SERVING THE FARMERS IN NORTH AND SOUTH CAROLINA SINCE 1906

Planters Fertilizer & Phosphate Company

Charleston, S. C.   Charlotte, N. C.
THE WORLD SINGS...

There's a sort of softening in a fellow's eyes in the Springtime. Perhaps it's spring fever, and love's old sweet sentiments are felt more deeply . . . When old February with her gray stinging flies fly northward and on comes little fluttering and nippy March, a sort of rebirth is put into a fellow's soul; the new world comes out under her veil, the buds burst forth, the sun glows brighter, the world sings, and I am strangled with Nature's love and beauty! I am reminded of Bryant's

“To him who in the love of Nature holds Communion with the visible forms she speaks a various language.”

——

The world lives on! And April turns to May—and June bugs come with the hot August skies—and summer meets winter under an aged yellowed tree at the turn of the road . . . But Nature lives on! The old earth and mountains remain silent, and the sky flings her warm quilt down for the sleeping earth . . .

“And the blue hills grow tender,
When they pull the twilight close with gesture beautiful.”

—Grace Conkling

AND SPRING IS BORN

An azure sheet is stretched across the barren Earth. A hum, a whisper of silent prayer, and the silent pacing of tender feet is heard walking down the furrows of heaven.

In Thou bosom is silent truth
Of love and promise for our young,

Those visions and songs that I have sung,

Hush, now, the calm, cool winds do blow,

And e'res from babes are heard below

The budding earth I covet so.

The swelling breast I cherish so!
Your Trade Mark
For Quality Hybrid Seed Corn

Also
Wholesale Producers And Distributors of Cotton Seed, Wheat, Oats, Soybeans, Tobacco Seed, Lespedeza and Crotalaria.

McNAIR'S
Yield-Tested Seed Co.
Laurinburg, North Carolina

SPRING TIME IS AROMATIC TOBACCO PLANTING TIME.

- PLANT AROMATIC TOBACCO FOR THAT BOOST IN INCOME.

- For That Ready Market Contact

SOUTHEASTERN
Aromatic Tobacco Co.
1628 East River Ext.
Anderson, South Carolina

See us for your Household Needs
FURNITURE, APPLIANCES, CARPET, Etc.

Everything
For Farm & Home

Buick, Ford Automobiles
International Trucks, Sales-Service

DENMARK IMPLEMENT CO., INC.
—Phone 3963—
Denmark, S. C.

Anderson Fertilizer Co., Inc.

DEPENDABLE — RELIABLE

Anderson, S. C.
GUEST EDITORIAL

Can We Hold Our Water!

by J. M. ELEAZER

In South Carolina our undeveloped potentials in agriculture are great. For several generations cotton has just about all of our attention. We became, and still are, very proficient in its growth. I have visited new cotton areas in another country. The average cotton grower in South Carolina could go there and stand out as an expert.

Yes, we have a tradition with cotton. Our fathers and grandfathers, and theirs before them, came up in the cotton patch. And along through the years we have absorbed and employed just about all of the known knowledge on cotton.

But in recent years our agriculture has undergone great change. I won’t have space to go into all of that here. But it is sufficient to point out that we once grew close to three million acres of cotton in South Carolina. Now we barely grow a million.

That leaves close to two million of cotton’s former acres idle or in something else. Now, it’s awful important to you and to me and to oncoming generations as to what’s happening on cotton’s lost acres.

We know what happened to them at first when cotton departed. The old fields and rural lanes grew up in bushes, weeds, and briers, and the old houses, many of ‘em fell into decay and vanished. And now their spot in many cases is marked by a scattersnig of brickbats where the old chimney stood.

At long last experiment and experience started finding new uses for cotton’s lost acres. Grass, that had been fought on them for generations, was invited back. And we spent our money and efforts in trying to grow it, not kill it, as of yore. Up to then we had been referred to as the short grass area of the United States. And that we were. The worn out acres that we put into pastures then afforded little grass for hungry cattle that mostly took exercise there.

Since the beam of science has been turned on grass, not on how to kill it, but how to eat to it, a great discovery has been made. Instead of being in “the short grass area”, as once thought, we are, if anything, in the “LONG GRASS AREA”. And what meaning that has for the future here

Yes, we have learned that we can grow good year around grass here. But we have yet learned very little about its proper management so as to get the most out of it. But we can expect experiment and experience to bring us knowledge of that, as time goes on. And with that, men can now begin to see a livestock industry for this Southeast, that was formerly consigned to be forever a grower of rowcrops. And being that, with our open winters, shallow soils, and rather heavy rainfall, we could but look to a future in which both the soil and we could get poorer and poorer.

Grass, in all of its forms, means livestock in just about all of its forms. And with livestock and crops, we have the elements with which to build an agricultural future that is better than the crops lone past that have been our lot.

Surely the greatest undeveloped potential in South Carolina is irrigation. Add that to the diversification that’s growing, and we don’t see our limits.

We are in the heavy rainfall belt, with about 48 inches a year. If all the water that fell in South Carolina stayed for a year we could swim anywhere in the state. But the trouble is, not much of it stays. And weather records over a long period fo time tell us that we average about six droughts a year, of two weeks duration or longer.

In the past we stood those droughts. Costs were low. The principal things going into the making of a crop then were your strong arm and the old compost heap down there in the edge of the lot. When recurring droughts came and cut our promising prospects into sorry spectacles, and the harvest was scant, we were disappointed. But the Sheriff did not have to come to sell us out.

It is different now. Costs are high, and getting higher. When you lay your crops by, you have your fortune invested in those fields. And there must be a good harvest, or the Sheriff is liable to have to come to see you. It won’t be a social call either. Farming has become so expensive now that we must do everything we can to insure the harvest. The average farmer knows how to make a good crop. He knows about good land, good seed, proper fertilization, good stands, insect and disease control, proper culture, and the like. And he can make a good crop, yes, IF HE GETS THE WATER.

Ah, there is the principal thing that stands between you and a splendid harvest when you plant a crop. IF you can just get the needed water when you need it!

In quite recent years we have been experimenting and experiencing with this rather new thing for this part of the country, irrigation. And

—continued on page 18

THREE
New Orleans! The site for the celebration of the Golden Anniversary Meeting of the Association of Southern Agricultural Workers.

Had you lived in Alabama, Georgia, Maryland, Florida, South Carolina, North Carolina, Virginia, Kentucky, Tennessee, Mississippi Arkansas, Louisiana, Texas, or Oklahoma 50 years ago, you would have lived in the Old South. However, today those of us who live in these states are realizing the advancements and improvements which have brought about a revolution in Agriculture and industry which comprise the New South, the South on the march!

The A. S. A. W. and its members have played a major role in this change, and it was through the vision, inspiration, and leadership of these members, past and present, that so much has been done to bring about this metamorphosis in Southern Agriculture.

The South’s saga of agriculture during the past half century unfolds a panoramic picture of progress studied with pageantry, color, and drama that has been motivated by epichal, economical, and social changes that have revolutionized this area. The Agrarian aspect has been heightened and not deterred by the phenomenal growth of industry, and hand in hand their forward march of prosperity is a glowing tribute to the pioneers in the field of Agriculture.

Yes, fifty years ago this was the Old South. It was the South of Cotton, of sharecroppers, of mortgages due, and bills unpaid.

Then something happened to the farm population. The great exodus was under way. As early as 1905 Southern Agriculturists were talking about the Negroes who were annually forsaking the farms for the cities. It was during this period that the colored worker’s plaint was “Lay down the shovel and hoe; take up the fiddle and the bow.”

The Southern farmer began to realize the urgency of this exodus and, slowly began to do something about it. As a result, the South began to mechanize. The large areas lent themselves admirably to the use of machinery. The use of machinery has lowered production costs and increased yields per acre, and resulted in materially increased income and improved living standards.

Today the South envelops a huge area, and within its boundaries lies a great source of wealth. For example, Agronomy contributes largely to the welfare of Dixie with its field crops. Cotton and tobacco have contributed partially or very largely as the chief source of farm income in Southern States. Also, within the field of Agronomy, great emphasis is being placed on soil conservation, commercial fertilizers, and grassland developments.

Grasslands are of utmost importance because of the vast acreages being devoted to livestock production. With the annual increase of human population, which is now about two and one-half million per year over the entire United States, it has become necessary for men in animal husbandry to concern themselves with finding more abundant sources of food. Meat and meat products are ever in demand and Southern grasslands afford ideal conditions for livestock production.

In connection with animal husbandry, dairying has found an important economic place in the South. At the turn of the century, commercial dairying in the Southern States was making its first feeble steps. A few dairies had been started, and a few milk plants were selling ungraded and unpasteurized milk. For many years the cattle tick had checked livestock expansion and now the boll weevil was making inroads on the cotton crop. However, in 1920 the tick was whipped and dairying was on the march!

Agricultural economics has had one goal since its organization—to raise the standards of living. These devoted people accomplished their goal against great odds. They have looked ahead, pushed ahead, and thereby assisted in raising the levels of living to new heights for people in the South.

Agricultural engineering has solved many problems that vexed farmers. Through its work, modern production methods have been made possible by use of equipment especially adapted to Southern regions. May their progress be as great within the next fifty years as it has been in the preceding fifty years.

The control of insects and diseases has contributed as much as any one thing to the economy of the South. The history of these two fields, entomology and plant pathology, during the last fifty years includes shining chapters as well as many long stories of disappointments and labor against heavy odds.

Much progress has been made in horticulture since its origin many, many years ago. The horticulturists have contributed to the beauty as well as to the economy of the South. The beauty lies within the hands of the landscape designer or the ornamental nurseryman; the economy within the grasp of plant breeders who have given us new and better varieties of fruits and vegetables.

The other equally important fields of agriculture such as forestry, poultry, home economics, marketing, soil conservation, and plant physiology have earned an enviable and respectable position in the progress of the South.

During the past fifty years, the economic position of the Southern farmer has been strengthened by the coordinated efforts of a great many men and women who have devoted their lives to that goal.

This half century of progress has not been easy. Members of the A. S. A. W. are to be congratulated for their sincerity of purpose in helping to provide the tools with which this difficult victory has been won, and for their refusal to be discouraged by the many obstacles encountered along the way.

THE AGRARIAN
THE HISTORY OF

POLLED HEREFORDS

by JIM WILSON, Animal Husbandry '54

The popularity of the Polled Hereford is on the increase not only here but also back in England, the home of the horned Herefords. There have been considerable numbers of polled animals shipped to Australia and some of the South American countries. There are several features possessed by the breed which account for its rapid rise of importance during the first half of the twentieth century. The most important of these are their polled character, early maturity, and disease resistant features along with being easy to handle. Compared to other beef breeds, the Polled Hereford is one of the youngest.

Records show the old type breed of Herefords to be progressing well into its third century of breeding. It has been proven successful as draft stock during its early days of survival in its native home, Herefordshire, England. The famous Smithfield Cattle and Sheep Society was formed during December of 1796. In 1798, the club's first show was held, with a Hereford ox winning top honors.

Little care was given to the milking features of the early Herefords. In those days, England's population was on the increase much as the population of the United States is today. Beef and beef products were in great demand. The animals were used several years after maturity for draft purposes and then slaughtered. They often weighed over 2000 pounds with the meat having more coarseness than that of the modern type.

Early breeders associated with the breeding and improvement of the Hereford were the Ben Tomkins family, the Galliers, Tully, Skyremes, and the Haywoods, who resided in Herefordshire, England. The names of several famous Hereford animals bred about 1750 were "Spark," "Merchant," "Mottle," "Pigeon," and "Silver Bull." Credit is given to "Silver Bull," who was a member of the Tomkins herd, as being the prize Hereford of his day.

The first well known transplanting of Herefords from the British Isles to the United States did not take place until 1817. This first shipment, made by Henry Clay, consisted of two females and one male. Other early importers of Hereford cattle were Erastus Corning, Hohn Humphries, Hohn Merryman, C. M. Culbertson, and The Gudgell and Simpson Company. Among these imported Herefords were noted names such as "Anxiety," "The Grove 3rd," "Anxiety 4th," and "North Pole." Not until 1880 was the breed well established in the United States. The Hereford, being able to survive on mostly grass and heavy forage, was used to replace the buffalos and longhorns on the western plains.

Pedigree registration of the English Herefords was established in 1816 when Mr. T. C. Eyton of Wellington, England saw the need for the compiling of records on the genealogy of the breed. Today the English Hereford herd-book lists over twelve-hundred breeders. Yearly exports amount to three or four-hundred animals, which are used as seed stock throughout the world. These animals are somewhat larger than the American breed and produce a better quality hide, but are not well marked. Recently, Polled Hereford breeding projects have been undertaken in Herefordshire and are receiving the attention of many English beef breeders.

The American Hereford Cattle Breeders Association was established in 1881 in Independence, Missouri, with Mr. Charles Gudgell as the first elected secretary-treasurer. Between this time and the turn of the twentieth century many famous sires were bred and put to work on the western ranges. In 1893, Mr. Mossom Boyd of Bobcaygeon, Ontario, Canada, Mr. J. L. Torrey of Embar, Wyoming, and W. W. Guthrie of Atchison, Kansas began work on a breeding plan to produce a polled strain of Herefords. This was a single-standard strain, resulting from a cross of Hereford with Aberdeen-Angus or by mating a naturally polled bull, resulting from a Shorthorn-Hereford crossbred cow, and a purebred Hereford bull.

The first major step of progress in breeding the Polled Hereford was made by Mr. Warren Gammon of Des Moines, Iowa, who receives credit for founding the polled breed of cattle. His first move was to bring together all the naturally polled animals he could find. Such cattle were called "freaks" and were said to be abnormal. Among his first discoveries of naturally Polled Herefords were six males: "Giant," "Tony," "Wilson," "Variation," "Wallace L.,” "Too Late," and seven females: "Lora," "Bluebell," "Duchess of Bedford," "Myrtle," "Taylor," "Olivia," "Charity," and "Beauty." "Giant" was the most prominent of the males used and is called the "Father of the Polled Hereford Breed." The Polled Hereford Breeder's Association was formed at Des Moines, Iowa in 1900, with the first entry in the purebred Polled Hereford Record being that of "Giant 101740," in the last days of 1901. In the year 1917 there were 31 Horned Herefords registered for every Polled Hereford. Today there are only nine horned animals for each polled animal. In South Carolina there are approximately 169 polled breeders and 233 horned breeders. During the year of 1952, there were approximately 1300 Polled Hereford animals from S. C. registered with the National Association.

Statistics prove that the Polled Herefords produce a higher quality product at a lower cost than do other beef cattle.

When it is time for the feeder to handle the cattle, he almost demands that they be dehorned or naturally hornless. With this feature prevalent, more cattle can be put in the barn or at the feed rack. They are less quarrelsome, have a quiet disposition—continued on page 30

JANUARY 1953

FIVE
PROFESSIONal Personalities
by B. M. SANDERS, JR., Dairy '54

A familiar face in Long Hall to most students majoring in any phase of Agriculture is that of Mr. L. M. Bauknight who is Associate Professor of Agricultural Economics here at Clemson. Mr. Bauknight was born in Latta, S. C. in the year 1914 and moved with his family to a Pickens County farm when he was five years old. He attended grammar and high school at Easley where his father taught Agriculture. After graduation from high school, he enrolled in Clemson majoring in Agricultural Economics. After graduating from Clemson in 1935, Mr. Bauknight accepted a position with the Soil Conservation Service where he worked until 1941. While with the Soil Conservation Service he was project manager of a Land Use Project which comprised 35,000 acres of land in Georgia. In the meantime, in 1939, he studied and did graduate work at Iowa State College. He later received his Masters Degree in Agricultural Economics from Clemson.

With World War II being fought at this time, Mr. Bauknight was called into the Army in 1941. After serving four and one-half years in the Army, he was discharged and at present holds the reserve rank of Lt. Col. After his discharge from the Army, Mr. Bauknight again accepted his old job with the Soil Conservation Service and worked with them for one year.

About this time, 1947, Clemson was in need of an Agricultural Economics professor, and Mr. Bauknight, wishing to return to South Carolina to live, accepted the position of Assistant Professor of Agricultural Economics here at Clemson. He was assigned to teach Farm Management and Agricultural Finance and at present is still teaching these subjects. Last year, Professor Bauknight was appointed Associate Professor of Agricultural Economics in the department at Clemson. An interesting fact in Mr. Bauknight's teaching here at Clemson is that although he commutes daily from Easley he has never been late for a class or missed teaching his class because of illness.

When asked where he received the nickname of "Frosty," Mr. Bauknight replied that when he was young he had hair which was almost white. In his joking manner, he said that this was when he had some hair to brag about.

As to Mr. Bauknight's personal life, he is married and has two fine young children. His wife is a native of Pickens County and a graduate of Winthrop in Home Economics. He is strictly an outdoor lover, and his hobby is that of hiking through the woods with his children. He is a member of the Methodist Church, teaches a young people's Sunday School Class, and is a member of the Lions Club.

We who are majoring in different phases of Agriculture at Clemson are very fortunate in having Professor Bauknight as one of our instructors. Any student who has had "Frosty" as an instructor will admit that he never enjoyed a subject any more than the ones he studied under Professor Bauknight. In his teaching, "Frosty" presents the practical side as well as the technical side of farm problems. Mr. Bauknight is well known around the campus and liked by everyone.

Who's who in the Ag. Build.? Have you met T. L. Senn? If not you should make every effort to do so. He is an Associate Horticulturist in the School of Agriculture. But his interest is by no means limited to the field of Horticulture. He takes a special interest in all students no matter what field. This was proved when he volunteered his time to be a freshman counselor. This duty consists of everything from talking over a problem "man to man" to offering a dry shoulder in time of need.

Prof. "FROSTY" BAUKNIGHT displaying his friendly, philosophical smile

MR. T. L. SENN, a likeable Horticulture professor.

Mr. Senn's other extra curricular activities consist of advisor to Alpha Zeta, founder, booster, and adviser of the Hort. club, originator of the junior branch of The American Society for Horticultural Science, Advisor of the AGRARIAN, Community Council member, and president of the P. T. O. at Clemson. He also keeps records of all boys that graduate in Horticulture.

Mr. Senn was born in Newberry, S. C., received his early schooling in Newberry, and then got his B. S.

—continued on page 13

THE AGRARIAN
DANFORTH FELLOWSHIP
Inspirational and Educational

by BOBBY DUKE, A. H. '53

The boys who spent six weeks vacationing in Fort Benning last summer may recall my leaving a few days early to report to St. Louis, Missouri. I remember how glad I was to leave, but still I had no idea just how much was in store for me.

I was on my way to spend the most delightful and educational four weeks of my life on a Danforth Summer Fellowship. Paid for by the Danforth Foundation, the Fellowship has as its purpose "to help students make decisions—to enlarge their horizons—to broaden their contacts—to render guidance and assistance in attaining the Four Fold Way of Living."

Let me resume my tale. I arrived in St. Louis early Sunday morning by train, ate breakfast downtown and proceeded to Washington University which was to be our headquarters for the next two weeks. I was one of the first to arrive and spend the day getting acquainted with the other boys as they came in from all parts of the United States.

Monday morning bright and early we were up for roll call by states and the first of several checks was handed to us. These kept coming at regular intervals so that we paid our own expenses as they came up.

By dinner we had travelled the forty-three miles to Gray Summit, Missouri, and the Purina Research Farm, where we spent the first three days of our trip like one big family. We slept and ate in the auditorium of the farm administration building—thirty-seven cots and a long table.

The farm was started in 1926 and has grown to a spread of 738 acres and a working crew of 100 men. Here all of Purina's Chows are tested and proven before going on the market. They are feeding every type of animal from beef and dairy cattle down to rabbits, mink, and quail.

We went through all the departments of the farm, making notes on what we saw and heard in the lectures by the men who were working with the animals. One of the unique features of the tour as well as the whole trip—was that we never knew what was to come next. Mr. Sindecuse, who was in charge of us the whole time, would start out with a "Follow me" and we would move on to the next event. To illustrate the effectiveness of this stunt, on Monday evening we loaded up on a canvas-covered truck and started out over bumpy country roads. None of us had the slightest idea where we were going, so when we ended up at the Meramec River for an old-time "birthday suit" swim, you can imagine our surprise and delight.

Wednesday afternoon we returned to St. Louis, where we were to spend the remainder of the first two weeks. The day started about seven, according to the speed with which the boys could dress and eat breakfast. We had to be at Checkerboard Square, home of the Purina offices, at eight-thirty and the trolley ride across town took just about an hour.

You should have seen the surprised look on the faces of the natives of St. Louis when we gave our seats to ladies who were standing. Seems that it wasn't customary at all.

Again in St. Louis our program was varied with each new event coming as a surprise. We heard men from every department inRalston-Purina's vast organization speak on their work and many other topics. We learned the history of the Purina Company, how it grew from a one-man organization to a million dollar industry. Dr. H. J. Smith told us of the development and work of commercial research in the field of nutrition. We toured the four stories of laboratories and learned how each feed ingredient is checked and rechecked before going to the experimental farm for proving. The methods of selecting, training, and promoting personnel was explained to us. Mr. H. C. Shafer gave us a condensed series of lectures on ani-

**continued on page 21**

SEVEN
Peter McCall is an outstanding student in Agronomy. Peter’s home is in Hartsville, S. C., and it was while working there at the Coker’s Pedigreed Seed Farms that he decided to become an Agronomist instead of a mechanical engineer. Peter has been elected into Alpha Zeta and Phi Kappa Phi, the Agrarian staff, the Pershing Rifles, the “Y” Council, and the Agronomy Club. Peter is also a company commander.

Hunting and fishing are Peter’s sports, when he can find the time.

J. R. Tolbert is a Dairy major from Anderson, S. C. He has gained valuable experience and know how while growing up on a dairy farm. Besides being a company commander, Robert is president of the Dairy Club, a member of the “Y” Cabinet, and has served on C. D. A. Last fall he was a valuable man on the Dairy Judging Team. Recently Robert was selected for Who’s Who in American Colleges and Universities. He is a member of Alpha Zeta and the Senior Platoon.

R. Lee Bivins
Atlanta, Ga.

Lee Bivins, is an Animal Husbandry major from Atlanta, Ga. During the war Lee helped his grandfather on the farm and it was while working there that he decided to choose Animal Husbandry as a career. He attended the University of Georgia for three quarters before coming to Clemson. At Clemson he has become a member of the Tiger Brotherhood, the “Y” Cabinet, Alpha Phi Omega, the Block and Bridle Club, and is now president of the Baptist Student Union.

Camping in the mountains is Lee’s favorite pastime, but he seems to enjoy serving on deputations to other colleges.

James B., “Bulldog,” Crawford is an Animal Husbandry major from Kelso, Tenn. Barclay has played more ball than any member of the graduating class. He has played three years of first string ball. Coach “Bear Bryant” of Kentucky termed Crawford “the hardest man to move that my team has run up against this year.” “No one will run a play over him . . . The only game he hasn’t started in two years on defense was the P. C. game of ’51 when he was out with an injury.”

He plans to own a cattle farm in the near future.
SENIORS

JOHN B. STANLEY
Conway, S. C.

R. Thornwell Dunlap is a Dairy major from Clinton, S. C. Most of us Clemson Students know him best as "The Parson," because he is the Regimental Chaplain. His choice of extracurricular activities cover a wide and varied range. He is president of P. S. A.; Secretary of the "Y" Cabinet; Treasurer of Tiger Brotherhood, and a member of the Senior Platoon, and Scabbard and Blade. As a member of the Clemson Dairy Judging Team this past fall he won first place in judging Holstein cows. After his Army duty is over he hopes to start a dairy farm.

WILLIAM F. STEWART, JR.
Fountain Inn, S. C.

William F. Stewart, one of Professor LaMaster's hard working Dairy majors can be found almost any afternoon either making or selling ice cream, or doing some other job around the College Creamery. Bill is adjutant on the Second Battallion staff and is very active in the Dairy Club, Presbyterian Student Association, Scabbard and Blade, and Tiger Brotherhood; besides being Co-Editor of the Agrarian, Bill has been to Camp Miniwanca on the Danforth Scholarship and has been selected for Who's Who in American Colleges and Universities. At the end of his Junior year he was honored by receiving the Borden Scholarship Award.

OTIS B. KEMPSON
Kingstree, S. C.

Otis B. Kempson, "The Bug," is one of the friendliest boys on the Clemson Campus. He has played two years on the first team at the position of end. He has been playing baseball with the Tigers for the last two years. He served on the pitching staff as well as playing in the outfield. He has made honorable mention two years of his football abilities. He was on the first team when the team made their trip to the Gator and Orange Bowls, and "Is probably the fastest man on the squad." Otis plans to go to work with some feed company after graduation.

Gary E. Byrd, "The Bull Wrestler," hails from the little town of Hartsville, South Carolina. He came to Clemson on a football scholarship, and has proved that he was worth all of their troubles in getting him. Twice he has made honorable mention for the All-state squad. He has played in the Orange and Gator Bowl games. "Gary is an exceptionally fast man for his size... He's strong enough to be one of the Tiger's all-time greats." He has been an active member of the Block and Bridle Club. He has started a herd of grade cattle at his home.

GARY E. BYRD
Hartsville, S. C.

—continued on page 24

NINE
The Rural Church
by Joe O'Cain, V.A.E. '54

What are the rural churches doing? Believe me, they're at no standstill in South Carolina. According to Clemson's G. H. Aull of the Economics Department, "The rural church is becoming more and more a part of the community."

The rural community today is not playing out of the picture by no means. With the increase of agricultural security, education, and appreciation of country life, many farm settlers are making a more beautiful and progressive community.

With "brotherhood" uppermost in the minds of Americans today, however, there is a slight trend of country churches to combine with city churches. In communities located near a city, the country-town relationships are felt more strongly, and many church enthusiasts are building new churches in the country, perhaps a couple miles outside the city, where both the town church workers and the country church workers unite in one central church to worship together. This idea of "church consolidation," no doubt, receives criticism just as the consolidation of schools in our state. In communities situated many miles from a city, the trend is to improve and enlarge their own church and recreation facilities. Many community "old red school houses" have been converted into very useful and attractive community centers.

The church and community is rapidly becoming part of farm life. The various Home Demonstration Clubs, Women Community Councils, and Church and Youth Organizations have played a great part in the rural community.

Agencies of the government appreciate and feel the importance of good rural communities, and ministers and farmers themselves are better trained "for the job."

The Highway Department and other government agencies are steadily improving roadside appearances by planting grass, shrubs, and trees. The farmer, realizing the value of beauty and comfort more that ever before, has added much to the appearance of the farm home. One finds more livable farm tenant homes in South Carolina now; more fences are being whitewashed, more farm home owners have added running water and bathroom facilities.

Perhaps state agricultural colleges and universities are doing much to promote this interest and improvement of country life. Each year, more and more agricultural workers, teachers, and ministers are graduated. The rural community needs these young graduates even more than the city! These persons are working toward a better community, a better church, and are stimulating participation in better community development activities. Today, more stress is put on community leadership, good government, agricultural and world missionary enterprises.

There's a big job to do—the farm worker, the town worker and the preacher must work hand in hand!

---

TRUCK FARMING & PLANTS IN SEASON

REGISTERED HEREFORDS

Walter P. Rawl & Sons
P. cker of "CAROLINA PRODUCTS"
Gilbert, S. C.

Telephones: 3645 Lexington & 1013 Gilbert

---

PRAYER IN APRIL
by Joe O'Cain

If
He called
I could not answer,
For April has me hung
Beneath her silken dress,
with love!
And Earth's sweet womb has bled
For help—
And rivers and hearts have overflowed—
And God's first temples o'er me rise
Like some great gem I cannot reach . . .

A wisp of new-born beauty
Trips across the azure sky;
God, drench me more!—
And do not call just now . . .
THE BATTLE AGAINST WEEDS—

When Will We Win?

by C. L. MULLWEE, V. A. E. ‘54

For ages the farmer’s most persistent and costly enemy has been weeds. Since the beginning of agriculture man has waged a ceaseless battle against weeds which have competed with his crops for soil nutrients and soil water, thereby lowering the productivity of his agricultural enterprises. Man began his battle by using crude sticks and even his hands, to eradicate the weeds from his small garden plots. As time progressed other instruments were invented, but they too proved inadequate because of the required close attention and labor. These limitations greatly impaired the crop acreages a farmer could efficiently handle, and as a result, man, in his never ending search for the improvement of the methods of accomplishing his tasks, has made many remarkable discoveries in the field of weed control.

As a result of intensive research, there are on the market today many chemicals which are effective in controlling unwanted vegetation. Even though none are absolutely perfect, they have greatly reduced the labor required to control the weeds in many crops.

Probably the leading chemical weed controlling agent is 2,4-D. The ester of this chemical is most commonly used as a water-emulsion spray. 2,4-D is a selective weed killer in that it affects only broad-leaf plants. Grasses are highly resistant, although many individual exceptions to this generalization are known. This herbicide affects plants in such a way as to cause both an increase in the respiratory rate and growth rate. The plant is said “to grow itself to death.” However this is not always true, for metabolism is brought to an abrupt halt when the chemical is applied to some plants, and they proceed to wilt and die very rapidly.

Most herbicides may be applied as a pre-emergence spray—application after planting, but before sprouting; or as a post-emergence application to the growing crop. In South Carolina the value of pre-emergence spraying has been successfully demonstrated on corn. 2,4-D was applied at the rate of two lbs. per acre. This type of application is most successfully used in connection with large seeded crops whose seed can be placed relatively deep in the soil so as to be below the toxic layer created by the herbicide. Post-emergence spraying of corn has given excellent control of weeds; however, grasses must be combated by other means. The post-emergence sprays should be applied to corn to control weed growth during the first four to eight weeks of crop growth.

Although there may be slight damage experienced from the use of 2,4-D, the loss is generally negligible when compared to the savings realized from the increased yields resulting from control of weeds. The larger yields of corn may also result from the fact that fewer feeder roots are cut by cultivation.

In this state 2,4-D has been used successfully on corn, sorghum, fescue pastures, lawns, and small grains, that are not doublecropped with some legume, in the control of coffee weed, cocklebur, morning glory, bull nettle, common ragweed, bitterweed, wild onion and many other broad-leaf plants.

Another popular herbicide is a mixture of 2,4-D and 2, 4, 5-T which is sold under the trade name of “Brush Killer.” This mixture is highly effective against sprouting stumps, small bushes, and hard to kill legumes, such as kudzu. For effective control of stumps and trees

Close up showing spray nozzle used for applying weed control material. —(Photo Courtesy Clemson College Extension Service)

—continued on page 24

SANDERS’ DAIRY

“The Best Always”

ALL PRODUCTS PRODUCED AND PROCESSED LOCALLY.

Phone 1240-M2
ORANGEBURG, S. C.

SPRING 1953
DID YOU LOSE MONEY because of nematodes?

by DON DUNLAP, Horticulture '54

Did you realize that South Carolina farmers lose millions of dollars every year due to destruction by root knot and other nematodes? Practically all the commercially grown crops in the State are damaged by nematodes, but not until recent years have Agriculturist recognized the extensive damage caused by these eelworms. Extensive damage is usually noted on tobacco, truck and garden crops.

Material and application equipment used to control nematodes have reached a point of development where more widespread usage is expected, especially on crops of high value per acre and on crops where heavy damage usually occurs. Probably a wider use of these control materials will be used on family gardens which are usually damaged severely by an attack of nematodes.

The root knot nematode is probably the most significant form of nematode because it affects hundreds of important crops. This eelworm enters the roots and remains in one place in the root for its entire life. This injury causes galls or knots to form which distinguishes it from all other nematode injury; however these knots should not be confused with legume nodules which are caused by beneficial nitrogen-fixing bacteria. Symptoms of nematodes are, lack of vigor, stunting and wilting. Severe cases may cause defoliation and death. Root knot is a common source of injury to tobacco crops in the state. Also, they affect corn, cotton, vetch, cowpeas, lupines, clover, alfalfa, and several of our native weeds. Okra is a vegetable crop that may be used to indicate the presence of root knot in the soil; also root knot nematodes seem to live better in a light sandy soil.

Meadow nematodes are second in importance because they cause damage to the tender feeder roots. These nematodes enter the roots and move through the cell tissue causing the roots to turn brown and rot. The destruction of these tender feeder roots cause severe stunting of tobacco, corn, cotton, sweet potatoes, some vegetables, and many native weeds.

Root-knot of cotton. The female nematode burrows into the root causing knots and cutting off movement of water and nutrients. (Photo Courtesy Botany Department)

Stubby-root nematodes, while of lesser importance, cause serious damage to tomato, sweet corn, and lima beans. Squash, beans, cucumbers, and cabbage are crops that may be injured, but they are somewhat tolerant to the stubby-root nematodes. Strawberries and lettuce are highly resistant. Plants thus attacked are deprived of a normal root system and become stunted due to a small compact root system with many stubby branches. In many instances plants show signs of starvation, even though an ample supply of fertilizer and moisture is present.

The string nematode has been found in fields scattered over the Coastal Plains. This nematode feeds mostly on the root tips and causes stunting of the plant. It seriously damages corn, soybeans, cotton, sweet potatoes, and many other crops.

Yield losses up to 50% have been estimated in cotton fields due to the spiral nematode. Research studies indicate that this nematode may cause severe root injury and stunting of cotton.

There are other nematodes which are known to cause injury to certain crops; however they are not of wide importance.

An organic compound which has shown very promising results in the
—continued on page 13

THE AGRARIAN
Grassland Farming
In South Carolina

The acreage devoted to grassland farming in South Carolina in 1952 was 4,301,367 acres, according to a summary of estimates submitted by county agents and summarized by the Clemson Extension Agronomy Department. Hugh A. Woodle, leader, Clemson Agronomy Extension Work, points out that these estimates are the best and only information available on much of the acreage.

Of the total acreage reported, 1,169,395 acres were planted to small grains, of which 881,100 acres were planted to oats; 185,475 acres were planted to wheat; 47,050 acres to barley; and 55,770 acres were planted to rye.

A total of 562,115 acres were devoted to annual grazing crops, of which 350,920 acres were used for annual winter grazing crops and 211,195 acres for summer grazing.

Other acreages included improved permanent pastures, 895,737 acres; unimproved permanent pastures, 1,333,900 acres; supplementary grazing, 80,980 acres; hay, 536,737 acres; and grassland crops harvested for seed, 227,116 acres.

Mr. Woodle explains that the acreage listed as improved permanent pasture includes only acreages which were fenced and on which at least one or more recommended pasture practices had been carried out. He adds that the total grassland acreage does not include acreages planted to corn for grain or silage, sorghum for forage or silage, or corn or sorghum with velvet beans for winter forage.

"As small grain acreage is considered as grassland farming acreage," he states. "Many livestock farmers clean up crop residues by running cattle on harvested fields, but this acreage is not included. Also, in the rotation of crops it is estimated that 604,613 acres were double-cropped, and this acreage is included only once in the actual acreage devoted to grassland farming as shown in the total. South Carolina farmers are certainly to be congratulated on the outstanding progress being made in grassland farming as shown by the summary," he adds.

FARMERS
OF GREER AREA
USE
Old Reliable Fertilizer
FOR BIGGER AND BETTER CROPS

Manufactured by
Greer Guano Co.
Greer, S. C.

PROFESSIONAL PERSONALITIES

continued from page 6—

at Clemson. He attended the University of Tennessee where he planned to study Botany. This was cut short by World War II. He then entered the Navy where he received the rating of Lieut. J. G., he still holds a reserve commission. While in the Navy he attended schools up and down the East Coast and toured the Orient. Mr. Senn married a girl from Anderson in 1939 and now has a family of three boys. His plans for the future are to continue teaching here at Clemson.

Other than teaching at Clemson, he does research work on Aromatic Tobacco for Duke University during the summers. He has worked with the U. S. D. A., and worked with and wrote a bulletin on peaches in S. C.

In his untiring efforts to help students, he stresses to them HOW to think and not WHAT to think. The AGRARIAN staff salutes Mr. Senn, Horticulturist, research worker, and student helper.

DID YOU LOSE MONEY BECAUSE OF NEMATODES

continued from page 12—

control of nematodes is DD. For a small area, DD should be applied at the rate of one gallon per 100 square yards. Place the DD in a furrow about 8 inches deep and cover it with soil, allowing the soil to be undisturbed for about 2 or 3 weeks. At seeding time prepare and seed in the usual manner. For large areas DD should be applied by a broadcaster applicator at the rate of 20 to 30 gallons per acre as shown in the picture.

Other ways of controlling nematodes are by the use of Dowfume 40, Soilfume 40-60, Isocembre 40, and Bromofume 40 at the rate of one gallon per 100 square yards.

A good farm practice to use for the control of nematodes is crop rotation. Plant crops which are resistant to nematodes in the rotation plan.

Other ways of controlling nematodes may be accomplished by adequate fertilization and proper cultivation to keep the plant in a healthy, vigorous, growing condition.

Friends of A. E. Schilletter, early Horticulturist of the extension Service of Clemson College, will be pleased to know he is recovering after a recent illness. Schilletter was able to attend the National Peach Council Meeting in Spartanburg last month.

The agriculture department has announced that it will support grower prices of 1953 crop cotton at a national average of at least 30.80 cents a pound, gross weight for the base grade of middling seven-eighths inch cotton.

THIRTEEN
MORE MILK
by JACK WORKMAN, Dairy '54 • THROUGH ARTIFICIAL BREEDING

South Carolina is a deficit milk producing state in spite of the fact that it has certain natural advantages for milk production. During 1952, South Carolina imported more milk than was exported. According to statistics that were recently released by the Bureau of Dairy Industry, a dairy cow that produces only 5,000 pounds of milk a year seldom makes a profit for her owner. The average milk production per cow in 1950 in South Carolina was only 3,810 pounds. It can easily be seen that there are many cows in the state that are losing money for their owners. If the dairy industry in South Carolina is going to be profitable for many farmers it is essential that these low producing cows be replaced with high producers.

South Carolina has possibilities of becoming a great dairy state. Our climate permits a grazing program which cannot be equaled by the northern states. The mildness of the climate also makes it possible to get along without the expensive shelters used in colder climates.

The future of the dairy industry in South Carolina depends on efficient production. The keys to efficient production are correct feeding and management, and the breeding of cows with the inherited ability to produce large amounts of milk. Obtaining improved inheritance through artificial breeding will mean better living for South Carolina farmers and dairymen. Never before in history has an organized program had such influence on dairy cattle improvement as has been brought about by artificial insemination since 1938. The spreading of the influence of great bulls will mean as much to farmers as hybrid corn and crossbred hogs. All three developments deal with genetic improvement. Dairy sires are now being proved for their transmitting ability at much younger ages through artificial breeding.

There are fifteen artificial breeding cooperatives in South Carolina that buy semen from the Clemson Bull Stud. The first cooperative breeding association in South Carolina was the Spartanburg County Cooperative Breeding Association, started in May, 1945. Since that time the following cooperative breeding associations have been formed; Orangeburg, Bamberg, Coastal Breeding Cooperative which includes Beaufort, Hampton, and Jasper counties; Greenville, Laurens, Malboro, New-

Fertilizers – Farm Supplies – Garden Supplies – Seed – Checkerboard Feeds

Trotter Distributing Co.

PHONE 2-1042
1411 ASSEMBLY STREET
COLUMBIA 1, S. C.
berry which also serves part of Saluda county, Oconee, Anderson which also serves Calhoun county, Richland, Sumter, Williamsburg and York. It is estimated that in 1952 the technicians in these cooperatives inseminated more than 15,000 cows artificially.

The bulls now assembled at Clemson are not a miscellaneous lot of well-bred individuals. These bulls have been purchased and bred as related individuals to form two or three distinct families in each breed. A small group of the best females of each family has been reserved for special matings within the family for the purpose of developing and maintaining the required relationships. The value of having several families in a breeding program is to obtain the increased vigor and producing ability resulting from having two sets of inherited factors available when two families are crossed, instead of only one set that results when close relations are mated. When three families are used in the program an even wider assortment of inherited factors become available to work for higher production and greater vigor of the resulting individuals.

There are now 11 Guernsey bulls in the stud representing the Holliston, Fern, and Butterfat families.

The Brown Swiss breed is represented by the Jane of Vernon, and the Duke Dan of Elmhurst families. There are three bulls in each of the two Brown Swiss families.

The Holsteins are now organized on a two family basis with plans for adding a third family within a few years. The Carnation Holstein family has been developing since 1938. A Bureau family of the Holstein breed was started in 1948 and is now represented by five bulls on loan from the Bureau of Dairy Industry. These bulls were produced in the thirty year old United States Department of Agriculture dairy cattle breeding project located at Beltsville, Maryland in which nothing but proven sires have been used.

The Jersey breed has not been organized on the family basis but will be supported by the use of unrelated proven bulls.

It will not be long before semen representing all the families of each breed will be shipped to the county cooperatives on each semen shipping day, Monday, Wednesday, and Friday each week. When this is done farmers and dairymen will be able to follow a definite breeding program.

The use of superior sires is not the only advantage of artificial breeding. This plan does away with the expense of keeping a bull on the farm and permits the addition of one additional cow in the dairy herd from which to sell milk without additional feed cost. A Clemson Dairy Department study shows that the yearly cost of feeding, bedding and caring for a bull exceeds $300. This expense plus the investment in the bull and housing and fences makes the keeping of a bull quite an expensive item. The danger of accidents and the danger of spreading diseases is greatly reduced by the use of artificial breeding.

Since artificial breeding is relatively new in this state it is impossible to determine the results until the artificially conceived daughters are old enough to prove themselves.

In several of the larger dairy states considerable information is now available on the results of artificial breeding.

A recent survey made in New Jersey showed a 14 per cent increase in butterfat and a 9.3 per cent increase in pounds of milk produced by the first generation of artificially conceived daughters over their dams.

A similar survey made in Wisconsin showed a 12 per cent increase in butterfat and a 8.4 per cent increase in pounds of milk produced by the first generation of daughters over their dams.

The above statistics prove that milk production can be increased through artificial breeding. Similar results can be expected from the breeding program that is being practiced in South Carolina. BREED TODAY FOR BETTER COWS TOMORROW.

SPRING 1953
DR. POOLE, professors DANION and RITCHIE line up for some of the Block and Bridle barbecue at the Bull Sale.

Block and Bridle Activities

BARBECUE AT BULL SALE

The Block and Bridle Club had a barbecue dinner at the annual bull sale on the twenty seventh of February. The dinner started at 1 p.m. and lasted until 2:30 p.m. The profits went towards the expenses of the club.

MANY NEW MEMBERS IN CLUB

The Block and Bridle Club isn't worried about losing their title as one of the biggest and most active clubs on the campus, because they have recently taken in thirty-two new members into the club. The formal ceremonies were instituted in March.

PRACTICE IN SHOWMANSHIP

Students of the A. H. Department have been practicing to compete in the showmanship contest which is being sponsored by the Block and Bridle Club. There are about ten students who have their sights set on the beautiful trophy which will be given to the winner.

RELIGIOUS EMPHASIS WEEK BIG SUCCESS

Clemson College was honored to have the Rev. R. Wright Spears, President of Columbia College, as the main speaker for the protestant convocations. The services were held from eleven until twelve each day Monday through Friday the 13th.

The Catholic convocations were led by Father James Maguire, director of the Newman Foundation at Wayne University. Detroit, Michigan.

SIXTEEN

ALPHA ZETA NEWS

The South Carolina Chapter of Alpha Zeta recently elected A. E. DeWitt, agricultural engineering senior from Darlington, S. C. as the new chancellor to replace J. P. Fulmer, who graduated in February. At this meeting L. C. Lawson, agronomy senior from Darlington, S. C. was elected as Censor to replace J. D. Early who also graduated.

The Chapter has begun work on the possibility of re-establishing the bell system in Long Hall. Dean Cooper and the service department are giving their fullest cooperation to Alpha Zeta in the revival of this system.

KAPPA ALPHA SIGMA EXPANDS

As the Agronomy Club looks forward to the new semester there is much interest centered around the National Crops Judging Contest. Laurie Lawson, chairman of the National Crops Judging Committee, is outlining a program by which the agronomy club will direct proceedings and make reports on winners at the judging contests to be held in the midwest this spring. The club is also planning to have a crops judging team to enter the national contests.

At a recent meeting nine new members were formally initiated into the club following a week of informal initiation. The new members were as follows: W. C. Dailey, of Beaufort; C. B. Elmore, of Bishopville; J. A. Galloway, of Hartsville; W. I. Molony, of Sullivan's Island; B. L. Walpole, of Johns Island; J. L. Plake, of Swansea; and E. M. Rast, of Cameron.

Also during this meeting new officers were elected. They are as follows: president, G. R. Griffling, of Leesville; vice-president, R. E. Poston, of Hyman; secretary, A. D. Owens, of Greer; treasurer, J. L. Maxwell, of Hartsville; program chairman, E. M. Rast of Cameron; and social chairman, J. A. Galloway, of Hartsville.

DAIRY CLUB HAS 32 MEMBERS

Right in the swing of a busy year, the Dairy Club is enjoying one of its more prosperous years. When the call went out for new members at the first of the year there was a good turnout of the new freshmen.

During the year the club has had numerous speakers who informed the members on subjects not only pertaining to the dairy field, but to subjects related to other fields as well.

At present there are thirty-two members in the Dairy Club, which represents about sixty percent of all students majoring in dairying. The club is planning a social which will be held sometime in the spring. What better refreshment could be served than some delicious ice cream?

THE AGRARIAN
ASAE HEARS MR. WADE

Mr. Douglas E. Wade, a graduate of the University of Wisconsin in wildlife management and, at present, a member of the South Carolina Fish and Game Dept. at Clemson, was the principal speaker at the February meeting of the Clemson branch of the American Society of Agricultural Engineers.

Mr. Wade gave an interesting account of the work being done toward game conservation around Clemson, some of the plans for the future, and the advantages of the conservation program as an aid to a great recreational facility. He pointed out that cover, protection, and food supply were the limiting factors of the game supply and told what the game department at Clemson was doing to provide these. He stressed the need for better cooperation between departments in order that land might be used for more than one purpose.

'Y' CABINET MAKES REPAIRS

The 'Y' Cabinet has been working in their spare time on the 'Y' cabin. The cabin is used by many groups of students and socials, as well as by adult groups.

PLATOON MARCHES IN MARDI GRAS

The Clemson College crack drill team had the distinct privilege of drilling second in the Mardi Gras Parade. The platoon worked hard and long so that they would be up to perfection for this celebrated occasion. We are proud of our Senior Platoon for the fine name they made for our school while performing in New Orleans and the School of Agriculture can boast of having many boys in the drill platoon.

AG. CHEMIST PROF. LEAVES

Professor W. L. (Wild Bill) Mauldin has gone to the University of North Carolina to take graduate work. Professor Mauldin has been teaching Organic Chemistry for many years at Clemson College. He is working on his Doctorate at the University.

Officers Elected For F.F.A.

The Clemson collegiate chapter of the Future Farmers of America recently elected the following officers to serve for the remainder of the current semester: president, J. D. Beam, senior of Cherryville; vice president, H. N. Padgett, junior of Saluda; Ronald North, junior of Stockton, Ga.; treasurer, D. W. Howe, senior Hickory Grove; reporter, Edwin Nolley, junior of Cooleemee, N. C.; and sentinel, N. A. Myers, junior of Olanta. The faculty advisor for the group is Mr. J. B. Monroe.

New Soil Testing Laboratory Installed To Serve Farmers

For more than twenty years the Agronomy Department of the South Carolina Agricultural Experiment Station at Clemson College has tested the soil for farmers and others. The demand for this service has grown, and each year more soils of the individual farms are tested for plant food and lime requirement. It has become necessary to expand the facilities of the Soil Testing Laboratory and to have a full-time supervisor.

Dr. H. G. Allbritten, born and reared on the farm, with many years of farm experience and a former Extension and Research Agronomist in other states, was selected to develop and supervise the activities of the new and modern Soil Testing Laboratory at Clemson. He received the B. S., M. S., and Ph. D. degrees, respectively, from Murray State College, University of Kentucky, and Penn.-State. His specialized fields, as related to crop production, are Soil Chemistry and Soil Fertility.

Dr. Allbritten extends an invitation to farmers, gardeners, home owners, and others interested in agriculture to avail themselves of this free service by sending soil samples to the laboratory for analysis and advice.

Dr. Albritten, head of the soil testing lab, is shown testing a soil sample with the calorimeter. (Photo Courtesy Clemson Extension Service)
GUEST EDITORIAL

continued from page 3—

both experience and experiment already show us that therein lies a splendid frontier for development. Some irrigation has been started in practically all counties. And I have yet to find a farmer who does not like it.

We know very little about all of the angles of irrigation for this area. We know in most cases it pays and pays well. Yet in some cases, even at Clemson under careful experiment, it has not paid in dry years when used on Bermuda pasture, for instance. Yet, on corn it has paid handsomely in four years out of five. And that brings up other elements, fertility, for instance. Added water must have the plants and the fertility to work with. So, as we approach this new farm practice, we have a new agriculture to learn. And learn it we will! For drought’s dreadful toll from our fields must be stopped, or as nearly so as we can do it economically.

We have abundant water, usually when we don’t need it, but when the droughts of summer strike, our water has lost most of its abundance. But we do have it in abundance at times. That calls for storing and conserving water. Through good practices we can so slow it up that we will have a better distributed run-off than we have been having. But after all of these things are done, we will still need a lot of water for maximum yields when the protected drought strikes at the critical time. And to have the water then, when it will really pay off, we face the need for developing a vast system of water storage over South Carolina. We already see this started. I was in one county the other day where they told me their bulldozers were booked up for two years ahead building farm ponds principally for the storage of irrigation water.

The past summer I saw fields of corn on five farms over the state where they had planted for over 100 bushels per acre. Where they irrigated, they got it. But the unirrigated part of these very same fields came up with from nothing at all to about 10 bushels of nubbins per acre.

I saw irrigated watermelons in Chesterfield producing a bountiful harvest, while those not irrigated right beside them made nothing at all. And in Spartanburg, Lexington, Cherokee, and Chesterfield counties I saw irrigated peaches make a bumper harvest of quality fruit, while non-irrigated peaches right by them made a sorry crop, some of which were not worth harvesting.

In Abbeville, Newberry, and Richland I saw abundant grazing last summer where irrigated, while the summer sun had burned adjoining areas into a sorry spectacle, where cattle got exercise, but nothing to eat.

And so it goes. Folks, let’s watch this thing called supplementary irrigation. It carries the greatest potential we have on the farms. For with it, we can largely insure the harvest. And having it, we have a new agriculture to learn as to spacings, fertilization, varieties, methods, etc. For all of our present customs and practices were predicted upon droughts. We adopted what would stand drought best and still give us at least some harvest. Now, when we rub the threatening drought out, we have a new agriculture to learn. And it holds out many promising vistas.

FARM AND HOME WEEK AT CLEMSON

The annual South Carolina Farm and Home Week will be staged at Clemson during the week of August 17-22, according to an announcement from Dr. R. F. Poole, president, Clemson College. Thos. W. Morgan, assistant director, Clemson Extension Service, will again be general chairman of the Farm and Home Week Committee. The event is expected to again attract thousands of people from all sections of the State.

A smart man will learn from his own mistakes while a wise man will learn from other peoples mistakes.

THE AGRARIAN
Why Study Agriculture?

WILLIAM F. STEWART — Dairy '53

When a student enrolls at Clemson and chooses his major field of study in the School of Agriculture, he is stepping into a wide, varied and diversified field of science. Agriculture is the only field in which a student can study the basic fundamentals of life and complete the requirements for a degree in the same progress. Agriculture is basic because every process of life can be traced back to it. The textile student, for example can spin miracles with fibers, but very few of these students have any conception of the processes that are involved in producing these fibers.

The school of Agriculture can be divided into two main fields—the field of plant science and the field of animal science. Since the curriculum in Agricultural Engineering is jointly administered by the Schools of Engineering and Agriculture, it is not to be included in this article.

A study of Agriculture is basic because in each department of the School of Agriculture there’s at least one basic required course in plant and animal science. Here the student is taught the structure, composition, and function of the most simple members of the plant and animal kingdoms. Practically every other course in a student’s curriculum is based on these two courses.

Next all students of agriculture must study the science of genetics. Here the variations and differences that occur in plants and animals are investigated and accounted for. Is anything else more basic to any way of life? Most departments go a step further and require a course in breeding that relates to the student’s particular field of study. Breeding is the art of putting the science of genetics into action so that plants and animals can be made to serve the world more effectively.

Persons who doubt the importance of agriculture as it relates to our lives should remember that without agriculture there would be no food. Without life—there would be nothing!

Students of agriculture realize that they are missing some vital points that all college men should have. The world of human relations is becoming more and more important. Even the most remote farmer can no longer live by himself and deal with no one else. Here at Clemson, a student of Agriculture seldom has the opportunity to take more than one course relating to these fields. Then too, there is a definite lack of educa-

History For Posterity

RONALD M. NORTH, VAE '54

WHO WILL DO IT? Why of course no one will if there is any work involved. Asking for volunteers to do really hard work that would require brains as well as brawn will yield about the same response and enthusiasm as you would expect to get if you were to ask a stubborn old mule to plow for you when it wasn’t in the notion to do so. But, when the chips are down there is usually some man who will latch on to the task and do a good job, especially if he can get just a little cooperation from his fellow man.

It has recently been made known to me that one of these jobs has been discovered and worked on by one who is interested in improving the future of agriculture by relating the past to the present and the future. A task like this pays only one salary—sweat, troubles, problems and no immediate reward, perhaps none ever. The man to undertake such a task is Mr. Schilletter of the extension service, and the job is that of collecting and preserving antique tools, implements, and methods of farming and the agricultural thought of the days before our time.

A historical museum of this type could not be evaluated in monetary units in the years to follow when posterity could look back at the crudeness of farming in the yesteryears. Even our speedy and modern equipment and methods may become a spectacle in the very near future when the “Atomic Age” comes fully into its own.

Okay, if there is some interested reader around who can contribute in some way to project of this nature, let him step right up and make a start. First the available material must be collected, then some additional material must be tracked down, and finally a place must be secured to house and show the relics.

It seems that there has been quite an array of these antiques already discovered in the vicinity of Clemson and it was the discovery of these existing relics that led to the instigation of this effort of Mr. Schilletter’s to restore them to the original and to use them as a reminder of posterity of the basic fundamentals of progress so influential in developing one of the really great nations of the world.
The search for more economical and better quality meat-type chickens resulted in the "National Chicken-of-Tomorrow Contests." These contests had their original stimulus in November 1944. At that time, Howard C. Pierce remarked that the breeder who produced a chicken that paralleled the broad-breasted turkey would make a very significant contribution to the poultry industry. Mr. Pierce is the National Poultry Research Director for the Great Atlantic and Pacific Tea Company. His remark was publicized in the poultry press and it attracted wide interest. The A. & P. Food Stores agreed to financially sponsor a program for the recognition of superior meat-type chickens.

Representative members of the poultry industry held a meeting at Chicago in June 1945. They planned a three-year program for the recognition of superior meat-type chickens. This program was known as the "Chicken-of-Tomorrow Program," and covered a period of three years. State contests were held the first year, state and regional contests the second year, and the national contest the third year.

Two such programs have been completed in series of three years each. The first program was during 1946 through 1948, and the second program during 1949-1951. The A. & P. Food Stores financially sponsored both of these three-year programs. The first national contest is known as the "1918 National Chicken-of-Tomorrow Contest" and was held at the University of Delaware. The second national contest was known as the "1951 National Chicken-of-Tomorrow Contest" and was held at the University of Arkansas. There were forty entries in each of the national contests. The contests in both contests were selected on the basis of high placings in state and regional contests.

For the national contests, the contestants sent two cases of hatching eggs from their breeding flocks. From the time the hatching eggs were received until the end of the contests, the entries were under the same environmental conditions. The final national contest entry consisted of 400 straight-run chicks. The chicks in the first contest were reared through an eighteen day growing period while in the second contest the growing period was eight to four days. During the contest, complete records were kept for each entry on hatchability of the eggs, mortality, feed efficiency, and rate of feathering. At the close of the contest, records were also obtained for each entry on live weight, feathering, and uniformity of size, type, and colors. Egg production of the breeding flocks was also considered in the final rating which was reported from the breeder's flock over a five-month period and calculated on a hen-housed basis. At the close of each contest, a random sample of fifty birds from each entry was "New York" dressed and judged according to conformation and condition. Factors affecting edible and meat yields were also considered.

The entries in the contests were from breeders throughout the United States, but breeders from the New England states had the most entries. Despite this fact, both contests were won by the same California breeder. A breeder from Spartanburg, South Carolina, was selected to place an entry in each of the national contests. His entries made an outstanding showing by placing 12th in the first contest and 16th in the second contest. This breeder was the only one from this section of the United States.
The above pens of chickens were entered in the Chicken-of-Tomorrow Contest for 1951. Note arrangement of pens.

The predominant breeds were New Hampshires and White Plymouth Rocks. The predominant crossbred entries in each contest were the Cornish-New Hampshire crosses. The winning entry in each contest was a Cornish-New Hampshire cross but the margin of excellence was only slightly above the second place standard bred breeds.

The results of the second contest shows that there is quite a variation among the entries in the economic factors. The first contest will not be considered here since a strain of chickens can change significantly in five years. The range in livability among the entries was from 91.5 to 99.3 per cent. This is a difference of 77 broilers for each 1,000 chicks started. The most efficient entry required 2.84 pounds of feed per pound of live weight, whereas the least efficient required 3.09 pounds of feed. This apparent small difference in feed utilization meant that 750 pounds more feed was required per 1,000 broilers for the least efficient entry. The live weight table shows that there is a great difference among the entries in this factor. The heaviest entry averaged 4.27 pounds and the lightest averaged 3.33 pounds. This difference means that the time for the fastest and the slowest growing to reach the same weight would be a difference of about two weeks.

The broiler (fryer) industry in South Carolina is expanding rapidly. In this expansion, it is necessary to follow sound management practices. One of the important practices is that of buying high quality chicks that are bred for broiler production. Some of the best meat-type strains of chickens are available from breeders and hatcheries in South Carolina.

DANFORTH FELLOWSHIP—continued from page 7—

mal nutrition, covering every phase in the science of feeding. He also spent a morning explaining the uses, of all the different animals used in research, which ones are used, what they’re used for, and how they are cared for.

Some of the other periods were spent on cereals, credit rating, a description of the Purina organization, a tour through the disease control labs, a tour through the manufacturing plant, and several movies. I have probably left out some things and have only mentioned these. It would take all day to really tell about what we saw and heard.

Not every day, however, was spent sitting and listening. We toured the city one day, starting out with several hours at the St. Louis Merchant’s Exchange. We saw the several gigantic bridges that span the Mississippi and other points of interest throughout the city, then went through the Forest Park Zoo, one of the most complete in the world.

On another day we visited the Gardner Advertising Agency and learned what goes into the beautiful ads you see in today’s magazines, hear on the radio, and see on television and by the roadside.

We took in the East St. Louis Stockyards and toured the Swift and Company packing plant. If you don’t think we eat plenty of meat in this country, I wish you could visit such a place. Just imagine such things as weiners pouring out of a machine like water from a hose and a smokehouse four stories high. We saw every process that meat goes through from live animal to delicious packages ready to cook.

Still another day we visited the C-S Marketing Company and saw what happens to the millions of eggs eaten every day. I had no idea there were so many grades of eggs and so many processes for them to go through.

Is this beginning to sound as if the days were full? Read on, you haven’t heard all yet. Crammed into the program for our further education and pleasure was a night at the opera, one at the ball park, and a banquet. We saw “Naughty Marietta” in St. Louis’ enormous outdoor theater, which holds 12,000 people. In Sports—continued on page 31—

TWENTY-ONE

LOST FAITH
by Joe O’Cain

A hoe.
A pencil.
A Bible—
An M-1!—
And lost faith!
A man, and yet a child,
Sings ‘neath cloud
And dust;
And charred human blood scent
Rises in the midst of life!
A weed grows
And angel tears rust hoe,
And pencil lead is worn
With history’s word—
The rubber cannot erase!
And Good pages unread and
rotten
Diffused among this lust for
power.

—continued from page 7—

SPRING 1953
CAUTION!

Radioactive Material

by ROBERT E. POSTON, Agronomy '54

Signs bearing the above words are becoming a common sight at greenhouses and experimental plots throughout the United States. This doesn't mean that we are working on atomic bombs; instead, it means that we are learning much about the processes of plant growth and the value of fertilizers through the use of radioactive elements. Experiment stations are employing the radioactive forms of nearly all the elements essential to plant growth. Radioactive phosphorus is used to a large extent because it is one of the major plant nutrients and is not quite as dangerous as are some of the other elements.

At Clemson, radioactive phosphorus has been used in numerous experiments by Dr. A. B. Prince and Mr. E. H. Stewart. They have worked with such farm crops as cotton, alfalfa, sericea, perennial rye grass, and reseeding crimson clover. Fertilizers containing radioactive phosphorus are applied in carefully measured amounts to soils growing these crops. The phosphorus that is taken up by the plant can be traced to the plant parts by two means: the use of a Geiger counter and the use of radioautograms.

The Geiger counter will give a clicking noise when held close to any radioactive phosphorus and the intensity of phosphorus can be determined by the frequency of the clicks. The plants containing the radioactive phosphorus may be mounted and pressed against special photographic film for a certain period of time. Radiation coming from the radioactive phosphorus exposes the film and the resulting negative is called a radioautogram. When prints of radioautograms are made, plant parts containing large amounts of radioactive phosphorus will show up lighter in the picture than will other parts. By these methods the role which phosphorus, as well as other elements, plays in the growth and development of plants can be more precisely determined.

Because of the danger involved in their use, radioactive elements cannot be used in commercial fertilizers. They can, however, be used in experimental work to measure the efficiency of different fertilizers. A good example of this is the application to the soil of superphosphate made from radioactive phosphorus. Then an analysis of the plants grown in the soil shows exactly what percentage of the applied phosphorus was taken up. A similar technique is employed with other types of phosphorus fertilizers. Their relative efficiency for certain plants and soils can then be determined.

The radioactive phosphorus used in these experiments is obtained from the United States Department of Agriculture which in turn gets it from the Atomic Energy Commission installation at Oak Ridge, Tennessee. Before an experiment station is allowed to use the phosphorus, the station is investigated by the Atomic Energy Commission and a contract is drawn up to ensure that proper safety precautions are observed. All field experiments must be fenced and a sign stating that radioactive materials are being used must be posted. All personnel working with the experiments wear film badges which determine the amount of radiation given off. The film in the badges turns dark upon exposure to radiation and the amount of radiation is determined by the degree of darkness of the film. Special tractor-drawn equipment, designed to protect the operator from radiation, is used to apply radioactive materials in the field. A portable Geiger counter is used at all times to monitor the experimental area and personnel. When there is danger of contamination of the body with radioactive material, rubber gloves, dust respirator, and other protective clothing are used.

This is the fourth year that these experiments have been run at Clemson and much has been learned from them. Dr. Prince and Mr. Stewart are now planning an experiment in which they hope to find the efficiency of phosphorus applied in permanent pastures in varying amounts and frequencies over a two year period. The data obtained from this experiment will help the farmer obtain the most economical use of his fertilizer with a minimum of field operation.

FARMERS MAY OBTAIN RECENT EXTENSION SERVICE PUBLICATION

Circular 382—Control of Root Knot and Other Nematodes
Circular 381—Planning for Balanced Farming
Circular 380—Cotton Production. Insect and Disease Control, 1953
Circular 379—The 1952 Cotton Contest
Circular 378—Lime For South Carolina Soils
Circular 360—Peach For South Carolina Soils
Circular 332—Thinning Pest Control (Revised)
Bulletin 114—Insect and Plant Disease Handbook
Bulletin 110—Freezing Food For Fome Use (Revised)
Bulletin 104—Agronomy Handbook For South Carolina (Revised)
Recent Experiment Station Publications—
Circular 87—Blackstrap Molasses As A Feed For Livestock
Bulletin 401—Inspection And Analysis Of Commercial Fertilizers
Because of the cost involved, a charge of 25c per copy is made for Bulletin 114 and a charge of 65c per copy is made for Bulletin 104. The other Bulletins and Circulars are for free distribution. You may obtain these publications by writing to Clemson Publication Department, Clemson College, Clemson, S. C.

THE AGRARIAN
Clemson Needs an Ag. Museum

South Carolina's crude agricultural tools are significant in the hearts of our state's prominent colonial families— and something needs to be done to save the tools by which the state's great agricultural heritage was built.

Thousands of visitors yearly admire the original John C. Calhoun home-place on the Clemson campus. Truly, South Carolina is proud of the "Calhoun Museum;" however, few realize that an even greater "Carolina Museum" is decaying before our own eyes. Today's giant wheels of progress have overrun all of our Colonial type tools and machinery. For example, the young farmer of today probably never thought of the old screw type cotton press such as the one found at the old Ed Ravinall Place at Clemson.

These old screw type presses were used years before the modern hydraulic cotton presses were built. A team of mules, which furnished the power for the press, was hitched to each end of a long wooden beam which was connected in the center to a large wooden screw. As the mules walked around in a circle, they turned the large wooden screw which in turn pressed the cotton into a bale.

With only a few in existence in the state, perhaps there is no wonder why so few people know about these "antiques." Possibly there are many antiques which are useless to the individual farm owner which could be used very effectively in an interesting agricultural museum. Year by year the value of such antiques is deteriorating.

According to Mr. A. E. Schilleter, horticultural extension serviceman, "Greater appreciation for South Carolina's agriculture would exist if we had a museum or some type building to display and preserve the tools which were once essential to our agriculture."

Clemson was the center of a lively agricultural section even before our present college was founded. In the Fort Hill Community, the first South Carolina Farmers' Agricultural Society, later called the Farmers' Federation, was organized and extensive experiments were set up. Because of the lack of funds and farmers' interest, a collection of old tools used in South Carolina's early agriculture experiment has never been promoted.

Probably everyone who has been associated with agriculture in South Carolina and has watched these tools fade out of use has a love for them and would like to see a museum established. Such a museum would not only preserve our great South Carolina heritage, but it would also preserve our colorful pages of history to future generations who would appreciate them and have a greater knowledge of the history of South Carolina's agriculture.

Editors Note: Anyone interested in the idea of an Agricultural Museum, write to the editors of the AGRARIAN, Long Hall, Clemson, S. C.

Class Picks Up First Hand Info at Mill

On the 17th day of December, the Feeds and Feeding classes along with their instructor, Mr. Jim Cook, took a field trip to the Spartan Grain and Mill Company in Spartanburg, South Carolina.

When the group reached the mill they were greeted by the president, Mr. Fretwell. After a brief discussion and introduction of some of the staff, the classes were divided into groups and toured the complete mill. The groups started their tour with the inspection of the receiving rooms, where all grains and concentrates are stored until needed. The students were astonished with the ultramodern methods for loading and transferring the incoming materials. The mill foreman explained the processes of mixing, storing, bagging, weighing, and the transferring of the finished products to the warehouse.

Next, the groups visited the laboratory where all of the products, both incoming and outgoing, are tested. The head of the chemical staff, Mr. A. W. Koon, a Clemson graduate, discussed the methods of testing the composition of the products.

The groups were then assembled and adjourned to the Franklin Hotel for lunch as the guest of the Company. After lunch, they moved on to the Research Farm of the Spartan Grain & Mill Co.

SPRING 1953
Leading the Way

Spartan leads the way in developing better feeds and feeding programs for the Southeast's rapidly expanding poultry and livestock populations. Recent new feeds include:

- **SQ Booster** (for all poultry)
- **SQ All-Mash Layer**
- **SQ All-Mash Breeder**
- **SQ Creep Feed** (for beef calves)
- **SQ Livestock Minerals**

Also introduced to the Southeast by Spartan were the new, convenient “Handy Fifty” paper bags, plus the new type, coarse-textured dairy feeds containing pellets and cramped oats.

THE BATTLE AGAINST WEEDS

Continued from page 11—

This compound should be mixed with a good grade of fuel oil, although it is equally effective when mixed with water and used for foliage applications.

In addition to the selective weed killers, there are also compounds for commercial use which may be applied to cotton for the control of both weeds and grasses. Two such herbicides are “Dinitro” compounds and Chloro-IPC. Both of these chemicals are applied to cotton as post-emergence sprays for the control of weeds and grasses.

A number of factors enter into the successful post-emergence control of weeds and grasses in cotton. First, the cotton must be old enough to tolerate the application of the herbicides. Second, great care must be taken to prevent the cotton plant’s leaves from becoming wet with the special herbicidal oil. This is accomplished by using a small nozzle traveling beneath the lower leaves of the plants and directing the stream of material downward. Third, the herbicide must be applied when the weeds and grasses are just appearing above the surface of the ground.

A few compounds are also on the market which are designed to control weeds and grasses to the extent that the soil will be sterile for a period of six months to a year. A new compound of this nature is C. M. U. It is not available for agricultural use at the present due to the uncertainty of the length of time it will cause the soil to remain unproductive. It would, however, be very valuable for use around farm buildings to lower the fire hazard due to dense growth of grasses. Other compounds of this nature which are available are sodium penta chlorophenate, sodium chlorate, borax, and various combinations of these materials.

At the present time intensive research is being conducted throughout the United States on chemical weed controlling agents. At Clemson tests are being carried out under the direction of Dr. W. B. Albert, associate physiologist of the South Carolina experiment station. Several circulars have been prepared by Dr. Albert and his co-workers and these are now available to anyone who is interested in the subject.

Although rapid advancement has been made in the field of chemical weed control in the past few years, the subject by no means has been completely explored, and as a result there are many problems upon which not more than preliminary observations have been made. As new chemicals and improved methods of application become available, many of today’s problems should be solved, and the amount of hand labor in future crop production should decrease.

Clemson Seniors

Continued from page 9—

Robert Hollingsworth, "Young Robert," from Cross Hill, S. C. is majoring in the field of Animal Husbandry. Robert is active in Presbyterian Student Association, the "Y" Cabinet, and the Block and Bridle Club.

He has started a good herd of registered Herefords and he plans to farm as soon as he can. Robert's favorite pastimes are sleeping and fishing.

Robert Hollingsworth
Cross Hill, S. C.

A. W. Leland, a Dairy major, is from that fertile spot in the "Low Country" known as Wadmalow Island. His success at Clemson might easily be traced back to his outstanding records in the Charleston County 4-H Club work. Aaron is the past president of Beta Sigma Chi, vice president of the Dairy Club, a member of Alpha Zeta, and Presbyterian Student Association. Aaron has also been to Camp Miniwanca. After serving his term in the service, Aaron plans to take up farming in the "Low Country."

A. W. LELAND
Wadmalow Island, S. C.

THE AGRARIAN
Will Your Bull Be a Beauty...

or will he grow economically

by R. T. Hollingsworth, Animal Husbandry, '53

The bull feeding project recently conducted by the Animal Husbandry Department of Clemson was followed with a great deal of interest by all those in South Carolina interested in beef cattle. The purpose of this feeding project was to determine the feeding qualities or gaining abilities of the individual bulls. An accurate account was kept of the progress made by the bulls throughout the feeding period. The bulls were constantly weighed and the average daily gains were recorded. All of this work was under the able supervision of Mr. R. R. Ritchie of the Animal Husbandry Department.

The idea of a bull feeding project was first brought up by the South Carolina Livestock Breeders Association in the Summer of 1951. They requested that such a project be conducted, and it was started the following fall. For this first test, twenty-five bulls were brought in from different parts of the state and the experiment was carried out very successfully. At the end of the feeding period, a sale was held and the bulls were sold for prices ranging from two-hundred and sixty-five dollars up to thirteen-hundred dollars.

This year a similar test was carried out, starting on October 7, 1952 and running through February 24, 1953. Eighty-two bulls were nominated from all over the state for the project. A selection committee went out, looked at the bulls, and accepted fifty-two for the experiment.

Although no specification as to age was made, the bulls selected were calved on dates ranging from December 1, 1951 through the middle of March 1952. The fifty-two bulls accepted consisted of twenty Herefords, eighteen Polled Herefords, twelve Aberdeen Angus, one Polled Shorthorn and one Brahman. All of these bulls were selected from well managed herds of South Carolina and the outstanding bloodlines of the nation were represented.

Although students did not actually do any of the feeding in the test, many of the Animal Husbandry students did get quite a bit of practical experience in beef production from the project. The freshmen constantly washed and groomed the bulls while the other classes weighed and measured the bulls and got them ready for sale.

The ration used in the project was designed as a growing ration as well as a fattening ration. All the bulls in the test were fed individually on a full feed. Hand feeding was practiced, and the hay and concentrates were fed separately. The type of ration used was found to be very satisfactory for the project.

The average daily gain for this year’s test was 2.01 pounds. The highest daily gain was 2.5 pounds and the lowest was 1.29 pounds. According to breeds, the Polled Hereford had the highest daily gain with 2.14 pounds; the Shorthorn was second with 2.07 pounds; the Hereford third with 1.95 pounds; the Aberdeen Angus fourth with 1.94 pounds and the Brahman last with 1.82 pounds. It should be noted, however, that there was only one Shorthorn and one Brahman in the test, which is hardly enough from which to draw any conclusions. It should also be noted that the difference in the daily gain of the Hereford and the Aberdeen is not significant.

The gaining ability which was determined in this test is of great importance, since it is felt that feeding quality is transmitted from the bull to the offspring. This test, however, is not considered an indication of the feeding qualities of the sires of these bulls, due to the fact that only one bull of any sire was tested. A number of offspring from a sire would have to be tested to reach a conclusion as to the feeding quality of the sire. This test merely shows the feeding qualities or gaining ability of the bulls, which may serve as a guide in selecting a bull for the breeding herd.

A few days after the project was completed, the bulls were sold at auction to cattlemen throughout the state. It is hoped that these bulls will do much to improve beef cattle in South Carolina.
A mysterious thing—this disease, no one knew where it had come from or where it would strike next. Outbreaks would occur hundreds of miles apart in even the most isolated cattle herds.

X-disease was first reported in a New York dairy herd in 1941. Within a few years the disease was spreading to parts of the United States and some sections of Europe. By 1948 all of the states east of the Rockies had reported cases of the disease, but the most numerous reports came in from the Southeastern states. Tennessee reported losing 300 head of cattle valued at more than a million dollars.

Animals affected with X-disease lose their appetites and drool saliva. The skin along the neck, jaws, flanks and between the hind legs becomes progressively thicker, wrinkled, scaly and eroded; their hair falls out in the most severely affected places. Ulcers or raised areas appear in the mouth. Chronic coughs, diarrhea, and mucous discharges from the nostrils are other common signs. Pregnant cows may abort or give birth to dead, fully developed calves. Milk production will be reduced severely. Morality is highest in young calves, lowest in mature cattle and the majority of cases occur in cattle six to twelve months old. The disease may affect an animal for several weeks to a few months before death or recovery occurs. Post mortem examinations show ulcers in the abomasum or true stomach, inflammation in the intestine, and damage to some of the organs.

Seventeen land grant colleges began seeking the answer to X-disease. Soil types, fertilizers, rare minerals, and poisonous plants were studied to determine if they caused X-disease. They did not. Then one day Dr. Dennis Sikes of the Veterinary Department at the University of Tennessee, came up with the answer. Dr. Sikes had been doing research on X-disease for several years and had visited many farms in Tennessee.

Severe case of X-Disease, found in Pickens County, showing the thickened and wrinkled condition of the skin. (Photo by Dr. G. W. Anderson)

where X-disease had occurred. He had noticed that in many of these affected herds the animals had grease or used crankcase oil on their backs for lice control, or they were housed with, or could in some way come in contact with farm machinery. Dr. Sikes realized the importance of these observations and began feeding a ten month old calf capsules of various lubricants. The calf developed X-disease. Work at Cornell and Virginia Polytechnic Institute confirmed Dr. Sikes' findings. It was found that the causative agents of X-disease were chlorinated naphthenes. Chlorinated naphthenes were first added to lubricants on a large scale basis in the early forties; this is when X-disease began. Besides being used to make lubricants more heat resistant and waterproof, chlorinated naphthenes have also been used in insecticides, electrical insulation, and certain wood preservatives.

Although there is more to be learned about X-disease we can act on what we already know. Some precautions we may use in guarding against X-disease are as follows:

1. Animals should not be allowed to come in contact with machinery—tractors, bulldozers, combines, etc.

2. Dispose of used lubricants where animals cannot get to them. Do not lubricate machinery in the pasture if there is danger of dropping grease or oil on the grass. It takes only a small amount to kill!

3. Avoid use of insecticides and wood preservatives containing chlorinated naphthenes.

In the future, chlorinated naphthenes will probably be eliminated from lubricants, insecticides, and wood preservatives for farm use. Until this happens, we must use these products with utmost precaution.

**OPEN COUNTRY CHURCH SURVEY**

Clemson's associate rural sociologist, Mr. Virlyn A. Boyd is conducting a unique study of the open-country churches in Anderson County, South Carolina. The report will be published in the near future by the South Carolina Agricultural Experiment Station at Clemson and will carry the results of the completed survey.

Special interest in the rural community and the rural church is alive today since non-farm workers living in the rural community are able to give financial support. According to Mr. Boyd, "With the increase in our farm income over the Thirties and the addition of non-farm jobs, financial support has increased so that many churches are not only able to have a full-time program of services but are also improving their buildings and facilities. The most encouraging aspect of my work with the rural church is the revitalization of many open-country churches."

The church publication grew out of the interest of the annual Rural Church Conference held at Clemson during Farmer's Week.
Ag Students Will Visit Europe

"Grass Roots Ambassadors" Selected for Outstanding Leadership in Community

by EDWIN F. NOLLEY, VAE '54

Two Clemson College students, Fred E. McLaughlin, Jr. of Florence County and Benjamin S. Wiggins of Richland County have been selected to travel to Europe this summer as South Carolina's first "Grass Roots Ambassadors" under the International Farm Youth Exchange program.

The International Farm Youth Exchange is a project for young people from farms in the United States to live and work on farms in other countries, and for farm youths from these countries to come here and observe rural life. Those who go to other countries are called "outbound delegates," while those who come to the United States are called "inbound exchangees." The project helps rural young people to understand and appreciate the problems of similar people in other countries of the world.

The first "inbound exchangee" to visit South Carolina is Mr. Allan Richardson of North Auckland, New Zealand. Mr. Richardson, who is twenty-two years old, arrived on March 12 and will remain in South Carolina until May 24. While here he will concentrate his studies mainly on dairy production since he owns a dairy farm in New Zealand.

The Exchange is dedicated to the belief that UNDERSTANDING is the foundation of world peace. While delegates will learn about agriculture and science in their host country, what they learn in this respect is important ONLY as it helps them to understand the "way of life" of others.

Benjamin S. Wiggins, a Dairy major, will go to Switzerland, and Fred E. McLaughlin, an Animal Husbandry major, will travel to England and Wales. They will go this June and return in November, and while they are to be accepted as members of the families with whom they live; for mutual respect and understanding must begin at the family level.

The I. F. Y. E. program between the United States and other countries has been going on for the past six years. In 1953 plans are for America to exchange more than one hundred thirty-five selected rural young men and women between the ages of twenty and thirty.

South Carolina's young men, both sophomores at Clemson College, were selected because of their outstanding achievements and leadership in their communities and county. The I. F. Y. E. project is sponsored by the Clemson Extension Service and the State Master 4-H Club in cooperation with the National 4-H Foundation. Expenses for the delegates are provided by interested local 4-H Club and Extension Service groups, Civic Clubs, and business firms.

The Citizens and Southern National Bank of Columbia through the Lane Bee Memorial Foundation in financing Wiggins' trip. Local groups and business firms of the Florence area and the Capitol Life and Health Insurance Company are paying the expenses of Fred McLaughlin, Jr.

Upon their return to this country, both young men will report their experiences to various clubs and groups in South Carolina.

Fred stated that he feels the experience which he will gain will be very beneficial and worthwhile, because the best way to create friendship and to learn the habits and methods of a people is to actually live with them. He has done extensive research in the English ways of life and other things such as the conversion of American currency to the English monetary system.

While in England McLaughlin will be the guest of the Young Farmer's Club which is similar to the 4-H Club in the United States, except that the age limit is set at twenty-five. These Young Farmer's Clubs carry on study groups, practical field work, surveys, and social and athletic events.

Benjamin feels that his stay in Switzerland will be most helpful to him in securing his dairying degree here at Clemson since Switzerland is one of the foremost dairy countries of the world. He will live with from two to ten Swiss families while there, and from them he hopes to learn much about the Swiss people, their customs, habits, and especially their agricultural and dairying practices. But since the prime purpose of his visit is to promote understanding between Switzerland and the United States, Wiggins will give this goal first consideration because of its significance in world peace.

Professor, after having helped a student make out his schedule: "Well, you're all finished except for drop-add."

A G. I. working on a railroad in India had been severely reprimanded for taking over duties which were not included in his orders. He was pretty well "shook up" over the incident.

No long afterwards, headquarters received a startling telegram: Tiger on my loading platform eating lieutenant. Wire instructions.
Diseases In The “Mortgage Lifter”

Hidden Losses In Pork Production

by JAMES E. YOUNG, A. H. ’56

No other animal has contributed more to American agriculture than the common hog, which is more popularly known as the “mortgage lifter.” The hog has acquired this title because of its efficient utilization and conversion of garbage, stale bakery goods, and dairy by-products into palatable, nutritious foods for human consumption; its adaptability to every size and type of farm; and its ability to multiply and fatten rapidly—thus providing the raiser with quick income with which to help pay off his mortgage.

Today, the swine industry in America has attained a new, modern state of development by which it produces about 25 per cent of the world’s supply of pork. Nevertheless, it still has many problems to overcome.

The application of health-conserving, disease-prevention, and parasite-control measures to breeding, feeding, and management of herds of swine are necessary for successful pork production. Contrary to common belief, the hog, by nature, possesses clean habits if only he is given an opportunity. In many cases, however, the hog is subjected to close confinement, crowded conditions, and filthy quarters which favor the attack by the common diseases and parasites of swine.

Swine herdsmen should be informed of the relationship of swine diseases and parasites to other animals and to human health. It is a known fact that over one hundred types of infectious and parasitic diseases can be spread from animals to human beings. One of the most serious parasitic disease of human beings is trichinosis, which is caused by eating TRICHINELLA SPIRALS infected pork which has been improperly cooked. This disease often results in the loss of human lives.

There is no domestic animal that isn’t affected by some sort of internal parasite. Harbor ing any kind of parasitic worms will result in heavy losses to the owner of most kinds of livestock. Hogs are probably more susceptible to and affected by parasites than any other class of livestock, with possible exception of sheep. Hogs are not affected with true stomach worms, but they do harbor many species of nodular worms, whipworms, and hookworms.

These worms are most commonly found in the southern states and usually live in the intestine of infested hogs. Although there are many different kinds of internal parasites which infest swine and cause heavy losses to the pork producer, the big ascarids and the kidney worms are most notorious. They are all round worms but none of them are so widely distributed as the big ascarids or more commonly called roundworms.

The adult roundworm, technically known as ASCARIS LUMBRICOIDES var. SUOS, is usually yellowish or pinkish in color, eight to fifteen inches long and almost the size of a lead pencil. The life history of this parasite may be briefly described as follows:

1. The female worm lays eggs in the small intestines and these are eliminated with the feces. They are extremely resistant to the usual destructive influences and will remain alive in the ground for several years. These eggs do not hatch into larvae at once, but instead, they have to be swallowed by the hog along with contaminated feed of water before they hatch.

2. After the eggs hatch, the larvae burrow through the walls of the intestine and find their way into the blood stream, liver, lungs, and other organs of the body.

3. The larvae keep on growing there, and eventually crawl up into the back of the mouth and are swallowed, again entering the stomach where they set up housekeeping in the small intestines. Here the larvae mature into sexually mature worms and start laying eggs of their own.

After a complete life cycle of the roundworm, which usually takes about two months, hog lots may rapidly become infested, for a single female will sometimes lay up to 200,000 eggs per day.

The adult worm usually does slight damage but the larvae can cause serious lesions. Although the symptoms of infested animals are various, most worm victims become unthrifty in appearance and stunted in growth. Coughing, “thumpy” breathing, slobbering, and vomiting are characteristic symptoms of most worm infested animals.

Control of roundworms consist of continued on page 32—

Parasite-free pigs thriving on a clean pasture.

THE AGRARIAN
Seeing Is Learning

by GENE NORRIS, V.A.E. '54

By means of visual aids forty percent more is learned and fifty-five percent more is remembered! In order to take advantage of this, the Vocational Agricultural teachers in S. C. are making extensive use of visual aids. The motion picture, slides, and film strips are brought into many people's mind when visual aids are mentioned; but these are just a few of the available aids. For instance, opaque projectors, blackboards, bulletin boards, charts, maps, objects, specimens, models and field trips serve as inexhaustible sources of visual aids in teaching agriculture. As the name implies these aids are only teaching devices for the teacher, but if used properly, beneficial results can be obtained.

The motion picture has grown more in popularity in the last few years than any other form of visual aid. Some of the reasons for popularity are that the attention of the learner is attracted by the showing motion. The situation is made natural and life-like and actions that otherwise move too rapidly or two slowly, are made depictable by the human eye. Even with these advantages, the teacher must make adequate preparation. An introduction to the subject matter in class should be used to arouse the student's interest. Before the movie is shown, interest can be further stimulated by asking questions and telling the students what to look for in the picture. After the movie is shown the teacher should have a discussion of the subject to clear up any hazy points or help to organize the information. The final step is for the teacher to find out what has been learned or what attitudes have been changed.

Another useful and popular aid in teaching is the opaque projector. This instrument, which projects on a screen by reflection, pictures, maps, diagrams, and other flat objects, make books, magazines, bulletins, and other publications an inexhaustible source of material. The interest created in preparing materials by teachers and students, the availability for class use of any material where there is only one copy, and the inexpensiveness of materials are among the advantages of this projected aid. Unlike the motion picture, opaque pictures can be discussed fully before proceeding to the next picture.

The use of slides and filmstrips is another way of creating interest in better farming. Pictures of crop and livestock enterprises, soil and water conservation activities, and farm shop work often encourage a student to take more pride in his work.

Actual visual aids probably teach the student more from a practical standpoint than any other aid. Some of the actual specimens or objects agriculture teachers use are insects, various grades or classes of crops, seeds, ingredients of feed or fertilizer, soil profiles, diseased plants and certain chemicals.

Field trips also provide an excellent source of visual aids. On field trips, the student sees how operations are actually carried out but it can be a period wasted if the teacher does not prepare the students by telling them where they are going, who is to be there, and what to observe.

With the rapid progress being made in agriculture, a teacher needs to employ all of the student's five senses to keep them well informed. Certainly visual aids can aid and are playing an important part in providing up-to-date instruction for students of vocational agriculture.

"Going around with women a lot keeps you young!"
"How come?"
"I started going around with them four years ago when I was a Freshman—and I'm still a Freshman."

"Officer, come quickly! I've run over a Carolina student!"
"Sorry, Cadet, this is Sunday. You can't collect your bounty until tomorrow."

I serve a purpose in this school
On which no man can frown.
I quietly slip into class
And keep the average down.
POLLED HEREFORDS—
continued from page 5—
position, and are more docile in every way than horned stock, therefore, being able to put on more pounds per day and keep it there. Dehorning rids the animal of horns but brings about a large shrink due to loss of blood and shock from the operation.

In war or peace, the purebred cow is a stabilizer of the country's economy. Her value may not rise as rapidly as some items, but neither does it drop as rapidly. She can thrive on roughage that would otherwise be wasted. She and her offspring work day and night to help alleviate the various surpluses of grain and rebuild depleted soils while doing so. She doesn’t ask to be subsidized or for special concessions when working over-time.

The wealth of each mind is proportioned to the number and to the precision of its categories and its point of view.

The Agrarian

PARITY
By VANCE LOY
Ent. ’53

In recent years this country has seen a new god arise in the agricultural world “parity.” This word has become so sacred that perhaps the easiest way to get ones throat cut at an agricultural gathering is to denounce it. Many who use the term parity to represent a flawless, unchanging thing to be classified along with equity and fair play, either do not know the meaning and history of the word or possess malicious intent to deceive the public.

An economist defines parity (as used in all price support legislation) as “that price which one unit (bushel, pound, etc.) of a commodity would have to bring in order to give that one unit as much purchasing power, in terms of things farmers buy, as it had during a previous, or “base period.” The period, generally, is 1910-14, but the common practice in the past has been to use the period which gives the highest parity price. It is generally known that the government has not always supported prices at 100% parity. However, the figure has usually been from 60 to 95% parity, depending on the commodity. Lately there has been considerable pressure brought to bear on the government to support prices at 95 or even 100% parity. This pressure is causing some controversy and much hard feeling against the new administration. Even now conditions seem to indicate that some parity prices are too high, for example the current over-production of various commodities. These conditions suggest that the support price is not only a support, but is also a lucrative price for these commodities. On the other hand, some parity prices have never been as high as the free market was willing to pay.

Parity has been aptly called “Artificial Economy”. It is quite true that agriculture is more susceptible to economic changes and suffers more from them than other enterprises, therefore some support is an absolute necessity. But to suggest that each item should exchange for the same quantity of goods forever is absurd.

Clemson Book Store

L. C. Martin Drug Co.

Serving Clemson Students, Clemson People and Clemson's Friends and Visitors is Our Way of Mixing Pleasure with Business

WHERE ALL CLEMSON MEETS

THE AGRARIAN
DANFORTH FELLOWSHIP—continued from page 21—

man's Park we sat just behind home plate and watched the Yankees beat the Yankees. Then on our last night in St. Louis we ate an Italian dinner in the New Orleans Room of Gara-velli's restaurant.

Sunday morning we left St. Louis for the second half of our Fellowship. We travelled to Milwaukee by train, with a stop in Chicago for a few hours. Most of us took a bus tour of the city, then attended a show. From Milwaukee we went by steamer to Muskegon, Michigan, then a bus carried us up to Camp Miniwanca, at Stony Lake, Michigan.

Miniwanca is a 300-acre camping site in the heart of the famed fruit belt and wooded sand dune country of western Michigan, owned and operated by the American Youth Foundation. Its purpose is to help train Christian leaders for the world, assist them in their life planning, and help them to develop balanced Four-fold Living.

The program for these two weeks was just as fast and varied as the preceding one. We were awakened by a bell at 6:30, put on swimming trunks and went out for the flag-raising, limbering-up exercises, and a dip in the lake, all in rapid succession. After breakfast, a devotional period and clean-up time, we spent the mornings in a log cabin classrooms listening to outstanding leaders from all over the United States. In our “Ag Senior” class Mr. Danforth presented ten of our country's leading businessmen to talk to us on “Life's Essentials.”

After luncheon we had an hour or two of relaxation in preparation for the program of organized games, tournaments, swimming, canoeing, sailing, and other recreational activities that filled the afternoons.

Each evening we had a sunset vesper service atop Vesper Dune, overlooking Lake Michigan. I cannot describe the beauty and impressiveness of the occasions as the sun slowly sank into the lake while we sang hymns and listened to the speakers.

The remainder of the evening was devoted to some social event, such as the rodeo, the square dance, bull sessions in the Council Circle, and a visit with Mr. Danforth, or “Minis-ino”, as he is called.

The camp was divided into six tribes, living seven boys to a tent. We all participated in everything, competing both by tribes and by states for the best camper plaques. Each day's activities emphasized the idea of four-fold development—physical, mental, social, and religious.

There is only one way for you to really understand all that I've been trying to tell you, and that is to make the trip yourself. Every year a rising senior from Clemson gets this opportunity, and, using Mr. Danforth's motto, “I dare you” to be the one to go in 1953.

Poverty is not dishonorable in itself, but only when it comes from idleness, intemperance, extravagance, and folly. —Plutarch

Society would be a charming affair if we were only interested in one another. —Chamfort

A champion of the workingman has never yet been known to die of overwork. —Frost
HIDDEN LOSSES
IN PORK PRODUCTION
continued from page 28—
treatment with sodium fluoride, a
most practical drug for removing
these and other intestinal worms
from swine, and phenothiazine given
either in capsules or mixed with
ground feed. Although a dangerous
poison, sodium fluoride will expel 95
per cent or more of the roundworms
from the swine.

This treatment may be administered
by fasting the hogs for at least
twelve hours and then feeding them
a normal ration of carefully prepared
mixture containing one part by
weight of sodium fluoride to ninety-nine
parts by weight of dry ground feed for only one day. This treatment
should not be given to pregnant
or lactating sows. Sodium flu-
oride should not be given in slop
or any kind of aqueous solution, since
it may settle to the bottom, so that
one of two animals will receive the
full benefits of the entire dose. This
is an unsafe practice and may result
in the death of the overdosed ani-
imals.

Although roundworms are more
widely distributed, the kidney worms
are more detrimental to profitable
swine production. Kidney worm
infestation of hogs not only causes in-
efficient gains but also damages the
kidney, liver, loin, fat, and other
parts of the carcass which makes
meat unfit for human consumption.

Adult kidney worms may be found
in the kidneys and in cysts in the
ureters. Unlike the eggs of the
roundworm, which are passed in the
feces, the eggs of the kidney worm
are passed in the urine. The mature
female worms lay numerous eggs,
and it is estimated that as many as
eighty eggs are passed in the urine of a moderately infected hog in
one day.

Tiny larvae hatch from these
eggs within twenty-four to forty-
eight hours, depending on temper-
ature conditions and the moisture
content of the soil. Eggs and larvae
alike may live for months in moist,
shady places, but die quickly when
exposed to drying. Other hogs obtain
kidney worms then, by swallowing
the infective larvae with contamin-
ated feed and by rooting in litter that
has become contaminated.

Symptoms are usually limited to
loss of weight and retarded growth
rate, although stiffness and even
death may result from heavy infes-
tation.

Diagnosis is only positively made
by microscopically discovering the
presence of eggs in urine. Frequent-
ly, infected animals may discharge
pus in the urine.

Although there is no known drug
treatment for removing kidney
worms from infested swine, satisfac-
tory prevention and effective control
of these costly worms is obtained
through proper sanitation; thus
avoiding infestation with the larvae.
Practical sanitation is the only effec-
tive preventive of any parasite in-
festation of swine.

Regardless of efficiency of different
treatments, prevention is more
desirable and less expensive than any
kind of worming procedure for
swine.

The application of the McLean
County System of Swine Sanitation
has been recognized as a practical
means of keeping porkers free of
these costly parasites.

A girl who tries to talk her boy
friend into buying her a dress should
n't mind too much if he tries to talk
her out of it.

Read where Hadacol lost its first
case. A ninety-eight-year old woman
who used it died—but they did save
the baby.

PIONEER EXTENSION
WORKERS SAW
WORK GROWING

The recent death of T. M. Mills,
Newberry county, one of the pioneers
in farm demonstration work in South
Carolina, occurred just a few days
before the fiftieth anniversary date
of the first farmer-conducted farm
demonstration to be carried out
under the supervision of an employee
of the U. S. Department of Agri-
culture.

Mr. Mills, who served as county
agent in Newberry county from 1914
to 1929, and who helped farm demon-
stration work grow from its infancy,
died February 15, 1953. The first
USDA-supervised farmer-conducted
farm demonstration was started on the
farm of Walter C. Porter near
Terrell, Texas, on February 26, 1903.
The establishment of this demonstra-
tion is considered as the beginning
of farm demonstration work in the
nation and its starting date is being
used as the basis for a nation-wide
observance of the fiftieth anniversary
of the establishment of farm demon-
stration work.

A young reporter was asked to cut
his obituaries a little shorter, so the
next day he wrote as follows:

James C. Humphries looked up
in the shaft of the Union Hotel this
morning to see if the elevator was
on its way. It was. Age 24.

COBLE
Dairy Products
Seal of Quality
Buy At The Green and Oval Sign
Anderson, South Carolina
Here's the newest of the new...a great tractor made even greater!
Now, the new, advanced MM Model UB Tractor offers far more than ever before. MORE power! EASIER handling! NEW safety! GREATER economy! LONGER life! Features that mean even bigger value for every farmer's tractor dollar.

Read through the advantages listed below. See how much more today's farmer gets with the new, advanced Minneapolis-Moline UB Tractor.

**THESE ADVANTAGES MEAN MORE POWER, COMFORT, LOWER COSTS, REAL SPEED IN THE FIELD!**

1. MORE POWER! Higher compression cylinder heads, greater compression ratio offer more horsepower with new fuel economy! PERFORMANCE that adds up to less time in the field, more work done!
2. NEW HIGH PLATFORM! This one big feature provides greater visibility, puts the operator up away from dust and heat, provides ample standing room for a change of pace while driving the tractor. Platform gives a safe, solid foundation for new tractor seat.
3. NEW IGNITION SYSTEM! Double the voltage output means easier starting. New position for battery means easier servicing. Sealed beam headlights make night work easier, road travel safer.
4. NEW STARTER! The Model UB will start time and again where other tractors fail. Shorter cables cut down power loss.
5. NEW CENTER LINE STEERING and "needle bearing" universal joints deliver the most responsive, easy to control tractor on the market...equal vision on both sides of tractor. Throttle is right under the steering wheel.
6. NEW SAFETY FEATURES include shield over hydraulic Unimatic jack, complete protection from working parts of Unimatic and PTO attachments.
7. NEW PRESSURE COOLING! New the UB Tractor has a cooling system like most automobiles...sealed system cuts out anti-freeze losses.
8. AUTOMATIC WEATHER CAP keeps moisture out of your tractor. stays open automatically while tractor is operating.
9. NEW FLOR-FALL SEAT! Never before such comfort! New seat pan, new springs to take the shock, new hydraulic cylinder to absorb the rebound...weight, distance from steering column, and furrow leveling adjustments. Seat can be flipped back if operator wishes to stand.
10. NEW FOOT CLUTCH is located to the left of the steering column. Large capacity clutch and long pedal make operating easier.
11. NEW BRAKE SYSTEM! Longer brake pedals (both on the right side of the steering column)...disc type brakes that operate on the transmission countershaft...close spacing that eliminates locking pin...brakes that can be locked in "on" position by foot lever. UB brakes are advanced, respond faster—typical of a tractor that's ahead in so many ways.
12. NEW ROLLER DRAWBAR that can be locked in place or allowed to roll free.
13. LIVE POWER TAKE-OFF! Live PTO lever is convenient to operator. Pulled back, lever disengages tractor wheels but allows PTO shaft to turn and clear clogged or jammed PTO implement. Live PTO is optional equipment on the new UB.
14. EXTRA CAPACITY FUEL FILTER.
15. STELLITE EXHAUST VALVE INSERTS for best high compression performance, longer wear.
16. NEW, STRONGER "BOSSES" on side of transmission case provide far greater strength for front-mounted loaders or implements.
17. LIKE DRIVING THE LATEST MODEL CAR! MM has designed the new UB to place the steering wheel, throttle, clutch, and brake pedals right in front of the operator where they are naturally and easily reached...yet the UB keeps the exclusive MM Visionlined design.

**MINNEAPOLIS-Moline MINNEAPOLIS 1, MINNESOTA**

It takes that UB power bonus to hold plowing costs to the very rock bottom.

Here's the Model UB factory-equipped to burn LP gas. Farmers everywhere are cutting costs with MM's advanced LP gas system.

Operator stands if he wants to. The big, safe platform on the new Model UB gives plenty of space for a change of pace.
Test CAMELS for 30 days for MILDNESS and FLAVOR!

THE REAL PROOF of cigarette mildness is steady smoking. Do what millions of other smokers have done—try Camels for 30 days. By enjoying Camels regularly—on a pack after pack, week after week basis—you'll see how mild, how flavorful, how thoroughly enjoyable Camels are. There must be a reason why...

CAMEL leads all other brands by billions of cigarettes!