My thanks come easily...

My thanks come easily
When my fortunes rise
And my will is king
And all the world seems my estate.

My thanks come easily such times.

But, wait...
Today, let me reflect
Upon those thanks I owe
But which I find
Express themselves less fluently.

Today, let me remember to give thanks,
Not only for the sunlight,
But for those darker hours
That teach me Fortitude.

Let me profess, today, a grateful heart,
Not merely for successes I may know,
But as truly for those failures
That teach Humility.

Let me express my gratitude
For all those petty, inner conflicts
Which, once resolved, breed new Serenity...
And for those small, distressing fears
That have their ways of building Hope.

Let me breathe appreciation
For all those poignant slights
That teach me Thoughtfulness,
The wrongs that teach me Fairness,
And for each violated trust
That leaves Loyalty as its lesson.

And let me not forget, today,
To whisper thanks for these:
The contempt that teaches Pity,
The tear that teaches Joy,
The pain that teaches Mercy,
And the loneliness that teaches Love.

So, now...
Let me reflect upon these thanks I owe...
And let my thanks come easily today!
I recently heard a very interesting story about a former Clemson graduate. At the time of his graduation he asked a professor what was the best way he could go about making friends while on his new job in Texas. The advice given him was to go to church every Sunday and always act natural. This, he was told, is the best way to make friends and to be a success in whatever he did.

Our friend went to Texas and did as he was advised. Soon his Sunday School teacher gave him a card and asked him to visit him at his first opportunity. When he found the address he had to go through three secretaries before he could find his teacher, and to his surprise he was the president of an insurance company. He was asked if his present job was satisfactory. When he said it was not, his teacher asked if he would like to work for him. "I have observed you at church and noticed the wonderful way you get along with people," he said.

Today, just three years later, he is heading a branch office in Texas and making a very sizeable salary.

To the readers of The Agrarian, whether at Clemson or some other part of the state: the best in you can be brought out by always acting natural and the best people you meet are the ones you meet at church.

And the rains came tumbling down—well, that is what happened when "Miss Flossy," South Carolina’s only severe storm of this season, paid her rainy visit. Rain is a mild adjective to use to describe the amount of water that fell on the farms of this fair state. In some parts of the state, as much as 888 tons per acre fell which is based on 6 inches per acre, while the entire state averaged 344 tons or 3 inches per acre. The interesting part of this gift of nature is that it was transported a distance of 1000 miles from a point in the Gulf of Mexico. How does your irrigation system compare to this process of nature in its energy output and volume? By the way, your system does not have to transport from 1000 miles away, and neither does it have to lift to cloud level.
I DARE You!

By Dixon D. Lee, Jr.
Dairy '57

From the Purina Company and the Danforth Foundation comes a yearly opportunity for young men and women all over the nation to further their education on a four-week trip. I dare you to be that person!

**I DARE YOU TO BE A MAN**
**TO STAND TALL**
**TO THINK TALL**
**TO SMILE TALL**
**TO LIVE TALL**

This challenge was presented to me along with thirty-four other Danforth Summer Fellowship winners last summer during the four greatest weeks I have ever lived!

I, as a former Danforth fellow, in turn dare all FRESHMEN and JUNIORS majoring in agriculture here at Clemson to become eligible to receive the Danforth Freshman or Junior Fellowship this year.

The Danforth Foundation had as its guests this past summer thirty-four rising seniors in agriculture from the land-grant colleges in the United States, Canada, and Hawaii. The first two weeks of the fellowship were spent in St. Louis, Missouri, with the Purina Company. The remainder of the month was spent at Camp Winiwana, Stony Lake, Michigan. In addition to the seniors, rising sophomores from each land-grant college were two-week guests of the Danforth Foundation at Camp Winiwana.

Much to my pleasure and the displeasure of my buddies at Fort Benning I left summer camp a week early and flew to St. Louis on July 29. There I was assigned a room in Lee Hall at Washington University along with thirty-four other boys. We were already exchanging stories and jokes and letting everyone know we were from the best state. It was very evident that we were going to have a wonderful four weeks of fellowship together.

Early Monday morning we loaded into a bus and traveled from St. Louis to Gray Summit, where we were to spend the next three days at the Purina Research Farm. This 758-acre farm, located in the foothills of the Ozark Mountains, is the proving ground for nearly all Purina products on the market.

Here we were met by Mr. Earl A. Sindecuse, head of the Public Relations Department of the Ralston Purina Company, and who immediately started things off by having roll call. As we answered the roll we received the first of several checks, and the program was off to a fine start!

In our tours of the farm we inspected pheasants, chukars, pigeons, chinchillas, mink, rabbits, goats, dairy cattle, beef cattle, broilers, pullets, hens, turkeys, and ducks. Each is kept as a separate unit under careful research supervision. These grade animals are handled under conditions similar to those on any average farm to enable their feeding test results to be what might be expected on the average farm.

With the many interesting tours, competitive sports, ampliteness of delicious food, "bare" swims, and surprises, the time had fairly flown by, and we were soon on our way back to St. Louis.

"Sindy," as Mr. Sindecuse soon became known, kept us guessing the whole time we were in St. Louis. He was the only one who knew our schedule and was always springing pleasant surprises. His "Follow me, men!" soon became quite familiar to us.

Thursday morning found us decked out in white shirts and ties for our first appearance at the Purina Company where we began a series of lectures including discussions on research, nutrition, pathology, business law, advertising, personnel management, salesmanship, and other timely opportunities.

(Continued on page 14)
The Uses of Beef By-Products

By "Rut" Hammond, Jr., A.H. '57

One fine spring morning, a few years back in May, my Grandad and I were making our usual everyday inspection of the herd. While riding along we came upon a young heifer that was about to drop her first calf, so we thought it best to keep a close eye on her. She was a purebred Hereford heifer and she had been bred to a fine registered Hereford bull; therefore, we were expecting a calf of very high quality.

Later in the day I went back and checked the heifer to make sure that she was doing O.K. Upon arrival I found that she was in the first stage of giving birth to the calf and I thought it would be best if I stayed around just in case something happened. Sure enough about a half-hour later she seemed to be having some trouble. Immediately I went to the house and let Grandad know what the trouble was and then I called our local veterinarian. He said that he would be out as soon as possible.

When the Doc got there he made a thorough check of the heifer before trying to render any help. He found that the legs were crossed in such a manner that the calf couldn't get its head out. Seeing the trouble, the Doc knew just what to do. After a hard tug we had ourselves a nice healthy bull calf.

The next morning the calf was up and walking and as usual wanted to stick his nose into every little thing. From that day until weaning time the calf and its mother were on nice green pasture. The calf was creep-fed along with his usual milk diet. After he was weaned we put him in the dry-lot with the other calves that we were fattening for market.

Every year we sell our cattle to a friend that owns a packing plant. The day that this friend was out quoting his price for our steers I was inquisitive about what happened to the beef carcass and its waste products. I suggested that we go inside when he told me that it was a pretty long story.

He started by telling me that the animal is slaughtered and dressed as soon as possible. The carcass is then cut into quarters or halves, and these make up practically all. They remain here for ten days, after cutting in half they are put in the chilling room for aging and curing. They remain here for ten days after which they are cut into the various retail cuts and distributed to the different retailers. On the average only 54.3 per cent of the liveweight is beef; however, it varies from 40 to 65 per cent according to the weight and finish of the animal. Of the remaining 45.7 per cent of the liveweight, 10.1 per cent has no value and 19.5 per cent is lost through shrinkage, which leaves only 16.1 per cent to be converted into finished by-products. The general public is familiar with the actual beef and its process, along with how it is normally consumed. However, there is a great deal of misunderstanding and ignorance concerning by-products, their origin and uses. The following chart is an accurate summation of beef and by-products in their major divisions percentage wise:

<table>
<thead>
<tr>
<th>% of Green Product to Liveweight</th>
<th>% of Finished Product to Liveweight</th>
</tr>
</thead>
<tbody>
<tr>
<td>I Beef</td>
<td>55.6</td>
</tr>
<tr>
<td>II By Products</td>
<td></td>
</tr>
<tr>
<td>Hide</td>
<td>7.2</td>
</tr>
<tr>
<td>Fats</td>
<td>3.4</td>
</tr>
<tr>
<td>Head</td>
<td>3.4</td>
</tr>
<tr>
<td>Blood</td>
<td>1.5</td>
</tr>
<tr>
<td>Casings</td>
<td>1.2</td>
</tr>
<tr>
<td>Misc.</td>
<td>7.0</td>
</tr>
<tr>
<td>Valueless materials</td>
<td>10.1</td>
</tr>
<tr>
<td>Shrinkage</td>
<td>6.8</td>
</tr>
<tr>
<td>Additional shrinkage</td>
<td>12.7</td>
</tr>
</tbody>
</table>

In discussing by-products we don't stop with the principle by-products; we go to the finished by-products. The hide can be divided into several categories: cured hide, tail hair, body hair, ear hair, hide trimmings and hide fat. From this division we go to the finished product. The cured hide goes into sole and upper leather, harness, saddlery, raw hide, belting, etc. The tail hair goes to up-holstering, curled hair, and brushes. Body hair goes to felting and plaster. Ear hair is used in making artist brushes. Hide trimmings are used in glue. Hide fat goes to tallow.

The fats are divided into two major divisions: edible oleo fats and inedible oleo fats. The edible oleo fat makes stock, tallow and tankage. The oleo stock finished products are bakery products and oleomargarine.

The head has several subdivisions: bones, horns, brains, tongues, head and check meat, ox lips, and ox palate. Bones usually wind up as steamed bone meal. The finished products of horns are: protective colloid and plaster retarder. Brains are sold directly. Tongues are sold directly and in sausage. Head and check meat is sold in the same manner as tongues. Ox lips are sold directly. Ox palate goes to cracklings which are used in many animal foods.

(Continued on page 15)
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SPARTANBURG and NEWBERRY
Thanksgiving and Turkey

By James F. Boggs

Thanksgiving Day, a national holiday celebrated throughout the United States, is a day of religious observance set apart to give thanks for the blessings of the past year, as well as an occasion for family reunions, bountiful dinners and festivities in the home. It originated with the thanksgiving festival held by the Plymouth Colony, December 1621, in gratitude for the ending of a difficult year and for a successful harvest. It became a particularly popular holiday among the New England colonies. The native fruits and vegetables, wild turkeys and pumpkin pies which constituted the fare of that first thanksgiving feast became the traditional food for the day. In the early times Thanksgiving Day wasn’t on a certain day of the month of November. In December 1941, Congress, by joint resolution approved by the President, set the fourth Thursday of November as Thanksgiving Day, a national public holiday.

The origin of the name turkey is a very interesting one. When turkeys first came to England, they were confused with guineafowl (of African origin) which had long been known as turkeys because they had been bought from Turkish or Muslim traders. This is one of several explanations that different writers give to the origin of the name turkey.

The chicken or eggs you eat might long ago have had an Asiatic ancestor but the turkey is native to America. Turkeys lived here before Columbus came. We know this because turkey bones were found in old caves and in Indian burial grounds. The Indians used turkey as a source of food as early as 10000 A.D. The turkey had been partially domesticated by the Indians prior to the discovery of North America in 1492. Domesticated birds of the Mexican subspecies were imported into Spain from America about 1519. It was not until about 1800 that the turkeys we have today got their start. The turkeys we have today are products of crossbreeding. Up to about 1930 turkey breeders attached much importance to breeding large sized turkeys. The Bronze weighed as much as forty-one pounds. Since that time efforts have been made to reduce the size somewhat and to improve the type of market turkey, especially with respect to the amount of fleshing over the breast. Thus the “broad-breasted” strains were developed. A small sized strain of white turkeys with a view toward meeting the demands of many housewives for small dressed turkeys has also been developed. Hen turkeys of this type when dressed weigh six to eight pounds, while the toms weigh twelve to fourteen pounds.

Some of the breeds of turkeys are the Broad Breasted Bronze, the Narragansett, the Bourbon Red, the White Holland, the Beltsville Small Type Whites, Broad Whites, and others. On the basis of efficiency in utilization of feed or pounds of feed consumed per pound of gain in growth, the broad-breasted strains are apparently superior. The Small Whites and broad-breasted varieties are the most popular as shown by the numbers being raised.

It has been said, and I think that anyone who has ever eaten a properly prepared turkey dish will agree, that turkey is a food you can feast on in all forms — fried, roasted, smoked, delicious cold, fascinating minced, and when boiled fit for god-like suppers. Turkeys are also used as “steaks,” “burgers,” salads, and various other ways. Generally turkeys are roasted for Thanksgiving dinners. Any day is Turkey Day now that they are available the year around.
Teaching Soil and Water Conservation

By David A. Buckner, V.A.E. '57

One of the main problems to be emphasized by South Carolina agriculture teachers in 1956-57 is better use of soil, water, and forest resources.

Current estimates of needs for soil and water conservation measures indicate that here in South Carolina many thousands of acres of land now being used for crops should be planted to trees or perennial grasses and legumes. It is realized also that yields of many of our crops can and should be lifted through better soil and water management and other desirable agronomic practices.

Does this subject need to be emphasized in our educational program with farm people? Consider the following facts:

1. The productivity of our soils is low.
2. The amount of land per capita in South Carolina is small.
3. Yields of many of our crops are relatively low or below average.
4. A large percentage of our rainfall is lost.
5. Progress is needed in seeding pastures and clearing land.
6. Some of the greater needs include planting trees, constructing terraces, applying lime, and growing green manure crops.
7. Many of our crop acres are not put to their best use.
8. Many of the farmers of the state have made no headway in developing a conservation program on their farms.

In an examining of accomplishments of certain practices under the Agricultural Conservation Program in South Carolina, 1950-1954, it was found that only 2.5 per cent of needed terraces have been built; 3 per cent of the acres needed to be planted in trees have been planted. Of the lime needed, only 6.6 per cent of the tonnage has been applied, and only 12.7 per cent of the acreage needed of green manure and cover crops have been planted.

The above facts definitely imply that there is a great need for emphasizing the conservation of our soil and water.

There are several sources of assistance for farmers in conservation. The Agricultural Conservation Program Service provides financial assistance for carrying out conservation practices on the farm. The Soil Conservation Service and the State Forestry Commission offer much of the technical help needed. Needed credit is provided by the Farm and Home Administration and commercial lending agencies. The Extension Service and Vocational Agriculture teachers assist with the educational phase of conservation.

Why is it then that with so much available help farmers are not using better conservation measures? The answer, at least in some cases, must be that they don't want to, or maybe it is ignorance of the available assisting agencies.

To assist the agriculture teachers, a publication, Teaching Soil and Water Conservation, was prepared by the Agricultural Education Department of Clemson College and the Soil Conservation Service. This publication contains: (1) information needed by the teacher in teaching conservation; (2) case studies of five actual farms where conservation programs were developed; and, (3) suggestions on teaching conservation.

Small group meetings have already been held with agriculture teachers over the state since the opening of school. The need for conservation, what to teach, how to teach it, and the new publication were discussed at these meetings.

With organized groups of all-day students or the high school agriculture students, young farmers, and adult farmers, it is believed that agriculture teachers have an opportunity to render a worthwhile service in this program.
Deep Tillage

By Bill Dailey, Agron. '57

Deep Tillage — well, call it subsoiling since that is the term best known in South Carolina. In the October issue of Crops and Soils this subject was discussed briefly on a national basis as if it were a touchy subject. In its general application it is debatable. The main reason for this is its use with lack of wisdom and knowledge, whereas in specific cases there are definite pros and cons.

The chief purpose of deep tillage is to increase the depth of root penetration by improving the subsoil conditions. If the soil is permeable to water and roots to a depth of six to fifteen inches, the physical condition could not be improved to an advantage. The effect may even be harmful.

In clear-cut situations, results can be predicted. The results are only favorable where the deep tillage is used at the proper time. If the process is done at the proper time there are still two conditions which must be met for it to pay dividends by improved stands, increased yields and decreased weed populations. First, the soil must have enough water stability so that it does not "run together" again during subsequent rains or irrigation applications. Second, traffic over the soil must be minimized to insure that the soil is not compacted again within a short time.

Because the problem is complex and there is lack of adequate information, there is no question that we need an accelerated research program on sub-soiling. Some of this is being done at the Pee Dee Station.

A.F.E.A. At Clemson

Larry Sandifer, Ag. Ec. '57

The Student Section of the American Farm Economic Association, known to some as the Ag. Ec. Club, is one of the more active chapters in the South. Clemson's local chapter is part of a national organization covering the entire United States.

A.F.E.A. was organized nearly 50 years ago for the promotion of Agricultural Economics as a profession. A student section was authorized in September 1948. The Clemson chapter, which was chartered in May 1955, is an active member of the Student Section.

The purpose of our organization is to create and promote fellowship among Agricultural Economics students and departmental staff members, to study current agricultural and economic problems, and to better understand the opportunities and responsibilities of those trained in agricultural economics in local, national and world affairs.

Members are composed of students of graduate and undergraduate standing who are majoring in Agricultural Economics or Economics.

Heading the 1956-57 organization of the local A.F.E.A. chapter is President Bill Pressley of Asheville, North Carolina. Other officers include Vice-President John Murphree, Six Mile; Secretary Tony Rutz, Camaguey, Cuba; and Treasurer Carl Lewis, Marion. Professor B. J. Todd is local advisor.

One of the highlights of this year's meetings has been a visit by Dr. Myole Williams, Chief Agricultural Economist of the National Plant Food Institute. Dr. Williams spoke to the group on job opportunities for Agricultural Economists.

Plans are being made for other interesting speakers and social functions. We of the local Clemson Chapter are looking forward to a very prosperous year of work in our selected field of study.

Minor Elements

By Bill Dailey, Agron. '57

The domestic agriculturist has not recognized the necessity of adding minor elements to the soil for higher yields and better quality, at least the South Carolina farmer has not. In the near future, they will become as conscious of them, especially boron and manganese, as they are nitrogen, potassium, and phosphorus. Associate Agronomist Norwood Page is doing a large part of his work on boron and manganese requirements for South Carolina's more important crops.

There is already a recommendation on adding boron and manganese to cotton fertilizer. These materials were tested on fields adjoining test plots on farms throughout the state after they were tested on station farms for a period of five years. After adding five pounds of colemanite and five pounds of manganese sulfate the following was the average increase of lint cotton per acre against check plots: 1953—54 pounds, 1954—39 pounds, 1955—43 pounds.

In the above information there would be an increase average income of around $15.00 at the cost of $1.00 for the raw material. This is true because of an increase of bolling and an increase in the size of the bolls. As data are accumulated, further recommendations may be expanded to include other elements and other crops.

The problem is the necessity for a different formulation for each crop in amount and material when using these moderately-soluble materials. At present a major problem exists with left-over fertilizer that has been formulated for one specific crop, and, therefore, can not be used for another crop. A slight excess of the minor elements especially iron, causes a toxic condition very easily.

There is a strong belief that in the near future a standard formulation can be derived for all crops with a less soluble material, probably a frit or chelated material—the frit being more practical since chelates are expensive.

"What was that explosion over on Si's farm?"
"He fed his chickens some 'lay or bust' feed and one of them was a rooster."

"You drive, you're too drunk to sing."

The reason women live longer than men is that paint is a great preservative.

"Angry father: "What do you mean bringing my daughter home at 4:00 o'clock in the morning?"
"Boy: "Well, you see sir, I have a class at 8:00."
AGRONOMY NEWS

Dr. Gilbeart H. Collings, Head of the Agronomy Department, is now making a survey of the accomplishments of the Clemson Agronomy graduates. He has sent out questionnaires to nearly 700 agronomy graduates and is now in the process of evaluating the replies.

The Agronomy Department is fortunate in having recently obtained an X-ray machine. This machine has been installed and will be used in studying the mineral composition of the clays found in various soil types of the state. Because there are several hundred soil types in the state, it will take several years of work to secure the desired information.

Five members of the Agronomy Department will attend the American Society of Agronomy meetings in Cincinatti on November 12. These men are Dr. G. H. Collings, Dr. H. P. Cooper, Dr. C. M. Jones, Dr. T. C. Peele, and Dr. G. R. Craddock. Some of these men will present papers before the Society.

* * * * *

Dr. E. L. Robinson, Assistant Professor of Agronomy, has just come to Clemson and will do full time teaching in Crops in the Agronomy Department.

* * * * *

BETTER CONTROL FOR ROOT KNOT NEMATODE

A yield response equivalent to 14.3 percent increase in yield of seed cotton is reported at the Sandhill Experiment Station from the fumigation of soil with DD applied before planting to control root-knot nematode.
NEW PASTURE DEVELOPMENT

Agricultural visitors who are interested in pasture development will do well to visit one of the Agronomy greenhouses and a few field demonstration areas to see the wonderful display of white clover being grown by Dr. Pryce Gibson. Dr. Gibson is devoting his entire time to the breeding of better strains of white clover for South Carolina conditions.

FORESTRY NEWS

A Forestry Department was established at Clemson in July, 1956. This will result eventually in an expansion in forestry activities.

Two-thirds of South Carolina is covered with forests. A great deal of research is needed to give land owners information about managing their forest lands. Clemson is ideally located from the forestry standpoint because it is close to the Northern forests, in the midst of the Control hardwoods, and is not far from the Southern pines. We have some 27,000 acres of forest land in the immediate vicinity of the college campus, and there are sizeable forest tracts at the experiment stations. This will make it possible for Clemson to deal with extensive and intensive programs in various phases of forestry.

* * * * *

ALPHA ZETA INITIATES MEMBERS

The South Carolina Chapter of Alpha Zeta, the national honorary agricultural fraternity received eight new members on October 29. Initiates were chosen on the basis of leadership, character, and scholastic record.

Those being initiated were: Joe Abies, George Powell, Jerry Stanaland, J. J. Britton, Joyce Cox, Reg Baumgardner, and Jack Sellers. See photo on page 6.

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Clemson, South Carolina
Why Don’t New Peach Trees Grow Well on Old Orchard Sites?

Reginald A. Baumgardner, Hort ’57

This question is not easily answered, but recently a new and quite important factor contributing to the problem has been, and is being extensively studied by scientists in Ontario. The peach replant problem has been attributed to a number of causes. To mention only a few of the theories which have been proposed such as (1) A nutritional imbalance in the soil, (2) A deficiency of certain nutrients, (3) Deterioration of soil structure, (4) Unfavorable microbial populations in the soil, (5) Nematodes, and (6) The accumulation of toxic substances in the soil, will give some idea of the complexity of the problem. All of these have been dealt with to some extent, but none except the toxic substances theory has given much of a solution. It is easily seen that the problem needs the aid of such sciences as pathology, entomology, microbiology, chemistry, and horticulture, if it is to be completely solved. The toxic substance theory is the one that is receiving so much attention today, and could very well be the most important contributing factor.

The replant problem is world-wide and has been recognized for many years. It is costing more every year due to decreased production, shorter length of life of the tree, and loss of valuable and scarce farm land. Not only are peach trees affected, but also apple, cherry, fig, and citrus trees. The sooner the cure for the disease is found the less time, effort, and money will be lost.

The symptoms vary as greatly as the factors causing the condition. In some cases the young trees may die, but usually there is only some degree of stunting and various degrees of chlorosis which decreases production, the amount of which is seldom realized. The below ground symptoms are much more easily recognized. The roots show varying degrees of discoloration, brown lesions on white laterals, the rotting off of finer roots, and the development of a witches-broom effect. Very early symptoms have been observed on the young roots, as early as 24 hours after emergence from the parent stock.

The most important factor causing the condition varies with the locality. In Ohio, the black aphids was reported as the limiting factor, nematode infestation in Maryland, Connecticut and South Carolina. Georgia reports the Clitocybe root rot responsible and California and Ontario scientists recognize and have done a great deal of work with the toxic substance theory.

In California it was suspected that the peach tree root bark possibly contained toxic substances. Alcohol extracts were removed from the bark and from the wood of the roots. The extract from peach tree root bark was found to be toxic to seedlings. Peach roots placed in virgin soil also inhibited the growth of young seedlings. But it was also found that in some cases young seedlings were apparently unaffected when planted in old orchards known to have many roots remaining in the soil. The theory resulting from these experiments is this: There are two sets of organisms found in the soil, one which is capable of producing substances from the old peach tree roots and another set which do not produce toxins. If this theory is accepted, the varying results can be explained. The identity of the substances produced was not determined.

Ontario has continued the study of this theory. Through the combined efforts of pathologists, chemists, microbiologists, and horticulturists, it has been shown that microbial action on the peach tree root bark does produce toxic substances. These substances are benzaldehyde and hydrogen cyanide. The peach root bark contains a substance known as amygdalin. This substance is not toxic unless acted upon by emulsin enzymes; then glucose, benzaldehyde and hydrogen cyanide are produced. In the roots amygdalin and emulsin enzymes are separated, but any rupture of the tissues which brings them together results in the production of toxins. Certain organisms found in the soil contain the emulsin enzymes within their cells, and are thus capable of utilizing the amygdalin or rather the glucose produced from it. Peach roots have been exposed to the toxins produced and the respiration has been cut by as much as 90%. After five hours exposure there is no reversion to normal by the subjected root.

The amount of amygdalin in peach tree tissues varies from none to as high as 50 milligrams per gram of dry weight, the highest percentage being found in the bark of the roots. The concentration also varies with the season and variety: the Lovell variety, a peach variety used for root stock, is as high in amygdalin as 5% of the dry weight of the root.

Some conclusions may be drawn from the information and facts now known, although the experiments are still incomplete. The period of time that the toxic substances re-

(Continued on page 11)
Azalea Petal Blight

Azalea petal blight is a striking fungus disease which attacks all varieties of cultivated azaleas, but affects only the flower parts of the plant. One day all the flowers on a plant or in a garden may appear normal to the casual observer, but by the next day they may be completely blighted.

This highly infectious disease is relatively new, having been found in the spring of 1931 in the vicinity of Charleston, South Carolina. Since its discovery azalea petal blight has spread to many other states, mainly in the South. By 1937 it had spread along the coastal plain from Wilmington, North Carolina to Lafayette, Louisiana. It was detected in Texas in 1940, California in 1941, Maryland in 1946, and Virginia in 1947. Azalea petal blight is not usually found more than two hundred miles from the coast, where the relative humidity is high.

The conditions that are most favorable for the development of azalea petal blight are high humidity, rain, fog, and a temperature of 65 degrees. Infection may take place from 40 to 80 degrees, but the infection normally occurs between 50 and 72 degrees. Under favorable conditions the disease is capable of destroying in three to five days all flowers with which it comes in contact.

The symptoms of azalea petal blight are very noticeable and easy to distinguish. The disease develops from spores which, under favorable conditions will germinate rapidly, establishing a network of roots in the tissue of the petal. This network of roots causes small white spots on colored flowers and brown spots on white flowers. These spots are about the size of a pin head. The infected blooms quickly collapse and become slimy, as if a frost had hit them.

The life history of the causative organism consists of two stages of infection. After the blooms have collapsed, hard black spots or sclerotia fall to the ground and the following spring, at blooming time, will produce on the end of small stalks (1/8" high) cupshaped bodies called apothecia. The apothecia contain ascospores which cause the primary infection on the petals. The ascospores which cause the primary infection on the petals. The ascospores will germinate under favorable conditions causing the flower to become infected. As the blight progresses it produces secondary spores or conidia on the surface of the infected petals. These conidia produce the secondary infection which infects other flowers rapidly. These conidia are formed, and the cycle starts over.

Since the discovery of azalea petal blight in 1931 many methods of control have been tested with limited success. In 1945 two spray materials were found to give excellent control. They are dithane and phygon, neither of which will kill the fungus once the flowers are infected, but will kill up to 99 per cent of the spores that reach the sprayed petals. To obtain best results from dithane and phygon it is necessary to start spraying as soon as the buds begin to show color, and at forty-eight hour intervals until the plants are in full bloom. Then spray every three days until the blooming period is over. Dithane is an excellent control, leaving no unsightly residue on the flowers. It does not affect the normal length of bloom nor injure the petals. Phygon gives good control but the flowers do not last as long as they normally would. After the third application of phygon, bleaching and burning of the petals from the margin inward occurs. This seems more pronounced in full sunlight than in the shade. Phygon also leaves a slight residue on the flowers.

Other controls that have been tested are nabam (dithane D-14 and parathion liquid), zineb (parazine and dithane Z-78) used as a six per cent dust. These give fair control, but all cause burning of the petals and leave very noticeable residues.

PEACH TREES

(Continued from page 10)

main in the soil, and their concentration are as yet undetermined, but usually after three years from the time the old trees are removed, the replant problem is not too serious.

If more of the old tree roots were removed, the situation should improve. Fumigation for nematodes or any other organism or insect that would rupture the bark tissues also should be practiced at the time of planting new trees. Nematodes have a double effect because they cut off food and water conducting vessels and also bring in contact emulsins, enzymes, and amylase, thus releasing the toxins. Much new knowledge of the peach replant problem is now available, and if all factors are considered as being determined by the locality or region, then a great deal of loss could be prevented when replanting old orchard sites.

Socialism: If you have two cows you give one to your neighbor.

Communism: If you have two cows, you give them to the government and the government gives you some milk.

Fascism: If you have two cows you keep the cows and give the milk to the government, then the government sells you the milk.

New Dealism: If you have two cows, you shoot one and milk the other; then you pour the milk down the drain.

Capitalism: If you have two cows, you sell one and buy a bull.

NOVEMBER 1956
State IFYE Delegates Leave For Colombia and Australia

South Carolina's two International Farm Youth Exchange (IFYE) delegates this year are Harry A. Jones of Marion county, who goes to Colombia, South America, and Billy Joe Bailes of Union county, who goes to Australia. Both young men will serve as "grass roots ambassadors" for America for six months.

Harry left Miami, Florida, by plane for Colombia October 16 after spending a week of orientation in Washington, D.C. Two young men from America go to Colombia this year.

Billy Joe will leave by plane from San Francisco, California, October 20. Before leaving the United States, he will attend an orientation program in Lincoln, Nebraska. Besides Billy Joe Bailes, two other young men will be IFYE delegates to Australia this year.

Some of the orientation program features include subjects such as understanding people, world agriculture, trade, U. S. foreign policy, and the American "way of life."

Harry and Billy Joe were selected on the basis of their outstanding achievements leadership, and interest in rural life. Both are former outstanding 4-H club members and as state achievement winners have been delegates to the National 4-T Club Congress. Billy Joe, a Clemson forestry graduate, is now farming. Harry is a senior in the Clemson School of Agricultural Engineering and is a member of the Clemson College 4-H club.

A total of 125 "grass roots ambassadors" from 36 states will represent the United States this year in 43 other countries.

The IFYE project, begun in 1948, is sponsored by the National 4-H Club Foundation and the Cooperative Extension Service of the U. S. Department of Agriculture and the state land-grant colleges and universities. In South Carolina the State Master 4-H Club of 262 members cooperates with the Clemson College Extension Service in conducting the program.

The IFYE program is based on the idea that understanding is the foundation of world peace. It is the belief that understanding must begin at the family level. Selected rural youths from the United States live with farm families and participate in home, farm, and community activities in other countries for 6 months, and youths from those countries come to live with American farm families.

The project is financed by contributions from 4-H clubs, Master Club members, home demonstration clubs, other rural and civic organizations, industries, individuals, and others interested in world understanding. No federal or state governments funds are used in the exchanges.

The January issue of THE AGRARIAN will feature the state soil testing lab located at Clemson College. Included in this article will be the operation of the lab itself, the services rendered to the farmers of the state and information as to how soil samples may be prepared to send to the lab for testing.

Many more interesting articles will be found in this issue, so if you do not have a subscription, send your name and address to THE AGRARIAN for a subscription.
Modern Farming is more than just Tractor Farming

Outdated farming methods—often forced by the limitations of older tractors and equipment—are costly in time, human effort, and money. Machines built 10, or even 5 years ago, are far outstripped by those being produced today. Never has the difference been so great!

The latest tractors and equipment provide bigger capacity in the field . . . greater speed in job changeovers . . . new savings of time and work through hydraulic control of implements. The operator works more acres in a day . . . saves fuel and labor . . . avoids delays that can cost hundreds of dollars.

This up-to-date equipment also provides practical, low-cost material handling not available with older models.

Yes . . . modern farming means much more than just tractor farming with conventional machines. It means taking advantage of the new earning power available through advanced engineering.

Right now, Allis-Chalmers dealers everywhere are featuring the unusual economy and work power of the WD-45 Tractor and 4-row, 4-plow equipment, with Traction Booster system. These machines — priced to save farmers hundreds of dollars — are built to meet today's need for high-powered, low-cost, big-capacity farming.

Allis-Chalmers engineering offers surprising advantages in both performance and price. The WD-45 Tractor's dynamic Power-Crater or diesel engine and the automatic Traction Booster system work together to step up tillage power and reduce costs. To match the WD-45, Allis-Chalmers offers a 12½-foot double disc harrow, 4-furrow moldboard or disc plow, 4-row planters and cultivators.

New 12½-foot disc harrow levels four full stalk rows at a time. Light-draft Bal-Pak bearings never need greasing.
The papa robin returned to his nest and announced he had just made a deposit on a new Buick.

* * * * *

A farmer was noticing a motorist using unfamiliar language while digging his car out of a ditch.

"Stuck in the mud?" asked the farmer.

"No," came the reply, "my engine died and I'm diggin a grave to bury it."

* * * * *

"I feel ten years younger after I shave," said hubby.

"Then," replied his wife, "why don't you try shaving before you go to bed?"

* * * * *

Farmer: "What are you doing with those bottles?"

City Boy: "I am going to get a bottle of cream and a bottle of milk from this cow. Which faucet should I turn on for the cream?"

* * * * *

And then there was the cub reporter who was assigned to cover the class play at his high school. His story began—

"The auditorium was filled with expectant mothers, eagerly awaiting the appearance of their offspring."

* * * * *

Grandpa: "I sure do miss the old cuspidor since it gone."

Grandma: "You missed it before; that's why it's gone."

* * * * *

When the hen-pecked husband died and went to hell, he immediately started bossing the imps around and giving orders.

"Say," Satan roared, "you act as though you owned this place."

"I do," said the newcomer. "My give gave it to me while I was on earth."

* * * * *

"Oh John, let's not park here."

First Drunk—Say, did you hear the story of the dog that swallowed the tape measure?

Second Drunk—and died by inches?

First Drunk—No, not that one.

2nd—Oh then it's the one where the dog crawled into the alley and died by the yard.

1st—No, not that one either.

2nd—Well, then, it must be the other. He crawled under the bed and died by the foot.

1st—Wrong again.

2nd—Well then, what is it?

1st—Why, his master caught him eating the tape measure and whipped him so hard he died by the rod.

And then the second drunk fainted, bumped his head on a gas stove, and died by the meter.

I DARE YOU

(Continued from page 2)

Between lectures we visited the biological, analytical, and chemical laboratories of the plant. We were able to see the entire feed processing business—from original tests which were extensive, including feeding tests, to putting the finished product in the bag and shipping.

We spent one day as guests of Swift and Company. Here we saw how buying and selling in the National Stockyards was conducted. In the Swift plant we saw how the meat is processed—following it from the hoof through to the finished product. One day was spent at Barnes Hospital where we saw how the work is carried on in a large hospital. A highlight of this visit was being taken into the Operating Room where we watched an actual operation.

Another day was spent in the Gardner Advertising Agency where we learned what a big business advertising is and the amount of work required in preparing a national advertisement. One morning we visited the floor of the St. Louis Merchant's Exchange where we studied the methods of cash and future trading of grains.

"Sindy" didn't let us down at night either, for he usually had somewhere to take us. Some of our evenings were spent at the Municipal Opera, Cinerama, and several banquets.

"Where have the past two weeks gone?" was the question we asked ourselves as we ate our last supper in the swank Chase Hotel. To comprehend what had gone before was task enough but "Sindy" added to this a brief description of the experiences which lay ahead—to be even more inspiring than anything yet experienced.

The time had come for us to leave St. Louis and move to Miniwanca. We all traveled together by train through Chicago to Milwaukee where we crossed Lake Michigan on a clipper to Muskegon, Michigan. The remaining 30 miles to Camp Miniwanca were traveled by bus. Here was our home for the next two weeks. Soon after arriving at Miniwanca, I met William Weeks, who was a freshman award winner from Clemson. In addition to the Agricultural Juniors and Seniors there were several hundred boys from all over the United States at the camp. They came from high schools, 4-H clubs, and F.F.A. chapters.

The program at the camp was fast moving and challenging, beginning at 6:30 with a dip in the not-too-warm Lake Michigan. The camp program was designed to foster physical, mental, religious, and social development. Our classes in the mornings were on Christian ethics, Four-Fold Living, Problems of Modern Faith, and Life's Essentials. In the Life's Essentials class we heard leaders in the business world tell of their success and how they achieved it.

In the afternoon softball, football, volleyball, aquatic, and track meets comprised the tribal competition agenda. Horseshoes, badminton, and tennis provided individual competition.

Vesper service was held every evening atop Vesper Dune, an inspiring place to worship, surrounded by wind-worn dead trees, high-plied sand dunes, and sea gulls sailing over Lake Michigan. Some of the most inspiring moments of the camp were spent on this dune listening to some of the most inspiring speakers in the country while the sun slowly sank from view into the placid waters of Lake Michigan in the early evening.

(Continued from page 15)

THE AGRARIAN
BEEF BY-PRODUCTS
(Continued from page 3)

The feet are divided into four major divisions: dew claws, sinews, bones, and hoofs. Dew claws are used in glue, tallow and tankage. Sinews are used in cracklings, glue and tallow along with tankage. The bones have several finished products: raw bone meal, poultry bone meal, neatsfoot oil, glue and tankage. The hoof is used in fertilizer manufacturing.

Blood is classified as dried or fresh. The fresh blood is used in sausage, albumin and fibrin. The dried blood is used in plant and animal food.

Casings are subdivided into seasonal, bladder and intestines. The three are used in tallow and tankage. More important is the intestine which is used as a container for sausage.

Under the miscellaneous heading we have several sub-divisions: heart, liver, sweetbreads, tail, kidneys, tripe, glands and gall bag. The heart goes into direct trade and sausage. Liver is used for medical and drug uses. Sweetbreads go to direct trade. The tail goes to direct trade. Tripe goes to direct trade and sausage.

The glands are used for medical and drug purposes. The gall bag divides into three separate divisions: gall, gall bag and gall stones. The gall goes to medical and drug uses. The gall bag is used for tankage and tallow. Gall stones are used in oriental medicines and perfume.

In finishing his informative talk my buyer friend stated that meat packers on the average pay to cattle producers almost all that they get for the beef. Most years the by-products provide enough to pay expense, refrigeration, sales expense, and taxes.

After having learned that a beef animal is used in so many different ways, I found it hard to believe that the calf my Grandad and I assisted at birth could be processed and utilized effectively in so many different ways.

I DARE YOU
(Continued from page 14)

The nights’ activities were spent in games and tribal competition. Some of the activities were low councils, rodeo, indoor track meets, high councils, mock convention and stunt night.

Now as I look back on the four weeks I spent on the Danforth Fellowship, I realize more and more the worth of Mr. Danforth’s project. Truly, the fellowship with the other fellows and others who had a part in this four weeks holds many memories for me. Most of all though, I have a challenge; a challenge Mr. Danforth gave to everyone he came into contact with. He dared me “To Stand Tall, To Think Tall, To Smile Tall, and To Live Tall. Only in accepting this challenge can I be my own self at my very best all the time. Having made decisions, enlarged my horizon, and broadened my contacts, I believe I gained from these four weeks what Mr. Danforth dared and planned the program for. To Mr. William H. Danforth and the others who made it possible for me to make this trip, I’ll ever be thankful for the four most wonderful weeks of my life.

Freshman and Junior Agricultural students here at Clemson College, I dare you to win the Danforth Fellowships in 1937. If you do, you will enjoy one of the most extraordinary experiences of your lifetime.
TALL CORN

Two student-driven cars crashed on the avenue. "Whattzamatter? hol- ler the driver of one. "Ya blind?"

"Blind?" the other muttered. "I hit ya didn't I?"
   * * * * *

The psychiatrist looked at the new student suspiciously.

"And what do you do for social life?" he asked.

"Oh," said Joe, "I just sit around."

"Hmmm, don't you ever go with girls?"

"Nope."

"Hmmm, have you any desire to go on dates?"

"Well sort of."

"Then why don't you?" asked the doctor more suspiciously.

"My wife won't let me."
   * * * * *

"What made you decide to be a paratrooper?" asked the co-ed of the ROTC who had just returned from summer camp.

"A plane with three dead engines."
   * * * * *

In order to impress the class further concerning microorganisms, the doctor singled out a shy little nurse in the back row.

"Stand up, young lady," he ordered. "Now to show how closely you have been following me, I want you to tell the class why it is that there are so many patients in your ward."

After a timid pause, the little nurse broke up the lecture by replying, "Doctor, I work in the maternity ward."

   * * * * *

Think twice before you speak. That way you may be able to think of something twice as insulting than if you spoke right out.

SIXTEEN

Nobody ever kissed a girl unexpectedly. The closest you can come to it is to kiss her sooner than she expected.

   * * * * *

And now to the serious side of living: Patriotism.

I'm glad that I'm American
And proud that I am free:
But I wish I were a little pup
And Russia was a tree!
   * * * * *

A Scotchman, and Irishman, and a Jew had dinner together. When the waiter came with the bill, the Scotchman promptly said he would take it. The next day the newspaper carried a headline: "Death of a Jewish Ventriloquist."
   * * * * *

A city boy and a country lad were walking down a street. Coming toward them was a product of the beauty parlor — permanent wave, scarlet fingernails, drugstore complexion and gaudy lipstick. "Now what do you think of that?" asked the city boy. The farm boy looked carefully and observed: "Speaking as a farmer, I should say that it must have been mighty poor soil to require so much top-dressing."
   * * * * *

"No," said the man at the wheel. "I can't say I've ever had to complain of back seat driving. In fifteen years I've never had a word from behind."

"What kind of car do you drive?"

"A hearse."
   * * * * *

Some people object to divorce," said the Reno lawyer. "But a large number of divorces proves that America is the land of the free."

Perhaps," said the lawyer from New York. "But the steady persistence of marriage shows that it's also the home of the brave."

The other day farmer Brown got his face caught in the corn picker and the doctor had to graft some new skin on it. Well, I don't know where they got this new skin but it seems as though when Mr. Brown gets tired his face wants to sit down.
   * * * * *

Said the nanny goat to the billy goat: "You can go as far as you want to, tall dark, and stinky . . . just don't kid me."
   * * * * *

British film censor when asked why he allowed scenes from Italian and French films showing married people in bed together. "Because there is a consistent report that they are occasionally to be found there."
   * * * * *

There are only two ways to handle women but unfortunately nobody knows what they are. —Pipe Dreams.
   * * * * *

Frosh: Hey, where are you going in such a hurry?

Soph: I just bought a textbook and I want to get to class before the next edition comes out.
   * * * * *

Night Watchman: "Young man, are you going to kiss that girl?"

Freshman: "No, Sir."

Night Watchman: "Then hold my lantern."
   * * * * *

She: "How did you find the men at the party?"

Her: "I just opened the door marked 'MEN' and there they were."
   * * * * *

Headline in a local newspaper — "Father of Ten Children Shot—Mistaken for Rabbit."
   * * * * *

"If it's funny enough to tell, it's been told: if it hasn't been told, it's too clean; and if it's worth reading, the editors get kicked out of school."

THE AGRARIAN
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