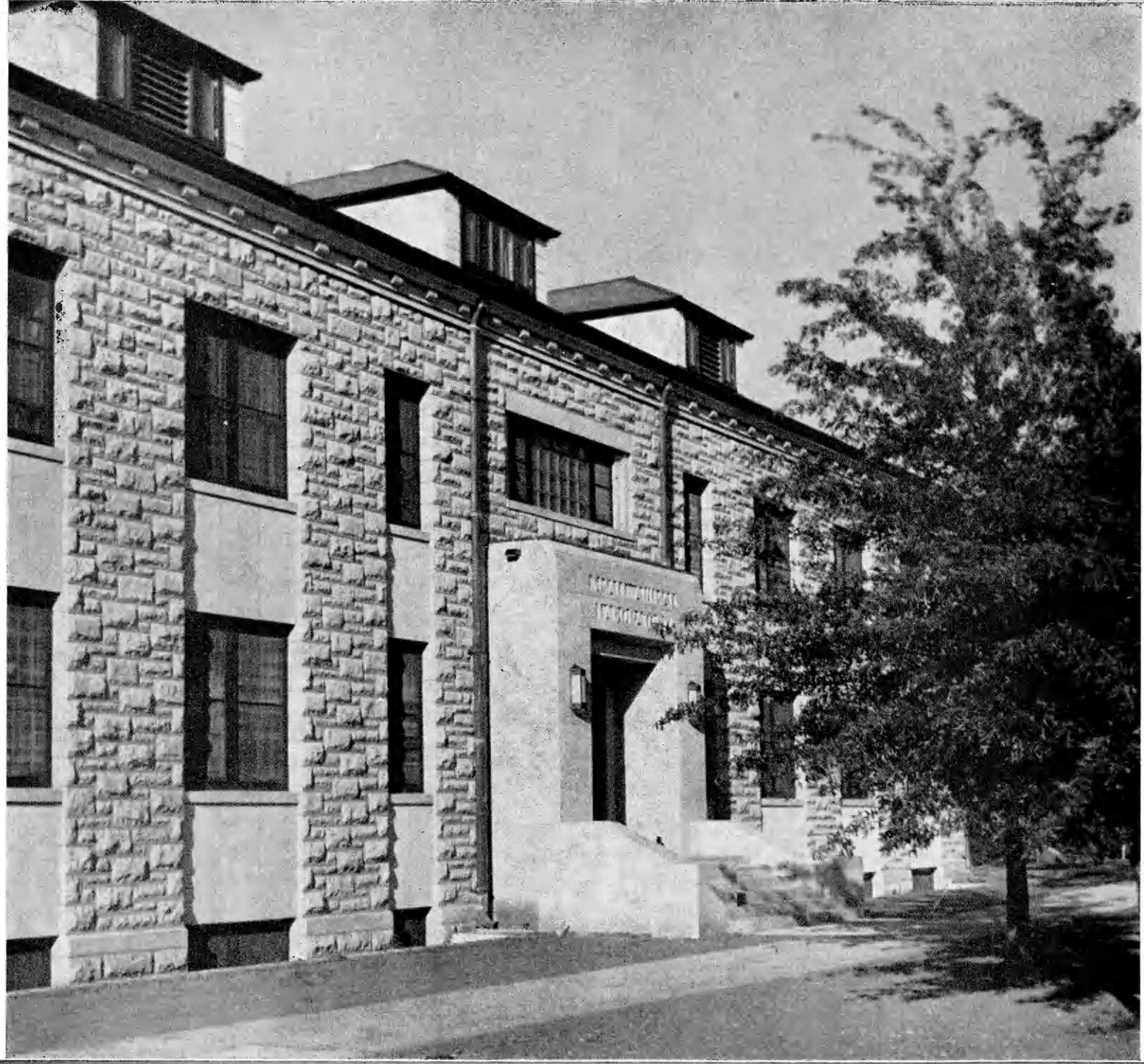


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Agricultural Student

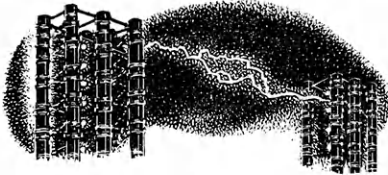


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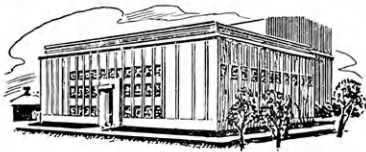




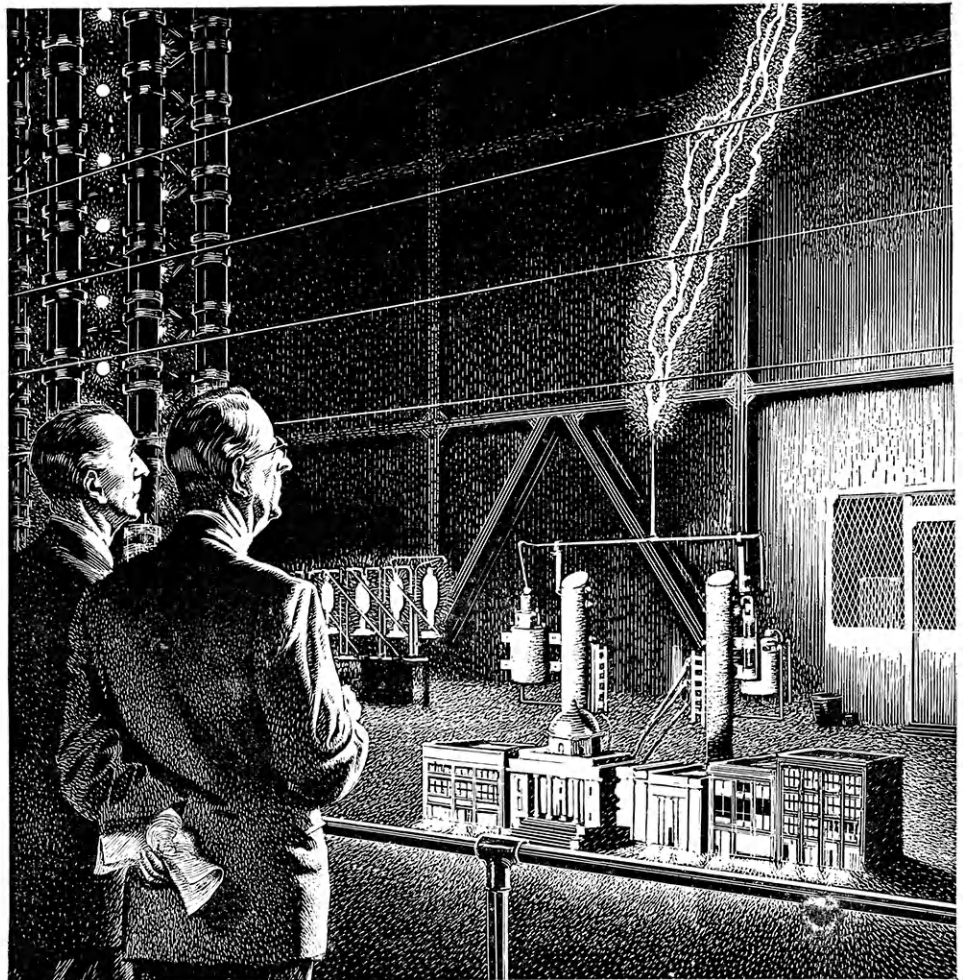
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On the Cover--

Animal Research Lab Ready Soon

By DALE E. JOHNSON

Construction work on the new Small Animals Laboratory has been completed and equipment is being installed, preparatory to the beginning of full scale research activities. The laboratory is the first addition in the "Campus of the Future" planning program. A two story native limestone structure, it replaces an old military barracks which burned in 1941. It is located between West Waters Hall and the Military Science building.

Appropriations totaled some 200,000 dollars for this building which will house extensive research in connection with the Kansas Agricultural Experiment Station. The facilities which it makes available will prove a valuable asset to Kansas' science and also to Kansas State College.

As the name indicates, small animals are to be used exclusively in the experimental work. Rats, guinea pigs, chickens, and rabbits will be the principal subjects in the five major studies: genetics, nutrition, parasitology, endocrinology and bacteriology.

Dr. H. L. Ibsen, professor of Animal Husbandry and well-known geneticist, will work with guinea pigs. He is currently interested in building a superior inbred strain of the animal. A joint experiment is under way between Dr. Ibsen, Dr. A. D. Weber, head of the Animal Husbandry department, and Walter Smith, also of the department. They are attempting to develop an inbred strain having a low maintenance requirement for food and a high rate of gain per pound of feed. Their eventual findings may be of great value to the livestock industry. In his basement section of the laboratory, Dr. Ibsen has a special room for the sprouting of oats for feed.

The west end of all three floors will be devoted to bacteriology. According to Dr. L. D. Bushnell of that department, work will be done primarily with poultry diseases. Of immediate concern is the bacterial disease "Pullorum" and the virus disease "Newcastle's."

(Continued on page 28)

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OF AGRICULTURE AND APPLIED SCIENCE
MANHATTAN, KANSAS

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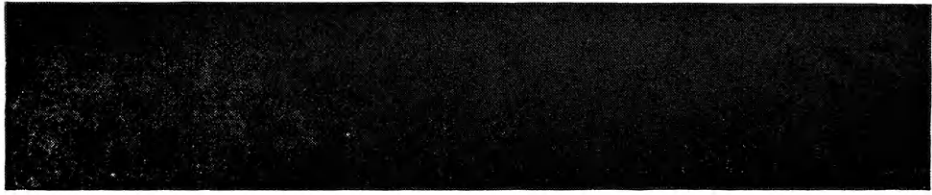
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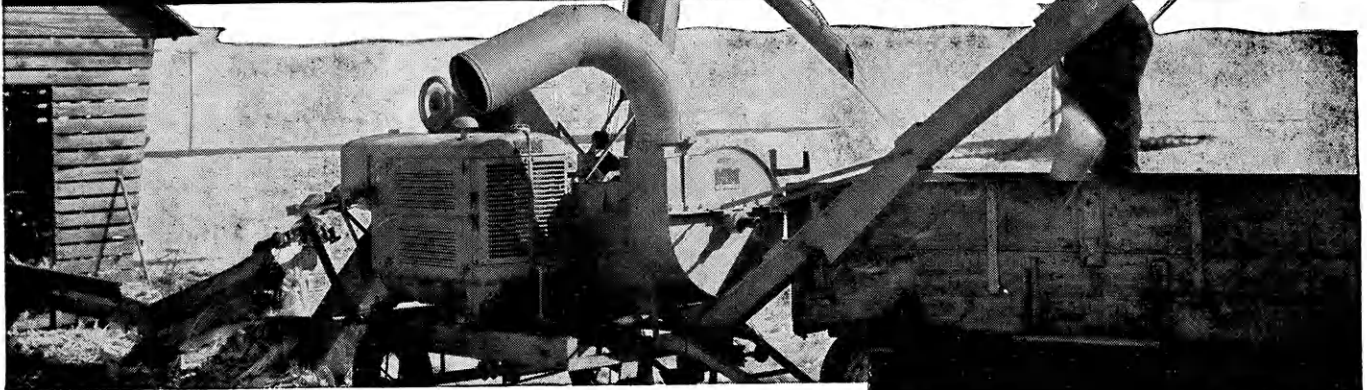
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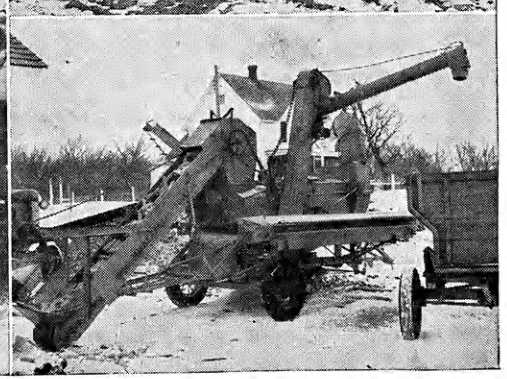
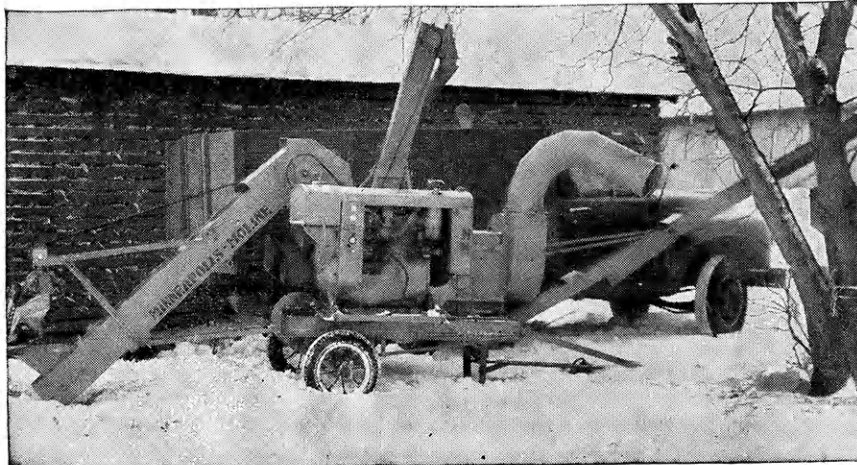
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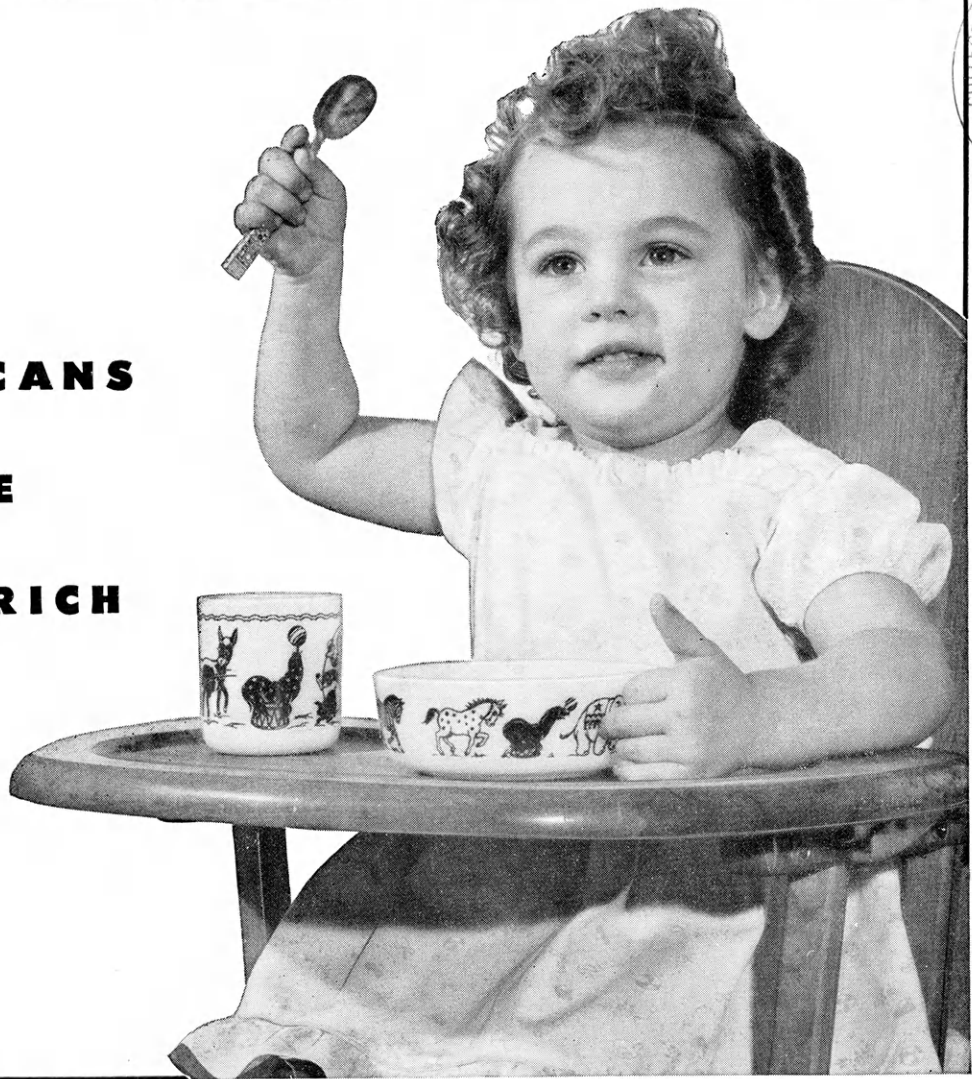
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Unfortunately, freedom isn't free. General Washington and his men made the down-payment at Valley Forge and Yorktown. For almost two hundred years, brave men have met the installments with sweat and blood. But keeping

our land free is no task for heroes alone—"Freedom is everybody's job!"

You strengthen America and make it more productive by mastering your job and giving a few extra licks to your daily tasks. You show your faith in the American way when you take time to vote in local as well as national elections. You make democracy work when you respect your neighbor's right not only to disagree with you, but to have his say.

Don't be content with flying the colors on Flag Day and parading on the Fourth of July—help to make our democracy a living, working reality 365 days of the year. We have inherited priceless freedom; as long as we keep it, the poorest of us is rich!



JOHN DEERE • MOLINE • ILLINOIS

Professor R. J. Barnett Retires

Former Departmental Head Noted
One of K-State Older Athletes



Prof. R. J. Barnett

By JOE BRADY

"My greatest joy in life has been my association with students." With this statement R. J. Barnett, professor of horticulture emeritus, began to unfold the story of his 48 year connection with students and education.

Professor Barnett started his college career at Kansas State College in September of 1891 and graduated with a B. S. in Agriculture (Horti-

culture) in 1895. Following graduation he went to Emporia State Teachers College where in 1896 he received a life certificate to teach in Kansas. The next three years were taken up with teaching in country schools. Then two years were spent teaching high school at Manhattan and in Olathe where he was principal. The following six years Professor Barnett was the assistant postmaster in Manhattan.

In 1907, Professor Barnett began his work as a college professor. He was elected principal of the "Prep Department." The work in this department was offered as a subfreshman course and the teachers were distributed among the subject matter departments. He remained principal until the department was abolished.

For the next two years he was an assistant professor of mathematics and made the schedules for all college classes. Aside from this he was working on his master's degree. At that time there were 3000 students and during the winter term not one empty class room could be found for a three hour class during the six day school week.

In the spring of 1911 Professor Barnett received his M. S. in Horticulture. He then accepted a position as assistant professor of pomology at Washington State College, Pullman. While in Washington he was a judge at the National Apple Show for three years and also a judge at the Portland Rose Festival. While at Pullman, Professor Barnett was the originator and editor of the Washington State Industrialist. This publication is similar to our own Kansas State Industrialists.

In 1920, Professor Albert Dickens, then head of the Horticulture Department at Kansas State, offered Professor Barnett a position which he accepted. From 1928 to 1930 Professor Barnett was acting head of the department, and from 1930 to 1938 he was head of the department.

In 1940, Professor Barnett retired from administrative work. His heaviest load of teaching was in 1942 when the army was at Kansas State. Teaching math to the army boys was nothing new for Professor Barnett because he had taught math to them during World War I. He said, "Math has been no special love for me but just easy."

Although teaching and work with students has always been his greatest

(Continued on page 26)

Curriculums in Ag School Offer Wide Variety of Courses

By HAROLD E. BROWN

In the four year curriculum in Agriculture the student may major in any of the six departments of agriculture. These departments are Agronomy, Animal Husbandry, Dairy Husbandry, Poultry Husbandry, Agricultural Economics, and Horticulture.

During the first two years of the curriculum the student is not required to decide what his major will be. This is an advantage for most freshmen who are not decided on their field of greatest interest. Toward the end of his sophomore year the student makes out his list of electives. These electives must be officially approved by the Dean of the School of Agriculture and the head of the department in which the student wishes to major.

The first two years of the Agriculture curriculum are designed to give the student a basic knowledge of all the phases of agriculture. More than one-third of his time is devoted to agricultural subjects. During the last two years, in which there are a total of 38 elective hours, he specializes in one phase of agriculture and earns his major. These electives may be distributed as follows, 12 hours for a major elective, 9 hours for a minor elective, and 17 hours of general electives to be used to meet individual needs.

Although some of the students who graduate with a Bachelor of Science degree in Agriculture find very good jobs with the U. S. Department of Agriculture, state experimental stations, U. S. Soil Conservation Service, and other large organizations, many of the students return to farming. It is becoming increasingly necessary for the successful farmer to have a good scientific knowledge of agriculture.

Some of the present day agricultural problems that must be met by farmers are soil conservation, soil fertility, selection and breeding of good livestock, and improvement of crops. Solving these problems will

be easier for the farmer with a good college education as a background.

Curriculum in Agricultural Journalism

The curriculum in Agricultural Journalism is a very recent addition to those offered in the agricultural field at Kansas State College. It was inaugurated in 1946. At the present time, 22 students are enrolled in the curriculum. William Bork was the first to graduate in the curriculum and he became a county agent.

College officials started the curriculum in Ag Journalism because of the acute need for good writers who also were interested and had a knowledge of the agricultural field. So far, the job placement of graduates in Ag Journalism has been very good. The demand for these men is still good because there are very few colleges with accredited curriculums in Ag Journalism.

The list of accredited colleges in Ag Journalism in 1948 were as follows: Kansas State College, Iowa State College, Minnesota U., Missouri U., Oklahoma A&M, and Wisconsin U. There are more than 500 national, regional and state agricultural publications in the United States. Therefore, the scope of opportunity for ag journalists is wide.

The best possible training for ag journalism jobs is a combination of farm background plus training in agriculture in a good agricultural college.

Some of the job possibilities for the Ag Journalism graduates include the information service of the U. S. D. A., state and federal extension services, state departments of agriculture, farm radio departments, ag experiment stations, farm organizations, advertising agencies, livestock publications, and other publications.

In the Ag Journalism curriculum, 27 hours of journalism are required. Six of these hours are electives in the journalism field. The rest of the

(Continued on page 22)

Dean Call Teaching at Silliman University

By SILAS BRANDNER

Dean and Mrs. L. E. Call, Manhattan residents for many years, are now teaching in the Philippine Islands. Dean Call was sent to Silliman University, Dumaguete City, to help plan their agricultural program as Fullbright visiting instructor. They reached the islands during the late spring of this year.

Dean Call feels that there is no need for another agricultural college in the islands, since the University of the Philippines, Manila, is already instituted as an agricultural college. Therefore, he is working out a plan whereby Silliman University can reach the farm people through the churches and church schools in cooperation with the extension service of the country.

During the summer semester, Dean Call spent his time lecturing to student assemblies, group meetings, civic organizations and to other organizations of like nature.

Dean Call was sent to Silliman University as Fullbright visiting professor in agriculture for the school year July, 1949 to April, 1950. Mrs.

(Continued on page 13)



Dean and Mrs. Call in Tokyo

Korean Lespedeza Becoming Popular For Acid Soils in Eastern Kansas

Survives on Land Not Suitable for Alfalfa or Clover

By GEORGE TIMMONS

Korean lespedeza has been called a "poor-land crop" because it can be grown on less fertile soil than alfalfa and clover. For this reason it has become a very popular legume in eastern Kansas where poor acid soils are relatively common. On soils of this type alfalfa and clover can be grown only after large amounts of lime and phosphate have been added.

Kling L. Anderson, pasture improvement specialist with the Kansas Agricultural Experiment Station, is the author of the new circular 251 entitled "Lespedeza in Kansas." Prospective growers should consult this circular before planting lespedeza.

Korean lespedeza has many purposes in Kansas, but its primary use is for grazing. In addition it is used for hay and seed production, orchard cover crops, soil improvement, erosion control, and is used in a number of crop rotations. It will furnish grazing from June until frost when planted alone. When grown

with small grains it may not be ready for grazing until some time after the grain crop has been harvested.

Lespedeza is important in checking erosion. It is often possible to start lespedeza without seedbed preparation of any kind. This characteristic enables many farmers in eastern Kansas to bring abandoned lands back into production.

Mr. Anderson does not recommend that lespedeza be sown in tame grass pastures. Lespedeza grows during the hot months while tame grass is in a dormant stage. If grass and lespedeza are sown together the grass will be overgrazed. It is a better practice to have two separate pastures or to sow the lespedeza with a small grain thus providing pasture during the dormant stage of grasses.

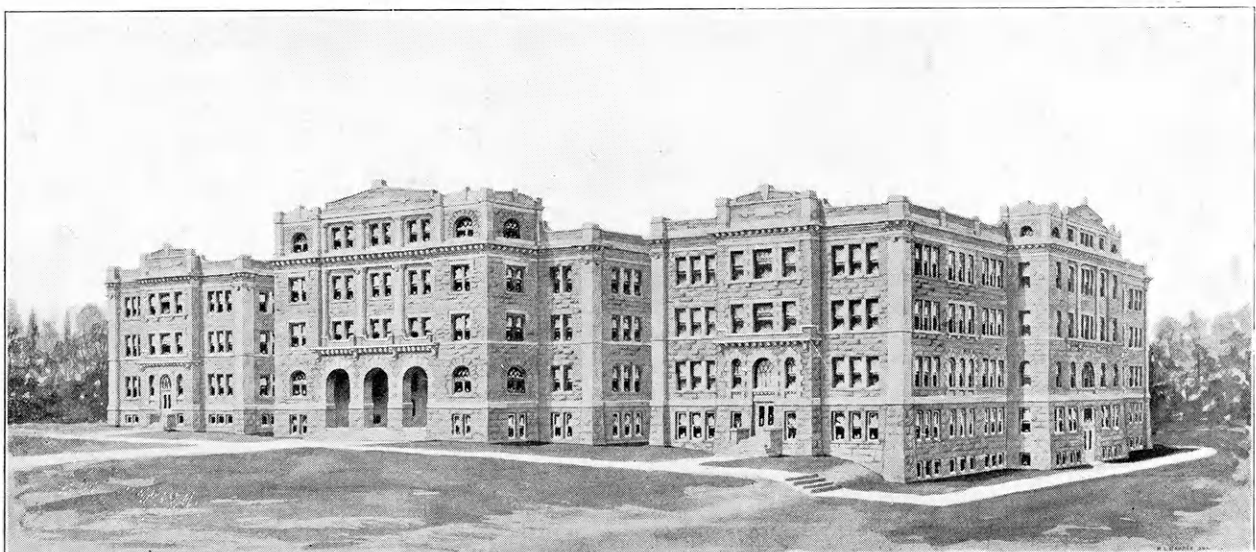
Lespedeza contains less moisture than such legumes as alfalfa, and therefore field cures more rapidly. It may be wind-rowed immediately after mowing and stacking can often

take place within 24 hours after cutting if the weather is dry. Lespedeza cut during or just before first bloom will yield the best quality hay. The hay will be coarse and of low quality if allowed to remain uncut until seed begins to form. Cutting at an early stage has the added advantage of leaving sufficient time after haying to permit formation of a seed which will insure volunteer stands the following year.

Production of certified seed is an open field for Kansas farmers. Although much lespedeza seed is produced in Kansas, little is ever certified. B. C. Nelson of Ottawa, Kan., was the only farmer registered with the Kansas Crop Improvement Association this spring.

Dodder is one of the most serious problems facing the certified seed grower. This parasitic weed grows in patches and winds itself around the lespedeza plants. Unfortunately, it cannot be eradicated by mowing.

(Continued on page 22)



Several years ago college officials dreamed of a connecting wing between East and West Waters Hall. Compare this picture with the one on the front and notice how time makes its changes. This picture ran in the March, 1943 issue.



Ag Barnwarmer queen candidates parade before aggies during Seminar October 6

Designed at K-State

Using Hot Air in New Dehydrator Saves 25 Percent More Carotene

By H. DALE JOHNSON

Chances are favorable for a decrease in the number of night-blind calves and chickens in the future if they are fed feeds containing pneumatically dehydrated alfalfa. Results of experiments conducted by the chemical engineering department indicate that the carotene content of alfalfa dried while supported by a column of hot air is about 25 percent higher than that dried by conventional design dehydrators.

Last March a preliminary dehydrator design was begun by Dr. Hen-

ry T. Ward, head of the chemical engineering department, and Professor W. H. Honstead. A dehydrator operating on an entirely new principle was constructed. After May the supervision of the project was shifted to Dr. R. G. Taecker. With the help of Assistant Instructor M. J. Marnix and Research Assistant W. H. Haney large number of tests and alterations were made. The results indicate that it may be possible to dry alfalfa completely and economically yet improve the quality of the dry product.

Freshly cut alfalfa is fed to the

unit and is swept into a drying section by air heated to 800° Fahrenheit. Fifteen seconds later the leafy material is expelled with a moisture content of below 10 percent. Reasonably good field-run alfalfa will retain over 200,000 units of carotene per pound of dehydrated hay. This is a marked improvement over conventionally dried alfalfa.

This new dehydrator may also be used as a partial drier for increasing the capacity of present drum-type dehydrators. The cost of installing the preliminary dehydrator in connection with conventional driers would be moderate.

Further work will be done to consolidate the design information, to determine the best operating conditions, and to devise more adequate fuel economizers.

Yes, another use for hot air has been found.



Prof. George Arms speaks to Milling students at an Alpha Mu smoker.

Source For Fishing

Good Farming Practices Important, Popularity Farm Ponds Grow

By DON HAMMA

Farm ponds are becoming more and more important in the present day farming program. Farm ponds impound runoff water, which aid in preventing flash floods. A pond can be used for a stock watering project, irrigation project, farm recreational center, wildlife refuge, and numerous other useful purposes.

Practically every farm has at least one ideal site where a small pond and wildlife refuge can be located without interference with the present farming program.

Good farming practices, which control soil erosion and water runoff, should be well established before a farm pond is built. Such a program should assure a long and useful life to a properly constructed and maintained pond.

The best sites occur in small valleys or depressions that have steep sides and gradually sloping floors. The steep sides assure deep water at the edges of the pond and make weed control easy. The gradually sloping floor makes it possible to impound considerable water with a dam of

moderate height.

The first thing to do after the site has been selected, is to make certain that the soil will hold water. This can usually be done by taking soil samples with an auger or by digging a hole two or three feet deep in several places in the area which the water is to cover. If the soil is heavy or contains mostly clay there should be little trouble in getting the pond to hold water, but if the soil contains a large percent of pebbles and sand, it will be difficult to keep the water from seeping. Rock ledges or rock outcroppings should be avoided because they usually serve as passages for water.

The watershed or drainage area that supplies the water should be large enough to supply sufficient water to keep the pond well filled but not so much that large amounts of water pass through the spillway every time it rains. The water shed should be well vegetated so that the water that enters the pond will be as free from silt as possible.

Before the dam is built the water line (the point to which the water

will rise when the pond is full) should be determined and all the rocks, trees, shrubs, grass, and any other debris or obstructions should be removed from the pond site proper. Debris should also be removed from 15 to 20 feet above the waterline. There are several reasons for this. One reason is that it will eliminate some of the dangers for future swimmers and boaters. Debris removed from the pond site should not be incorporated into the dam proper because it will weaken the dam and is likely to become a source of seepage through the dam. After removing shrubs and debris you will have a better idea what the pond will look like and where to excavate the dirt for the dam. The cleared area above the dam should be sown to some suitable sod-forming vegetation.

A dam with a wide base and gradually sloping sides is much stronger than one with a narrow base and steep sides, because seepage of water through the dam is decreased; and the chances of caving and slipping, when saturated with water, are reduced.

A general recommendation for the degree of slope on the sides of an ordinary farm pond is a three to one (3:1) slope on the pond side and a two to one (2:1) slope on the land side. The top of the dam should be about ten feet wide. A slope of 3:1 means that for every one foot of height the dam will slope in three feet. A dam 10 feet high with a slope of 3:1 on the pond side and a slope of 2:1 on the land side would have a recommended base width of 60 feet.

After the dam has been constructed drain pipes and overflow pipes should be installed. The drain pipe is to be used in draining the pond if the necessity for drainage should ever arise. It is best to lay the pipes on the solid base of the dam. Pipe six or eight inches in diameter makes a serviceable drain for ponds of one to two acres in size. Larger pipe is best for large ponds, especially if considerable water is to be bypassed from the spillway through the overflow pipe into the drain pipe. Pipe as small as three or four inches in diameter is reasonably satisfactory for small ponds.

The overflow pipe is usually connected to the drain pipe by an elbow

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Accepts Position To Teach Meats at W. Virginia U.

By TOM MEANS

Robert Hendrickson accepted a position as an assistant professor in the Department of Animal Husbandry in charge of meats at West Virginia University at Morgantown, W. Va., on September first.

Bob has quite an outstanding record. He is a native of Ellis County, Kansas, and started his college career at Hays State College, but transferred to Kansas State before the war.

He left school for a time to serve in the Army. He was commissioned a first lieutenant in the Air Corps and served with the Engineers in Japan.

While an undergraduate here he served as president, vice-president, and secretary of the Collegiate 4-H club. He was awarded a Union Pacific scholarship, and was a member of Alpha Zeta, honorary agricultural fraternity. Bob was also an active member of the Block and Bridle club and was the fourth high individual in its 1947 livestock judging contest.

During Bob's senior year he was a member of the meats judging team. He turned in the outstanding performance of being the fifth high individual at the American Royal and high individual at the International in Chicago.

In the meantime Bob had married an Ellis County girl and to that union came a baby girl, now three years old. After his graduation in 1947 he accepted a graduate assistantship in the animal husbandry department at K. S. C.

In 1948 he was promoted to instructor in animal husbandry and in 1949 he was made an assistant professor. During that time he continued his graduate work in meat bacteriology and a Master of Science degree was conferred on him at the end of the 1949 summer school.

Hendrickson immediately accepted the present position at West Virginia University and becomes the eighth Kansas State student of meats to enter the field of instruction in meats.

Established in 1924

Dairy Counter Popularity Grows Via Student Sales

By JACK GRAHAM

Dairy Foods-Retail Sales—these are the words of the bright, new, fluorescently lighted sign that overhangs the entrance to the dairy sales counter located on the ground floor of West Waters Hall.

This is a popular place from the first warm day in spring to the last warm day in the fall. An ice cream cone, a malt, or a cold glass of milk really hits the spot during that break between classes.

Most of you have probably noticed the young lady that manages the sales counter this fall. She is Mrs. Ruth Ragan, whose husband is enrolled here at Kansas State. In the accompanying picture you see Mrs. Ragan as she moves around the counter after taking an order from the customer at the extreme right.

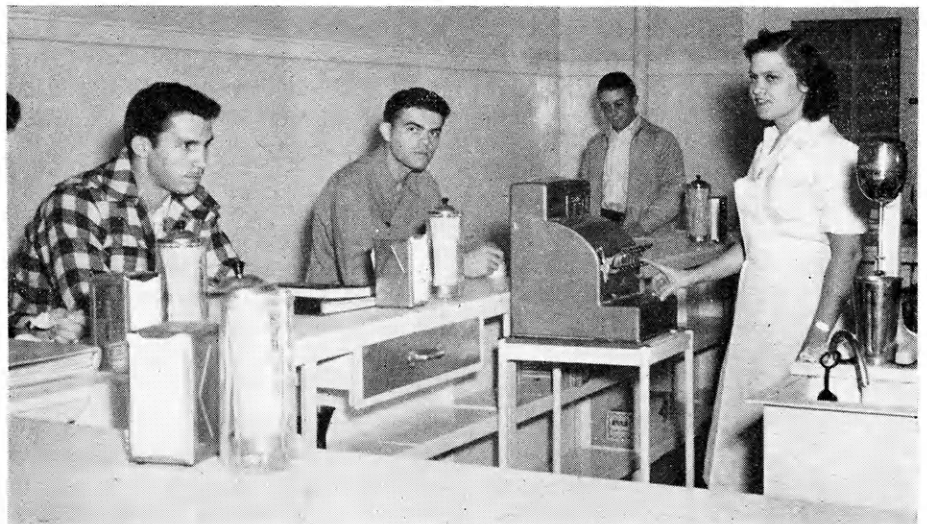
The dairy sales counter was set up in 1924 which was the year that the dairy husbandry offices were moved into West Waters Hall. Only milk and bricks or slices of ice cream could be handled at first. Since the cold storage room was the first on the campus, it was used to store quantities of blood serum for use in the veterinary laboratories.

Prior to 1941 only male students

had been employed to manage the sales counter. At the outbreak of the war about the only men in school were soldiers in the A. S. T. P. training program. The wife of one of these soldiers was hired to run the sales counter at that time and stayed until 1944 when the A. S. T. P. detachment was moved from the K-State campus.

Some students may wonder where the college gets the milk for manufacturing the large amount of ice cream and cheese that is sold here. The college dairy herd produces approximately 225 gallons of milk daily. This amount, plus enough to balance the demand purchased from another source, is processed for college owned organizations and for sale through the dairy sales counter. The bulk of this milk is sold as fluid milk at wholesale rates to the college maintained dormitories and to the cafeterias. Approximately one-fourth of the milk handled by the college creamery goes into the manufacture of ice cream and reaches a market through the dairy sales counter.

Products other than ice cream and milk that are handled here are cottage cheese, cheddar cheese, and orange and grape drinks.



Mrs. Ragan serves many college students at Dairy Bar during class breaks. Faculty members and college employees also utilize this facility.



Ice cream cups are filled by the new plant superintendent and a helper.

War Ended Service Once

Walter Leland, Dairy Graduate, Returns To Be Plant Superintendent

By W. G. REIST

A former Kansas State College student is the new dairy manufacturing plant superintendent. Mr. Walter Leland, a 1940 graduate, took over the superintendent's job in June, 1949.

Mr. Leland claims Atchison County as his home until 1935, when he started to Kansas State College. Obtaining his Bachelor of Science Degree in Dairy Manufacturing in 1940 was the beginning of a career in that field.

His first job was in Tulsa, Okla., with the Quality Milk Manufacturing Company. After nine months as head of the ice cream manufactur-

ing department he left to come back to college.

The second term at Kansas State College proved very short. The army put a halt to his career as dairy manufacturing superintendent in September of 1941.

After a year's training in the U. S., he left for overseas. He spent a year in the British Isles, one in Africa and the remainder of the time in Italy with the famed 34th (Red Bull) Infantry Division.

Receiving his honorable discharge in 1945 he wasted no time in getting back to a civilian role. Mr. Leland started work on his Master's degree immediately at Ohio State College at Columbus. After graduation in

1947, he left for Hillsboro, Kan., as head of the quality control in the Central Kansas Cooperative Creamery. Other duties besides quality control man were in the laboratory, running tests on dairy products and bacteriology work. Mr. Leland held this position until coming to Kansas State College.

At present he is not teaching any courses but will probably do so in the future. Mr. Leland is a graduate assistant and is qualified to teach if the need arises.

Mr. Leland finds his work interesting and enjoyable. Non-working hours are spent with his wife and three year old son Steven.

Tests over the past five years at the Kansas State College agronomy farm near Manhattan show that dwarf sorghum varieties can be grown to advantage in rows spaced 21 inches apart.

Laboratory Produces All Types of Climate

By RUSSELL MOOMAW

The Earhart Plant Research laboratory, located at the California Institute of Technology, is making possible the production of plants under climatic conditions completely controllable by man. Every kind of climate in the world which will support plant life can be reproduced in this super greenhouse, which has built-in weather and soil controls.

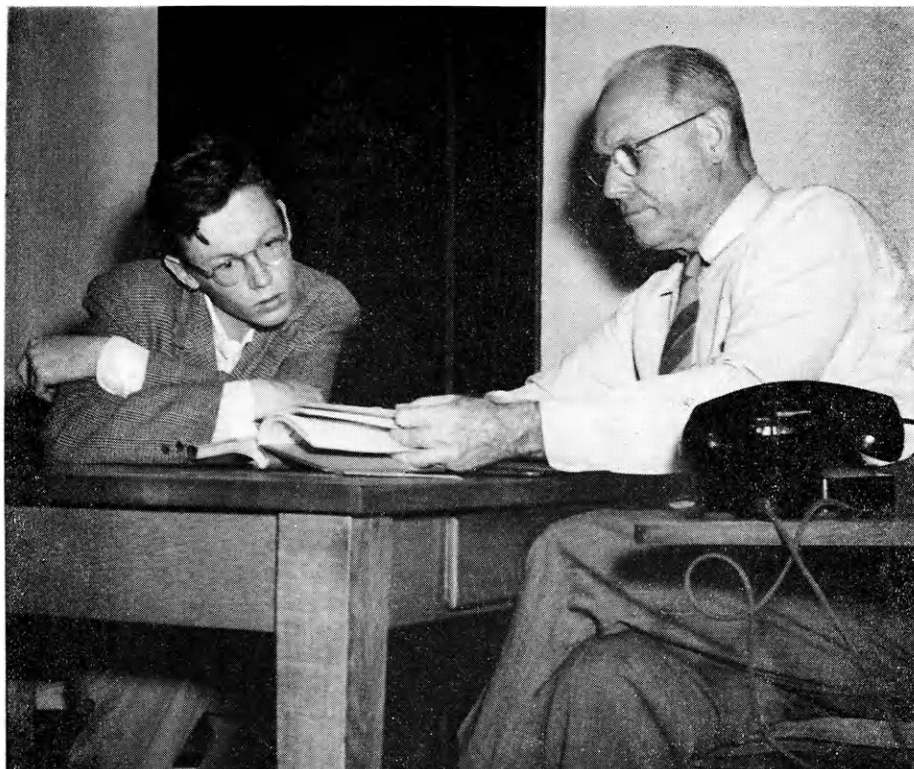
Climatic factors such as light, temperature, humidity, gas content of the air, wind, rain, or fog are simultaneously and independently controllable. Each of these factors has a tremendous effect on plant growth. The great value of this laboratory is the standardization of all these conditions under which the plant grows so that the effect of changing a single one of them can be studied. This will make possible a precise examination of the effects of external conditions on plant growth.

Complete control over diseases and pests is also maintained. Soil, pots, and plant materials are decontaminated, and the air entering the building is sterilized. Workers wear special clothing, and visitors are fitted in head covers, sterile gowns, and special shoes before they enter the laboratory.

It is certain that this laboratory will have a great influence on the future development of botany, agriculture, horticulture and other applied sciences.

There are about 624 million acres of forest land in the United States—one-third of the total land area—of which 461 million acres are now classified as commercially productive. The potential productivity is sufficient to eventually fill domestic needs generously, provide for national emergencies, and export.

Bacteria grow in milk and cause souring, bad flavor, ropiness, and other defects. Clean, healthy cows; clean, sterilized utensils; and prompt cooling and storage of milk at low temperature are the chief methods for keeping milk free from bacteria.



Ass't Dean C. W. Mullen explains the method used in enrolling students in Milling Technology to Evart Benes of Holland.

Will Sample Ice Cream

Dairy Products Team Competes For Scholarship at Los Angeles

By BOB WULFKUHL

The Annual International Dairy Products Judging Contest will be held on October 23, in Los Angeles. This contest is sponsored by the Dairy Science Association and Dairy Industries Supply Association and is one of the larger exhibitions for dairy students and personnel of the dairy industries.

The judging will start on Sunday, October 23, and will last all day. Monday, the banquet for awards and prizes will be given. The rest of the week will be used for lectures and noted speakers. Contestants will judge classes of cheese, milk, ice cream, and butter. Each class includes ten samples. Each team entering is composed of three men and an alternate. The prizes for the teams are many and varied however the teams will be working for two scholarships of \$850 each for the two

high men of the contest. Prizes, such as watches and pen and pencil sets, will be given for places in each class. Medals will be given for all places.

Professor W. H. Chilson, of the Dairy Department who was winner of the contest a number of years ago, has ten candidates trying out for Kansas State's team. The boys have been practicing every Monday, Wednesday and Friday afternoon. Additional practice has been worked into the students' schedule in evenings and on Sunday afternoons. Prof. Chilson does not give any predictions as to the outcome of his team, but did say he had some very fine boys working out.

Those boys trying out are William Bridgewater, Casey Edell, William Gardiner, Lawrence McCarty, Herbert Maty, Harold Ramsey, James Sherrod, John Wilk, Owen Fennema.

Nitrogen Important Nutrient, Application Increases Yield

By GEORGE WRIGHT

It is common knowledge that nitrogen is a very important plant nutrient. Prior to 100 years ago farmers used crop rotation, green manure crops, and other organic materials to supply nitrogen to crops. Now they have available nitrate of soda from Chile, sulfate of ammonia, a product from the coal industry, and the synthetic sources of nitrogen which are ammonium nitrate, cyanamid, uramon or urea, anhydrous ammonia, and aqua ammonia.

At the present time anhydrous ammonia and aqua ammonia are the cheapest sources of nitrogen available. As of 1947 the cost per pound of nitrogen was about 16 cents using nitrate of soda, 13 cents using cyanamid, 10 cents using ammonium ni-

trate, and 6 cents using either anhydrous or aqua ammonia. The cost of anhydrous ammonia itself is less than aqua ammonia, but the cost of equipment for application of the anhydrous is greater.

Tests conducted at the Manhattan experiment station have shown that yield increases brought about by the application of nitrogen are dependent upon the amount applied and not on the form in which it is used. These tests agree with those made at the Mississippi Agricultural Experimental Station.

Anhydrous ammonia weighs five pounds per gallon and contains 82 percent nitrogen by weight. At atmospheric pressure it is a gas. It is a liquid below -28°F . which is the boiling point. In commerce anhy-

drous ammonia is compressed to a liquid and stored under pressure. The gauge pressure is 75 pounds per square inch at 50°F . and 197 pounds per square inch at 100°F . Under such pressures anhydrous ammonia is dangerous unless proper safety equipment is installed and care is used in handling it. Since propane gas develops about the same pressure as anhydrous ammonia, tanks ordinarily used for propane may be utilized in handling anhydrous ammonia. The only conversion necessary is to replace all bronze valves and fittings with iron or steel parts.

Anhydrous ammonia is applied at a depth of four to six inches under the soil. A modified tractor cultivator is used in this operation. The anhydrous ammonia is carried in a tank mounted on the tractor or a trailer, with hoses running from a manifold on the tank to the applicators attached to the cultivator. A differential pressure valve, or a needle valve and pressure gauge is used for regulating the flow of ammonia through the manifold.

Aqua ammonia is made by diluting one ton of anhydrous ammonia with 2.33 tons of water. It contains about 25 percent of nitrogen per gallon of aqua ammonia applied. Since aqua ammonia develops but slight pressure even at high temperature, common gasoline drums are sufficient to hold it. As with anhydrous ammonia, all fittings should be made of iron or steel.

Aqua ammonia is applied to the soil in much the same manner as anhydrous ammonia. The rate of application is varied by changing the speed of a pump. This pump is usually driven from the tractor wheel, thus allowing the speed of ground coverage to be changed at will. This also acts as an automatic shut-off valve when the tractor is stopped.

A hose pump was developed for the application of aqua ammonia by the Tennessee Agricultural Experimental Station. The pump consists of heavy walled rubber tubing mounted over rollers, spaced two inches from a shaft, which is driven by a chain or belt. The quantity of ammonia delivered is varied by varying the size of the sprocket wheels or drive pulleys, the number of hoses over the rollers, and the size of the hoses.

(Continued on page 23)



Dale Watson asks a pertinent farm question of a Barnwarmer queen candidate at Ag Seminar. These questions were used by the ag students as a basis for their voting.

Iowa Dairy Contest Attracts K-State Judging Hopefuls

By BOB WULFKUHLE

The National Intercollegiate Dairy Cattle Judging Contest was held on October 3, 1949, in Waterloo, Iowa. This contest is held in conjunction with the National Convention of Breeders and offers the members of the team a chance to gain knowledge and experience.

Five breeds of cattle were judged at the contest: Brown Swiss, Ayrshire, Jersey, Guernsey and Holstein. These breeds were judged in classes of bulls, cows and heifers. Kansas State's team had worked very hard for this contest and had traveled very extensively in their practice. They had visited many breeders in Kansas, Missouri, and Oklahoma, as well as the "Sooner" State Fair, Kansas Free Fair and the Kansas State Fair.

Professor Fountaine, professor in Dairy Husbandry and a graduate of Wisconsin with advanced degrees from the University of Minnesota, was the coach of the team this year. He is substituting for Professor Beck who is completing his Ph. degree at Purdue this year.

Before the contest Professor Fountaine said he could not offer any prediction on the team but did say that the boys showed well in their practice sessions. The team consists of three members and an alternate. Members of the team this year are Bill Collins, Jack Graham, Earl Phillips, and Harold Ramsey.

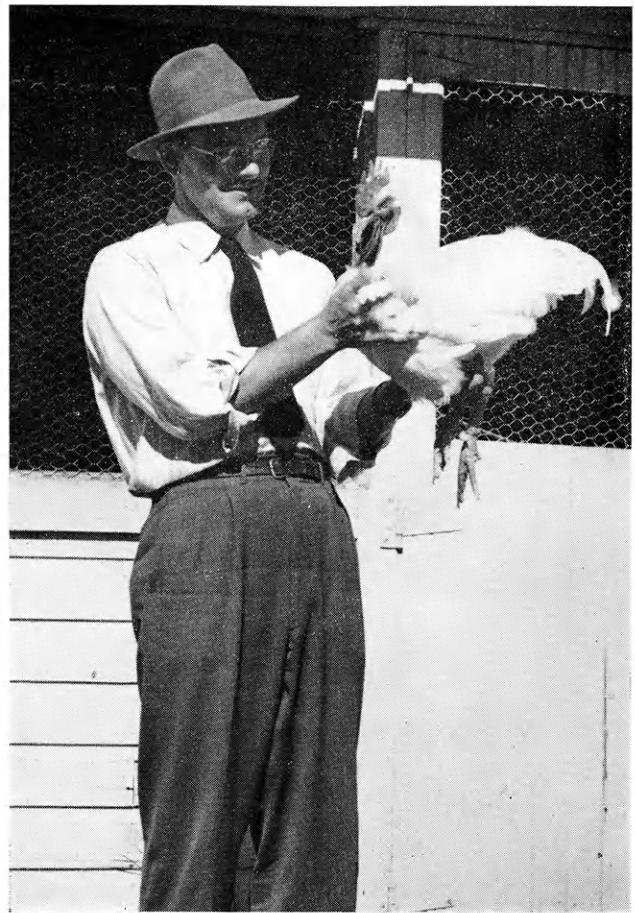
Dean Call

(Continued from page 5)

Call is teaching art at this college while her husband is here.

The Dean was appointed by the mission board of the Congregational Church. This is a one year appointment.

The Calls expect to return via Europe, where Dean Call wishes to attend several conferences. They will return to Manhattan by next September, when he will resume his teaching tasks as professor in the department of Economics and Sociology.



Dr. Mueller looks over one of his prize Kansas White Rocks. He is now working with new inbreeding techniques at Kansas State.

Holds Three Degrees

Poultry Scientist Continues Work on Kansas White Rocks

By TOM KEIGWIN

Dr. C. D. Mueller, poultry geneticist, has big shoes to fill since he took over the reins from Dr. D. C. Warren. But a glance at his record should convince anyone that the job is in capable hands.

The poultryman is a Kansan and graduated from K. S. C. in 1939. Seeking more education, he entered Cornell University and continued his studies. Degrees of Master of Science and Doctor of Philosophy were conferred on him in 1940 and 1943.

Practical problems in poultry management and breeding are his main interests. As general manager in poultry breeding, he was employed by the nationally known Westhill Farms, Camillus, N. Y. With this

experience, he knows the problems confronting the commercial poultry producer.

Dr. Mueller served in the Medical division of the United States Army during the war. Upon discharge he returned to Westhills in his former capacity.

It was in May, 1948, that he accepted his present position at K. S. C. Dr. Warren greatly approved his appointment and said there was no one he would rather have take over his work at the College.

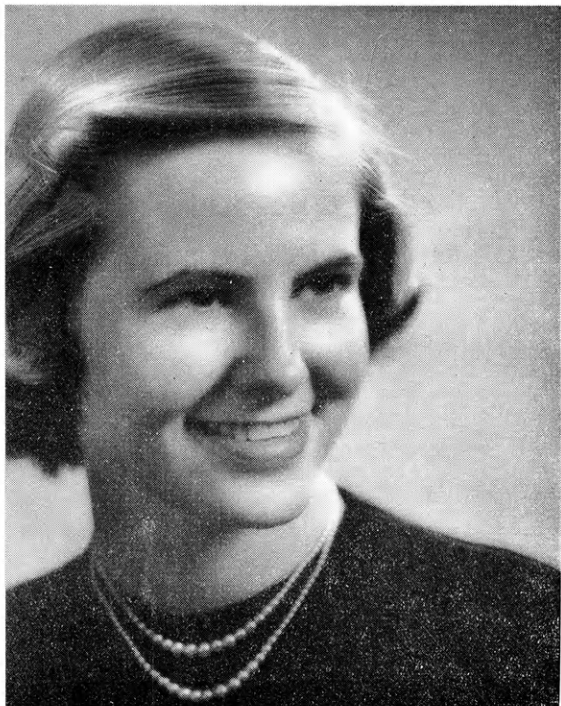
Dr. Mueller is currently improving the Kansas White Rocks, a project started some years ago. With his background as a commercial breeder, there is little doubt in the minds of Kansas poultrymen that he will make these chickens superior to any of the

(Continued on page 24)



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Colleen Shepherd



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New Chemicals Found Fit For Grasshopper Control

By C. W. NIGHSWANGER

Of the various new chemicals thoroughly tested for grasshopper control, chlordane and toxaphene have performed the best, according to Claude Wakeland, Division of Grasshopper control, and J. R. Parker, Division of Cereal and Forage Insect Investigation of Kansas Department of Agriculture.

Sprays and dusts containing the new insecticides for grasshopper control were used this summer east of Norton County, in Kansas. Bransawdust-sodium fluosilicate bait is being used west of Norton County. Sprays, dusts or bait may be applied with ground equipment, or from airplanes.

"Chlordane and toxaphene applied as sprays give higher initial kills, and continue to kill longer period, than equal dosage of dusts. When using sprays apply one pound of technical chlordane or one and a half pounds of technical toxaphene per acre. When using dusts, apply one and one half pounds of technical chlordane or two pounds of technical toxaphene per acre," stated the two experts.

These dosages have killing action from one to three weeks under a wide variety of conditions and are recommended to farmers for general use. Slightly lower dosages are effective against newly hatched grasshoppers, but if some eggs are still unhatched and longer continued killing action is desired the dosages recommended above should be used. A slight increase in the dosage of both sprays and dusts may be necessary late in the season, when most of the grasshoppers are adults and vegetation is maturing, explained Wakeland and Parker.

Equipment used should be carefully adjusted so that the rate of application is accurately controlled. Too much material, besides being wasteful, increases the danger of residues and too little insecticide is also wasteful of labor and material because it will not prevent crop losses. The

insecticide should be distributed evenly over the area needing treatment, Wakeland and Parker stated.

Persons handling these new insecticides as sprays or dusts for grasshopper control should take certain precautions. Like most insecticides, they are poisonous to man and live- infestations of young grasshoppers are in relationship to the fields planted to crops. Young hoppers may be found on roadsides, field margins, irrigation ditches or bordering most fields, or in fields themselves. Spraying or dusting when the main hatch is completed or just before the young hoppers move from hatching ground greatly reduces the spraying or dusting acreage. Save the corn by treating margins of cornfields and adjacent infested small grain fields or weed patches. Treat alfalfa fields the same as corn and it may be necessary to treat the whole field. To do this spray or dust the second cutting when six to ten inches high. Avoid applying these insecticides to legumes in bloom. If control is needed at this time to save the crop, spray in the early morning or late evening when

(Continued on page 20)

Judging Team Places Seventh at Royal

By MILES MCKEE

"Ten men entered the inter-collegiate livestock judging contest held in conjunction with the American Royal, October 15 through 22", Coach Don Good has said. From these ten, five men judged in the contest and sixth was chosen as an alternate.

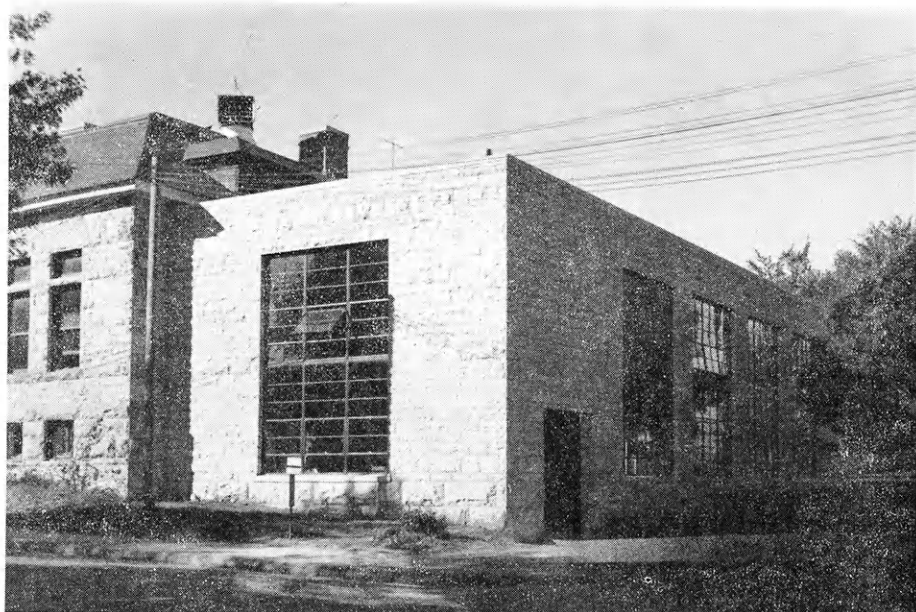
One man, Kenneth Carson, is from Hartford, Ky. The other nine are all from Kansas. They are: Robert Acre, Bucklin; Bennie Bird, Protection; Robert Briscoe, Cambridge; David Church, Garnett; Harold Dalbom, Viola; Leonard Johnson, Alta Vista, Harold Van Cleave, Galesburg; Charles Reese, White Cloud; and Richard Chase, El Dorado.

The Kansas State team finished seventh in the contest. David Church was tenth high individual.

Twelve classes of livestock were judged; 4 cattle, 3 hogs, 3 sheep, and 2 horses. Oral reasons were taken on eight classes.

Last year Coach Good's team placed second in the contest. Twenty-five teams entered the contest this year.

Shot—that which, if some people have more than one, they are half!



The new chemistry building addition provides valuable space for apparatus such as equipment used in the modern method of alfalfa dehydration.

Freezer Locker Study Encouraging For Home Use

By RALPH ALDEN

Through the combined efforts of three college departments Kansas State has been one of the more important institutions in the development of the frozen foods industry. Prof. David L. Mackintosh, of the animal husbandry department, Dr. Gladys E. Vail, Head of Foods and Nutrition, and Dr. George A. Filinger, of the department of Horticulture, have been among those who have made outstanding contributions to the study and research in this field.

As a result of their interests the state of Kansas has become one of the most prominent in the use and advancement of the frozen food industry. The use of frozen foods has increased tremendously in many states and Kansas is high on the list in both use and growth.

The United States Department of Agriculture revealed in a recent report that there has been an increase of thirty locker plants in Kansas the past year. This same bulletin stated that some states showed a small decline in the number of plants. This was a result of more competition in the field but it was noted that those plants with good managers and adequate facilities reported an expanding business.

At present, we find about 50 per cent of the families in Kansas making some use of a frozen food locker. In 1947 there was one locker for every 7.7 persons in Kansas. Since 1942 when 200 plants existed there has been an increase of approximately 310 plants in the state. Capacity of these plants is well over 500,000 lockers. From all indications this increase in the use of freezer lockers will continue for some time.

As early as 1928 Mackintosh began working with the possibilities of freezing meat. These experiments were probably among the first scientific studies in this line. The first official experiment at the college in freezing meat was in 1936 and was done through the freezing facilities

of the Perry Packing company in Manhattan. In 1940 a state organization was set up and Mackintosh was one of the promoters in this step. He served as the first secretary of the group and held this position for nearly two years before he left for the Army. Dr. Filinger served as secretary for seven years after he replaced Mackintosh.

According to Mackintosh, freezing meat for home consumption is cheaper, safer, saner and cleaner than by any other method, if done correctly. It requires one-half as many steps as canning, he points out.

Part of Filinger's work includes the production, processing and packing of fruits and vegetables for freezing. He points out that preservation of fruits and vegetables by the quick freezing process, if properly done, preserves the flavor, the color, and the vitamins better than any other method. The art of freezing fruits and vegetables has resulted in an entirely new and successful industry.

In the department of Home Economics we find Dr. Vail and her assistants observing the results of frozen foods from a nutritional standpoint. The use of frozen foods is not limited to fruits, vegetables, and meats, Dr. Vail asserts. An increasing amount of pre-cooked and prepared foods are finding their way into the locker and home storage unit, she says. Such foods as soups, fish, bakery goods, and even French fried potatoes and fried onions are successfully frozen.

All three of these authorities emphasize the few fundamental precautions that must be observed in freezing foods. The selection, preparation, and handling of all stuffs to be frozen are of utmost importance. Violation of the fundamental rules will result in unsatisfactory returns.

In the 1945-46 school year a short course in Locker Plant Operation and Management was offered at Kansas State. This program was

headed by Mackintosh, Filinger and W. F. Pickett of the Horticulture department. The frozen food industry cooperated in this program and donated a generous amount of equipment to the college for use in this project and for future studies and observations. This equipment is still here at the school and is used by the various classes concerned with the frozen food problem.

Nearly all of those who graduated from this course obtained positions pertaining to locker plants and many of them own or operate their own plants today. This was one of the first such schools in the country and Kansas State may well be recognized as one of the progressive institutions in this field.

A frozen foods laboratory, donated to the school by the Frozen Food Locker Institute Inc., is located in the judging pavilion and is used jointly by the Departments of Horticulture, Poultry Husbandry, Home Economics and Animal Husbandry.

As the use of home storage units and commercial lockers is becoming more important for the home manager to have an understanding of the problems. The economy-wise housewife can make a considerable saving on the grocery budget if she uses this facility properly. A circular (number 249) published by the Kansas State Agricultural Experiment Station provides most of the information necessary for efficient use of the freezer-locker.

Most species of ornamental trees and shrubs may be transplanted in the fall. If the work is done at this season of the year, the plants should be watered immediately after planting and, if the winter is dry, they should be watered occasionally during the winter months. An advantage of fall planted plants is that they begin growth early in the spring, and a greater proportion of them survive the first growing season than if they are transplanted in the spring.

A dairy cow wants her meals on time. Dairy specialists at Kansas State College explain that greatest feeding efficiency requires close attention to the clock. Irregular feeding causes cows to take a similar attitude toward production.

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Dr. Johnson explains the use of Malt Supplements which are used in the art of bread making.

By RICHARD SIMMONS

Malt supplements have long been used by the baker, mainly because of the alpha-amylase which they contain. Alpha-amylase is an enzyme that changes starch into sugar. Sugar is necessary for the fermentation of yeast resulting in the production of gas, which causes the dough to rise and make bread. Other roles, however, which alpha-amylase may play are not so clearly demonstrated. Controversy exists regarding what component of malt supplements is responsible for changes in dough consistency, loaf volume, grain and texture and crumb compressibility.

The first use of malt supplements was probably accidental through the use of "starter doughs" containing micro-organisms which were capable of releasing amylase and other enzyme systems in the dough. Present knowledge of the enzymes in dough

indicates that three enzymes namely, beta- and alpha-amylase and proteinase are concerned with the malt supplementation problem. Beta- and alpha-amylase supplement each other in the conversion of starch to sugar and each is very important. Additional beta-amylase need not be added because it occurs in excess in normal wheat and flour. Alpha-amylase is present in insufficient amounts in sound wheat and flour, and requires supplementation.

Alpha-amylase is widely distributed in substances that may be used as amylase supplements. Germinated cereal grains are important sources of this enzyme because the alpha-amylase and proteinase increase greatly upon germination. Fungal, bacterial and animal preparations also contain large amounts of alpha-amylase.

(Continued on page 20)

Colleen Shepherd Is Barnwarmer Queen

By DALE EVANS

Colleen Shepherd, La Fiel, was crowned Queen of the 1949 Ag Barnwarmer on Saturday evening, October 22. Miss Shepherd is a junior in Arts and Sciences from Kansas City, Mo. Her attendants were Jody Jennings, Chi Omega; Mae Meinen and Suzanne Sykes, Van Zile; and Delphin Fowler, Alpha Xi Delta.

Miss Shepherd, on a throne of hay bales and cornstalks, was crowned by Assistant Dean Mullen.

The Barnwarmer, for which jeans and prints were the proper attire, was the climax of Ag Week activities. Matt Betton furnished the music and Harley Manker, a young magician from Kansas City, furnished some entertainment during intermission.

This year celebrated the 20th anniversary of the Ag Barnwarmer. The first Barnwarmer was held October 21, 1927, in Nichols Gym. The aggies of that year were apparently more athletic, because they had to assist their partners up a rope ladder to the hay loft. Cider and apples were available between dances. Music was furnished by June Layton and his Rhythm Rustlers.

L. E. Call, Dean of the School of Agriculture, crowned a queen shortly after the intermission. After all the girls had been taken home, the boys came back and cleaned the gym so that not a trace of the Barnwarmer remained by morning.

Veterinary students once attended

(Continued on page 24)

Dr. Weber First American to Judge S. American Show

By DEAN MILLER

The head of Kansas State College's Animal Husbandry has added another honor to his ever growing list. Dr. A. D. "Dad" Weber recently returned from South America having been the first American to judge Herefords at the Palermo Livestock Expedition which was held at Buenos Aires. He was named for the position by the American Hereford Association. Previously, only Englishmen have been judging the Hereford cattle.

Dr. Weber left the states August 6, by plane. Enroute to Argentina he stopped for a brief visit with Emique Vidol Martens, a KSC graduate, who now operates a ranch in northeast Uruguay.

The Palermo Livestock Expedition is equivalent to our National Livestock show in Chicago. It lasts two weeks, the first week the cattle are shown and the second week they are sold at auction. The sire angle is stressed more strongly at the show than here in America, 190 bulls being shown as compared to 35 females.

Dr. Weber stated that he was impressed by the high quality of their commercial livestock. He said there were very few Brahmas as 70 percent of the cattle are Shorthorn in Argentina and in neighboring Uruguay most of the cattle are Herefords. In a visit to the livestock market, \$3.50 per hundredweight was top price.

(Continued on page 25)

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Duckings in cold water were provided for ag students who failed to wear correct ag week uniforms. This year, thirty three men hit the water before they became too numerous.

Enzyme in Bread

(Continued from page 18)

Proteinase enzymes usually accompany the amylase in malt supplements. Proteinase is the enzyme that breaks down protein, and normal wheat contains this enzyme in small concentrations. It serves to increase the handling properties of the dough during fermentation.

When wheat malt is added as a supplement to flour there is a danger that excessive proteinase will be added along with the amylase, since both are present in large amounts. Excessive proteinase action results in softness and stickiness of the loaf. It is the job of the cereal chemist to control the balance between alpha-amylase and proteinase. The correct concentration of these two enzymes is necessary for a good loaf volume, a good crust color, a desirable texture and grain, a satisfactory crumb compressibility, and other characteristics that the public likes.

Grasshopper Control

(Continued from page 16)

the bees are inactive. Sprays are less harmful to bees than dusts, remarked the two authorities.

Treated forages should not be fed to dairy animals or animals being finished for slaughter. Some insecticides are known to accumulate in the fatty tissues of animals and given off in milk and butterfat. Forage treated with them at dosages heavier than need for grasshopper control has been fed to meat animals continuously for several weeks to exclusion of all other feed, without visible danger to their health or development. However, meat animals fed for long periods on treated forage may accumulate enough of these chemicals to make the meat unfit for food. This possibility is greatly reduced if no treated vegetation is fed during the last two months before slaughter, stressed Parker and Wakeland.

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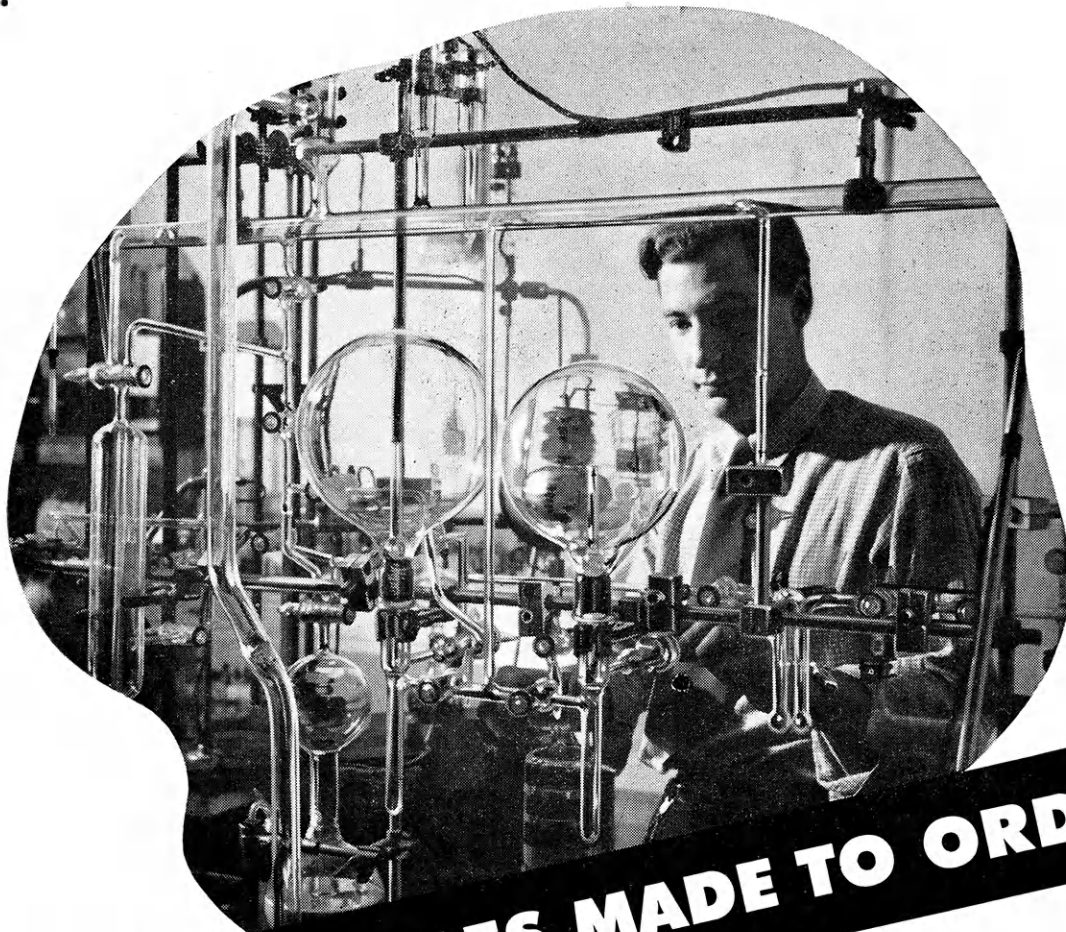
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Ag Curriculums

(Continued from page 5)

curriculum includes 32 hours of comprehensive courses, and basic agricultural courses. If the student wishes to take 12 additional hours in any department in the School of Agriculture he can earn a major in that department. Or he can take his electives in any other field of interest outside of agriculture.

There are approximately 30 agriculture students in the curriculum of Floriculture and Ornamental Horticulture. The curriculum is designed for those who wish to become florists or nurserymen. A total of 43 hours of horticultural courses are required. There is also room for 13 hours of electives desired by the student. Usually the student takes his electives in either floriculture or ornamental horticulture, according to the field he desires. Students who enter the floriculture field are trained in the improvement of greenhouse and other floricultural plants and for the growing and selling of flowers. Emphasis is placed on the floral arrangement of flowers. Students taking ornamental horticulture are trained in landscape design with emphasis on the production and use of landscape materials.

At the present time, according to Coryell, assistant professor in the horticulture department, the demand for men trained in the floriculture and ornamental horticulture fields is greater than the number of students graduating from that curriculum. There are approximately 20 colleges in the nation with a floriculture curriculum, and all have relatively few students enrolled in it.

Lespedeza

(Continued from page 6)

Certified seed must be free from dodder. The sale of seed containing more than 45 dodder seeds per pound is prohibited by law.

Lespedeza will survive on land that cannot be used for alfalfa or sweet clover. However, it will use just as much plant food as alfalfa to grow a ton of hay. This fact is often overlooked by the farmer.

Growers in eastern Kansas should keep in mind that maintaining soil fertility requires proper crop rotation and the use of fertilizers. Lespedeza should not be substituted for these practices.

Leadership and Scholarship Win Sears Award for Ramsdale



Applying Nitrogen

(Continued from page 12)

Ammonia, whether anhydrous or aqueous, is slightly acid forming as is ammonium nitrate. About three pounds of lime per pound of nitrogen will offset the acidity of either source. One ton of lime every 10 years should be sufficient to neutralize the acidity of these sources of nitrogen.

The average cost of one pound of nitrogen is six cents. On the basis of this price the cost of increasing crop yields by application of nitrogen is approximately one-half cent a pound for seed cotton, eight cents a bushel for oats, and 14 cents a bushel for corn.

The European corn borer appeared in Kansas during the summer of 1949 to add to the problems of corn production. In its new environment, the borer may not respond to the methods of control employed in the corn belt states. For that reason, the entomologists, as yet, have not published recommendations for control, but are working in an effort to formulate their recommendations by early winter.



Richard Ramsdale, third from the left, receives a check for \$250 from E. J Condon, a Sears-Roebuck representative. Ramsdale won the 1949 National Sears-Roebuck Foundation Scholarship with a grade average of 2.77.

By TOM MEANS

Scholarship, leadership, personality, thrift, and business ability were the bases on which Richard Ramsdale, of Anness, won the 1949 National Sears-Roebuck Foundation Scholarship. Ramsdale, who was in competition with 46 other state winners, is a first semester junior majoring in Agricultural Education at Kansas State.

Ramsdale completed high school with an A average, tying for top honors in his class. After school came the war. He enrolled at Southwestern Institute of Technology at Weatherford, Okla., in a pre-radar course. He completed this nine hour course and was top man in a group of 65.

After completing four semesters of college work, Dick had a grade point average of 2.77 out of a possible 3.00. He received freshman Phi Kappa Phi recognition, and was at the top among the Sears Scholarship group. He was the only sophomore to be elected to Alpha Zeta honorary agri-

cultural fraternity the fall semester of the 1948-'49 school year. Because of this good showing, he has been employed by the agronomy department as a student assistant.

Continuing evidence of leadership ability is indicated in his extra-curricular activities. Upon entering college, he at once became active in collegiate 4-H. He was a member of its softball team and the spring picnic foods committee in 1948.

The next fall after being initiated into Alpha Zeta he served as their delegate to the UNESCO council. He was a member of an independent intramural basketball team and the Independent Coordinating Assembly Zoning Committee.

Upon completion of his college education, he plans to teach vocational agriculture with the expectation of farming later.

His parents maintain a medium sized, diversified farming program with the main emphasis being on wheat and a commercial Hereford cattle herd.

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Poultry Scientist

(Continued from page 13)

pure breeds now in use.

He is also concerned with the new inbreeding techniques and is cooperating with other colleges. He and his associates hope to investigate this field thoroughly, and if it shows promise, to make available to all farmers high producing hybrid chickens at the lowest possible cost.

In cooperation with men in the field of physiology he is exploring the reactions of the chickens under ideal conditions. Dr. Mueller explains that at the breeding farm he has a group of birds in a room where the temperature, periods of night and day, and relative humidity are held constant the year around. The results of this project are years away, he said.

As an undergraduate here at K. S. C., Dr. Mueller was honored by Phi Kappa Phi, Alpha Zeta, and Gamma Sigma Delta. At Cornell he was initiated into Sigma Xi.

One glance at an old Royal Purple convinces us that he was no bookworm. His activities included Collegiate 4-H, Poultry Club, Poultry Judging Team, and Intramurals. During one summer he was a member of a local softball team that went to the state finals.

A full professorship at 31 years is quite an accomplishment but the young agricultural scientist takes it lightly and is ready for bigger and better things tomorrow.

Barnwarmer Queen

(Continued from page 19)

the Barnwarmer when they were in the School of Agriculture, but since they became a separate school, keen rivalry has prevailed between the ags and the vets.

The Barnwarmer was discontinued after 1942 due to the war. When enrollment was back up in 1946, the Barnwarmer was revived.

The 20th annual Barnwarmer was one of the best attended, and most colorful Barnwarmers ever held at Kansas State College.

Madrid yellow sweet clover is an excellent pasture crop as well as a good legume to use in the crop rotation. Now is the time to buy seed, select land and make the first preparations for spring planting.

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Dr. Weber Judging

(Continued from page 19)

Dr. Weber stated that this does not greatly affect the price of cattle in the United States as almost all of the beef produced is exported to Great Britain.

Dr. Weber described Argentina as a level, fertile plain, originally being treeless but many trees have now been planted. He said very few Indians are found in Argentina, most of the people being Peons (Spanish Descent). Farm mechanization is not very advanced. A few tractors are found but most of the work is still done by horses. Not much farming is necessary as the cattle are grass fattened and only the show cattle receive grain. The cattle are older when taken to market than in the United States, being usually two and three year olds.

An overcoat is necessary in Argentina, according to Dr. Weber, as it is now late winter.

Dr. Weber returned to the United States September 15. He was accompanied by Mrs. Weber, Mrs. John Lanier, the wife of the president of the American Hereford Association, and her daughter, Joyce.

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Farm Ponds

(Continued from page 8)

or T-branch. The inlet of the overflow pipe is located just below the water level of the full pond and is used to drain off small overflows of water, especially the prolonged trickle from wet weather that causes a small but continuous run-off extending over several days. Eliminating this small overflow of water aids in keeping the spillway in good condition.

The soil for the fill should come from within the high water level of the pond itself, and an effort should be made to make the pond two to three feet deep at all points. The sides of the pond should be evened up and left vertical. The deepest part of the pond should be at least six feet deep and deeper if possible. No pockets should be left lower than the drain pipe. At least ten percent additional height should be added to the dam to allow for settling. As soon as possible after the dam is finished, suitable sod forming vegetation should be established on the dam and in the 15 to 20 foot strip surrounding the pond.

If natural spillways are not available the dirt will have to be removed from the hillside and one constructed. The spillway should be at least three feet deep and sufficiently wide to carry enough water to prevent the water from going over the top of the dam during a heavy rain. Sometimes it is best to have a spillway at both ends of the dam. The dirt removed from the spillway is used in the construction of the dam.

There are several reasons for keeping woody growth removed from the pond. One is that it leaves an open area that is free from tangled growth which would interfere with fishing, boating, swimming, and other activities. Another reason is that the area can be better taken care of, that is if the banks of the pond are eroding, it can be easily patched and steps taken to cover it.

A fifty foot strip around the cleared area should be planted to clumps of low growing shrubs of varieties that furnish food and cover for wildlife. This area will also add to the beauty of the pond.

No trees should be allowed to grow within fifty feet of the pond. The main reason for this is that tall trees growing near the water's edge would decrease the amount of sunlight which gets to the pond's surface. The amount of sunlight is very important in supplying food for fish. The more sunlight there is the better the algae and other microscopic plants will grow. Another reason for keeping the trees well back is that it is desirable to keep leaves and branches from falling into the pond if possible.

Leaves, branches and other organic material should be kept out of the pond because it only discolors the water and does not serve as a source of food for fish. When the organic matter decomposes it removes oxygen from the water which is not a desirable situation, because the fish will hide in the leaves and branches, and if too many of them escape being eaten by larger fish it will lead to overpopulation of the pond.

A farm pond can be an excellent source for fish while wild fowl will live near it for security and protection.

Grand Coulee Dam, third highest dam in the world, is 550 feet from base to top.

Barnett Retires

(Continued from page 4)

interest and time consumer, Professor Barnett is also a prolific writer. He has penned 53 bulletins, journal articles, etc. His newest bulletin which has been approved for publication is "Fresh Fruits for Kansas Tables." He has been chairman of the Experiment Station Editorial Committee since 1924. During these years the committee edited 47,454 pages of manuscripts before they were approved for publication.

Aside from his other interests Professor Barnett has made extensive studies of the relation of frost and soil. He has records for eight years of experimentation and observation on this problem.

His office might well be called the horticultural library for here may be found many books and 3000 cataloged bulletins on various subjects of horticulture.

President Eisenhower's administration is the seventh one that Professor Barnett has seen. He recalls when the students at Kansas State had a choice of but one curriculum, either Agriculture or Home Economics. The second year students could choose a specific field in one of these two schools. There were few textbooks in Agriculture so all classes were taught by lecture methods.

The Kansas State Horticulture club owes its founding and inspiration to Professor Barnett. In the past he has often given talks to the club on various phases of horticulture. One of his most interesting and educational talks is on spices.

As a graduate student at Kansas State in 1898 Professor Barnett lettered in football. He played two positions, offensive fullback and defensive end. He said that this was the first game that the coach did not play with the team. Today he is one of the two oldest living lettermen of Kansas State College. He smiled as he told me, "In those days there were only two or three substitutes for the whole team. But the students and faculty of the horticulture department feel that there can never be a "substitute" for Professor Barnett.

William Penn's father wrote the first code of tactics for the British Navy.

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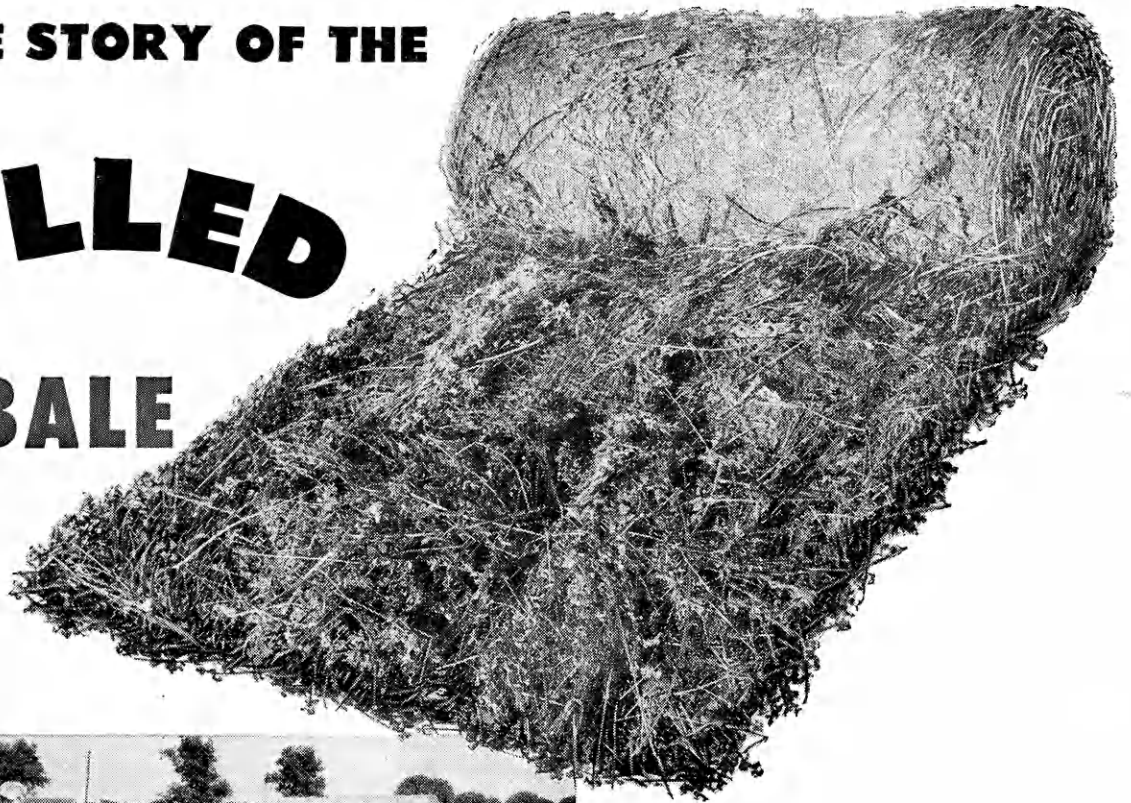
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The Last Word



Animal Research

(Continued from page 1)

Expressing the belief that experimental work of the various departments will be brought together to advantage, Prof. E. H. Herrick of the Department of Zoology explains that his work will be concerned with the physiology of reproduction. Most experimentation will be with chickens in an attempt to learn more about the relationship of certain hormones to bird functions.

Dr. Beulah Westerman, professor of Foods and Nutrition, will direct experiments in the near future on the foods consumed by people of the low income brackets. Two rooms on the second floor will be utilized in this study of the nutritive value, vitamin content, and the value of enriched flour in these diets. The albino rat will be the experimental animal in Dr. Westerman's studies.

At the present time Dr. J. E. Ackert, Department of Zoology, is concerned with the resistance of chickens to the ascarid worm. Resistance is at its lowest ebb in the young chick, says Ackert, while the peak of resistance is reached at sexual maturity. Attempts are being made to increase resistance of the young birds by hormone injection, which in a sense will hasten maturity. Proteins and mineral supplements as resistance factors are also being investigated.

Cancer research is being conducted by Dr. F. A. Kummerow, Department of Chemistry. This department will also work on cooperative projects with the departments of Animal, Dairy, and Poultry Husbandry. Dr. A. B. Parrish of the department states that research will currently be concerned with the vitamins "A" and "D" in mixed feeds.

The new structure has air conditioning and other new and expensive apparatus. There is an incinerator in the basement for the disposal of dead animals. The walls of all rooms are glazed tile. Floors are red cement except in the vestibules, corridors, and entrances where asphalt tile has been used. Stone for the outside came from Junction City.

Construction work was by contractor, W. O. Peters. Paul Weigel, head of the Department of Architecture, was adviser in the preliminary drawings of the lab.

Highlights of Changes in This Issue Led by New Picture in Masthead

We are taking the liberty of using a picture of the proposed new wing between East and West Waters hall for the masthead on this year's magazine. Each editor likes to install a few new ideas and changes. Since the building will soon become a reality, here was decided to be step number one. No definite date has been set for the ground breaking ceremony but appropriations have been approved.

When the second ag building was completed (West ag) in 1923, the enrollment was 561 in the School of Agriculture. Now with the present students, faculty and researchers, the school numbers approximately sixteen hundred.

The new wing will provide added space for Agronomy, Milling, Economics, and Horticulture. The tentative plans call for laboratories for Milling, Agronomy, and Horticulture and drafting rooms for Landscape Design and Milling.

Among other changes which may be noticed in this issue of The Kansas Agricultural Student are the increased size of the heads and the bleeding of pictures for the center spread.

The magazine is for the ag school so feel free to offer criticism at any time. We don't claim to be professionals but we will do our level best to bring out a magazine worthy of the title.—D. W.

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