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ALLIS-CHALMERS
AGRARIAN

PHILOSOPHY

R. F. Elliott, Associate Editor

The field of agriculture, more than any other field of endeavor, depends on nature. There are two quite obvious “philosophies” which the agriculturist can cultivate toward nature during his life of agricultural endeavor.

The first and by far the most popular is the “me” philosophy. The cultivator of this philosophy is never completely happy. He is always worried about the weather, both present and future. The world revolves around him and fate is against him when nature doesn’t exactly suit his fancy. There is no consideration for the man on the other side of the fence, who may be reaping benefits from the same conditions of nature. He never learns to adjust himself to the changes of nature, but always thinks nature should adjust to him.

And then there is the “God” philosophy. The cultivator of this philosophy possesses a complete confidence in the Supreme Power and a personal ability to adjust. He relaxes mentally in his belief that God knows what is best both as a man relaxes physically in his favorite chair. If he needs rain, he talks it over with God and surrenders his will to God’s as Christ did in Gethsemane. Whether it rains or not he is confident that God’s will was done —and he’s happy in that knowledge.

Which is your philosophy? And which sounds more conducive to good health and happiness?

Anyone wishing to help defray mailing and handling costs of “THE AGRARIAN” please fill in the following and send to:

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HEARD HERE 'N THERE

He: “Give me a kiss like a good girl.”
She: “Wouldn’t you like the other kind?”

The captain realized that there was no hopes for the sinking boat, and said, “Is there any one among us who can pray?”
A meek man stepped forward: “Yes, sir; I can pray.”
“Good,” said the captain, “you start praying while the rest of us get lifebelts one. We’re one short.”

“I don’t want any of your lip,” said the dentist as he prepared to pull the tooth.

A young mother came to the door of the nursery and saw her husband standing over the baby’s crib. Silently she watched him as he stood looking down at the sleeping infant. In his face she read rapture, doubt, admiration, ecstasy, incredulity, wonder. Deeply touched and with her eyes glistening she tip-toed, slipped her arms around him.
“A penny for your thoughts,” she said tenderly. Startled into consciousness, he blurted: “For the life of me I don’t see how anybody can make a crib like that for $3.49.”
I Dare You  
To Read This Now

By Richard F. Elliott, A.H. '56

Bulletin: R. F. Elliott, animal husbandry senior from Pinewood, S. C., and G. E. Stembridge, agricultural sophomore from Elijah, Ga., won the four-week and two-week Danforth Fellowships respectively last spring. Both fellowships include two weeks at the Older Boys Christian Leadership Camp Miniwanca on Lake Michigan in August. The senior fellowship also includes two weeks in St. Louis, Mo.

If you reach your goal in life, then you haven’t set it high enough. And if you haven’t reached your goal, you haven’t tried hard enough. This is William H. Danforth’s philosophy of life—a philosophy which he has instilled in the Ralston Purina Company. The result? Purina is now as large as the next five feed companies combined.

Whoever you are—whatever your age—whatever your position in life—examine your goal. Is it high enough? Are you putting forth a maximum effort to reach it? As Jam Handy, twice on the U. S. Olympic swimming team (twenty years apart), and president of the Jam Handy Company, told the Danforth Fellows last August at Camp Miniwanca: “No man is limited, he can do anything he wants to do if, he believes in himself and God!”

My “goal” in writing this article is dual in purpose. First, I want to challenge all freshmen, sophomores, and juniors in the fields of dairying, animal husbandry, and poultry husbandry, to win the experience of a lifetime, and second, I want to share a small part of my experience with our many readers all over the state.

Last spring I was notified that I was eligible to apply for the Danforth Fellowship. It was they said, an expense-paid month of August. Two weeks were to be spent in St. Louis with the Ralston Purina Company and the second two weeks were to be spent at Camp Miniwanca on the shores of Lake Michigan. That was about all I knew and without too much enthusiasm and a what-can-I-lose-with-expenses paid attitude, I applied. My next news was that I’d won.

Now let me tell you from the bottom of my heart that that was the best month I ever spent. I spent three days examining the largest commercial research farm in the country, I saw one of the largest businesses in our country in action, I visited the Merchants’ Exchange in St. Louis, the National Stockyards, and Swift and Co. I saw the Cardinals play. I spent a day with the oldest advertising agency in the country. I toured one of the world’s largest zoos, saw an opera, and saw “Cinerama Holiday.” I heard talks by some of the top business men in our country. I spent eight hours in Chicago and crossed Lake Michigan on a ferry. I played volleyball, ping pong, and softball, took part in a full scale track meet, and swam in an aquatic meet. I attended classes in Christian leadership led by the best men in that field. I now have a good friend, a top agricultural student, in forty states, Canada, and Hawaii. The fellowship alone with such a fine group of boys was enough reward for my time.

I challenge you to start growing now, mentally, physically, socially and religiously in order to win the (continued on page 16)
Agricultural Engineering
A Challenging Career

By Louis Jordan

What is Agricultural Engineering? This question is asked by some one every day. Agricultural Engineering is a comparatively new field of engineering and for that reason few people know exactly what it is.

To begin with, there is a formal definition of engineering that could make the answer to the question easier. Engineering is "the science of utilizing the forces and materials of nature for the benefit of man, and the art of organizing and directing human activities in connection therewith." Still simpler still, if not so exact, think of engineering as the putting of science to work and guiding the work of people. It is planning of a creative, constructive kind.

Once there were only two types of engineering — military and civil, or the engineering of peace and war. Down through the ages, there became a need to divide and subdivide this great field of science into several groups of more related units. This was a practical expedient — simply grouping together any and all kinds of engineering that happened to be used in a certain industry or by a man in some field of work.

Agricultural Engineering is the application of any and all branches of engineering to the extent that they may be used in farming, in rural living, rural processing of farm products, and such allied activities as malaria control and wild life conservation. It draws chiefly upon mechanical, electrical, structural, civil, and hydraulic engineering.

Agricultural Engineering is a single profession, its parts interwoven and bound together, all applying to a single industry and often to an individual farm.

For this reason agricultural engineering itself is broken down into groups for easier classification by the American Society of Agricultural Engineers.

There are four main groups of agricultural engineers. They are classified not so much on sheer logic as by the specialization on the many members within the organization. Farm power and machinery is one of the largest branches and needs no explanation as to the objective. Power is useless without a means to apply it, and a machine is useless without power to operate it. Power and machinery are so closely related that it is practical to group the two together. It is the objective of agricultural engineers in this branch to find more ways to apply power which will help the farmer with his work. This includes all types of farm implements; cultivators, harrows, all types of harvesting machinery and many kinds of processing equipment. Research is continuously developing new methods of farming. This is the job of the agricultural engineer.

Farm structures are long lived, long term investments. For this reason agricultural engineering must advance in the research of better buildings, fences, and many other stationary improvement of the farm. Few phases of engineering calls for such vision and imagination together with diverse technology and keen economic judgment. No other division of agricultural engineering deals with such elusive factors of time and element as the influence of building design and farmstead layout on the daily care of livestock which the farmer calls chores. Farm structures engineering calls for full knowledge of climate, the heat and moisture production of animals as well as their environment needs; the technology of ventilation, heating and insulation, physical and biological behavior of crops in storage; familiarity of equipment for water supply, drainage, and electrical service, as well as conveying equipment and "furuning" for everything from pigs to poultry.

For the betterment of farm living, rural electrification plays an important part in the role of an agricultural engineer. It is not so much the job of an electrical engineer to experiment with the flexibility of electricity to the many jobs that it does on a farm. For this reason new uses for electricity are being found to make farming a more pleasant living. There are many examples of electrical systems which have raised the standards of living for the farmer. Among those are electric brooders for young pigs and poultry; electric blowers for cooling and curing grain and hay; ordinary and ultraviolet lighting to increase egg production and promote healthier flocks; electric fences and many others.

One of the chief problems of a farmer is that of soil erosion. The soil and water control and conservation deals with this matter with great concern. Every year millions of farm dollars are washed away by the ravages of the elements.

The national program of soil erosion that seemed to come so suddenly was born from a generation of patient research and development, based on the principles that govern the flow of water and the relations among water, soils and plants. In drainage and irrigation, the draining and watering of new land is being followed and overshadowed by a new era of improvement and maintenance which may add more to the food resources and farm earnings than did the original installations. Soil and water engineers are a splendid example of the cooperation which prevails between all agricultural engineers and other scientists.

The amount of earnings that one gets out of a profession should not be the chief thought when selecting a long career. What one gets out of his respective profession depends largely upon what he puts into it.

To say what the financial status of an Agricultural engineer is would be most misleading. Broad observation and experience indicate that agricultural engineers earn about the same or a little more than the same degree of talent and experience commands in most other fields in engineering.

The varied selection of possible fields is another bonus point in favor of all agricultural engineers today. A large portion of agricultural engineers are highly represented among (continued on page 6)
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NOVEMBER 1955
The New Meats Laboratory

By Fred McLaughlin, Jr., A.H. '56

Many people that eat beef, mutton, and pork never stop to think of the work involved in preparing these meats so they can be cooked to suit our individual taste. The Animal Husbandry student at Clemson College is continually associated with the production of meat animals. The students also are concerned with what happens to the animals after leaving the farm and arriving at the meat packing plants. This creates a need for a knowledge of slaughtering livestock, cutting meats, and storage of meats.

At the new Agriculture Center at Clemson College there is a new meats lab that is as modern as can be found in the South. The facilities are not only just to give the students a knowledge of packing plant operations, but there is a research aspect involved too.

Suppose we take a tour around the meats lab. The most appropriate place to start is the door we walk in through. The first thing we notice is the "knocking chute," which is a large metal chute which cattle are driven into and held until they can be shot or "stunned." On the chute there is a large door that can be opened after the animal has been stunned. The animal rolls out on the floor of the lab where it is "stuck" or "bled." After the animal has been bled properly a new and very modern electric-power hoist is used to move the dead animals to various parts of the lab.

In the basement, just under the slaughtering room, there is a "holding pen" where enough livestock can be stored to keep the students busy two afternoons. This usually requires 4 steers or 6 hogs.

The old method of dehairing hogs with hand scrapers has been replaced with a modern up-to-date dehairing machine. After the hogs have scalded for several minutes in a scalding vat which loosens the hair, they are placed on the dehairing machine. By the action of metal scrapers on a revolving drum, the hair is removed in about two minutes time. This machine really saves much time and hard scraping that would normally be employed by hand.

As we continue our tour we notice a room with a refrigeration type door. This is a hide and intestine room, where the hides and intestines are stored to be disposed of later. This is done to insure proper sanitation. To insure further sanitation there is a main drainage pipe in the center of the killing floor. This has a suction pump to draw out all refuse and empty it into the main sewer line.

After the animals have been slaughtered and processed properly they are moved to the refrigeration rooms by way of an overhead monorail. There are 5 refrigeration rooms, namely: a chilling room, an ageing room, a curing room, a zero degree room, and a 20 below zero room. The zero and the 20 below zero rooms are used for experimental purposes that seek to determine the effects of the length and temperature of storage upon the storage life of various kinds of meats. Freon 12, the most modern refrigerant, is used in the refrigeration units.

The cutting room is a very important part of the lab. This is where the student learns to break the carcasses down into the numerous cuts. This room is equipped with several wooden cutting tables. The overhead monorail is extended into this room so the carcasses can be transported to the desired table. There is a set of portable scales that may be used to weigh the various cuts of meat. In doing this a student can learn what per cent a particular cut of meat is in relation to the carcass.

With relations to research there is a smokehouse, used to smoke meats at various temperature and different lengths of smoking time. A hardwood sawdust is used in the smoke generator. This smoking process tends to preserve and glorify the flavor of meat, especially pork.

Also there is a specific gravity testing vat, used to calculate the percent fat in a carcass. It is made up primarily of a large aluminum vat filled with water and a pair of scales. The carcass is weighed in the air and then weighed in water. This gives two weights so a calculation of specific gravity can be made. Samples of meat are sent to chemists to check the results.

The students have access to a locker room where they may leave their good clothes and use their old clothes while doing their lab work. There are showers that the students may use after completing their afternoon's work.

For visitors that are interested and want to inspect the lab, there is a large observation platform for their convenience. From this glass-closed observation platform, visitors may observe the activities in the slaughtering and cutting rooms.

It is certainly a pleasure to watch the meats lab in operation and see the students going about their various activities. We can rest assured that the students that take a course in "meats" will certainly have the best opportunity to apply himself to absorb a knowledge of the packing end of the animal science field. Whether he chooses to work in a packing plant or some other field in the meat animal business, he will have a much broader and more appreciative outlook when he sets down at the table to eat a juicy T-bone streak, a tangy lamb chop, or a delicious slice of ham.

A CHALLENGING CAREER

(continued from page 4)

those who rise to the positions of executives in these industries. The farm machinery business is one of the most sought after industries. There agricultural engineers are developing new machines as well as improving old ones. Also they are becoming more widely used in the sales department and in field work.

In the building industry, agricultural engineers are developing designs for the efficient use of various materials, and methods for handling them economically. Prefabrication is a budding business and calls for engineers with a wide spread knowledge of farm structures.

Both the electric power industry and the electric equipment manufacturers are consistent employers of agricultural engineers.

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THE AGRARIAN
Farm Mechanics Stressed By South Carolina Ag Teachers

By David A. Buckner, V.A.E. '58

Farm mechanics, as a part of Vocational Agriculture, is being emphasized in South Carolina at present. Because of the greatly increasing number of farm tractors and other kinds of farm equipment on farms throughout the state, there has been created a need for improving this program. For example, tractors purchased in the past four years almost equal the total number on farms in 1940.

Farm mechanics refers to the phase of vocational agriculture that teaches farm people to: plan, select, construct, operate, maintain, and repair farm buildings, tools and equipment. Its primary objective is to develop in the students, youth and adults, the ability to properly perform the unspecialized mechanical jobs found on the average farms of the local community.

This new farm mechanics program includes: (1) the improvement of teacher skills; (2) proper and efficient utilization of tools, facilities and supplies; (3) allotment of time to teach farm mechanics; (4) getting more adults, young farmers, and high school students to take advantage of farm shop; (5) determining teacher objectives; and (6) working out a plan of what and when to teach.

Vocational agriculture is an integral part of the entire high school program. It includes the teaching areas of judging and exhibits, home beautification, crop enterprises, supervised farming, F.F.A., farm forestry, conservation of soil and water, food production and preservation, farm management, livestock enterprises and farm mechanics. Since farm mechanics constitutes only a part of these major teaching areas, effectiveness and efficiency must be practiced and obtained. All of the above areas must be given some instructional time because each and every one is of great importance to the farmer. Vocational agriculture’s primary purpose is to train present and prospective farmers in the business of farming.

How is the effectiveness and efficiency in teaching the mechanical needs of our farm people going to be accomplished? For the past several years, small group workshops have been held with teachers to improve their mechanical skill. The Clemson College Department of Agricultural Education and The State Department of Education have prepared and published co-operatively the “Teachers Guide, Planning and Developing a Farm Mechanics Program in Vocational Agriculture.” Group meetings with small groups of vocational agricultural teachers of the state are being held under the

(continued on page 15)
ALPHA ZETA SPONSORS FAIR — INITIATES NEW MEMBERS

The South Carolina Chapter of the National Fraternity of Alpha Zeta is off to a roaring start for the '55-'56 school year. Even back in the summer wheels began rolling towards the biennial agricultural fair to be held on the 26th and 27th of October. This fair, sponsored by Alpha Zeta, promises to be the biggest in the history of Clemson. The South Carolina Maid of Cotton will reign over the entire fair which will be held almost entirely in the new multi-million dollar agricultural center. Every department in the field of agriculture at Clemson will have at least one exhibit. The next AGRARIAN will carry a complete coverage of the fair.

At approximately 7:30 on the night of October 17, eleven new members were formally initiated into the fraternity. Membership is based on scholarship, character, and leadership ability. The new members are: Benjamin Thomas McDaniel, junior from Pickens; William Perry Dubose, Jr., junior from Darlington; Ned L. Huggins, senior from Johnsonville; David F. Borchert, junior from Clemson; Billy Lee Ragsdale, senior from Belton, John F. Wyman, Jr., senior from Estill; John D. Hicks, Jr., senior from Effingham; James L. Smith, Jr., senior from McCormick; Robert F. Burnett, senior from Greenwood; S. A. Harvin, junior from Sumter, and Jack Langston, a senior from Hartsville. Several of the faculty members of Alpha Zeta were on hand for the initiation.

NOTICE

The AGRARIAN needs help! If you are interested in writing, circulation, advertising, or in just working, contact R. F. Elliott in room E-205. It is rewarding work and provides invaluable experience.

BLOCK AND BRIDLE CLUB INITIATES NEW MEMBERS

The Clemson Block and Bridle Club, the professional club of the animal husbandry department, had its first meeting during the second week of school. Plans were made for barbecues (a club specialty) for the coming year and committees were appointed. The biggest immediate project of the club is the animal husbandry exhibit for the agricultural fair. The new meat lab (covered elsewhere in this issue), the pride and joy of the department, will be a big feature in the exhibit.

New members were formally initiated at the "Y" cabin on the banks of the Seneca river on the night of October 11. They are W. B. Richey, T. N. Rogers, R. H. Hammond, W. L. McGee, Jr., R. C. Shearod, J. M. Reynolds, A. H. Pitts, G. T. Sandifer, J. R. Able, E. N. Miller, J. D. Wilkins, J. S. Wigington, J. B. Williams, H. A. O'Cain, C. B. Murphy, and D. B. Clark.
J. N. TENHET, CLASS OF 1918, RECEIVES U.S.D.A. SUPERIOR SERVICE AWARD

A Superior Service Award of the U.S.D.A. was presented recently to Joseph N. Tenhet, entomologist in charge of the federal agency's stored tobacco insects laboratory at Richmond, Va.

Mr. Tenhet was given the award for meritorious creative service in the planning and conducting of research which developed effective methods of controlling insects in stored tobacco. He was also cited for assisting the tobacco industry in the prevention of insect damage to stocks of leaf tobacco and manufactured tobacco products.

Mr. Tenhet has been in charge of the Agriculture Department's stored tobacco insects laboratory since 1942. Prior to that date he had a long association with the tobacco industry, starting his studies at Clarksville, Va., following his graduation from Clemson in 1918. He spent a year in military service as a second lieutenant in the infantry in 1918-1919.

Mr. Tenhet is well known throughout the tobacco industry. He has appeared several times in the research seminars of the Cigar Manufacturer's Association and has attended many sessions of the Tobacco Association of the U.S.

D. M. McEACHERN, CLASS OF 1920 GETS BOLLWORM POST

D. M. McEachern, who for the last six years has directed the pink bollworm control program for the government in south Texas, has been promoted to assistant project leader for the entire quarantine area. His headquarters are at San Antonio.

Mr. McEachern has spent nearly thirty-five years in helping control one of cotton's deadliest insects. Shortly after graduating from Clemson, he was sent to east Texas where the pink bollworm was discovered in the early 1920's. Later he worked in the Big Bend country along the Rio Grande, and in Arizona.

HORTICULTURE CLUB WELCOMES NEW MEMBERS

The Horticulture Club has welcomed six new members into its fold this year, they are: Jack Pruitt, Robert Dibble, Steve Bishop, Bobby Skelton, Henry Cobb, and William Dunn.

Most of the club's time so far this year has been spent preparing for the Agricultural Fair and for the meeting of the American Society of Horticultural Science to be held in Atlanta, Ga., in February. The club members are in the midst of a contest to determine who presents research papers to this meeting in Atlanta.
Do you know what an entomologist does? Do you know what his science is all about? Has it ever occurred to you that entomology is one of the most interesting and important of all the biological sciences? Chances are you have never thought about it.

Entomology is the science that deals with insects, which are so common that we hardly consider them important. Yet, they affect man's welfare and his pocketbook in many ways. Our food is spoiled, homes and furnishing are damaged, and diseases are transmitted by insects. Our field crops, fruits, vegetables, livestock, and all other produce from our farms suffer great damage from insect depredations. However, man also is benefited in many ways by these tiny members of the animal kingdom. Many of them are parasites or predators on the types of insects which are pests. Some insects are essential to plant life because they make pollination possible. They provide food for birds, fish and other wildlife, and help us in many other ways.

Entomology's growth following the discovery of the powerful new organic insecticides, and improved methods of their application, has created a great demand for trained men in the field. There are many career opportunities for a college graduate in entomology today.

The research entomologist is one who finds out new things about insects. If he is working with injurious insects, he studies their life histories, habits and structure, and carries out experiments in the laboratory and in the field in order to determine the best and most practical methods of control. If the entomologist is studying beneficial insects, he may be interested in the development, by breeding and selection, of honeybees which will produce more honey; or in the studying of insect pollinators of legumes and fruits in order to find the conditions which will increase their numbers; or in determining the parasites of injurious insects and finding out means of increasing their usefulness.

There is a demand at present for more research on the control of insects which attack field crops, vegetables, fruits, greenhouse crops, forests, stored products, and livestock; on the insect carriers of animal and plant diseases; on insects attacking buildings; on insect pollinators of legumes; on insecticides; and in the basic phases of entomology such as taxonomy, morpholgy, ecology, and physiology.

An extension entomologist may be employed by either the state or federal government. His principal duty is to educate the public in the best methods of insect control. He does this by holding meetings in various parts of the state in which he works and demonstrates the latest control methods, by writing bulletins and newspaper articles, and by giving talks on the radio and television. An extension entomologist has a most perplexing job at times in that he has to work with people, selling them on the latest methods of insect control and getting them to cooperate on certain problems.

Several hundred entomologists are employed in the enforcement of laws prohibiting the transportation of plants or animals and their products which are infested with certain insects from one state to another, or from foreign countries into the U. S.

Every manufacturer of insecticides employs entomologists who serve as public relations men. They contact and furnish information to insecticide dealers. research and extension entomologists, county agents, orchardists, and others about the merits and uses of the insecticides which their company manufactures. There are opportunities in the fields of commercial pest extermination and teaching. Other fields of entomology besides those listed above are: beekeeping, museum work, public health work, insect illustration, in-
Suppose you could convert your car at will to a station wagon, a convertible, a pick-up, a truck, or a family sedan, mounting whichever body you wanted on the same engine and frame.

A car like that would be really five cars, serving five different purposes, at a cost far less than five standard vehicles.

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Many jobs with one basic machine... lower production costs for the food and fibre that sustains the nation. That's how MM Uni-Farming serves the American Farmer-Businessman, and all who buy what the farmer sells.
Benefits of South Carolina Forests

By Ernest B. Collard
Preforestry '36

Forestry, both public and private, has progressed remarkably during the last 25 years in South Carolina. Yet it seems that the progress of the past is but an indication of future development in this field. New wood-using industries are springing up and old ones are expanding to utilize the raw materials produced on the more than 11 million acres of land occupied by forests in South Carolina. Forest land accounts for over 60% of the state's total land area. This land is not only a source of timber; it is used by people for recreation; it provides shelter and a supply of food for the game; it regulates the regimen of streams and prevents the erosion of soil.

The most profitable activity in South Carolina's forests is timber production. The wood-using industries rank, in economic importance, second to textiles only. The forests furnish the raw materials for these industries chiefly in the form of sawlogs, pulpwood, fuelwood, and veneer bolts. Industries utilizing these raw materials account for 42% of all the manufacturing firms of South Carolina, 18% of its manufacturing plant and equipment value, 16% of all full time workers, 15% of the total income, and 18% of all profits of the state.

There is no danger of having a timber surplus. Unlike the produce of the annually harvested agricultural crops, timber, maturing only after the lapse of many years, is in short supply. South Carolina, just as the same is the nation, is cutting more saw timber than it is growing. The state's saw timber supply decreased ten percent during the period 1936 to 1947. The quality of the standing timber also declined. Today at least one out of every five trees is a cull. Cull trees are those that are poorly formed, too many limbs, decayed or otherwise defective to have any commercial value. The supply of young trees, the saw timber of the future, has also decreased. This is due mainly to the uneven distribution of these trees in the state. In some of its parts small trees are overly dense, in others there is a severe shortage of them.

While the present and the future saw timber supply is decreasing the demand for timber has increased. The average annual timber harvest of South Carolina calls for at least five million cords of wood and one billion board feet of saw timber. The heaviest drain on the forests comes from the lumber industry, using about one-half of all the timber cut. The pulp and paper industries utilize about one-fifth of the timber harvested. The remainder of forest products is utilized by furniture plants, veneer mills, crate and basket manufacturing concerns and other wood-using enterprises.

The most developed forest recreational facilities in South Carolina are maintained in the 22 state parks, all administered and managed by the commission of forestry. The recreational facilities of the parks are kept up to foster diverse out-door activities such as picnicking, hiking, camping, swimming, fishing, boating, and others. The desirability of these parks can be judged by the number of visitors utilizing them each year. This number amounts to more than three million. If it is kept in mind that the total population of South Carolina is slightly more than two million, it becomes evident that many guests of the state parks are out-of-state visitors. The visitor load in the parks of South Carolina is greater than that of any other southeastern state. This in turn proves that the state parks are attractive and their facilities accommodating. The demand for accommodations exceeds the supply. It is reasonable to assume, therefore, that the recreational facilities of the state parks are likely to expand in the future.

While the vacationers crowd the state parks, the sportsmen seek their recreation by taking to the forests, lakes, and streams to pit their wits against the wild game and fish. Hunting and fishing have always been popular sports in South Carolina, a state that can boast of a large variety of game, game-birds, and fish. The importance of wildlife in South Carolina is not limited to recreation, however. It includes specialized commercial enterprises such as fisheries, and fur and game farming; it also involves the role played by the farmer in the maintenance of biotic balance in South Carolina's forests.

One of the highly important and yet comparatively little appreciated functions of forests stems from the influences they exert upon the conservation of water and soil resources of the state. There are many miles of waterways in South Carolina which are important factors in the actual and potential industrialization as well as the irrigational developments of the state. Strategically located forest vegetation regulates, through its influences, the flow of water in these streams, minimizes the soil losses, and the concomitant silting of streams and of reservoirs that may be constructed on these streams. Steady supply of clear water will enhance the permanent, unlimited operations of industries and irrigation projects counting on this natural resource.

Today forestry is a major constituent in South Carolina's economic welfare. The growing demands for forest products and the decrease of timber volume present many and varied forestry problems to the state. We have enough land, but do not have enough trees. With improved management and silvicultural practices, intensified fire protection, better utilization, further industrial development, and research, the forests should become adequate to meet the increased demand for timber, to enhance their recreational uses, to improve the habitat for game and fish, and to intensify the influences the forest vegetation exerts upon conservation of water and soil.

THE AGRARIAN
NOW! IH ELECTRALL

adds another dimension to tractor usefulness!

Completely mobile electric power is now a reality for many practical and profitable farm applications. Its source is IH Electrall, now available after years of intensive development. Mounted on a McCormick® Farmall® 400, new International® W 400, or a Farmall Super M-TA tractor, Electrall provides a high-capacity, combined electric generating and distribution system for use anywhere the tractor can be driven.

The compact Electrall unit is easily and quickly mounted, or dismounted from the tractor. You need only dismount the Electrall unit for only a few seasonally-used, front-mounted implements; otherwise it does not interfere with normal tractor and equipment operation. Neither does it tie up the tractor drawbar, as is the case with a generating unit driven from the power take-off. Electrall operates without interruption whenever the tractor engine is running at rated speed.

Electrall can pay its way now on farms—providing standby power, driving electric motors to power field machines, and powering portable maintenance equipment. However, great areas of utility and profit are yet to be perfected or developed—through ingenuity of farmers and research of agricultural engineers, soils scientists, agronomists, and other specialists who constantly are extending the applications of electricity to agriculture. The applications of Electrall are unlimited!

Write for booklet, entitled "IH Electrall", for further information. It's free—get yours today.

A report to you about men and machines that help maintain International Harvester leadership

Electrall generator powers a 10-hp Electrall motor to drive a McCormick No. 55-W hay baler.

IH engineering teamwork produced the application of Electrall to the Farmall and International tractors. IH research, engineering and manufacturing men are constantly pooling time and talent to provide equipment of wider application and improved performance to make the farmer's work easier while boosting production.

International Harvester products pay for themselves in use—McCormick Farm Equipment and Farmall Tractors... Motor Trucks...Crawler Tractors and Power Units...Refrigerators and Freezers—General Office, Chicago 1, Illinois.
JAMES T. CRAIG

Mr. James T. Craig is married, has three children, ages five, three, and two. He calls Pickens his hometown.

Mr. Craig received a B.S. degree in Agricultural Engineering from Clemson in 1951 and has done summer work towards his M.S. Degree during 1954 and 1955 at the University of Georgia. At present he is teaching Farm Shop, Farm Tractors, and a seminar course for seniors. He has taught since 1951 except for six months when he worked with the United States Department of Agriculture.

As an enlisted man with the U.S. Army, he served from 1943 to 1946 and spent two years overseas in Europe. Membership in A.S.A.E. and the Baptist Church along with his hobby of woodworking and sports take up much of his spare time.

ENTOMOLOGY

(continued from page 10)

secticide formulation, and the enforcement of the Pure Food and Insecticide laws.

From these examples of entomological vocations it is obvious that the study of insects provides opportunities for almost every type of person. The student who chooses entomology as a career will find it a satisfying one. It is satisfying because it provides a financial reward comparable to the other sciences; because entomology is a pleasing and interesting study with a never-ending variety of problems to be solved; and because it contributes to the health, comfort and economic welfare of man.

DAVID DUNAVAN

Mr. David Dunavan was born in Lakefield, Minnesota in 1893 and was the youngest of six children. He met his wife in Iowa while in service of his country. In 1928, he came to Clemson and has been here since.

Mr. Dunavan’s freshman and sophomore years were spent at Montana State College, Bozeman, Montana. The junior and senior years were at Oregon State College, Corvallis, Oregon and he received a B.S. Degree upon graduation in 1925. In 1928, he received his Master’s Degree from Iowa State College. He has worked toward his Doctorate at Cornell University but has not yet received the degree.

His professional accomplishments include membership in the Entomological Society of America and Sigma Xi, an honorary graduate scientific fraternity, and he is Historian of the South Carolina Entomological Society. Also he was South Carolina Co-ordinator for the Entomological Centennial in 1954 and is a member and past president (1953-1954) of the Southern States Bee Keeping Federation.

Mr. Dunavan’s hobbies include beekeeping and cacti. He is a member of the American Beekeeping Association, the American Cacti Association, and the South Carolina Beekeepers Association.

GEORGE H. DUNKELBERG

Mr. George H. Dunkelberg was born in Rockford, Iowa in 1913 of English, Irish, and German ancestry. He is married and has three boys and a girl.

His degrees are in Agricultural Engineering with a B.S. from Iowa State College in 1937 and a M.S. from Iowa State College in 1938. At present he is teaching Farm Structures and Advanced Farm Structures in Agricultural Engineering. He is also an Associate Agricultural Engineer with the South Carolina Experiment Station, and he worked as an Agricultural Engineer for the Foreign Operations Administration in 1954 as consultant on farm buildings for the Republic of Chile, South America.

The U.S. Army had his services during the Second World War as Officer in Field Artillery. He saw action in Europe, was captured, and left the Army as a Major.
A CHALLENGING CAREER
(continued from page 6)

Agricultural engineering, though still comparatively young, has risen fast in this world of mechanized labor. What lies ahead is to be decided only by those who follow in the wake of a fast moving field of engineering. One thing is for certain. With the population of the world increasing in leaps and bounds, there is a definite need for more well trained agricultural engineers to help the farmers produce the necessary food products.

NOVEMBER 1955

FARM MECHANICS
(continued from page 7)

supervision of F. E. Kirkley, Associate Professor of Vocational Education at Clemson College. During these workshops, plans are developed for improving farm mechanics instruction. Pamphlets are issued which give many interesting and helpful ideas. In the "Teacher's Guide" an outline is suggested in which the three groups of vo-ag students, high school or all day students, young farmers and adults, are given the various phases of farm mechanics according to a convenient schedule.

Under the area of farm mechanics can be listed the home farm shop, farm fencing, farm electricity, power tools, farm concrete, hand tools, safety, painting, farm carpentry, metal work, farm plumbing, farm welding, farm machinery and farm tractors.

This is the machine age. Few mules are seen today as one drives through the country. The farmer must join the march by becoming fully acquainted with farm mechanisms.

FIFTEEN
I DARE YOU
(continued from page 3)

Danforth Fellowship when you are a rising senior and to be ready to meet the challenge it offers.

I challenge you freshmen to win the Danforth Fellowship for rising sophomores, which consists of two weeks at Camp Miniwanca. Miniwanca can be even more valuable to you because it comes at a time in your life when changes are easier to make.

I've purposely told you practically nothing about the fellowship because it can't be put into words without cheapening it. The greatest benefits from it are intangible and very hard to describe. I just want you to believe me when I say that it is an experience that you'll never cease to reap benefits from. It can very easily be the best thing that ever happened to you—it certainly was for me.

Now to achieve the second part of my goal, I've chosen what I consider jewels of inspiration and/or wisdom from my notes to pass on to you. I hope they mean as much to you as they meant to me.

“Speculation is not gambling, but is assuming a risk of every day living: not creating a risk which is gambling.” Walter Krings, Secretary of St. Louis Mercant’s Exchange.

“Work is a privilege.” H. C. Sheaffer, Ralston Purina Company.

“What we have was given us by God, don’t complain. The tragedy is not how little He gave us, but how little we use what He gave us.” H. C. Sheaffer.

“The Bible is a book for living, not for arguing.” Dr. W. R. Courtenay, minister, Nashville, Tennessee.

“Never pass up an opportunity to talk in front of a group or write for a publication.” G. W. Morrison, Editor of Compressed Air Magazine.

“Most of our difficulties are opportunities that we can’t control or recognize yet.” Margaret Hickey, Public Affairs Editor of Ladies Home Journal.

“Inspiration is fundamental to good life.” Margaret Hickey.

“Life consists of rendering service; he who renders best service, most often, for the most people, succeeds.” Statler.

“There are very few free people in the world. They are bound by their own limiting thoughts.” Jam Handy.

“I dare you to think tall, smile tall, live tall, and stand tall.” (symbolic of the four-fold way of living taught at Camp Miniwanca: Mental, Social, Religious, and Physical) William H. Danforth, founder of the Ralston Company and chairman of the board.

“I dare you to be your own self at your very best all the time.” Camp Miniwanca.

And I dare you to examine yourself thoroughly in this fourfold way. I did it by answering a questionnaire and then having an interview concerning suggested improvements. Since you may never be that lucky, take stock of yourself now and make your improvements. Don’t neglect any field in favor of another. You’ll be surprised at the results.

THE AGRARIAN
Thanks . . .

for the air,
and the water,
and the generous earth . . .

for the miracle of seed,
the promise of blossom,
and the nourishment of fruit.

Thanks . . .

for the dawn,
and the pursuing twilight . . .

for rain,
and snow,
and the glory of the ever-changing year.

Thanks . . .

for music,
and art,
and poetry . . .

for commerce,
and industry,
for invention and achievement.

Thanks . . .

for the steeple,
and the town hall . . .

for the dome of authority,
and the pillar of justice.

Thanks . . .

for kin,
for friend,
for neighbor . . .

for the strength of man,
the courage of woman,
for the confidence of the young,
and the wisdom of the old.

Thanks . . .

for the mind to know,
the eyes to behold,
the hands to use,
and the soul to enjoy
all these things . . .

and for the heart to say—
Thanks!

Opr. 1951, Deere & Co.
You'll both go for this cigarette!

WINSTON
tastes good—like a cigarette should!

College smokers know why Winston changed America's mind about filter smoking! This filter cigarette gives you real tobacco flavor—the full, rich flavor real smokers want. And Winston's finer filter works so effectively that the flavor really gets through to you.

Try a pack of easy-drawing Winstons. See for yourself why so many college men and women are getting together on this cigarette. Winston tastes good—like a cigarette should!

WINSTON
is fun to smoke!
Easy-drawing, smooth-smoking, good-tasting—that's Winston! And that's what it takes to get all the fun of smoking.

Smoke WINSTON the easy-drawing filter cigarette!