Welcome High School Seniors ............ 2
Dean's Desk ....................... 2
Editorial ........................... 3
Grow Small Fruits ................... 4
What's Your Dough Doing .............. 5
Forest Philosophy ................... 6
Pole Frame House ................... 7
Prof. Goodale Prognosticates ......... 8
Between The Furrows ................. 10
Here's To The Hexapods .............. 12
Block & Bridle ...................... 13
Clemson's Dairy Department .......... 14
More To Rain Than Water ............. 15
Aull on Agriculture ................. 17
Tall Corn .......................... 21
An Agrarian Day .................... 22

THE AGRARIAN is sponsored by the following organizations:

Agricultural Economics Association
Alpha Tau Alpha
Alpha Zeta
American Dairy Science Association
Am. Soc. of Agricultural Engineers
Block & Bridle Club
Clemson College 4-H Club
Collegiate Chapter FFA
Eta Zeta
Forestry Club
Horticulture Club
Kappa Alpha Sigma
S. C. Crop Improvement Association

THE AGRARIAN gratefully acknowledges the assistance of Brenda Merck, Joanne Brittain, Carolyn Carland, and Myra Musser in typing the manuscripts.
Welcome High School Seniors:

Congratulations on your choice of Agriculture as a career! You will note that the writers of THE AGRARIAN share your confidence in the future of this profession.

We look forward to your joining us here at Clemson next fall. While we are sure that the attainment of academic excellence will be your foremost objective, let us encourage you to become associated with your professional club as early as possible. You will surely find the fellowship with students and staff members in club activities one of the most memorable and rewarding experiences of your college career.

If you are interested in writing, photography or other phases of agricultural journalism, THE AGRARIAN solicits your talent.

The Vision

"In the beginning there was an idea and it was nurtured and it grew and grew until it blossomed forth," into Clemson College - 1961.

Should Mr. Clemson return for a visit today, his home would not be too different; however, around the mansion are many changes. Buildings, paved streets, motor cars, Hartwell Lake, different, yes, but not too surprising to Mr. Clemson. He dreamed of change, of science, and a better way of life.

He dreamed of an educational college capable of training the minds of young men in the truths of science. These were just beginning to unfold during his lifetime.

Agriculture today would be of great interest to Mr. Clemson, and especially these three new fields open to agricultural students. Science, where chemistry, mathematics, physics, bacteriology, botany, entomology, zoology, and medicine play such important roles; Business, the art of management, marketing, equipment and supplies, all important in the business world of today; and Production Technology, where students learn the principles of scientific agricultural production in the light of modern technology.

Clemson College thus fulfills his dream of educating young men to take their places of leadership in agriculture. Truly today, there are dynamic careers ahead for students who choose agriculture at Clemson.
BEEN STUDYIN' IT OVER...

... And we've come to wonder about the future of THE AGRARIAN.

In publishing this second edition the members of Clemson's Agricultural clubs, through the Agricultural Council, have clearly demonstrated the feasibility of continuing THE AGRARIAN. We are gratified by the favorable response to the past issue, both within and beyond South Carolina.

However, resources of most student clubs are very limited. It is improbable that future publications can be assured without some form of underwriting or subscription.

The South Carolina Crop Improvement Association has generously sponsored the present issue. We sincerely extend our gratitude to this organization. The participation of other agricultural organizations will be welcomed.

Would it be unreasonable to look also to Clemson's Agricultural Alumni for this needed stability? If a substantial proportion of these agriculturists should make a nominal contribution each year, the continued publication of THE AGRARIAN would be assured. Contributing Alumni would of course receive copies of each issue.

Should funds accumulate in excess of publication requirements, an AGRARIAN SCHOLARSHIP might be established.

Not only would this effort be valuable in terms of promoting agricultural journalism; THE AGRARIAN could thus become an effective disseminator of agricultural alumni news.

The funds could well be administered by a permanent board of faculty advisers together with the AGRARIAN student staff.

The present editorial staff, most of whom expect to become alumni in June, have agreed to contribute five dollars each as evidence of their sincerity in this proposal.

Who will join us? We will be grateful for your contributions. Checks may be made payable to the AGRARIAN and mailed to Room 144, P & AS Building, Clemson College, Clemson, S. C.

WHO SHALL JUDGE?

Effective teaching is the subject of perennial interest to all those associated with the educational process. Most sections of the recent Southern Agricultural Workers' Conference turned aside from their research reporting long enough for discussions relating to college teaching. There is in the School of Agriculture a committee designed for the study of teaching materials and methods. The recent modifications of the various agricultural curricula further witness the seriousness with which Agriculturists approach the teaching of the AGRARIAN sciences and arts.

These conferences and command decisions notwithstanding, the question of effective teaching must finally and fundamentally be posed at the classroom level. For it is here that the teacher might implant in the inquiring mind the seed of knowledge. Implant he may, but, strange to say, the same teacher who expounds the virtues of proper nurture for newly planted corn may paradoxically ignore the nurture and cultivation of his newly planted knowledge. This might represent the teacher who "couldn't care less whether they get it or not—they're grown men now". (Continued page 16)
Dennis A. Abdalla
Horticulture

If you're a commercial grower or home gardener and haven't tried growing small fruits, then it's about time you do! Strawberries, grapes, blueberries, and brambles are adapted to almost every state in the union, and are relatively easy to grow. With proper cultural practices, the commercial grower can add many dollars of profit to his income; similarly, the home gardener can add many new delicacies to his table along with improvement of his home grounds.

South Carolina is adapted to many of the small fruits, especially in the Piedmont area. Grapes are now on the increase with the formation of the Palmetto Grape Growers Association and the construction of the new grape processing plant in Spartanburg County. This offers a ready market for any prospective grape grower. The Concord variety, which is used exclusively by the processing plant, grows well and with proper cultural practices can produce 5-8 tons per acre. Grapes for juicing are bought on a basis of the sugar content at maturity with 16% being the base for initial payment.

The home gardener can use any number of varieties such as Concord, Delaware, and Niagara which are blue, red and white grapes respectively. These are fine for eating, jelly making, or juice. With proper use of arbors and trellises the grape can offer beautiful yard and garden utility. Shade and fencing are examples of landscape use.

For optimum annual production grapes must be pruned, fertilized, and sprayed every season, but if done properly these can prove to be relatively easy chores.

The muscadine type of grape is very well adapted to South Carolina's climate. Best suited to home gardens, they produce large, single, juicy grapes rather than a bunch-type cluster. Muscadines are excellent jelly makers, with Thomas, Scuppernong, and Hunt being good varieties.

Strawberries are probably the easiest of small fruits to grow, and many varieties do well in South Carolina. Dixieland, Pocahontas, Tennessee Beauty, and Albritton are a few. Planted in a matted row system and kept free of weeds, they are prolific bearers capable of producing 3-4 years and with proper runner control, rejuvenation is quite simple. They require some fertilization and occasional spraying for spider mites and foliar diseases.

On the home grounds strawberries give the ever popular "strawberry-short-cake" all season long, while jams, jellies or just plain strawberries and cream from your own garden are unbeatable.

Another use for the strawberry is as a ground cover. Their dark green, dense foliage, with an occasional bronze leaf, is a picturesque sight.

(Continued page 16)
WHAT'S YOUR DOUGH DOING ??

William R. Clayton
Ag Ec, '62

Why keep farm records? Certainly, as any wise farmer knows, records of his farming operations should be kept. There are many good, sound reasons for keeping records but they all point to one main objective -- increasing the individual's earnings.

The farmer, whether a large or small operator, can be aided by accurate records in a variety of ways. Records show clearly a history of the farm's performance from year to year including such data as the yield of each crop, the dollar value of each crop, the gross and net income of the farm, and the net value of the business at the beginning and end of each year. Such facts as these, which become more valuable the longer the records are kept, can be used as management guides and can definitely aid the farmer in the control of his business.

Since each farm has its own special problems, it is important that facts concerning production requirements and yields be analyzed by the farm manager. These facts can be obtained only from accurate records; rough estimates or guesses will not suffice.

Other than the general uses of farm records stated above, there are several other specific uses. One of these is the use of records to provide information for the settling of accounts with creditors and debtors. Such records are definitely needed on farms where there are share croppers or tenants. If a farmer can show a well-kept set of records, he is likely to make a more favorable impression when applying for a loan at a bank or other loaning institutions. Without accounts and records the farmer may have trouble convincing the prospective creditor that he is a capable farmer and is in a position to use the credit productively.

Records can also be used in establishing bases and allotments for participation in government programs. Much time and effort in qualifying for a crop control or soil conservation program can be saved by the use of accurate records of crop acreages and production.

Finally, in order that income tax returns be completed properly it is necessary that accurate records be kept. When estimating net income for the year, the farmer is apt to over-estimate since he will remember the large sales transactions but will forget many small expenses which could be deducted on his income tax return. So-called minor expenses such as oil, nails, or nuts and bolts, can add up to a sizeable annual total. A practical way of keeping good records of expenses is to do as much business as possible by check. In this way check stubs can be referred to and can give much information concerning expenditures.

Today, more than ever before, record keeping in the farm business is an essential of proper farm management.

<table>
<thead>
<tr>
<th>Date</th>
<th>Kind or receipt</th>
<th>Sale of crops</th>
<th>Sale of livestock raised</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Cotton and cotton seed</td>
<td>Grain crops</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>$</td>
<td>$</td>
</tr>
</tbody>
</table>
FOREST PHILOSOPHY

T. E. Blackwell
For., '62

Shirley Walter Allen, Professor of Forestry at the University of Michigan defines forestry as "a science, and art, a business, and a public policy capable of, and occupied with, effecting continuous production and management of forests on suitable lands and promotion of their beneficial use by mankind". Forestry is a heritage of keeping the woods productive. I like to think that when God made the first tree he knew that through the centuries trees would be a nesting place for birds, a refuge for wild creatures, a holder of the soil and an element that would provide for the comfort and spiritual revitalization of man.

A forest is an entity, a being, in that it seems to have endless patience with destructive man. Man acts as though he hates the trees. He destroys them by fire and other means, and yet the forests spring back time and time again giving man the opportunity to alleviate his sins against them.

Forestry is the profession and calling to keep these forests productive and beautiful. You might say that a forester is an envoy, a missionary if you will, of this forest being. It is up to him to see that the people of the world know the value that exists in their forests and that they utilize and protect this priceless treasure.

The city dweller, and I am one myself, is inclined to regard the forest as a place where "Smokey the Bear" roams unmolested and where giant virgin stands of timber rise against the sky.

To be sure, this is in error. Only a very small percentage of the total timber in the United States is virgin timber. The rest has to be managed intensively by highly skilled technicians and scientists known as foresters. Therefore, the concept that seems to have lodged in the public's mind that a forester is a man in a green suit with a black tie, riding boots, and an old-timey boy scout hat, whiling his time away in some deserted portion of the forest in a fire tower, is entirely in error. As a matter of fact, the ones who do this are known as fire guards or wardens who are sub-professional men. These are very important men and without them the forests would be in bad shape. However, they should not be confused with foresters who are graduates of a four year curriculum in forestry and whose main concern is with the over-all management of his woods rather than a narrow field. (Continued page 13)
POLE FRAME HOUSE

Lindsay L. McElwee
Ag. Eng., '61

In recent years pole frame construction has become one of the most popular types of structural framing for farm service buildings. Pole frame construction has been used for animal and poultry housing, machinery sheds, storage sheds and many other types of shelters. The uses of pole frame construction are virtually unlimited; new structures using this method of construction are being built every day. This system is also adaptable for building inexpensive farm homes.

ADVANTAGES OF POLE FRAME CONSTRUCTION

Pole frame buildings are easy to construct, even on very irregular or sloping grounds. Foundations are less expensive. No scaffolding or forms are required; therefore, regular farm labor and tools may be utilized. Erection is rapid, since the foundation and framing are completed in one operation. Cost is low, relative to conventional types of construction. By using properly pressure treated poles and lumber, a life expectancy of more than fifty years may be expected.

DESIGN FOR ECONOMY

A simple pole frame house can be constructed very economically by using farm labor and tools. Almost any simple designed floor plan can be adapted to pole frame construction. But to minimize cost a rectangular shaped floor plan 26 to 28 feet wide is recommended. Stock rafters 16 feet long and 14 foot floor and ceiling joists minimize waste. An economical system is to use floor joists, ceiling joists, and trusses spaced two feet on centers.

The basic structure must be sound and planned for remodeling ease. All windows and exterior doors should be standard sizes. Multi-purpose rooms are a must for low-cost housing, such as kitchen-dining room, and kitchen-family room-dining room combinations. Attic space provides much storage area or may be used for bedrooms. Insulation should be used especially in the attic.

Trusses and gable ends may be fabricated on the ground and lifted in place by means of the hydraulic lift of a tractor. This saves much time, labor and scaffolding. A simple, clear-span, gable roof should be used for economy.

Structural-insulation type sheathing-sheets save labor, cost less than conventional sheathing, and have at least twice the insulation value.

Exterior walls may be covered with exterior plywood, asbestos cement board, embossed corrugated aluminum, or wood siding. The plywood should be treated with preservative for longer life expectancy. Interior walls can be finished by using sheetrock, interior plywood, or wood paneling; sheetrock is the most economical.

A prefabricated plumbing wall is very important for bath room and kitchen because this eliminates costly tearing out and replacement of materials. Pipeless furnaces are much cheaper than piped systems. Wood burning stoves and space heaters are well suited for economical housing.

Kitchen cabinets of stock sizes should be used to minimize cost and reduce time and labor.

The roof can be covered with asphalt shingles, aluminum, or any suitable roofing material. Finishes for interior walls, exterior walls, ceilings, floors, and roofing materials should be selected by the individual to suit his tastes and his bank account.
PROF GOODALE PROGNOSTICATES

B. E. Goodale
Head, Dairy Department

Editor's Introduction

Speaking before the general session of the 1961 Southern Agricultural Worker's Convention, Jackson, Mississippi, Clemson's "Dean of Dairying", Professor B. E. Goodale, recently outlined his appraisal of the next ten years in southern dairying. Professor Goodale, currently is serving as Chairman of the Southern Region, American Dairy Science Association. He collaborated with other Heads of dairy departments throughout the South in arriving at a projected view of the dairy industry. A resume' of his speech follows.

The plant breeder whose research can produce a new high quality legume perfect in all ways for Southern conditions and a new permanent grass, palatable over a long season; or anything which a cow will drool over and make cheaper milk flow freely - that plant breeder will be the patron saint of Southern dairymen.

Dairy labor continues as a major problem. Good men who are willing to learn and to work are hard to find and hard to hold. We will try to teach them to love the dairy cow and make dairying a life-time job. We must slowly create a proud heritage of dairy experiences among our working people.

Artificial insemination is not developing in all areas of the South as it should.

Until Artificial Breeding Services become available to more dairymen over all the South, we will be forced to trail behind leaders who reap the benefits of techniques proved by scientists to be economical and effective. This is not a panacea to cure the ills of bad management, but the system fits well into our South-wide program of breeding better dairy cattle. Tie this to a management program that will give our cows the opportunity to produce to their genetic potential, and we are well on our way.

A study of farm buildings over the South with our friends from Agricultural Engineering can prove to be profitable. A great number of farm buildings planned by the dairy farmer and built by farm labor do not always fill the requirements of efficient mechanization. Time and motion studies used so long in industrial operations have been found to be just as useful on the farm. (Cont. page 9)

CHALLENGING PROBLEMS AHEAD

Better Dairy Farm and herd management practices must be developed. Low production per cow is blamed too often on breeding when it may be largely feeding and management.

Much more attention must be given to the newer knowledge concerning year-round pastures and stored high quality forages. More agronomic research is an urgent need to develop higher quality feeds for dairy cattle.
CHANGES EXPECTED BEFORE 1971

1. The National Sanitation Act may be passed long before 1971 after amendments to proposed act are made. When enacted into a law, barriers will be removed which now restrict movement of milk meeting the standards of Grade A milk as defined by the U. S. Public Health Service, in states and municipalities having higher standards. Many of our Southern towns, cities, and states have higher standards than the milk code of the U. S. Public Health Service.

2. The cracked crystal ball indicates the possibility of more State and Federal controls on dairy products and perhaps on producers.

3. Further advances in dairy equipment improvement are coming with more emphasis on automation.

4. Early in the decade under discussion, demand for milk fat will decrease but consumption of solids-not-fat will increase.

5. Increasing emphasis on solids-not-fat will require a change in our pricing structure and a re-directed stress placed on our breeding program.

6. Employees working with the milking herd who are responsible for razing production goals may be startled by the 400,000 pounds of milk requirement per man per year which has been set by some areas. This has already been accomplished and surpassed by some dairy farms over the South, but too few. Before the end of 1970, full proof of the 400,000 pound and higher goals will be widely accepted.

7. Dairy labor will become more specialized and more costly during the sixties, and may become unionized in a number of areas.

8. Large chain super-markets will build more dairy plants in the South. Private brand dairy items will increase rapidly in the early sixties.

9. The flurry of promotions for low-calorie, unpalatable, pseudo dairy drinks will subside and settle down to mainly standard skim milk products.

10. The old crystal ball indicates less distinctly that one standard grade of milk will be sold by producers in the future. Governmental actions may speed this change. The problems involved are rather obvious to dairy specialists, but in this world of perpetual innovations the unexpected change often becomes a workable reality.

11. In many areas less feed nutrients will come from grazing and more will come from specialized stored feed systems. We will learn much more about handling cows in large units and especially in dry-lot units.

12. There will not be much chance of a general increase in price of milk paid to producers. More efficiency in all operations is apparently their only possibility of getting more net return on their investment if changes in marketing methods are not feasible.

13. Competition from lower priced Grade A milk from other sections is a sure bet. Implementing such competition will be shipments into the South of a variety of canned and packaged Grade A concentrated milk. The latter when reconstituted will be sold at a price advantage made possible by savings in cost of transportation because the fresh whole milk is three or more times bulkier and if heavier.

14. In order to get milk production averages over 10,000 lbs. in herds all over the South there will be breeding programs in most all areas using production-proved bulls. Artificial Insemination programs using proved sires will spread rapidly. (Continued page 13)
THE AGRARIAN

**BETWEEN THE FURROWS**

**Block and Bridle:**

On April 8th the Block and Bridle Club held its annual Little International livestock judging and showmanship contest. During the morning the club members competed in a showmanship contest with cattle, swine, and sheep. That afternoon the club played host to 4-H and F.F.A. teams from throughout the state, along with interested college students, as they competed in a livestock judging contest. The day was concluded with the annual Block and Bridle Club banquet where awards were presented to the club members.

Bob Hunnicutt was awarded the coveted Merit Trophy for his Block and Bridle activities.

On March 23-25 the Junior Livestock Judging Team attended a livestock evaluation clinic in Atlanta, Georgia. In absence of their coach, Dale L. Handlin, they were accompanied by Dr. R. F. Wheeler, Head of the Animal Husbandry Department.

**Alpha Zeta:**

The South Carolina Chapter of Alpha Zeta will initiate 12 new members during the spring semester. Sophomore Joe Hughes, National FFA Officer, leads the undergraduate candidates scholastically with a 3.76 GPR.

**Dairy Club:**

Jim Caughman was recently elected to serve as the first chairman of the newly formed Southern Section, ADSA. Folks down Lexington way can rightly be pleased with their native son. The selection comes as no surprise to Jim's Clemson friends. He's active in a half dozen organizations, including Alpha Zeta, the Dairy Club, and Pershing Rifles, while sporting a 3.5 Grade Point Ratio.

**Dean Heads Southern Ag. Workers**

Dr. M. D. Farrar, Clemson's Dean of Agriculture has been elected Chairman of the Association of Southern Agricultural Workers for 1961. This organization is composed of the research, teaching, and extension workers throughout the several southern states.

Dean Farrar has headed Ag activities at Clemson since 1953.

**Ag Ec Club:**

A new project is being undertaken by the Ag Ec Club this semester. The Club is in the process of publishing a News Bulletin. The purpose of this publication is to present information that concerns the Club, the Department, and the field of Agricultural Economics in general.

Miss Little International, Judy Allen, awards showmanship of Butch Kennedy. Block & Bridle President, Bob Hunnicutt, observes.
Hort Club:

Clemson's Hort Club is again represented by an officer in the Southern Region. Jim Aitken, an "indoctrinated" Floridian, was elected to serve the region as secretary during the current year. Jim will be playing an important role in the organizational meeting of a National Collegiate Branch of the American Society for Horticultural Science. This meeting is scheduled for August at Purdue University.

Ron Cowart, a January graduate of the Hort Club, has begun work on his Master's Degree. He's staying with Clemson - working on chemical thinning of peaches.

Ag Eng:

Seniors Gerald Brooks and Luke Nance are planning graduate work in Ag Engineering. Gerald has a Ginning Engineering Fellowship from the Cotton Council. Luke is looking into tobacco mechanization work at N. C. State.

Gamma Sigma Delta:

Gamma Sigma Delta, honorary agricultural fraternity, has elected the following seniors and graduate students to membership. Selection is based primarily upon academic achievement.

Seniors
C. W. Boone
J. A. Brittain
J. D. Mills
J. H. Ryan
J. M. White

Graduates
J. O. Black

R. N. Boatwright
F. B. Cates
J. E. Cox
D. F. Fox
S. C. Gambrell
L. C. Hamilton
E. H. Hudson
J. W. Kelly
J. B. Kissam

How To Eat An Apple

Liberty Hyde Baily gave this formula for maximizing the pleasure of his favorite fruit - THE APPLE.

"Hold one in your hand...note its size and shape. See the slight blush on the cheeks and the tones of green than run from bottom to top. Put it to your nose and inhale the fragrance. Hold it at the hollow of your cheek. Now eat it. Do not cut it or slice it, but eat it. Feel the break and crack of its cool crisp flesh, the flow of its sprightly juice, and get the aroma that lies at the very heart of it. At last you have eaten an apple."

Senn Heads Horticulturists

All "alumni" of Hort. 201 will be pleased to hear that Dr. T. L. Senn is serving as Chairman of the Southern Region, American Society for Horticultural Science. Word has leaked out to THE AGRARIAN that Clemson's Head Horticulturist will probably choose RESPIRATION as the topic of his presidential address next year.
HERE'S TO THE HEXAPODS

Bruce Wallace

Entomology is the science that deals with the study of insects. There is very sound reason for this study when you consider that there are over 80,000 different species of insects in the United States alone and more than 700,000 species in the world. This does not take in related ticks, spiders and mites.

To many, entomology offers a very interesting hobby. However, it is a full time profession for over 5,000 men and women in this country. They are engaged in many different branches of entomology such as teaching, research, pest control, quarantine inspectors, and selling of insecticides.

You may ask yourself, "How is this science important?" Well, when we consider that insects do around four billion dollars' damage annually in the United States alone, then we realize the importance of entomology. We have all been annoyed by mosquitos, flies, termites, clothes moths and numerous other insects.

There are many phases of insect control. Some of them are: use of chemicals, use of natural predators, use of pest resistant plants and any other means of reducing harmful insect populations to a minimum. Physiology is the study of body functions; taxonomy is the identification of insects; toxicology concerns effects of poisons on insects; ecology deals with life cycles and environment; and morphology is the study of internal and external structure and form of insects. Research and teaching may engage any of the above fields.

There is also the prospect of regulatory service which restricts movement of insects into new areas and control of those which carry harmful plant and animal diseases. It also involves inspection of all forms of transportation entering the United States from foreign lands. State inspectors work in a similar capacity. The field of extension aids the public by making knowledge and experience generally available. Commercial companies hire many entomology graduates as salesmen, pest control technicians, technical field representatives as well as research workers. Many enter service in foreign countries as representatives of commercial companies and various agencies of the United States.

The person who makes entomology his choice of a career should have specialized study in this field. Background training should be rather broad with some of the more important subjects being zoology, botany, chemistry, plant physiology and pathology. Courses in entomology are offered at all land-grant colleges and universities. South Carolina is fortunate in having one of the better entomology departments in the South at Clemson.

Dr. Fox instructs pest control operations.
The Block and Bridle Club is a national organization composed primarily of students majoring in animal husbandry, or persons interested in the development of livestock.

For many years the Clemson Block and Bridle Club has sponsored the livestock and meats judging teams, which have represented Clemson throughout the United States.

Each year the Block and Bridle Club selects an outstanding club member for the previous year to represent the club in the National Merit Trophy Award Selection. Also, fifty dollar scholarships are given every semester to a junior club member whose scholastic standing is high.

Clemson football games would not be complete without the Block and Bridle barbecue. The profits from these barbecues finance all club activities, such as judging trips.

The Block and Bridle Club also sponsors the Clemson Little International, which is a contest of livestock showmanship. This contest is followed by a banquet where awards are presented.

Periodically, the club is honored with guest speakers from all parts of the South.

We attribute much of our success to the supervision and advice of our club advisors, Professor Dale L. Handlin and Dr. Don H. Kropf.

We are all vested with a duty to protect, nurture and harvest this vast, natural, and renewable resource.

15. There will be contract raising of locally produced heifer calves, and contract handling of dry cows. Specialists with assorted types of equipment will contract to raise, harvest, and store hay, silage and grain for the dairy farmer.

16. In ten years the majority of complete cow records of all kinds will be processed on electronic computers. Cost accounting systems for dairy farms, also using electronic brains, will give us records in the years ahead with speed and accuracy not considered possible a short time ago.

17. A far too small new crop of potential dairy scientists will be struggling to earn the terminal degree in preparation for research and/or teaching. The new era requires leaders with graduate degrees. Extension directors' demand for men with advanced degrees will further deplete the supply. More scholarships, fellowships and assistantships will be available to stimulate interest in graduate studies.

18. The years ahead look promising for the dairy industry despite expected problems. Challenges and opportunities for productive work at the highest possible levels will be plentiful during the coming decade. Dairymen must meet the challenges of the inevitable changing times coming in the remaining sixties. Those who do not may be ex-dairymen by 1970.
DAIRYING AT CLEMSON

Wayne Boone
Dairy, '61

Until 1917 there was no separate department for Dairying at Clemson College. Professor W. W. Fitzpatrick, a graduate of the University of Kentucky, came to South Carolina in 1914 as a Livestock Demonstration Specialist with the Extension Service and was made Head of the Dairy Division when the Animal Husbandry and Dairy Division were divided.

The original Dairy Division was housed in the Old Dairy Building which was built in 1912 and still stands today. At this time the Animal Husbandry and Dairy Divisions were both located in this building.

In 1920, J. P. LaMaster, also a graduate of the University of Kentucky came to Clemson to work in dairy extension. Prior to this time he had been in the Federal Extension Service in the South. On October 1, 1920 he succeeded Professor Fitzpatrick as Head of the Dairy Division.

Professor Fitzpatrick resigned to be the first man in the United States to promote the brand new Golden Guernsey National Milk Program, while continuing to reside at Clemson. Later he became manager of the famous Quail Roost Guernsey Farm near Rougemont, North Carolina where he lives to this day, now fully retired.

A few years after Professor LaMaster was made Head of the Dairy Division, the name was changed to "Dairy Department". LaMaster headed the Dairy Department for 37 years until his retirement on June 30, 1957. He supervised the extensive growth of the Dairy Department and its services to the state, and perhaps more than anyone man, is responsible for the growth of the dairy industry in South Carolina. When Professor LaMaster became head of the Dairy Division, the college herd consisted of three registered Holsteins, thirty two registered Jerseys and twenty five grade Holsteins. He developed a high producing herd to a total of over 600 head. The Clemson dairy herd became one of the largest state college herds in the United States. The college herd from the beginning has served a threefold purpose:

- Production of milk for Clemson students and the Clemson community;
- Provision for a large number of dairy science research projects;
- And the production of animals for student classes.

In 1955, the Dairy Department moved from the old Dairy Building in the center of the campus to the new R. F. Poole Agricultural Center. The new facilities are excellent for both teaching and research; new equipment is being added each year.

Professor Ben E. Goodale became the third head of the Clemson Dairy Department on July 1, 1957. He had been associated with Professor LaMaster since September 1, 1922.

There are three general objectives of the Clemson Dairy Department:

1. To develop a realistic total program designed to help solve problems of our changing times in agriculture in general and in the dairy industry particularly.
2. To further encourage and participate in mutually beneficial inter-departmental and special service activities, and to broaden and enhance the contributions of the Dairy Department.
3. Dairy Department objectives are to be fluid, free to be changed when necessary to better meet the demands of new problems arising from newer techniques in the many phases of dairy science.
MORE TO RAIN THAN WATER

Sitton Allison
Agron., '62

When applying fertilizer to his crops, the average farmer primarily concerns himself with supplying the three major elements - nitrogen, phosphorus, and potassium, which are guaranteed on the bag. Little does he realize that the other elements, even though they are required in relatively small amounts per acre as compared to the larger quantity of nitrogen, potassium, and phosphorus, are definitely an essential requirement for maximum plant growth and quality of the crops he is growing on his soil.

Another element which is very essential is sulfur. Generally, sulfur is either assumed to be sufficient or is actually not given much thought by the average farmer. In the low analysis fertilizers commonly being used, small quantities of elemental sulfur is present. When higher analysis fertilizers are used no sulfur is present. Therefore, it is imperative that sulfur be applied in addition to regular applications of a mixed fertilizer.

Sulfur appears to influence several plant processes. It seems to be associated with the formation of chlorophyll, as shown by the yellow color of sulfur-deficient plants. There is also a relationship between sulfur and the amino acids. The amino acids are important in animal nutrition and may improve the quality of protein in flour for bread making.

Crops such as alfalfa, clover, and cotton require from 15 to 25 pounds of sulfur per acre for normal production. Soils of South Carolina generally contain six pounds or less of available per acre. Some sulfur is added by rainfall. The principal source of sulfur in rainwater, especially in the winter, is probably gases released in the burning of wood and coal.

The concentrations of sulfur in the atmosphere varies from one locality to another. The quantity of sulfur brought down by rainwater in different sections of South Carolina are shown in Table 1.

Table 1. Sulfur collected from South Carolina rainwater.

<table>
<thead>
<tr>
<th>Collection locations</th>
<th>Elemental Sulfur</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Average annual</td>
</tr>
<tr>
<td></td>
<td>lbs./acre</td>
</tr>
<tr>
<td>Blackville</td>
<td>10.0</td>
</tr>
<tr>
<td>Clemson</td>
<td>8.0</td>
</tr>
<tr>
<td>Columbia</td>
<td>3.8</td>
</tr>
<tr>
<td>Summerville</td>
<td>5.1</td>
</tr>
</tbody>
</table>

These values average over a three-year period from four to ten pounds of sulfur per acre annually. This is not enough sulfur to supply the needs of most crops. These results emphasize the importance of soil-management practices which include additions of sulfur. A planned program of sulfur application should replace dependence on incidental additions.

REFERENCES


SMALL FRUITS
(continued from page 4)

As to blueberries, both the highbush and rabbiteye types can be grown in South Carolina. While the rabbiteye is better adapted, the highbush is the better commercial producer. Growing of the highbush varieties has not yet become fully established in the State. The rabbiteye bears well in all parts of the State. Callaway, Tifblue and Homebell are excellent rabbiteye varieties, with Rancocas, Rubel and Jersey being satisfactory highbush varieties.

One of the most important factors in blueberry growing is the pH of the soil. A pH range of 4.0 to 5.5 is considered the best. The use of complete acid-type fertilizers is recommended. Relatively little work is required in growing blueberries. Only occasional pruning of dead wood is necessary and pest and disease problems are at a minimum. A sawdust mulch around the plants is beneficial in that it helps with the moisture problem and retards weed growth. It is always best to plant several varieties together since cultivated blueberries are partly self-sterile.

As an ornamental the blueberry is very attractive and easy to keep in bounds. The foliage and fruit are complementary and after harvest the leaves remain green until fall.

Bramble fruit culture is probably the least important small fruit crop in South Carolina. Their thorny characteristic is one limiting factor, and many varieties are not adapted to this climate. However, many new thornless selections look promising, with a thornless boysenberry now available for commercial or home planting. Thornless blackberries are to be released in the near future. If you care to tend with the "thorny tiger" your efforts will be well rewarded. Two excellent blackberries available are Hedrick and Ebony King.

EDITORIAL
(continued from page 3)

But, does the young man entering college leave behind his need for motivation through the personal interest of his teacher? Does the influence truly the obligation of the college teacher end with the dispensation of technical material? Trite questions? Perhaps so, but we submit that some refreshing opinions concerning such questions might be heard from the student side of the classroom rostrum.

What do students know about teaching? It is the opinion of the writer that students are the only persons in a position to appraise the current status of teaching at the classroom level. Administrators of schools or departments do not hear their professors perform. To do so would be "an infringement of academic freedom", it is said.

At the close of his undergraduate career, the college student has very lately been exposed to some forty different teaching environments. His professional performance will be determined in large measure by the composite of these influences. If the student were encouraged to criticize this experience by way of essay or forum, measurable contributions might be made toward more effective classroom communications.

* * * * * * * * * * * *

These can be trained to individual stakes or put on a wire trellis making for easy care. (Leather gloves are a handy item to have around).

Upon deciding to plant any of the small fruits keep these points in mind: (1) Always buy from a reputable nursery to obtain top quality, disease-free plants. (2) Use recommended cultural practices for each fruit.

For happy eating and increased profits: GROW SMALL FRUITS!
AULL ON AGRICULTURE

G. H. Aull

It would be difficult for me to recall when, if ever, I have undertaken an assignment with more enthusiasm than that with which I began the preparation of this paper. I believe in the subject assigned to me, which basically is Agriculture; I am proud of its past; I am challenged by its present situation and its problems; and I have high hopes and rich expectations as to its future.

I believe firmly that man's first responsibility is to serve his fellow-man. If this becomes his fixed goal, his exact vocation assumes a place of secondary importance but under no circumstance can it ever be dishonorable or degrading. If you are with me thus far you will agree, I am sure, that in a broad sense a man's vocation is bigger than his job and his goal is far out beyond the particular thing which occupies his working hours.

As an economist, interested in the future welfare of our state and nation and striving earnestly to contribute to a balanced economy in our area, I am alarmed at the ignorance and the prejudice of many leading citizens as regards so basic an industry as agriculture. They not only subscribe to the mistaken notion that anyone who chooses a career in agriculture must somehow be inferior to one entering upon one of the other broad areas of specialization, but they actually believe that certain kinds of agriculture are lower on the scale of values than certain other kinds. The Bible speaks of the fact that the human body "is not one member but many" and says that when one member suffers all suffer and when one member is honored all are honored. This is equally true of the "body politic" and the sooner we recognize it the better.

(Continued page 18)

Ed. Note-

A series of Agricultural Career Planning Conferences was recently held throughout South Carolina. The meetings were jointly sponsored by Clemson College and the South Carolina Department of Education for the primary benefit of high school counselors.

Keynote speaker for the conferences was Dr. G. H. Aull, Head, Department of Agricultural Economics and Rural Sociology, Clemson College.

THE AGRARIAN is honored to present selected portions of Dr. Aull's timely remarks.
AGRICULTURE
(continued from page 17)

No great civilization was ever built solely on an agricultural foundation. To the contrary, a self-sufficing agriculture leaves no opportunity for producing anything above the basic necessities and it was only after agriculture developed a considerable measure of efficiency and productivity that man-power was released to produce something more than food and clothing and shelter.

However, so slow was our progress in agriculture that up until about 100 years ago a farmer from the generation of Moses would not have felt terribly out of place had he suddenly been transplanted into our own rural society. As a matter of fact, changes in U. S. agriculture within the last 50 years have probably surpassed in significance anything which took place during the previous 5000.

Let me add in passing that much of the credit for this magnificent accomplishment must go to the U. S. System of Land Grant Colleges which will shortly round out 100 years of service to the American economy. It was the Land Grant College System which provided most of the personnel and much of the information necessary to service our far-flung agriculture endeavors which have redounded not merely to the benefit of farmers but more particularly to the benefit of consumers throughout the world. Supported by this system we have, within a remarkably short time, grown from a nation in which one out of every four workers was required to produce the basic agricultural necessities to a nation in which one farmer is supplying the food and fiber for 24 people! To get the products of this one producer to the 23 other consumers, we have created in this country a system of distribution which is a challenge to the best minds of any generation. I would warn you, however, that this system would crumble in a week were it not supported by a series of agricultural organizations and enterprises unequalled in all the world.

We hear a lot these days about the Russians overtaking us in the race to conquer space. This, of course, is a problem which involves not only politics, but engineering, physics, mathematics, chemistry and a host of other sciences. Unfortunately in recent years it has been the practice among some representatives of these sciences to point a finger of scorn at anyone who showed the slightest interest in agriculture and to imply that somehow their specialty has a monopoly in brains and in its appeal to the youth of this country. To such as these I say: "Look at the record."

Have they not heard that Russian agriculture today is at the point where we were 120 years ago?

Do they not know that productivity in American agriculture over the past 10 years has grown at a rate more than twice as fast as that in nonagricultural industries?

Are they not aware of the fact that one hour of farm labor today produces 4 times as much food, fiber, and forest products as it did 40 years ago, and that as a result we in this country not only eat better and live more comfortably but spend a smaller percentage of our income for food, clothing and shelter than the people of any other country on the globe?

In passing let me say that I have been more than a little disturbed by the criticisms which have been heaped upon agriculture in recent years and especially so since the basis for it (Continued page 19)
AGRICULTURE
(continued from page 18)

is that we have produced not too little but too much! One might suppose that a record such as that established by our agricultural plant would merit the highest praise of all the people. Instead we have seen farmers misrepresented and vilified as no other group in recent economic history. They are accused of piling up enormous profits at public expense. They are blamed for government deficits and for the high cost of living. Flogging the farmer has become a popular national pastime.

This is not the time nor the place for a defense of our agricultural economy (I have done this on other occasions) but I would like to present to you a few facts just to keep the record straight. For example, did you know that:

a) The farmer's share of the price you pay for a loaf of 23 cent bread is only about 3 cents? (Twelve years ago when bread was 9 cents a loaf cheaper the farmer received a little more than 3 cents).

b) Actually the farmer receives a little less for growing the wheat in a loaf of bread than the retailer does for handling it.

c) It costs more to launder a cotton shirt one time than the farmer gets for all the cotton in it.

d) The cellophane bag in which you buy your carrots costs as much as the farmer gets for growing the carrots.

e) You pay your grocer as much for the can containing tomatoes as the farmer gets for what is in the can.

f) Within the last 10 years for every $1.00 increase in the cost of food the farmer's share has been about 10 cents.

Again, I am sure that many of you have been told that agriculture is the chief beneficiary of federal subsidies. This, too, is far from the truth. For instance, one of the chief critics of U. S. farm policy is a large magazine which is itself beneficiary of a mail subsidy amounting to nearly $9 million a year. Similarly, manufacturers complain because the American farmer gets a little more than the world price for his cotton, but they seem to think it perfectly all right for the government to impose a 40 percent import tax on something they make. Laborers who resent government purchases of milk and pork feel no hesitancy in entering into an unholy alliance with this same government to establish a floor under their hourly pay. Shippers using government built vessels and plying their trade over routes paid for by public funds are not overly sympathetic toward "subsidized farm credit" and government sponsored telephone and electric services for farm people. Numerous nonagricultural commodities are being bought by our government and "stockpiled" far beyond the limits imposed by national security.

Let us turn now to the future. Currently we are adding to the population of this country alone at the rate of nearly 3 million souls a year. That is more than the present population of South Carolina and it means that by 1975 we shall have in the United States a total of about 230 million people, an increase of nearly 50 million, or the equivalent of 20 South Carolinas! (Continued page 20)
AGRICULTURE
(continued from page 19)

Worldwide we accomplish this feat (of 50 million more people) every year. This means a new Columbia every day; a new South Carolina every three weeks; and a new United States every four years! So powerful is the population explosion which you and I are witnessing that the number of people living on this earth in 1975 will probably exceed one-fifth the total number born since Adam and Eve set up housekeeping in the Garden of Eden.

If I am correct in these assumptions, there is going to be a lot of new activity going on in the fields of producing, processing, transporting, selling, financing and otherwise servicing the needs (and the desires) of these people for the products of agriculture. For the United States as a whole, the best judgement at this time seems to be that by 1975 we shall need something like:

- 55 percent more beef and veal
- 40 percent more milk and pork
- 35 percent more eggs
- 30 percent more cotton
- 20 percent more broilers

plus substantial increases in all of the fruits and vegetables and in forest products.

Now, I do not mean to suggest that we will need corresponding increases in the numbers of workers required to produce, distribute and service the vast enterprises associated with these operations. What I am saying is that — and let me make this very clear — the agriculture of the future will of necessity have to be organized, planned, directed and actually operated by men and women with special training. The alternative would be intolerable increases in the cost of food and clothing, frequent scarcity of basic necessities, and the ever-present threat of actual starvation in various sections of the country.

It is estimated by competent authority that the number of farms in the United States will continue to decline from the present 3.7 million to perhaps 2.0 million by 1975. However, to service the needs of these 2 million top flight producing units and to process their ever-expanding production and distribute it to the far corners of the earth will require an increasing number of college trained men and women with technical knowledge of the peculiar requirements of agricultural production, financing, and marketing. It is this sort of training we are endeavoring to provide at Clemson with our science, business and production "options" in the several subject matter areas. We are determined not only to make agriculture better through science and technology but to service it better by increasing the numbers of those qualified to make it function.

If these goals sound fantastic, let us recall that most of the progress of mankind thus far has taken place within a relatively few years. To dramatize this fact, let us compress the 500,000 or so years man has lived on this earth into a period of 50 years:

It took 49 of these 50 years for man to settle down and learn to wear pants.

(Continued page 21)
(continued from page 20)

Six months ago he learned to write.

Two weeks ago he built the first printing press.

Four days ago he began to use electricity.

Yesterday he learned to fly, developed radio, television, diesel power, rayon, nylon, motion pictures, and high octane gasoline.

Since breakfast today he released atomic energy, built jet planes, conquered polio, and launched a score of satellites.

Within the last few seconds he has looked at the dark side of the moon and sent a rocket around the sun.

It is against this background that we look to the future. We have every confidence that agriculture will meet the challenge. However, change does not come easily and without pain. Nor, for that matter, does character. If we are to be a great nation and a good people we shall have to work at it. Even then the road will not be smooth but the reward will be satisfying.

When God made the oyster He guaranteed him absolute economic and social security. He built the oyster a house, a shell to protect him from his enemies. When hungry the oyster simply opens his shell and the food rushes in for him.

But when God made the eagle He said "the blue sky is the limit; go and build your house." And the eagle built on the highest mountain crag, where storms threaten him every day. For food, he flies through miles of snow and rain and wind.

The eagle, not the oyster, is the emblem of America.

TALL CORN

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

Freshman: "No, Sir."

Night Watchman: "Then hold my lantern."

* * * * * * * * * * *

Farmer Brown had a mule (Son) that he couldn't teach or tame, so he took the animal to a professional mule trainer (Professor).

The trainer (Professor) immediately grabbed a stout stick (Red Pencil) and beat the mule (Student) unmercifully about the head and along the flanks.

"Stop!" cried Farmer Brown. "Are you trying to kill my mule (Son)?"

"No," he replied, "I've got to be sure that I've got his attention."

* * * * * * * * * * *

A Quaker had a very mean cow. The cow was always putting her tail in the milk bucket, kicking the poor fellow, and refusing to stand still.

Finally, after a particularly trying morning, the Quaker told the cow, "Friend cow, I would not beat thee or harm thee for the world, for it is against my religion. I will not punish you in any way, but I'll sell you to my brother-in-law who is a Baptist, and he'll beat hell out of you."

* * * * * * * * * * *

Frosh: "I just brought home a skunk."

Roomie: "Where ya gonna keep him?"

Frosh: "I'm gonna tie him under the bed."

Roomie: "What about the smell?"

Frosh: "He'll just have to get used to it like I did."
AN AGRARIAN DAY

Jere A. Brittain
Hort., '61

Every man with even a trace of
dirt in his shoes will attest that a
timely sojourn in the wilderness can
refresh the soul beyond measure. The
term "wilderness" as applied here is
not intended to connote some distant
and primieval forest. To the con-
trary, one man's wilderness may be no
farther than the upper corner of his
farm pond. Mine happens to be the
white water of the Blue Ridge!

On a recent Friday afternoon,
Claude Derting, Don Fox and I were
dissolving in coffee our appraisals
of the academic week. There event-
ually precipitated this opinion, as
paraphrased from Wordsworth:

"Books! 'tis a dull and endless
strife;
Come, hear the East Fork linnet,
How swift his water on my boots,
There's even Brook Trout in it!"

We breakfasted the following
morning over a crackling bed of hick-
ory coals on the bank of the East Fork,
Chatooga River, where North Carolina
 tumbles into South.

The sun had just begun to tease
the top of the gorge when we tied on a
#10 Eagle-Claw, dangled a garden-
hackle just-so, and stepped into the
spring-flushed stream.

For the next eight hours we were
in a world apart. The loud quietness
of the hurried mountain stream was a
solace. A man balanced on a lichen-
covered log below a swirling rapids,
his fly-rod bent to the unexpected
surge of a chunky Brown, is in pro-
found communion with his environment.
This is indeed an AGRARIAN experience.

At mid-day we paused to kindle a
fire, cut some birch forks, and roast
and eat some of our catch. Fresh moun-
tain trout with black "biled" coffee
......... an AGRARIAN repast!

We swung down the rocky face of
Hell-Hole Falls by grass rope, an-
chored to the roots of a rhododendron
which apparently clings there out of
sheer persistence. This is an East
Fork tradition -- a sort of landmark
in the winter conversation of those
who've been that way.

When twilight overtook us we
climbed out to the old logging trail,
which parallels the river high on the
less precipitous side. On the leisure-
ly trudge up the river we paused here
to admire a yellow poplar cove; tarried
again to drink at a branch typical of
the multitude which are the icy tri-
butaries of the river.

Darkness ...... the journey home-
ward .... very little conversation ... each man reflecting a day well spent
......... an AGRARIAN day.
This issue of THE AGRARIAN is sponsored by:

THE SOUTH CAROLINA CROP IMPROVEMENT ASSOCIATION

This organization is not only interested in the production of Certified Seed and better adapted varieties. In the AGRARIAN tradition, the Crop Improvement Association also sponsors graduate students for advanced study in crop production.