obviously, truth is a basic ingredient common to both. Principles of science are subject to revision when newer facts reveal the old are part truths or even untruths. It is the responsibility of scientists, therefore, to continue to seek the truth even if it means revising the principles.

The biologist, at least, believes in the evolution of living matter, but he does not know how living matter was created; neither does the non-scientist. Both recognize the possible existence of some creative force which takes rather definite form for the theologian but not such definite form for the scientist. This does not render the scientist less capable of being religious in the modern sense; one does not need to be a fundamentalist to be religious. Most scientists probably do not attempt to test the logic of religious doctrines. They merely work on, believing that the future will bring the truth about the nature of the universe, life and all its facets, including religion.

Finally, we are told that youth is developing belief in religious principles and practices in ever increasing numbers. Some credit for such progress should go to scientists because results of their efforts have made religion more attractive by helping remove fearlessness from it without destroying the awesomeness of it. Thus, the scientist feels he is a part of living religion; he feels religious and I believe he is, from his point of view.

The Rev. John W. Vannorsdall, A.B., B.D.
Lutheran Chaplain, C.U.R.W.

Both types of people, the scientifically and the religiously oriented, must realize that there is more than one kind of knowledge. Without this acknowledgment, there can be no basis for discussion. Karl Jasper, in The Idea of the University, wrote of at least two basic kinds of knowledge—the objective (or empirical) and the intuitive. They are not unrelated, but they are distinguishable. The scientist experiences intuitive knowledge, just as the theologian uses his rational faculties, although each of these fields generally places more emphasis upon one kind of knowledge than another.

For example, there are two scales for measuring a person—the universal (height, weight, etc.) and the individual (psychological). A scientist can come to know a person while learning about him. He can give testimony concerning this person that is not universally verifiable. The observer goes with the testimony, which is a basic form of human knowledge.

When one distinguishes these two different ways of knowing things, then the good Christian will affirm both; he will rejoice in the objective findings of science and not feel threatened in his beliefs. He will learn whatever he can. At the same time, a Christian cannot speak with absolute certainty about God, but must affirm whatever knowledge he has. This is knowledge, too—anther way of comprehending things.

The scientist uses intuitive knowledge in his work—in the framing of hypotheses. Then he sets out to test objectively his intuitive idea.

For further information concerning this question, the introduction of Karl Heim’s Christian Faith and Natural Science gives a total idea of the issue. Also, Carl Michelson’s Christianity and the Existentialists has a good introduction that deals with the different kinds of knowledge. And finally, The Dynamics of Faith, by Paul Tillich (who lectured at Cornell April 11 and 12) should prove exhilarating for those interested in this topic.

Thomas C. Watkins, Ph.D.
Professor of Economic Entomology

It is incorrect to say that all science is based on reason and analysis. It is true that science leans more toward the objective, but all scientists work on a measure of faith. Faith is not exclusive in religion, nor is it completely lacking in science. There is a certain amount of faith in all of us, no matter what our particular field is.

Instead of drawing on the differences between the two, there should be a greater effort to stress the similarities between science and religion. The physical and the spiritual do not exist as two different phases of life but are both parts of the same thing. There is philosophy in science as well as in religion. Although we do obey physical laws, there are things in life that cannot be measured according to the strict laws of physical science. It is not as disturbing to think that there is an overall guiding God, or what ever force one may call it, that exists.

The pure scientist divorces himself from all non-measurable forces, but he must admit that he has to be conscious to weigh his data. What is consciousness? It connotes the idea of an ability to judge, to choose between right and wrong, truth and non-truth. Consciousness is not a purely physical thing. There is an area in which the physical and the non-measurable overlap. They are two different phases of one and the same thing, and must overlap. For this reason, we should spend more time finding places of agreement between science and religion, rather than separating them. These two seemingly controversial attitudes must meet to make a completely satisfying life.
A Cultural Island
by Elizabeth Kopsco

A few yards from the busy Pennsylvania Turnpike, the Lincoln Highway, and the Pennsylvania Railroad, lie the farms of a people little affected by the changing world around them. The Amish of Lancaster County, Pennsylvania maintain their uniquely old-fashioned and unpretentious agrarian way of life even though they are surrounded by all the elements of modern civilization. Why and how the Amish have been able to resist change in their society and profit from their supposedly outmoded farm techniques are interesting questions. To find answers one must first understand the basic beliefs and customs of the Amish.

Founded during the 1600's in the Netherlands, the Amish, under the leadership of Jacob Amman, broke away from the more liberal Mennonite Protestants of the Rhineland. The Amish came to America in the eighteenth century to escape persecution and many of them settled in Pennsylvania. (A different branch of the Mennonite sect, the Conservative Amish, settled in Northern New York State, particularly in Lewis and Jefferson Counties. Although they maintain few of the customs practiced by the Amish in Pennsylvania, they are well known throughout the area as a very religious and hardworking group. Their farms are known as some of the most productive dairy farms in New York State.)

Today Lancaster County is the most well-known of the Amish territories in the United States. There the Amishmen dress, worship, and farm in much the same way as they did one hundred years ago. Since they regard the beliefs and customs of their forefathers very highly, they have kept the styles of dress and traditions of the past.

For example, all men wear black or dark-colored suits with long coats. Buttons are generally not used; the Amish fasten their clothes together with hooks-and-eyes. A striking characteristic of the male Amish outfit is the flat broad-brimmed hat which is worn on all occasions. Women wear dresses of solid colors only. Unmarried girls are distinguished from married women by their white aprons. Once she is married, a woman will put away the white apron and don one which matches the color of her dress. Amish women wear white caps at all times.

The horse and buggy is the primary method of travel in Amish country. Amishmen are not permitted to own automobiles, although they may accept car rides from non-Amish friends.

The Amish base all of their beliefs and laws upon the Bible, which they interpret strictly and literally. They shun "worldly" standards which are not in accordance with the Bible. Romans 12:2; "And be not conformed to this world," is the basis for the unusual traditions of this "peculiar people." Since automobiles, machinery, electricity, modern clothing styles, and other conveniences of our times are "worldly," the Amish avoid them. These religious beliefs also have some effect on their livelihood, farming.

Tractors are not permitted on Amish farms. However, the Amish can use the modern techniques of planting, plowing, manuring, and crop rotation. These they employ with great success; they can transform poor land into prosperous farms. An average Amish farmer owns just enough land to support his family. Since he does not have to pay for machinery, he saves a good portion of his earnings. The Amish use money only to buy land and the necessities of life.

The hard work of running a farm without machinery requires long hours in the field. This keeps the Amish at home most of the time and prevents too much contact with the "outer world." Several other factors account for the separation of the Amish from society and its changes. Members of an Amish community help each other out on many occasions. If a man needs a new barn, neighbors from miles around will stage a "barn-raising." Every man works on the construction of the barn.

The Amish give money to those in their community who need it. They are self-sufficient; no help from the outside world is needed to take care of their poor and sick.

The closeness of the Amish farms to each other has also kept the Amish together, according to Pro-
Professor John Harp of Cornell's Rural Sociology Department. He said that if the Amish were scattered, individual Amish families would be surrounded by, and thus greatly exposed to, many non-Amish neighbors. This would probably result in the breakdown of Amish society.

An Amishman who wanders away from his community may find that he is the object of hostility or ridicule. Outsiders often are hostile to the Amish because of their isolation and "peculiarities." But in his own community the Amishman finds love and understanding, which bind him closely to his people.

The Amish have resisted integration into our society because they don't want to conform to worldliness. Their uniqueness draws them together, and the strength of their unity enables them to maintain their culture in the face of change. Amish children learn the "Pennsylvania Dutch" (German) language, which they speak at home. They generally do not attend school after the age of fourteen. Higher education would bring them into too much contact with "the world" and take them from their share of farm work.

Any Amish who violates the rules of his society is "shunned" by members of his church and community. No one will speak to him or carry on any business with him. This is a very painful form of punishment for the Amish because they live in such closely-knit communities and depend upon each other for help and companionship. The fears of shunning and of punishment in the fires of Hell after death are enough to prevent the Amish from going astray very often.

The rewards of Amish life are many. The good Amishman has the assured help of his neighbors if he is ever in need, and he has his farm to supply his family with all the food they must have. The Amish lead busy but peaceful and contented lives. But history has proven that isolates cannot survive forever in a cloistered existence. The devious forces of Progress will eventually require their assimilation into modern society.
My friends call me a character, but other people use stronger language,” says Norm Evans, Cornell University’s authority on dowsing and also one of the College of Agriculture’s oldest undergraduates.

When people think of dowsing or divining, they immediately begin to picture a person who practices witchcraft. When I first mentioned “water witching,” Evans said emphatically that he called his work “dowsing” and nothing else. “Some call it water witching or divining,” said the husky Madison County farmer, “but I prefer to call it dowsing; I’ve known a lot of dowers who aren’t divine, and I’m anything but a witch.”

Success came early

Norm began dowsing several years ago. It all started when he went on an extension trip to Pennsylvania. “Two men who were with me started arguing about where they were going to drill a well,” explained Evans. “One man believed in dowsing and the other didn’t. That evening when I was alone, I decided to give it a try. I cut a forked stick and successfully traced the water line from the road to the cabin in which I was staying. Nobody believed me when I told them about it; in fact, I didn’t even believe it myself. Since that time, I’ve kept practicing. Now I can predict water quite accurately!”

Using his ever-present forked stick, Evans (right) demonstrates to a student how two can dowse as easily as one. Photo was taken at Zeta Psi Fraternity.

People are afraid to believe anything that science has not yet explained, states this dowser. Einstein said, “To consider new questions and new possibilities in old problems but from new points of view, requires powers of imagination and marks the true advances in science.” Evans says that many Cornell professors and scientists are interested in his project so long as they don’t have to have their reputations dented. “They are afraid of dowsing because of the old term ‘water witching’ and its connotations,” says this authority.

Forked stick finds water

The Cornell dowser calls his method of dowsing “triangulation.” If he is dowsing for water, he thinks about water. Norm says, “I say to myself, where is the closest vein of running water?” After cutting a forked stick from a nearby tree, Evans holds the two ends in his closed hands, palms up, and starts walking in a circular motion to get a direction. “When I first begin to feel a downward tug on the end of the stick,” he explains, “I stop and make a mark in the ground.” He then continues walking until he feels the maximum reaction from the stick. Without turning around, he stops and then walks backwards until he is again standing on the original mark. He claims that the distance between the marks is the depth of the water.

As far as dowsing wells, Evans hasn’t had a failure. He dowses water not only for himself and his neighbors, but also for farmers in other counties too. He cites a friend who was looking for water on a farm he was about to buy. “He asked me if I could find water...
and I said that I would try," Evans said. Since he didn't know the farm, he decided to start near the buildings. Pointing his forked stick at a woodpile, he got a definite reaction. "I tried it again and again but each time I got the same answer," declared the dowser. He told his friend and together they moved the woodpile. "No one was more surprised than I," exclaimed Evans, "when we found a previously dug well with twenty feet of good water in it."

Claims he's "just a farmer"

Evans claims he's just a dairy farmer and not a scientist. As yet, he has not developed any concrete evidence to back up his dowsing theories. However, he notes that there are many books and articles on the subject. They are all interesting and whenever he reads about a new experiment, he gives it a try.

Although the forked stick is this man's favorite instrument, he has other tools, too. "I use angle rods quite a little in finding pipes," claims Evans. He found out about these rods from an engineer. Because of their sensitivity, they will find non-ferrous pipes that even an electronic pipe finder can't locate. He can also find stagnant water with these rods whereas a forked stick can locate running water only. He claims that about 50 per cent of the people can use these rods effectively. They're easy to make says Evans—all you need is two welding rods and some copper tubing.

The pendulum gives the answer

Another instrument is a pendulum. "I now use a small ivory model I ordered from England for one British pound," states Evans. "It not only works for water but for telepathy too." He took it out of his pocket and started it swinging back and forth. I decided to test the dowser's ability so I asked him a multiple choice type question. After a few minutes he looked up and gave me the correct answer. With a broad smile on his face he said, "I still don't believe it myself at times. However, I do think that this becomes easier with practice. Those who try it and get a slight reaction could get better."

"Since I have started back to school after a 17 year lapse," says Evans, "I have taken dowsing more seriously—not only as a conversation piece, but also to find some way to explain my ability." In 1942 Evans enrolled as one of the youngest freshmen in the College of Agriculture. A year later, because of the war, he dropped out and started farming. Now he and his wife, Florence, and their three children, Timothy 13, Amelia 12, and Mark 11, live on a 375-acre Holstein farm at Georgetown, Madison County. "Presently I am a junior and one of the most regular part-time students in the College of Agriculture," says Evans. He commutes from farm to school three times a week, a distance of 110 miles, round trip.

Besides being an active member in the American Society of Dowsers, Inc., Evans participates in many other organizations. Among these are Masons (including Masonic bow hunters), Grange, Farm Bureau, landowner representative in the New York State Fish and Wildlife Management Act Board, and the Boy Scouts. "As a licensed lay preacher, I have preached ten time since Christmas in rural churches," says this versatile man.

If present success continues, Evans intends to improve his skill and prove his dowsing ability to more people. "I am only a beginner," says Evans modestly, "but I am learning more of my instruments' capabilities every day. With time, I may be able to predict much more than I can now."

Evans is shown here with the pendulum that gives the answers. He is planning to rent it out for use during final exam week.
As a conclusion to the series of articles that have appeared in the COUNTRYMAN concerning the history of Cornell University and the New York State College of Agriculture, we present a surface analysis of Cornell today in terms of its physical plant, its curriculum, and its student body, within the context of the diversity of the University. The opinions expressed are those of the author and are not a reflection of the feelings of the entire staff of the magazine or its Board of Directors.—Ed.

The Physical Plant

The first impression that Cornell makes on a visitor is its “bigness.” The University plant has greatly expanded in 100 years, from the humble beginnings in Cascadilla Hall to the large and sprawling campus of today. This gradual expansion has brought with it diverse styles of architecture, from Georgian Martha Van Rensselaer Hall to the modern geometry of Mary Donlon Hall. Many have called the Campus an “architectural hodge-podge,” but it seems rather to be a reflection both of the diversity of the University and the various architectural styles that have been in vogue during the periods of expansion.

With the recent completion of Ives Hall, each school and college now has its own permanent buildings. Most schools have plans for additional expansion. The recent demise of the Circle Dorms marked the first step for a giant new science research center for the College of Arts and Sciences. Charles Evans Hughes Hall will soon rise as a dormitory for students in the Law School. The College of Agriculture soon intends to construct a large new laboratory for plant and soil sciences. The College of Home Economics is planning to build an addition to Martha Van Rensselaer Hall.

New construction is also planned for non-academic activities. The Campus Store has plans for expansion. A new student center is slated to rise in the men’s dormitory area. And a three-sided twin sister for Mary Donlon Hall is on the planning board.

These physical facilities are being provided so that the enrollment of the University may be increased. This is certainly a necessity, particularly when the number of eligible college students is supposed to leap to unbelievable heights within the next decade. But what will this do to the Campus—the Campus that is now “the most beautiful college campus in the world”? Is the expansion being carried out with the idea of maintaining the beauty of wide-open spaces, and having each building stand out as significant entity?

One need only read the locations of these new buildings to imagine the crowded Penn-Statish campus that Cornell may have within the next decade. But this is the price that must be paid for combined expansion and convenience. University officials claim that it is not feasible to expand the Campus “out” any further. It is now impossible for students who

Liberty Hyde Bailey’s model schoolhouse, which formerly housed the offices of the Countryman, will soon be demolished to make way for the new building of the School of Business and Public Administration.
have classes in Morrison, Stocking, or Riley-Robb Halls to get to a subsequent class on the Arts Quad in the allotted ten minutes. Furthermore, any attempt to construct buildings on the somewhat centrally located athletic fields meets with a near civil war between the Alumni and the Administration.

Official reports indicate that the University will adopt somewhat of a “non-expansion” plan after 1970. The institution will still continue to grow, but not at the rapid pace that the past decades have seen. Whether this plan will be fulfilled or not is open to question, but it implies the very real fact that Cornell can’t keep growing forever.

The Curriculum

Those immortal words, “I would found an institution where anyone can find instruction in any study,” allegedly stated by Ezra Cornell, have been used, abused and abused until now they mean very little. A great deal of discussion concerning Cornell’s curriculum is centered around whether Cornell is a university, or a collection of schools and colleges related only by physical proximity and a common administration. In a sense, Cornell fills both definitions, but the trend seems to be toward the latter. The traditional idea that a student could come to Cornell and major in animal husbandry with a minor in oil painting is essentially true, but definitely not encouraged.

“Specialization” is the key concept in this discussion. The society in which Cornell University was conceived in 1865 was not particularly specialized, although the trends toward specialization were evident. Cornell’s physical plant was located about the present Arts quad. There were many required courses that all students took together. These factors and many others made for an informal spirit of “togetherness" that is missing today on a University-wide basis.

Today each school and college in the University has its own idea about what a college education should be and what its students should know before they are awarded a degree. One feels more loyalty to the College of Arts and Sciences or the College of Agriculture than he does to Cornell University. This attitude stays with many students after graduation and they devote their time and energies to their own college alumni association rather than to the University Alumni Association.

What can be done about this? There is no one directly to blame. Each school and college has assumed an obligation to produce students who have been highly exposed to one field of study. This is how Cornell has earned its nationwide and worldwide reputation for excellence. This reputation has not come from good conversationalists or “educated fools” who know a little bit about everything and have a working knowledge of nothing. It is specialists that are successful in this competitive society and it is a goal of the University to produce specialists. It is nearly impossible to create a solid spirit of unity in a University that is working for diversity. That is Cornell’s dilemma. Whether or not it is filling the traditional definition of a “university” is unimportant; the important factor is whether or not Cornell is producing men and women who are prepared to compete in today’s society.

The Students

The third critical area in a contemporary examination of Cornell is the student body. It is the student body that actually makes up the University, for a university could theoretically exist without a physical plant and without a definite curriculum, but not without students.

Diversity is found in the students as well as in the buildings and the curriculum; this diversity is perhaps the most impressive of all. Students come here from every type of family background imaginable. The children of millionaire industrialists receive their education alongside the children of middle and lower middle class families. Foreign students from all parts of the world come to the University both for undergraduate and graduate training.

This diversity has led many to say that Cornell is a real “slice of life”; that Cornell students are exposed to a living situation quite similar to what they will encounter in the “outside world.” The weakness of this analogy is revealed in the term “outside world,” which indicates that there actually is a sort of cloistered life for the Cornell student.

It must be admitted that this diversity has contributed much to the fragmenting of the University. For just as the “likes” group together in American society, they tend to follow the same pattern at Cornell. This may partially account for the continued strength of the fraternity and sorority systems here, while they have been greatly modified at institutions somewhat comparable to Cornell.
The diversity has also led to the so-called liberal attitudes that the student body is said to possess. Because of the many types of background represented, it has been impossible to formulate a concrete and meaningful Student Code. Broad generalities are necessary if any code is to be universally acceptable. Thus the student body is blessed with freedom and responsibility; there is a minimum of brakes on social activity so that the student can "do" as little or as much as he wants to. This in turn contributes to the strength of the Greek-letter societies and the semi-Bohemian organizations, for they act to bind together students with similar morals and ideals.

It seems reasonable to predict that the student body of Cornell will not undergo any dramatic changes within the next several decades. However, if the University does not expand proportionally to the population expansion, it is probable that the student body's intellectual caliber will rise. What effect this will have on "Cornell society" is difficult to predict.

*   *   *

This is by far an incomplete overview of Cornell University today. Cornell is unique. There is no other university in the country with the same amalgamation of state and endowed colleges. Cornell cannot be compared to the mammoth state universities, nor can it be compared to its sister universities in the Ivy League. It stands alone. This uniqueness fogs the predictor's crystal ball, for he can look to no other institution to see what changes a specific action has wrought and then predict the same changes for Cornell. But be it unique, fragmented, or diverse, Cornell University has stood for a century and appears very able to stand for many more.

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Dr. Alexis Romanoff:

Cornell's Bard

by Hillary Brown

With the change of seasons many students have observed the beauty of Ithaca's landscape, from its rocky gorges to its steep hills. But none have done it with so much sensitivity and understanding as Alexis Romanoff in his new book of poetry Ithaca. The small bound volume of rhyme is a tribute to this city as "A Center of Beauty and Intellect."

That science and art can be combined successfully is proven by this elderly gentleman. Many who have not become acquainted with Alexis Romanoff, the poet, may well know him as Dr. Romanoff, Professor Emeritus of Chemical Embryology. Since his retirement in June 1960, Dr. Romanoff has published two small volumes of rhyme.

Put the Campus into verse

His first venture into the realm of poetry was in 1960 with a volume containing odes to "The University Campus" . . .

"These poems I am dedicating To those who love their college days Who hold in mind the highest rating Of Alma Mater and her ways"

A resident of this community and an active participant in college life for approximately 40 years, he came here from a position as research assistant at the Farmingdale Agricultural Research Station on Long Island. Since then, Dr. Romanoff has had the time and opportunity to appreciate the "Natural Environment" and "Cultural Atmosphere," which are the two sections of the book Ithaca. Although Dr. Romanoff has often left Cornell to instruct at other universities, he and his wife have invariably returned to Ithaca, with its enchanting hills and Cayuga Lake.

CREEKS AND WATERFALLS

Through all surrounding rough terrain
There are but hills, ravines, and creeks
And two great valleys fully reign
With growth of population peaks.

Ravines are often narrow, deep—
Disclose striation of the soil;
From side to side high bridges leap,
From which one sees the ages' toil.

Grooved bottoms hold cascading streams
With waterfalls, and broken dams—
The remnants of the past—ford dreams:
To furnish energy by jams.

The glens have now been turned to parks
For scaling walks along each path,
The changing water-level marks
Produce great torrents' aftermath.

All these and other nearby grounds—
For recreation, thinking, rest—
Become for life one's forceful bounds,
And give him strength in goodness dressed.

In the world of science, Dr. Romanoff is recognized as an outstanding embryologist and has done extensive research on bird eggs. With his wife, Anastasia Romanoff, he wrote "The Avian Egg," a work which took them twenty years to complete. It is considered an excellent and extensive treatise on the subject.

Famous as a researcher

His many years of association with the College of Agriculture have given him the opportunity to study such subjects as the structure and chemistry of eggs, physiology of reproduction, and the food value of the egg. His experimental findings have proven invaluable to others working in the field of embryology.

Seeing chick eggs develop and hatch for many years has made Dr. Romanoff aware of the life around him. Not only has he captured this awareness in his poetry, but he is adept with water colors and crayon. One of his greatest desires was to paint portraits and sketch human life. When he arrived in the United States from Russia in 1921, one of his first occupations was drawing scientific sketches at the Agricultural Research Station.

Once at Cornell though, Dr. Romanoff devoted his time to the study of embryology and in 1950 he received the Borden Award and a gold medal for his outstanding work in this field. He has conducted research in the Cornell laboratories since 1926.

In recognition of his work, Dr. Romanoff is a fellow of the New York Academy of Sciences and the American Association for the Advancement of Science as well as many other scientific societies.

To quote Dr. Romanoff's prologue to Ithaca, "His life is full without regrets."
Cornell University has long been known for its research and teaching in the field of ornithology, the science of birds. The Laboratory of Ornithology in Sapsucker Woods has been a mecca for bird enthusiasts from all parts of the world, and recently was the subject of an article in National Geographic Magazine. A research report by Cornell ornithologist Prof. William C. Dinger was the lead article in Scientific American last winter. The famous recordings of bird calls made at Cornell marked a pioneering effort in the field of biological acoustics.

With this background, it is fitting that the first international conference of scientific ornithologists to be held outside of Europe should take place at Cornell. The conference, officially known as the XIII International Ornithological Congress, will open in Ithaca on June 17. Dr. Charles G. Sibley, professor of zoology in the Department of Conservation at Cornell, is the Secretary-General of the Congress. He is responsible for the planning and organization of the sessions. Graduate students and Ithaca citizens are assisting him in the preparations.

The First International Ornithological Congress was held in Vienna in 1884, and except for interruptions during the two World Wars, the meetings have been held at four-year intervals. The host institutions have usually been distinguished universities. In recent years the meetings have been held in Uppsala, Sweden (1950), Basel, Switzerland (1954), and Helsinki, Finland (1958).

As of April, more than 600 persons from 35 countries had registered as official members of the Congress. The final membership will probably include representatives from 40 countries with 400 persons from North America and 250 from South America and overseas.

Principal support for the Congress has been provided by the National Science Foundation, private donations, and registration fees. The Congress has awarded travel grants to 47 of the participants from outside of North America.

Cornell University will host 650 ornithologists from all parts of the world for their first international conference in the Western Hemisphere.

by Michael Seif

More than 150 papers have been proposed for presentation at the Congress. Included in the program will be symposia or major papers on such subjects as Birds as Vectors in Virus Diseases, Radar Observations of Migrating Birds, Biochemical Methods in Phylogenetic Studies, Population Ecology, Physiology of Sense Organs, Neurosecretion, Physiological and Ecological Adaptations to Extreme Environments, Bioenergetics, Behavior, Zoogeography, Physiology of Reproduction, and Orientation and Navigation in Migrating Birds.

During the Congress, there will be special exhibits at several places on Campus. Photographs of birds will be displayed in the Statler Auditorium foyer. Paintings and books in reference to ornithology will be on display in the White Art Museum and Olin Library.

University President Deane W. Malott will open the conference with a speech of welcome on the evening of June 17. Ernst Mayer, President of the Congress and Director of the Museum of Comparative Zoology at Harvard University, will then deliver the presidential address. Cornell University will then host the visiting scientists at a reception in the Statler Ballroom. The presentation of research papers, symposia, films, and special meetings will be held throughout the remainder of the week.

During the week there will be an all-day excursion by bus to scenic points of interest in the Finger Lakes Region, followed by a barbecue at Taughannock State Park. Another banquet will be held in Lynah Rink on the last night of the Congress, with entertainment by the Ithaca High School Choir.

The behavior of birds has fascinated people throughout the world.
Although this week-long period is the only time that the Congress will be in formal session, it is not all that will be offered to the delegates. Associated with the Congress will be four week-long excursions to places of ornithological interest in the areas of Boston, New York City, Washington, D.C., and Central and Northern New York State. These excursions will be conducted three or four times, both preceding and following the actual Congress. The various species of birds that inhabit the areas will be observed in their natural habitats by the tourists.

Swanson's to lead excursion

The excursion into Upper New York State will be led by Prof. Gustav A. Swanson, Head of the Department of Conservation at Cornell, and Mrs. Swanson. This excursion will be based at the Cornell University Biological Field Station at Shackleton Point on Oneida Lake. Side trips will be taken from here to such areas as the eastern shore of Lake Ontario, the Tug Hill Plateau, and the Adirondack Mountains. The other excursions will be in charge of noted ornithologists from other parts of the United States.

Trips to South and West

Also included on the program is a set of long excursions, which will last for two weeks. One will be taken to the Great Smoky Mountains of Tennessee and Southern Florida, and the second will go to the Great Plains, the Rocky Mountains, the Arizona desert, and Southern California.

At the completion of the Congress, the proceedings will be published by the Cornell University Press in a volume of about 1,000 pages.
Agri-Business Needs YOU

by Julian Wright, B.S. ’34, M.S. ’39
Sales Training Assistant, Beacon Feeds

A gri-business is the largest and most important segment of our economy. Forty percent of the consumer’s dollar goes into agriculture or its related services. Of the sixty million or more people gainfully employed in the United States, eight million are producing feed and fiber on farms, ten million are processing and distributing products originating on these farms, and six million are producing materials and providing special services which farmers require for efficient production.

Twenty-four million people employed in agriculture! Doesn’t this spell opportunity to the young person with a farm or rural background? The problem facing many of these young people with a farm background and no farm to go back to is—just which of the many agri-business fields to enter.

Agri-business, like other industry, is confronted with a problem. Nothing happens until someone sells something. An industry as vast as agri-business requires a great number of dedicated, well-trained and persuasive individuals to keep things happening.

Our agricultural colleges have not kept pace in supplying a sufficient quantity of graduates who have interest, training, and aptitude for agricultural sales work. Let us say the shortage is with graduates who lack “interest” in sales work—rather than in native ability or in training. Agricultural college graduates have shied away from sales work because of indifference, lack of knowledge of the contribution made by sales people to the over-all economy, or a misunderstanding of the status of a salesman in our free enterprise economy.

Every year, every week, every day, many large and small businesses are interviewing and hiring capable college graduates to fill sales and service representative vacancies. Most agricultural colleges maintain a campus placement service to assist the graduate in finding these openings. Your professors and friends already in the field can also provide good leads.

Many non-agricultural college graduates are attracted to the selling profession by the possibility of high financial reward. This is a very important consideration. One cannot work long, hard hours and be expected to live on the fruits of his ambition alone. A salesman is generally in a position to regulate his own pay and receives according to his efforts. It is interesting to note that of the 2% of the United States population that earns more than $20,000 per year, 85% of the total are salesmen—or men who have advanced to high-paying positions from the ranks of salesmen.

Employers study prospects thoroughly

Just what does an employer look for in selecting and training a sales employee? He generally follows a rating system which includes the following:

1. Capacity for Growth. Does the candidate have good business judgment? Can he develop to a degree where additional responsibilities can be assumed?

2. Personality and Appearance. Will he be accepted by the company and the trade? Is he tactful, clean and healthy?

3. Character. Is he loyal and honest? Can he handle his own personal affairs?

4. Mentality. Is he mentally alert and does he show good judgment? Does he have ability to reach conclusion and make decisions?

5. Enthusiasm. Does he have the energy to generate enthusiasm and gain the interest of the buyer?

6. Originality, Imagination and Resourcefulness. Is he alert for the development of new and better way of doing business? Does he possess the initiative to put them into effect?

7. Expression. Is he capable of expressing himself convincingly, both verbally and in writing?

The successful salesman is not a decided unusual or different individual. He accepts himself and recognizes the merit of self-evaluation and takes measures that will lead to personal improvement. He values the opportunity to work for himself. He is a person who is not content with complacency, but relishes the challenge of a potential sale and takes great pleasure in working out answers to new problems and objectives.

What about sales ability? Aren’t good salesmen born, and not made? Most companies will agree that if a man with a farm background, a good education and a liking for farm people really desires to sell, he can be trained to make a good salesman. Sales training programs will vary from company to company—but all have the same objective—to help the trainee to help himself to opportunities to learn and to grow.

The corporate structure of any company will provide many opportunities to grow within its framework. The only limitations will be those placed by the individual on himself.

The attitude you show toward your work, the enthusiasm with which you apply yourself, how well you get along with your fellow man, and how well you can communicate in all ways with other people, will determine how successful you will be in the field of selling or in any other line of work. Agricultural sales work presents a challenge and an opportunity. Agri-business needs you!
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I chose a career, not a job!
by Pete Vossos

"I found a satisfying job right from the beginning—and more important, American Oil is diversified enough to offer varied opportunities for the future."

Peter Vossos earned his Master of Science degree at Iowa State, '58. As a physical chemist, Pete's immediate project is studying fundamental properties of asphalts with the objective of improving their performance in roofing and industrial applications. About his 2½ years at American Oil, Pete adds, "This is a company that's big enough and dynamic enough to be doing important work, but not so mammoth that you get lost in the crowd."

Many ambitious and talented young scientists and engineers like Peter Vossos have found challenging careers at American Oil. Their choice could have special meaning to you. American Oil offers a wide range of research opportunities for graduate chemists, chemical engineers, mechanical engineers, physicists, mathematicians and metallurgists.

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