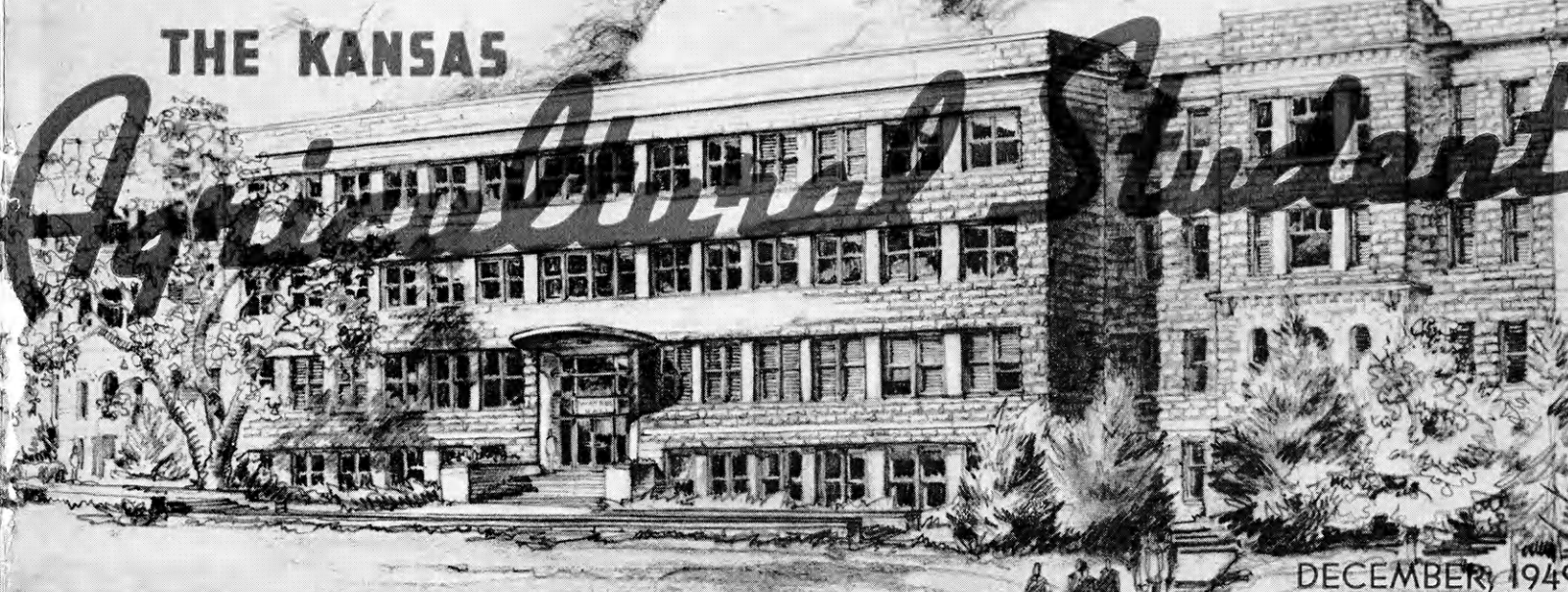


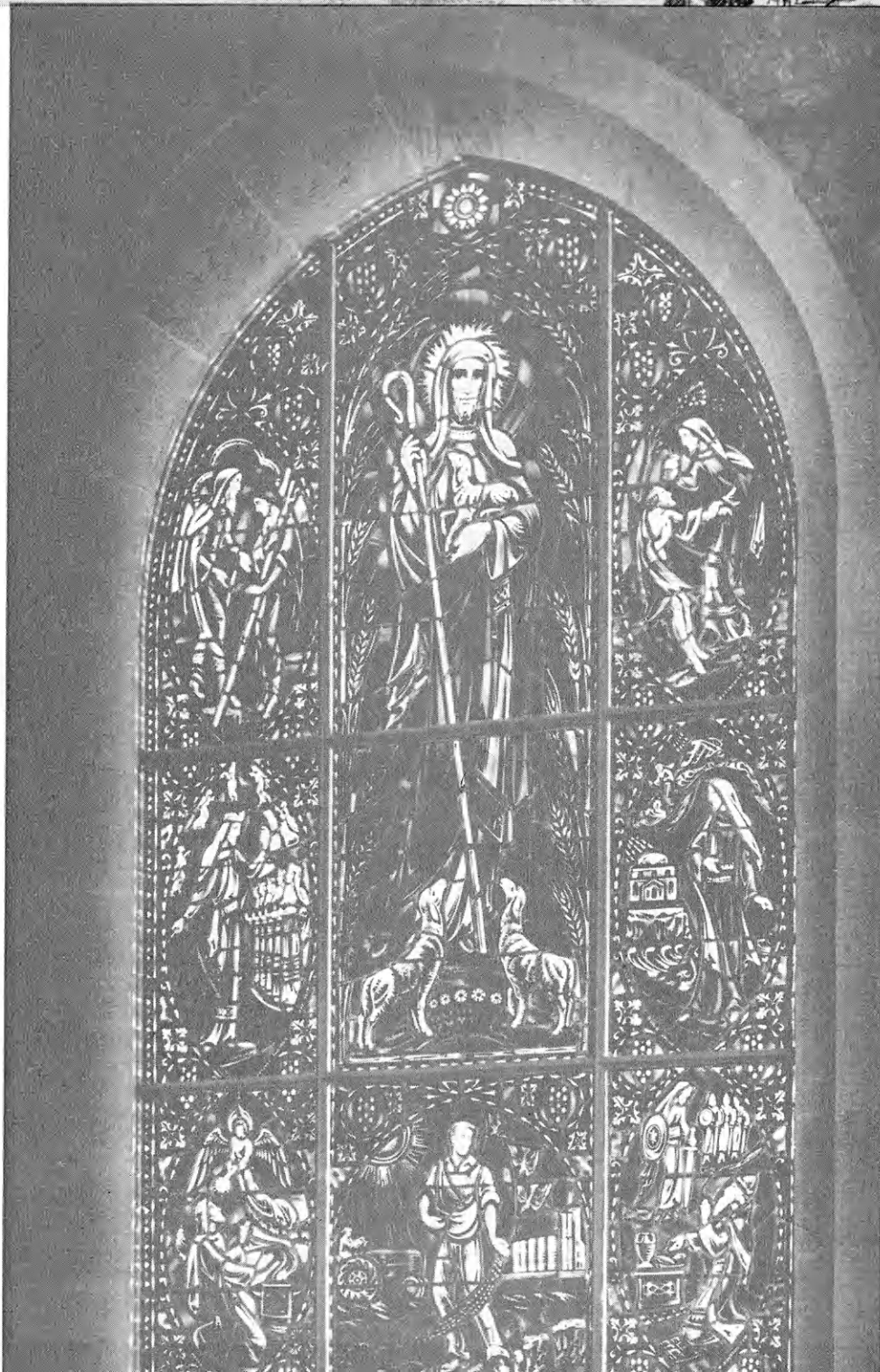
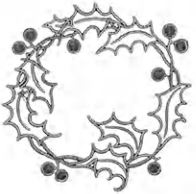
THE KANSAS

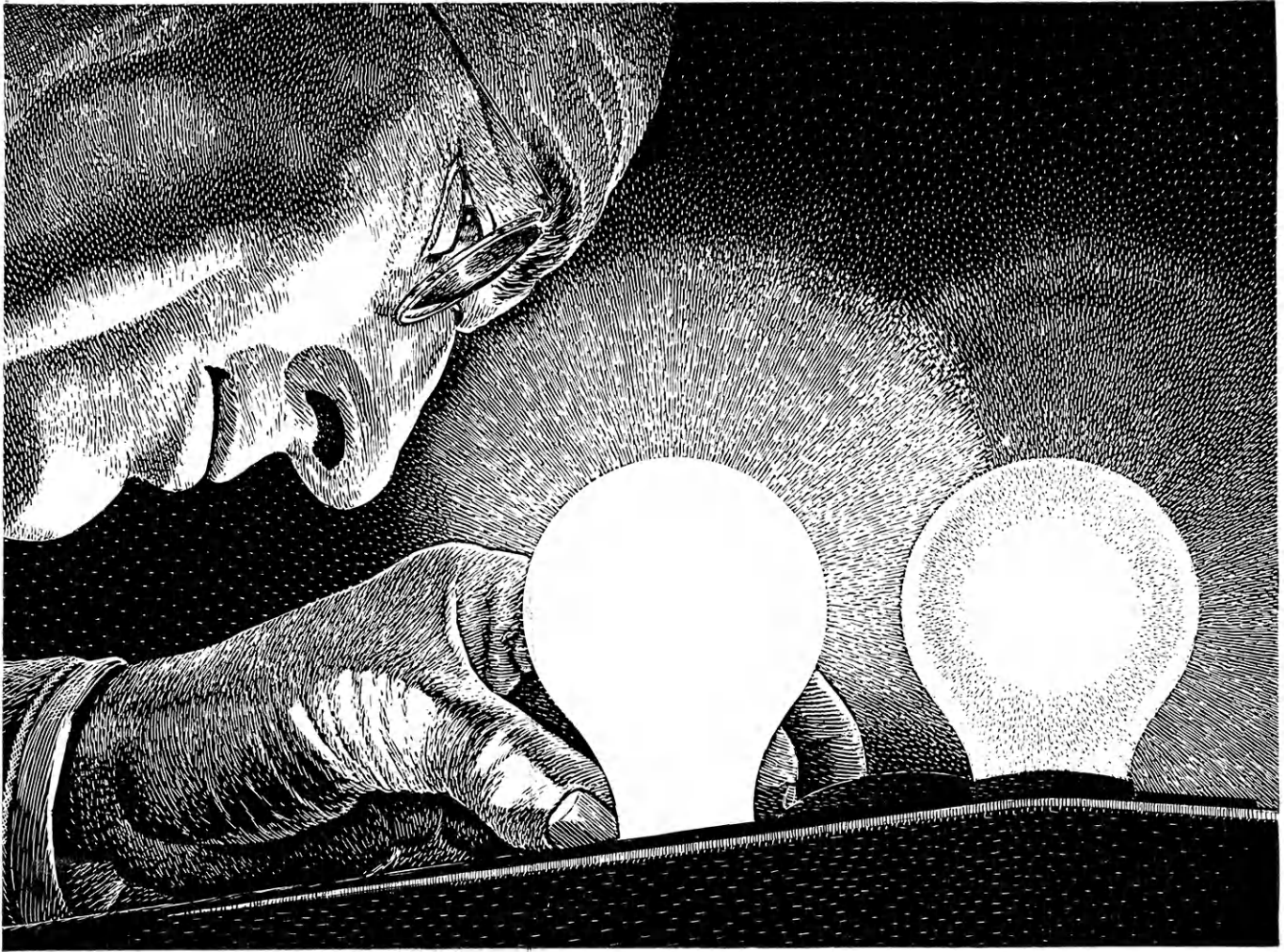
# Agricultural Student



DECEMBER, 1949

v 27 (ie 26) : 2

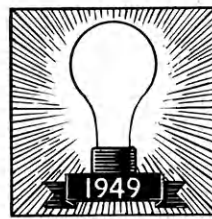




## The lamp that's bright all over—*an inside story . . .*



You could look directly through the clear glass of Edison's first lamp and see the hot filament. While this may have been interesting, the glare made it unpleasant. Many attempts were made to diffuse the light and cut the glare by coating or frosting the bulb, without loss of too much light.



But during years of work on many varied lighting projects, Pipkin kept up the search for a still better coating. He has found it—a new silica finish that diffuses the light almost perfectly and gives softer, more beautiful illumination. It is used in the G-E Deluxe-White Lamp now on the market

—the lamp that's bright all over.

A General Electric lamp researcher named Marvin Pipkin was the first to offer a practical inside frosting for lamps, with little light loss. His method, perfected in 1925, was a milestone in lamp research. The G-E inside frosted incandescent lamp is still today the one most commonly used.



This new success of Marvin Pipkin, called the most outstanding improvement in filament lamps since his earlier discovery, has come only after thousands of experiments and years of investigation. It illustrates again how General Electric emphasizes research and creative thinking, encourages fertile minds to follow their own imaginative bent, and so stays in the forefront of scientific and engineering development.

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THE KANSAS  
*Agricultural Student*  
 KANSAS STATE COLLEGE  
 OF AGRICULTURE AND APPLIED SCIENCE  
 MANHATTAN, KANSAS

On the Cover . . .  
**All-Faith Chapel Window  
 Symbolizes Agriculture**

By STAN CREEK

The beautiful pastoral scene in the main window of the Danforth Meditation Wing at Kansas State College is designed for Kansas. High in the crown of the window is the Sunflower, the emblem of the state. A border of wheat accentuates the central figure beneath whose feet are five smaller sunflowers between the two lambs.

Such a pastoral scene was chosen because it was felt by the interdenominational committee which passed on the religious symbolism in the Wing that this central figure would not only exemplify agriculture as an art and a science, but would at the same time hold strong religious symbolism for all faiths.

The shepherd tending his flocks coupled with the scene of the Sower scattering his seed personifies the basic nature of agriculture from which all other cultures evolve. Art, science, literature, music—all else depends upon agriculture for survival. When the food supply is eroded away, strength and cultures of a nation become buried in the sands of time just as deep as ancient Carthage or Babylon is buried today.

Such a shepherd also has deep religious significance which is derived from ancient Hebrew beliefs of the Old Testament. The most famous of all the Psalms, the twenty-third, written by David a thousand years before the time of Jesus, focused sharply on such a symbolism.

"The Lord is my shepherd; I shall not want. He maketh me to lie down in green pastures: He leadeth me beside the still waters . . ."

Of later years, however, the Good Shepherd has become symbolic of Jesus Christ in the minds of those of Christian faith because He used such symbolism in His teaching so extensively. Five of the seven panel scenes surrounding the central figure represent parables which Jesus taught.

Beneath the Good Shepherd, the parable of the Sower is just as applicably illustrated with the modern Kansas farmer as with some figure of yesteryear. The Sower broadcasts his

(Continued on page 25)

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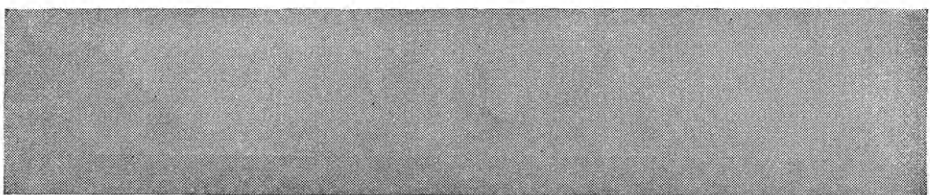
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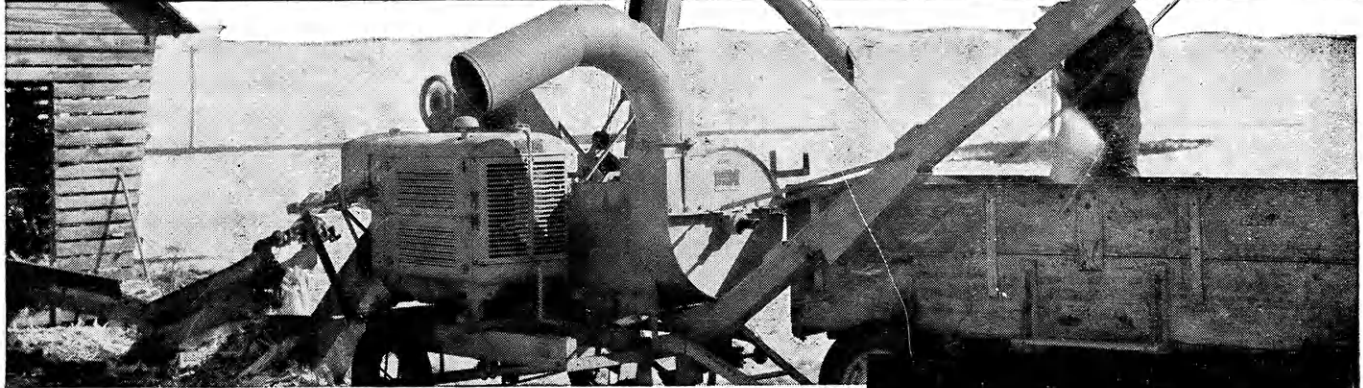
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# Why are **MM** SHELLERS THE LEADING SELLERS?



## CLEANER, FASTER SHELLING makes MM the PREFERRED SHELLER!

**MM SHELLERS OPERATE EASIER!** MM Model D and E Shellers have fewer moving parts. High-speed roller and ball bearings are pressure lubricated and designed for heavy duty. MM Corn Shellers shell more corn with less tractor power and they back into close quarters easily on two transporting wheels. All-steel, high capacity drag conveyor operates by heavy-duty roller chain drive.

**MM SHELLERS ARE SAFER!** Outside moving parts are shielded by protective guards, and belt and chain tighteners are easily adjusted.

**MM SHELLERS LAST LONGER!** Cylinder cage on Model D and E requires little attention and is carefully balanced to eliminate vibration. Round steel rods do not break or scratch or crack the corn. Only one countershaft with drive gears that are fully enclosed in oil bath.

**MM SHELLERS FIT ALL REQUIREMENTS!** Model D shells up to 200 bushels of snapped corn per hour, up to 300 bushels of husked corn per hour on 1 to 2 plow tractor power. Model E shells up to 1000 bushels of snapped corn per hour, up to 1200 bushels of husked corn per hour on 2 to 3 plow tractor power.

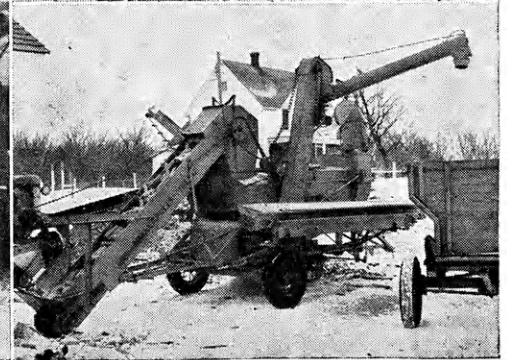
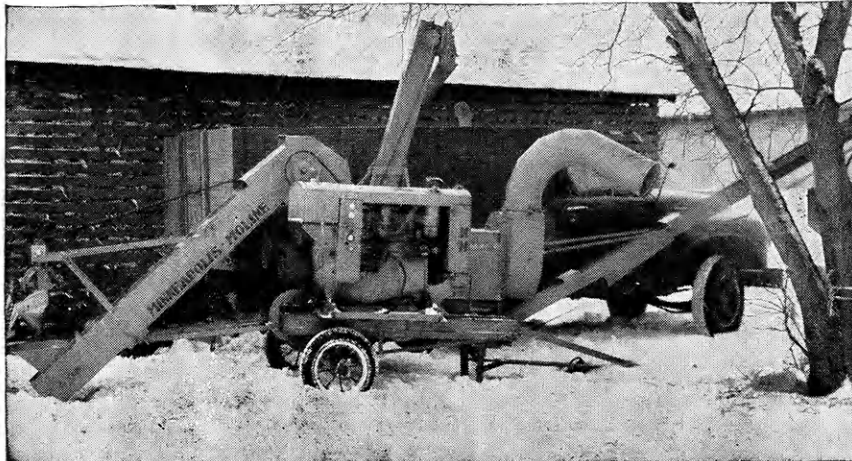
**MM SHELLERS PROVIDE CLEANER CORN!** Combined blast of the cleaning fan and suction of the suction fan operate together over entire length of adjustable cleaning shoe to thoroughly clean all the corn before it is delivered to the elevator.

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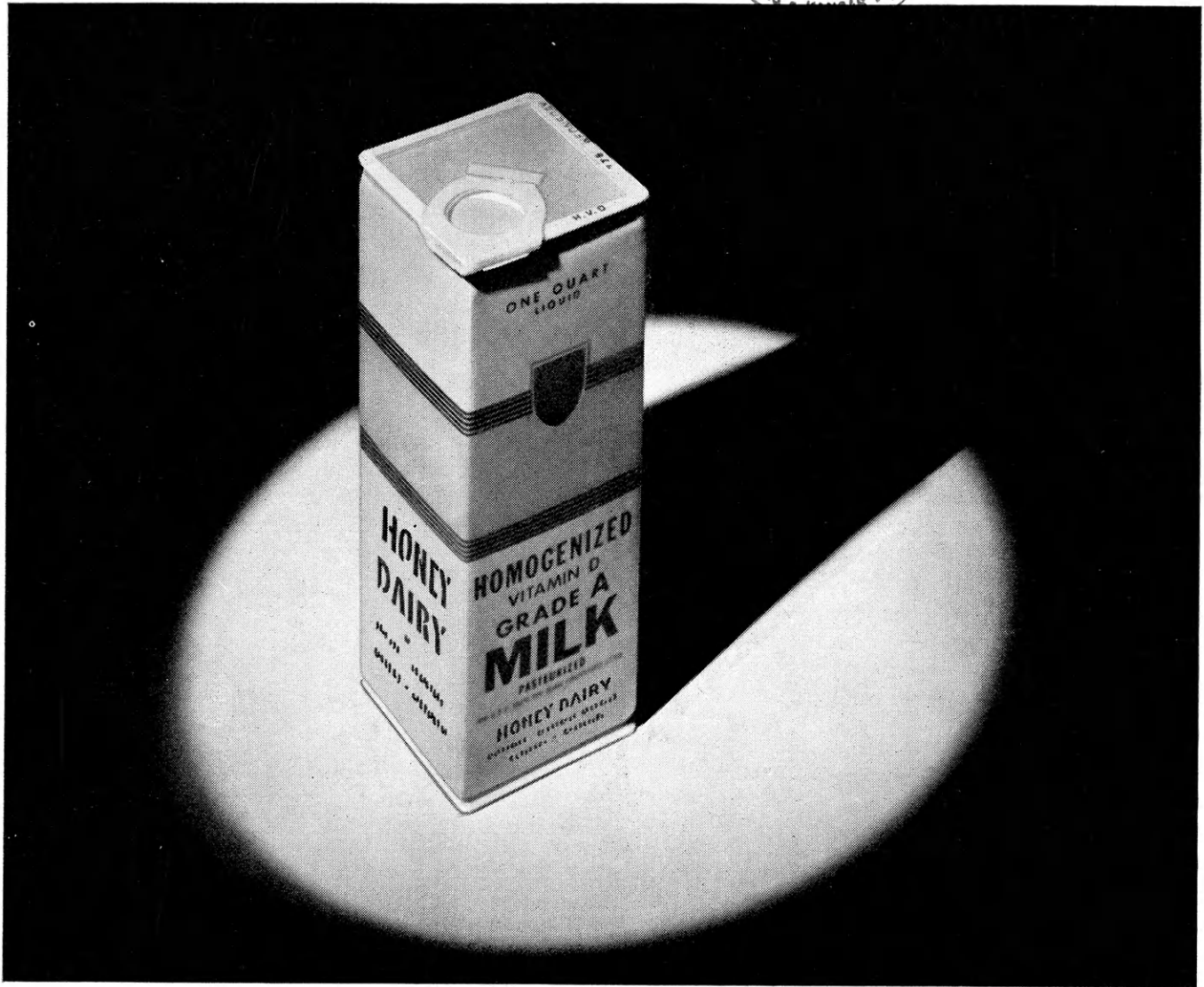
- Shelling mechanism that gets all the corn without cracking or breaking it
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APPLIED SCIENCE  
STATE COLLEGE  
JAN 20 1950



## Why we know this wax carton will stand up

Cartons and wrapping papers coated with paraffin wax have been used in food packaging for many years. They must be able to withstand rough treatment. Their ability to stand up depends largely on the strength and sealing qualities of the coating agent. Yet until a few months ago, there was no accurate way to measure these qualities in paraffin wax.

Recent experimental work in Standard Oil's laboratories has resulted in a new electrically controlled quantitative test. Expressed as Indiana Coating Index, this test

gives, for the first time, an accurate yardstick of wax qualities which may be correlated with performance in service. It makes possible the production of *uniformly* high quality coating agents.

The Indiana Coating Index is only one of many scientific tests developed in Standard Oil laboratories. Standard pioneered in quality-testing, as it did in developing many petroleum products that have contributed to better living. There is no ceiling on what can be accomplished by Standard Oil researchers, present and future.

# Standard Oil Company

(INDIANA)



# Kansas Dairy Cattle Breeders Begin Artificial Insemination Program

## Committee Composed of KSC Profs Form Plans For New Organization

By JACK GRAHAM

Artificial breeding in Kansas is a relatively new practice but there is an old history behind it. The first record of artificial insemination dates back several centuries to the Arabians who sometimes bred their horses artificially.

In 1938, the state of New Jersey organized the first artificial breeding association in the U. S. By 1948 this practice had grown in the dairy cattle field until over 30 states had artificial breeding associations.

Considerable interest has been shown regarding artificial breeding in Kansas for several years. Requests for appropriations were turned down by the state legislature in 1946. Kansas dairy cattle breeders have been slower in starting this practice because of the differences in type of dairy cattle population as compared to eastern and north central areas. A biennial appropriation of 60 thousand dollars was passed by the state legislature in 1948 for use in establishing artificial breeding of dairy cattle on a state wide basis.

The present committee heading the Kansas Artificial Breeding Service Unit, composed of F. W. Atkeson, F. E. Eldridge, E. R. Bonewitz, J. W. Linn, and G. H. Beck of the KSC Dairy staff; and F. H. Oberst and J. W. Lumb of the KSC school of veterinary medicine, had their first meeting April 20, 1949. Prior to this meeting plans had been made on the basis of appropriations asked for.

Suggestions from 33 other state associations were used in formulating plans for this new organization. Articles of incorporation, contracts between inseminators and local associations, membership agreements and contracts between the central asso-

ciation and local associations, as well as other pertinent suggestions were taken as guides in making the basic plans.

Since the Kansas Artificial Breeding Service Unit, known as the KABSU, will not open up until March 1, 1950, the following points are only suggestions to local associations.

A set price of three dollars per first service will be paid to the central association by the local association for semen. No charge is made for a second or third service if made within 180 days of the first service. All fourth and subsequent services are made at a minimum charge of one dollar each, this to be paid to the inseminator to defray transportation expenses.

The above prices have been suggested according to the number of cows in the association in order to make it possible to hire one full-time inseminator. This person will own his own car and will work on a commission basis. Inseminating equipment will belong to the local associa-

tion and will be kept up by them. The local association officers will be farmer-members of the association. The central office may be located at the inseminator's home, county agent's office, or other convenient location. Transportation of semen will probably be through the mail system but the possibility of air service has been investigated.

A total of eight bulls are now on hand at the central stud. One of these bulls, a Brown Swiss, was given to the KABSU by J. W. Braden. The largest possible number of meritoriously proven sires will be kept at the central unit that will be economically practical. Only sires whose daughters are in the upper 25 percent of the average of proven sires for each breed will be considered for use in the KABSU.

With such a wide interest in artificial breeding of dairy cattle in Kansas and full cooperation of breeders with the central service unit everything points toward a considerable advancement in quantity and quality of dairy cattle in this area.



One of the Barnwarmer queen candidates makes a successful grab for a greased pig. Later the pig escaped and led several of the fellows on a merry chase before being captured.

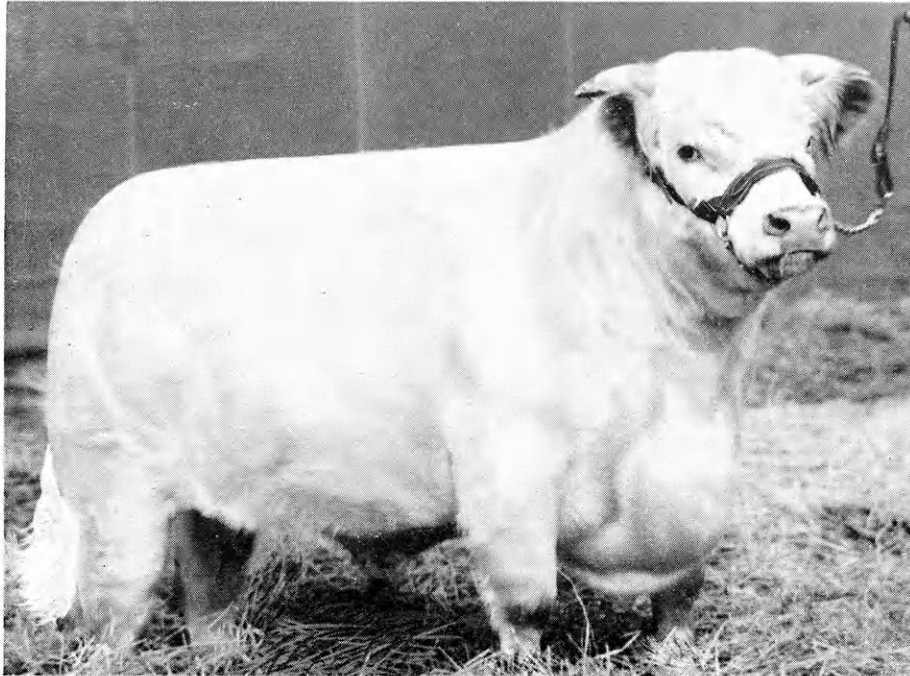


Another Winner

# Frosty, Shorthorn Bull, Brings Home Blue Ribbons for State

DEPARTMENT OF AGRICULTURE AND FORESTRY  
JAN 20 1950  
KANSAS

the Little American Royal. The fellow that drew Frosty worked hard on him and he responded as was expected. When show night rolled around, the young livestockman who had fitted the white bull knew a lot more about fitting and showing cattle thanks to Mr. Gregg and Frosty. Frosty didn't let his handler down because he walked away with the blue ribbon.



Hoarfrost, known as Frosty, is a promising young Shorthorn bull owned by Kansas State college. Frosty did very well in the major livestock shows last fall. After the National Western Livestock show in Denver, Frosty will be used for breeding purposes at the college farm.

By MILES MCKEE

Improvement of cattle rests in the continued use of superior sires. This is a truth which the animal husbandry department of Kansas State college stress in their classes. Not only do they stress it in their classes but they are putting it into practice on their farm. This fall they purchased Gregg Farm Hoarfrost, one of the country's outstanding Shorthorn prospects.

Hoarfrost is a snow white bull except for a few red hairs around his ears and muzzle. He was bred by D. M. Gregg of Harrisonville, Missouri and was dropped on Mr. Gregg's farm. Hoarfrost was sired by Edellyn Valiant Mercury and is out of Gregg Farm Cluny Clara by Newallyn Legion. Edellyn Valiant Mercury traces to an outstanding family of Shorthorns, the family that produced Sni-A-Bar Control, one of the most outstanding Shorthorns of all time.

Last fall, Hoarfrost was loaned to the college for instructional purposes with the understanding that he would

be shown at some of the major livestock shows this fall. Although his given name was Gregg Farm Hoarfrost, it wasn't long after he arrived at the college that this chubby little youngster was known as "Frosty".

From the very beginning it was evident that this young fellow was something outstanding and he lived the part. George Crenshaw, college beef cattle herdsman, said he had seen few calves that equaled Frosty in their ability to do good and none that exceeded him. He would bury his nose in his box of feed and start eating like every grain was the margin between starvation and life. His feed was composed of cracked corn, whole oats, cracked barley, bran, and linseed meal pellets. In the winter silage was mixed with this to make it more palatable and in the summer cooked barley was added, which made it fit for a king. Plus the grain he got plenty of good green prairie and alfalfa hay and a few hours a day on brome grass pasture during the summer.

Last spring Frosty was entered in

From the first day that Frosty set foot on the college farm it was evident that he was truly outstanding and after the fitting procedure started it was even more apparent. Any one who saw him agreed that he had a strong chance to add much to breed improvement and progress. So last August, Dr. A. D. Weber, of the College Animal Husbandry department, decided he would try to buy him. Mr. Gregg was reluctant to part with him but finally decided that since he had a full brother to Frosty, he could let him go. So Gregg Farm Hoarfrost became the property of Kansas State college.

Show season rolled around the first of September and it was time for Frosty to be shown. His first stop was Topeka at the Kansas Free Fair where he walked away with the highest honor, grand champion Shorthorn bull of the show. It was getting to be a routine matter with Frosty because he pulled a repeat performance at Hutchinson. The next show was the American Royal at Kansas City. This show was "the" big show for Shorthorns which meant that Frosty would have a real battle. But he didn't let anybody down as he had no trouble at all in collecting the blue ribbon in his class and was defeated for grand champion only by older bulls.

Plans are that Frosty will be shown at the International Livestock Exposition in Chicago and the Great National Western Livestock Show in Denver. After these two shows, Frosty will be retired to the college herd for continued breed improvement through the use of better sires.

Baseball fan: Hey, sit down lady, I can't see through you.

Babe: OK wise guy, do you want me to take off my slip?

"Come," the maiden said, "and rest Thy weary head upon this breast."  
"With such a pillow, soft and pink, I know I wouldn't sleep a wink."

# Corn Borer Found in Many Kansas Counties Last Year, Fewer a Year Ago

## Shredding, Plowing, Putting Corn in Silo And Spraying Are Control Methods

By ELBERT COZINE

Last summer it was learned that a field had become infested with European corn borers. This seemed strange how Cloud county in north central Kansas could have corn borers when there weren't any known infested fields within a hundred miles last year. It was only when the local newspaper published a statement that entomologists had discovered European corn borers in nearby fields, that it was proven to be true.

After investigating the corn borer situation farther, more striking facts turn up about the infestation in Kansas. They were found in practically all areas in Kansas this year where corn is grown. According to Prof. D. A. Wilbur, associate entomologist of the Kansas Agricultural Experiment Station, more than 60 counties had some infestation of European corn borers. They were found as far west as Norton and Dodge City. Wilbur pointed out that the infestation tended to be higher toward the northeastern part of the state.

It is believed that the European corn borer made its entry into the United States in broom corn imported from Italy or Hungary just prior to World War I. They were first discovered near Boston in 1917 and have migrated steadily west and south since that time. Only a few specimens were found in Kansas in 1945. Three counties in the eastern Kaw valley region had corn borers in 1946. Last year only 15 counties were infested compared to this year's infestation of more than 60 counties.

The fields that had the highest infestation were the ones that were planted either very early or very late. It was pointed out by Professor Wilbur that if all corn fields came

into development about the same time the destruction would not be nearly so great on any one field.

Putting corn in the silo is a definite step toward control of the corn borer for cattle feeders who can utilize corn in this manner. Even with low cutting machinery though, this method will not be one hundred per cent effective because there is still a possibility of borers remaining in the stubble.

Plowing will control the corn borer to some extent but this method has its limitations. The effectiveness of the control will depend upon community-wide cooperation. All trash has to be covered to be effective and most farmers realize that covering cornstalks with a moldboard plow is a pretty tough assignment. Any stalks left exposed will contain borers and will be a hiding place for borers that crawl to the surface in warm weather. If, on the other hand, all trash is plowed under, the borers that crawl to the surface will be exposed to natural enemies and parasites.

A number of shredding machines are being demonstrated in the state this fall which are very effective in corn borer control. Some chop and others beat the corn stalks into small pieces. Corn stalks in this condition can be plowed under very easily. This also has a cultural advantage because stalks will decay more rapidly.

Spraying, though expensive, has been used as a method of control. It may be more practical for use on hybrid seed, sweet, or pop corn than on field corn. Spraying must be completed when the corn borer eggs begin to hatch. Hatching takes place within a 10 to 14 day period.

In the future resistant varieties will probably be the best means of

corn borer control in Kansas according to Professor Wilbur. The Kansas experiment station has done very little work on European corn borer resistant varieties of corn since this is the first year the borer has been a problem in Kansas. Dr. R. H. Painter, associate entomologist of the Kansas Agricultural Experiment Station, intends to do work on corn borer resistant varieties when appropriations are made available to carry out this work.

Wilbur states that community cooperation is absolutely necessary to keep this pest under control. No one method will do the job completely, he explained, but it will have to be a summation of all methods of control to be effective in fighting the corn borer.

Even with all the improved methods of fighting the corn borer, complete eradication is next to impossible. Besides infesting corn they infest weeds which may be along a fence row. In the eastern United States the corn borer has been found in more than 200 species of plants. Since there is little chance of exterminating the European corn borer we must learn to live with it. This means that corn growers will need to make conditions as unfavorable as possible for this pest.

---

Mo. Has Frankie called you yet?

Joe: Frankie who?

Mo. Frankie Lane, he needs another ass for his mule train.

---

Johnnie: Do you believe in free love darling?

Suzie: Have I ever sent you a bill?

---

Did you know that modesty ruins more kidneys than bad liquor?





# Grimes Memorial Placed in West Ag

By H. DALE JOHNSON

Have you wondered what Room 313 in West Waters Hall is, what it contains, why the door is always locked, and who uses it? Then the following information may explain and answer these questions.

Before World War II this room was used as a meeting place for the economics department staff members. During the war years the space was needed, so the economics meetings moved elsewhere.

After the death of Dr. Waldo E. Grimes in May 1947, the faculty members of the economics department decided to fit the room as a memorial seminar. After receiving college approval, a new green tile floor was laid, the walls and ceiling were painted white, new fluorescent lights, new book cases, and new tables and chairs were purchased. Books on economics, sociology, and business from Dr. Grimes' private library were used as a nucleus around which the seminar library of a thousand volumes has been formed. These books cover all phases of economics and sociology. Many of the volumes are rare and valuable. Complete editions of many periodicals are bound and available. With the funds provided by friends many recently published books have been purchased. With this, Room 313 in West Waters Hall, has been dedicated as the Grimes Memorial Seminar.

Since much information is readily available in a convenient form, the use of the room is restricted to graduate students and staff members. The memorial room is also used for various departmental meetings and for staff conferences. Future additions will be made to the collection of books and other furnishings may also be provided.

Through the efforts of grateful friends and students, a useful memorial to Dr. Grimes has been established.

Rotation of crops is so that they can get the sun on all sides.

## Fewer Children?

# Tests Show Consumer Purchases Preferred in Small Quantity Lots

In this age of push-button kitchens and smaller families, modern housewives are demanding high quality along with strictly family-size quantity, according to Prof. H. R. Kopper of the Department of Economics and Sociology.

Consumer preference experiments have been carried on during the past summer and fall on sweet corn and apples. Cooperating with the economics department were the Department of Horticulture and the Department of Home Economics; the horticulture department furnished the necessary produce for the tests and the home economics department conducted the palatability tests on sweet corn.

In the test, sales of half bushels were compared to sales of bushels. The apples were ring packed and faced in the same manner as bushels and retailed at a large local store.

Packaging shed managers and operators have long felt that the half bushel may solve the problem of getting more apples on the market, since smaller lots have been favorable to a larger number of customers who buy apples at retail stores. Results of the test seem to prove the point.

"Although the experiment was carried out on a relatively small scale, one can safely assume that 50 percent of the people who bought a half bushel of apples would ordinarily make their purchases in three or four pound lots rather than buying a full bushel," Professor Kopper said. This is true not only because of a smaller "average American family," but because young couples, elderly couples whose family has grown up, ex-GI's going to college and town dwellers in general, find they have room to store and use up a half bushel but a bushel will spoil before the apples can be used. Most town people, and especially veterans in temporary housing projects, do not have adequate or proper storage space since fluctuating temperatures in ordinary rooms cause apples to deteriorate. Most families find the half bushel to be an ideal size for after using the apples for pie, salad, and eating them raw they can

store the rest in the refrigerator. Some wives find half bushel baskets handy for storing, carrying clothes pins on wash days and for other assorted uses.

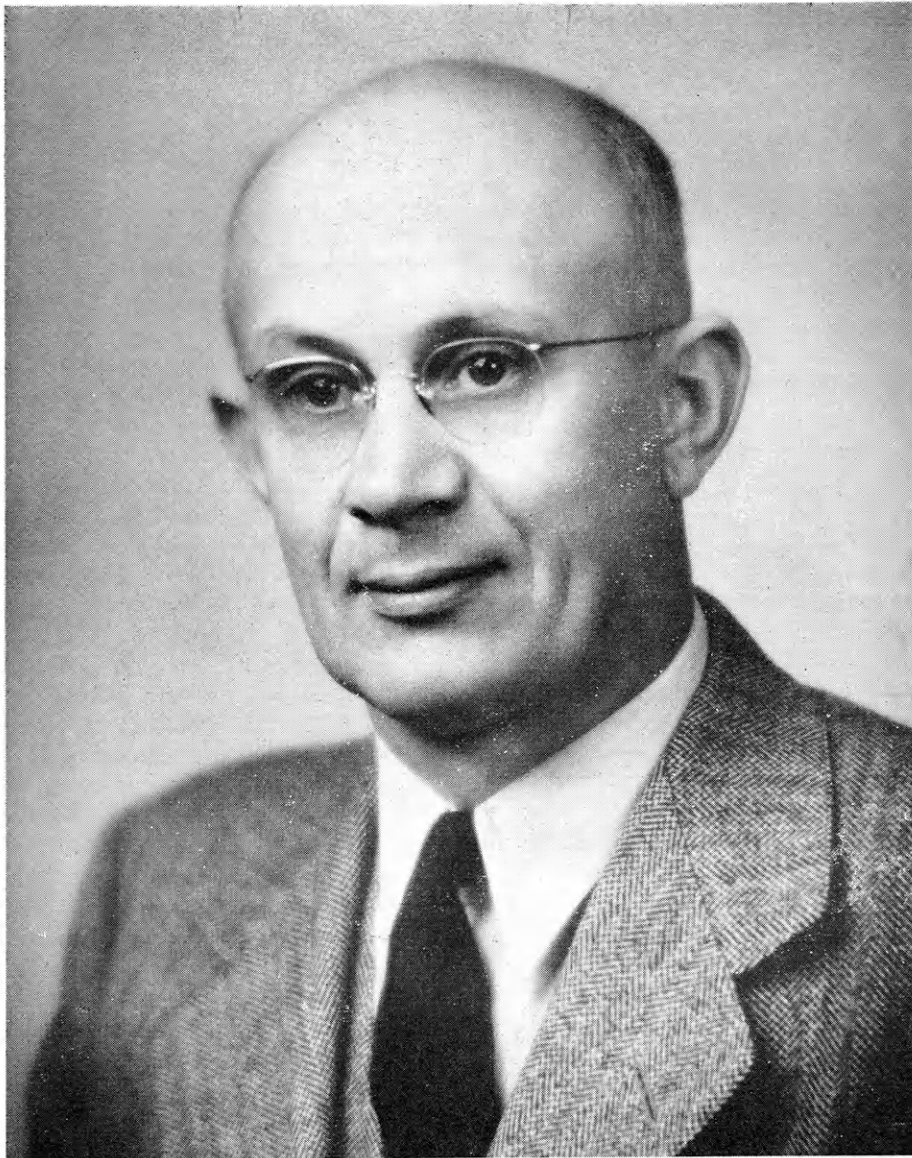
The test shows that when priced at \$1.49 a half bushel and \$2.99 a bushel, the volume of half bushels sold was 13 times greater than bushels (26 half bushels to one bushel basket). With the price of half bushels remaining the same and the price of the bushels dropping to \$2.89, the volume of half bushels moved was still four times greater than bushels (eight halves to one bushel). When the price of bushels was lowered to \$2.79 and the half bushels were still selling for \$1.49, the volume of half bushels was still twice as great as bushels (four halves to each bushel sold).

The housewife today not only wants convenient size units, she also is demanding high quality. In addition to this she likes to see what she is buying. With these factors in mind, the economics and horticulture departments also conduct tests on packaging sweet corn.

The corn, grown by the horticulture department, was picked in the morning, husked, washed to take the silks off and precooled in ice cold water that brought the temperature of the corn down to 42 degrees. Then it was drained and packed in cellophane bags. Each bag contained four uniform ears. At one store, price was varied according to the length of ears; at another store the price remained the same. In both cases, the consumer reaction was excellent.

By processing corn in this way it would be possible to take a crop from the field when in the right stage and hold it for five to six days without losing any of its fresh quality. This operation would have to be carried out on a rather large scale to be economical.

In palatability tests made by the home economics department it was found that corn properly refrigerated could be held five to six days with little or no deterioration in quality.



The new associate dean of the agriculture school and associate director of the Kansas State college experiment station is Dr. A. D. Weber. The promotion is effective January first. Dr. Weber has been head of the Animal Husbandry department at Kansas State and has the distinction of being the only American to choose the grand champion steer at the International Livestock Exposition in Chicago.

### Thirteen Years

## Problem of Double-Muscling in Cattle Studied by Expt. Station Personnel

By JOHN WATT

Doppellender, double - muscling, "bottle-thighed", or call it what you want, has been under extensive study at the Kansas State Experiment Station for the past 13 years.

Double-muscling, as it is most commonly called, is characterized in cattle by an abnormally wide rump and thigh region. This extreme width extends forward to include the rear portion of the loin. When

viewed from the side, there may be an appearance of heavy bulging in the upper rounds. It is said that this extreme appearance of the thighs and rump appears to resemble a horse. There also may be deep grooves between the thigh muscles which gives the animal a very muscular appearance when walking.

The first published description of this peculiarity was in 1888, by a German who termed it "doppellend-

(Continued on page 27)

## Science Pushes Ahead In Chicken Raising; To Control Diseases

By LARRY GREENE

Hurry, hurry, hurry! Speed is the keynote to success these days. Man is increasing production and developing machines to do more work with more speed and more efficiency. He is busy developing new strains and varieties of cross that give higher production in a shorter time. Lights are put in pig pens to induce the animals to consume feed on a 24 hour a day basis, thus getting themselves in shape for market faster. New concentrates and supplements have been developed to shorten the feeding period required to fatten livestock for market. Experiments involving the use of thyro-protein have been run on chickens, hogs and cattle in an effort to speed up their metabolism rate in an effort to increase their feed consumption.

The Kansas Agricultural Experiment Station is doing some experimental work that reveals the increased speed of modern science. Dr. James E. Ackert, professor of zoology, assisted by Leonard Dewhirst, graduate student, is doing some experimental work on the control of roundworms in chickens.

Some interesting sidelights to these experiments have been noticed. Cockerels, only 12 days old, are developing combs and wattles amazingly large considering their size. They also make a creditable effort of crowing.

Dr. Ackert, who has been associated with the experiment station since he came to Manhattan in 1913, is trying to discover why roundworm resistance increases in poultry with increasing age. At the present time this work consists of injecting 12 day old chicks with sex hormones. Sex hormones increase the rate at which little chicks "grow up".

Four groups of chicks are used, two groups of females and two groups of males. One set of males are injected with testosterone propionate which is a male sex hormone. The other group serves as a control. Injections are begun when the chicks

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# Flower Formation Regulated Through Light Manipulation

By WILLIAM CANNON

Have you ever wondered how your local florist happens to have the flowers of your choice available to you at almost any season of the year? How is this possible since certain flowers bloom in the spring, some bloom in the summer, and others wait until fall before flowering? This phenomenon of flower formation kept the pioneer flower growers wondering for many years. It was

only through extensive experimentation that they were able to find the reasons underlying the blooming process.

Light, temperature, moisture, and humidity all play a role in plant growth but it is mainly light and its duration which determines flower bud formation. Although the first record of the effect of light upon plants dates back to 1686, when

(Continued on page 26)

# Popular Book Is Now Translated

By JOHN BOTKIN

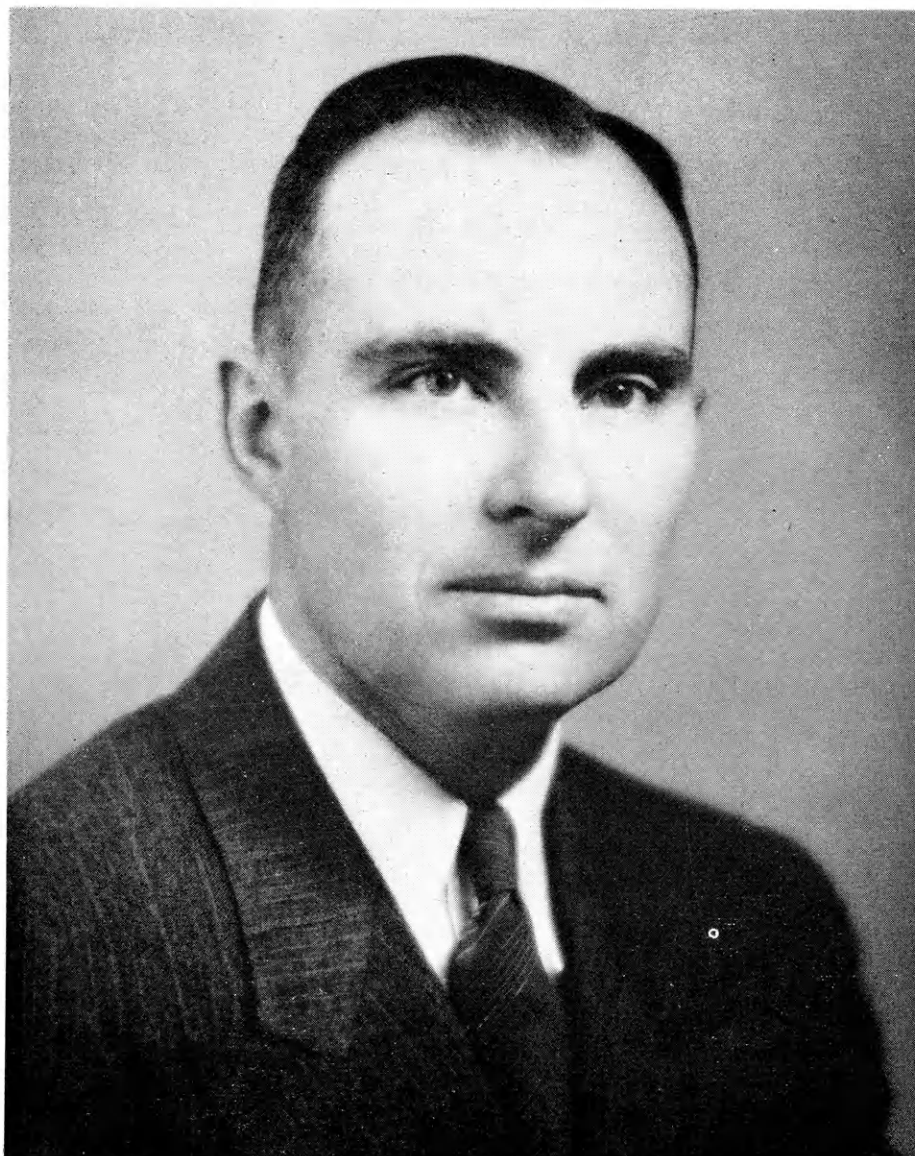
Did you ever hear this quotation, "The eye of the master fattens his cattle"? This saying used to be in the book that to the feeder is like the cook book is to the housewife, like the law book is to the lawyer, the name of the book is "Feeds and Feeding" by Frank B. Morrison. "The eye of the master fattens his cattle" is a German adage which used to appear in the early editions of this book.

"Feeds and Feeding" was first published in March, 1898. Its author was William Arnon Henry. He has been recognized as one of the great leaders in the development of the American system of agricultural colleges and experiment stations. Professor Henry compiled the information for the first nine editions. Cost of compiling and writing the information for this book was not a worry as anyone will understand as they read this book. Since the 1915 edition the author and his associates have required the total time equivalent to one person working steadily for more than ten years in compiling, computing and averaging the data for the appendix tables that are in the twenty-first edition. In 1910, it was entirely rewritten because of the radical change of economic conditions following the World War and because of important discoveries concerning the science and practice of livestock feeding.

The automobile industry will produce a new and better car every year or two. This comes about by discoveries of better materials, new needs and a general demand. The authors of "Feeds and Feeding" are like the automobile makers somewhat, they realize that what is useful today will be out of date tomorrow. Because of this, in the last 51 years "Feeds and Feeding" has been revised 21 times. The last revision was completed in October, 1948. The book of the twenty-first edition has 1207 pages in it while the tenth edition had only 613 pages.

It has been rewritten five times in the 21 editions, the other times it has just been reprinted and new material

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Dr. Rufus Cox will assume the new duties of Animal Husbandry Head effective January first. Dr. Cox is well known throughout the entire livestock industry of Kansas having been connected with Kansas State college since 1930. Dr. Cox succeeds Dr. A. D. Weber.



The grand champion winner of 1949 in county collective agricultural booths at the Kansas State fair at Hutchinson was Reno county. Built by the Buhler chapter of FFA, the booth won for the fourth consecutive year and for the fifth time. The booth featured the saving of young pigs through the use of brooders, pig rails and sanitation. Fifty-seven farmers of Reno county contributed to the Buhler booth.

## "THE SOIL"

By E. M. TIFFANY

"Within my hand a bit of moist earth I hold, fresh from the new-turned furrow. As I pause to rest, my idling fingers gently press the fertile mold, whose mysteries have challenged long and earnest quest.

"I fain would know the story of these grains of sand, the silent legends

buried with the silt and clay, and hear the rush of phantom rivers through the land to meet the vanished oceans of forgotten day.

"I think of ancient mountains, prehistoric plains, and hosts of lowly creatures bred and nourished there; of massive rocks that held these tiny grains which from the distant past their meager message bear.

"Despised earth, thy grimy black-

ness is a shroud for struggling forms that pulsed and perished in the past, that man might tread and till a soil with life endowed and garner stores of wealth that centuries amassed.

"Holy earth, we pledge to use our heritage and hold its conservation as a trust sublime. Our husbandry will not condone the sacrilege of wasting from the fields the precious gifts of time."



## K-Staters Accept Square Dance

Square dancing is in full stride on the campus this year. As in all parts of the country, square dancing has been increasing in popularity. If a person does not know how to square dance he is missing a great deal of fun.

Here on the campus the YMCA and YWCA have been sponsoring a square dance class for several years. This year, it is believed, will be one of the most successful. A large number of students attend these classes which are held on the second and fourth Thursdays of each month. Early this fall, while the weather permitted, the sessions were held on the tennis courts. They are now held in rec. center.

This year the YMCA and YWCA have organized a demonstration group. The purpose of this group is to learn more advanced and complicated dances and to give exhibitions. The group has given an exhibition before the PTA this fall and they expect to give many more demonstrations throughout the year. Last year a demonstration group gave exhibitions at one of the local theaters and at the officers' club at Camp Funston.

Square dancing goes over big in the Collegiate 4-H Club. Before each meeting the 4-H members fill the floor for two or three square dances. They always want more.

A large number of students gave a colorful performance at the annual Ag Barnwarmer even though the floor was rather slick.

The Kansas State Players recently held a barn dance which was enjoyed by all members.

These are only a few examples of the popularity of square dancing on the campus. Many other groups are making use of this popular form of recreation.

The square dance of today is the nearest thing to an American folk dance. The exact origin of the square or Western dance is not known. No chronologies or records were ever kept. They were the dances of country folk, who never wrote their knowledge down. The

(Continued on page 30)

### Use Resistant Varieties

# Victoria Blight Scores Huge Loss in Central U. S.

By LESLIE PETERSON

Victoria blight of oats caused a greater loss in 1946 and 1947 in the United States than all other oat diseases combined. In 1947, an average loss of more than 10 per cent was caused by the disease in the central and eastern United States.

Victoria blight of oats was first observed at the Iowa Agricultural Experiment Station in November, 1944. In the following year, the disease was found in Arkansas, Montana, Texas, North Dakota, Pennsylvania, Iowa, and other states. It was first observed and identified in Kansas in 1946.

Victoria blight of oats spread to nearly all the oat growing states in central and eastern United States in the period between 1944 and 1947. The disease has spread so rapidly and is so new that it is difficult to predict how great the losses will be in the next few years. Authorities agree, however, that Victoria blight will rank along with crown rust and smut.

How did Victoria blight become prevalent? What causes the disease? How can it be recognized in the field? What can be done about it?

Victoria blight of oats is caused

by a fungus. It is believed that the fungus has been living on certain grasses — timothy, orchard grass, green foxtail, and others—for a long time. All the older varieties were resistant to Victoria blight; therefore the disease did not build up.

Victoria, a crown rust and smut resistant variety, was introduced from South America in 1927. Since Victoria was resistant to rust and smut, it was used extensively in breeding new varieties of oats. In 1946, approximately 35,000,000 acres of new varieties with Victoria as one of the parents or grandparents were grown in the United States. All of these new varieties are susceptible to Victoria blight of oats. In this way the fungus found a new host and multiplied rapidly.

Victoria blight may infect the oat plant from the time the seed germinates until the plant reaches maturity. Many seedlings die before they break through the ground, thus reducing the stand. The surviving infected seedlings are streaked with brown or orange along one or both edges of the leaves and chances are the plants will be dwarfed while most of the roots are found to be brown or rotted

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Square dancing is making a great comeback throughout the nation, not only in rural areas but in cities as well. The old-time dancing is becoming more and more popular on the K-State campus. Here a group of aggies and their dates dance at the Ag Barnwarmer.



Representative Clifford R. Hope and Dean R. I. Throckmorton discuss some of the late agricultural legislation. Mr. Hope was the speaker at the November Ag Seminar.

#### Market Info Available

## Accurate Appraisal of Prices May Increase Farmer's Earnings

By RICHARD WORLEY

One of the most important problems confronting the average farmer is the price he may expect to receive for his products. His income is dependent upon what his commodities will bring when marketed. Therefore, if the producer can make an accurate appraisal of future market prices and use good judgment in determining when to buy and sell, he

can increase his earnings far above the income of those producers who fail to consider the market situation.

One of the pioneer efforts in preparing market analysis and price forecasts for use by farmers was made by the Department of Agricultural Economics of the Kansas Agricultural Experiment Station. On June 26, 1924 the first issue of the Kansas Agricultural Situation was prepared

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## Old Landmarks Fading as Farmers Remove Hedges

By MONTE CLARK

Does hacking hedges hurt? That is what the farmers down in Butler county are asking themselves. When the pioneers stuck their stakes on their 160 acres the first thing they did was plant rows of hedge trees separating their farm from the surrounding farms. In some cases the hedge rows separated particular fields on the farm.

Pioneers planted these landmarks for several reasons. They have supplied wood for heat, excellent fence posts, wildlife shelters and have served as a factor in controlling wind erosion.

As I toured Butler county as an assistant agricultural agent this summer I observed many hedge pulling operations. Farmers gave me several reasons as to why they were pulling their hedge trees. Hedge rows use land that could be used for crops and the shading and sapping of moisture of crops adjacent to the trees were two reasons. Blocked roads due to drifting snow and the filling of ditches with small trees along roads were other answers to my queries.

Farmers letting their hedge rows stand say that they like to hear the bob-whites whistle from the hedge rows at sunrise. Fences must be repaired or built and it falls to the hedge trees to furnish the posts. Some farmers think back to the time when their fathers planted the trees and what they have done should not be undone.

It is true that there is some crop loss due to shading and moisture sapping but there is some evidence that the loss is more than compensated by increased yields beyond this zone. These trees will continue to serve the purpose for which they were planted.

Hedge rows serve as beauty to the country-side. I am sure anyone can see this as you proceed out of western Kansas. If there had been more hedge rows in the panhandle of Oklahoma, eastern Colorado and western Kansas, the howling dust filled winds of

(Continued on page 31)



## New Kansas Industry?

# Dr. Barham Works with Sorghums And Their Industrial Possibilities

By JAMES KILIAN

The farmers of Kansas may well expect to find a new and large market for their sorghum grain crops in the near future. This is foreseeable through Dr. H. N. Barham's research into the physical and chemical properties of these grains.

Dr. Barham's work should prove interesting to those who are not familiar with it. He is in charge of the research into new applications of sorghum grain. His research has opened many potential industrial markets for sorghum grain which is commonly thought of as a feed crop.

This experimentation was started in 1937. A common product in Kansas, sorghum grain will find a more diversified market. About three years ago a development plant started operations in Dodge City.

The sorghum grain is divided into three main parts, the bran layer, the endosperm, and the germ. The pri-

mary work done up to now has been development of a method of dry milling to separate these three fractions. A milling process was developed that separated these three parts along the lines of least resistance.

There are a myriad of uses for the constituents of sorghum grain. The bran contains a wax of superior grade for which a large demand might be anticipated. A wax of similar properties is imported from South America. The bran contains about 3 per cent of this wax which can be used for floor wax, shoe polish, car wax, and other uses.

The germ contains an oil that is also of high quality. It is approximately 16 per cent oil. It can be used for cooking, making of soap, margarine, and other products.

The endosperm, or sorghum grits as they are called, can be used in the

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Dr. H. N. Barham of the Kansas State chemistry department is working to find a more diversified market for sorghums. At present a development of a method of dry milling to separate the bran layer, the endosperm and the germ has been found.

## All Wheat Varieties Tested for Rust Before Releasing

A \$100 million loss from leaf rust of wheat in the United States in 1949 emphasizes the need for the never ending work of the plant breeder and the plant pathologist. C. O. Johnston of the Kansas Agricultural Experiment Station is the U. S. D. A. pathologist in charge of leaf rust investigations for the United States.

Investigations are carried on in the plant research laboratory and the rust nursery every year. Every new variety of wheat introduced in the United States is tested for rust resistance at this station. In addition to testing new varieties, a constant search is under way to develop varieties that are resistant to leaf rust. Crosses between South American wheats and our common varieties plus crossing wheat with grasses are tried with the hopes of developing rust resistant plants.

It has been estimated that the introduction of wheat varieties such as Pawnee, Comanche, Wichita and others has added \$30 million to the pockets of Kansas farmers.

In the fall about 3,000 rows of wheat are planted in the rust nursery in three, five and eight foot rows. The next spring all this wheat is inoculated with a mixture of the important races of this area. Before harvest each row is read for rust and only the rows with a low reading are harvested. This process is repeated for six years in the nursery for a variety that shows promise of being a good wheat in addition to rust resistance.

If a wheat stands up under all of these tests, it is sent to the agronomy farm for additional tests. The next stopping place will be the sub-stations over the state. After passing these tests, it is ready to be released to the farmers for production. One should remember that a wheat must have good milling qualities or it is useless to make all of the other tests.

The plant breeder tries to produce disease resistant strains or varieties. The plant pathologist is a vital aid in any program of breeding for dis-

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## Ag School Formerly in Anderson; Education Hall Included Creamery

By MERNON LARSON

If the agricultural student of 1949 could find himself entering Kansas State College 70 years ago when it was no older than the students, he might be as confused by its rusticity then as he is by the complexity of it now.

In the early decades at Kansas State, all agricultural work except horticulture was under the leadership of one person, designated as

professor of agriculture. Until near the turn of the century, the agricultural school was designated "farm department". This was later changed to department of agriculture and now the term, school of agriculture, has come into familiar usage.

The original Bluemont College building housed the farm department. This was used for a few years and then the department moved to the new Anderson Hall. What stu-

dent walking thru Anderson Hall today realizes that the north wing was built for "practical agriculture" and housed the office and classrooms for the farm department?

In 1900, Education Hall was erected for additional agriculture facilities which included a working creamery. This was later moved to the building just north that was erected for the dairy department. That building is now used for industrial chemistry studies.

Following the turn of the century, increased enrollment necessitated the separation of the department of agriculture into sub-departments. Dairy Husbandry was the first to be separated from the farm department in 1901. The department of dairy husbandry claimed its present location in West Waters Hall in 1922.

Animal Husbandry was set up as a separate department in 1902 with offices in the agriculture building which is now Education Hall. The offices were later transferred to the east wing of Waters Hall in 1913. Agronomy was set apart as a separate department in 1906 and has maintained its residence in East Waters Hall since 1913.

Poultry did not receive much attention until after the other departments were well established. However, interest in the poultry industry grew until the farm department placed the poultry department with the dairy husbandry department. Later, in 1912, a separate poultry department was established. The offices of poultry migrated from the original dairy husbandry building to East Waters Hall and then to West Waters Hall in 1923 where it has remained.

Importance of horticulture was stressed from the early period of the college. A department for horticulture was set up in 1871 and was later made to include botany, zoology and entomology. This system continued until 1902 when the department was set apart to include botany and forestry only.

The significance in the contrasting change and growth of the various departments is reflected by the growth in technical knowledge and research in agriculture. Students 70 years hence may be as awed by the growth of the school as students are now by the past. They may be amused as well as confused.



Dr. J. A. Shellenberger and Dr. Leif Larson of Norway examine College Mill.



# Morrell Gives Luggage To College Meats Team

By N. L. CHRISTOPHER

Kansas State college's meats class received a boost in November from the John Morrell and Co. meat packing plant in Topeka. The Morrell plants, located in Kansas, Iowa and South Dakota, each year sponsor a contest preliminary to the Intercollegiate meat judging contest which is held at the International Livestock Exposition in Chicago. The purpose of these contests is to familiarize the participants with contest conditions, as the plants set up a contest as nearly similar as possible to the problems which will be found at the Chicago event.

Each Morrell plant sponsors these contests for the land-grant colleges located in their state. The company presents custom-made luggage to the man from each school who has the highest standing in meat work throughout the semester. They also donate to the team coach a check for \$100, to be used, as they choose, by the four men who make the trip to Chicago. This year the Topeka plant presented a handsome custom-made leather note-case to Prof. D. L. Mackintosh of the Kansas State animal husbandry department. This was a tribute to his work and effort in stimulating meat work and education at Kansas State, as well as all over the nation. Professor Mackintosh also received an inch-high loving cup, for "good behavior" while in the company's coolers.

Robert P. Kuhn, senior from Salina, was the winner of the custom-made luggage this year. Harold L. Smith, Sedan, was winner in 1948 and Bobbie A. Steele, Downs, was winner in 1947.

At the Morrell plant in Topeka, the men graded and classified according to government standards, 10 lamb carcasses and 20 beef carcasses. The grades, instead of being prime, choice, good, commercial, cutter, and canner, are split into thirds for each grade. Thus, the student is required to place the carcasses into top, medium or low within each grade. The contestant is graded by a mark down of 2, 3, and 5. Therefore, if he misses the grade by one-third, he re-

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Assistant Dean C. W. Mullen and Charles Glenn, Barnwarmer manager, look over part of the cider which was purchased for the aggie dance.

## Curriculums Provide Students Variation in Selecting Major

By HAROLD BROWN

Editor's Note: The following article is a continuation of a series about agricultural curriculums. Last issue carried Agricultural Journalism, Agriculture and Floriculture and Ornamental Horticulture.

### CURRICULUM IN DAIRY MANUFACTURING

There are three main fields of specialization which a student taking the curriculum of Dairy Manufacturing may specialize. They are the dairy plant operator, dairy plant manager and dairy products. Students who have had training in dairy husbandry in college also have opportunities as advanced registry supervisors, dairy cattle breeder, city milk inspector, dairy experimentalist, dairy extension specialist and many other opportunities.

As is implied by the name, the

curriculum in Dairy Manufacturing provides special training in the manufacture of dairy products. The first two years of the curriculum gives the student a general knowledge of the whole agricultural field. The last two years provides more dairy courses and more electives. Some of the courses taught in dairy manufacturing that are of great value to one learning the dairy trade are Fundamentals of Dairy Technology, Milk Production, Market Milk and Dairy Inspection, Butter Making, Condensed and Powdered Milk, Ice Cream Making, Cheese Making, Dairy Plant Management and Technical Control of Dairy Products.

The dairy department is well equipped to teach the courses necessary for the prospective dairyman.

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# Dr. Farrell Does Series of Bulletins On Rural Institutions in Kansas

By DON WILSON

Our past president of Kansas State College, Dr. Francis David Farrell, is continuing to better the welfare of the American people after his presidency. Dr. Farrell has been doing a series of bulletins on case studies of rural institutions in Kansas. This series started in 1945 and has continued at the rate of one bulletin per year until the present.

The reason for Dr. Farrell doing this series of bulletins can best be told in his own words from his first bulletin. "The extent to which the welfare of the American people must depend upon the American countryside is so great that an improved popular understanding of our rural institutions is desirable. Collectively, these institutions are concerned with the conservation of the soil and other essential resources, with the production of food and fibers, with the economic, social and spiritual interests of rural people and with the early and formative nurture of the human stocks from which the population of our urban communities are continually replenished."

Dr. Farrell was born in Utah in 1883 and received his Bachelor of Science degree from Utah State college in 1907. After his graduation he was scientific assistant in Cereal Investigations for the United States Department of Agriculture from 1907 to 1910. From 1910 to 1911 he was associate professor of irrigation and drainage at the University of Idaho.

In 1918 Dr. Farrell came to K-State as agronomist in charge of cereal cultivation experiments and Dean of Agriculture and director of Agricultural Experiment Station. He held this post until 1925 when he became the president of Kansas State college.

Dr. Farrell left the post as president of Kansas State in 1943. He was president of the college for 25 years. At the present he holds the title of President Emeritus and professor of rural institutions since July 1, 1943. He also held the title of president of the Association of Land-

Grant Colleges and Universities from 1939 through 1940.

Among the various organizations, he was a member of Phi Kappa Phi, Alpha Zeta and Sigma Xi. He received an honorary degree of Doctor of Law from Washburn and a Doctor of Agriculture from Nebraska.

In 1927 Dr. Farrell was joint editor of "Farm Income and Farm Life." Later, in 1929, he was joint author of "Farm Relief." Since that time he has had numerous articles in "Breeders Gazette," "Successful Farming," "Nations Business," "Foreign Affairs," "National American Review" and others.

Dr. Farrell's associates describe him as a tall slender person that walks very erect and straight. At this time of year he will probably be seen wearing a top coat, red muffler and a dark hat. He usually wears dark glasses. By reading some of Dr. Farrell's work one will get the impression that he is very precise in his work and scholarly.

The first bulletin to appear in Dr. Farrell's series is one called, "The Fort Hays Branch Experiment Station." This topic was chosen because experiment stations are rural institutions for research in subjects directly affecting agriculture and rural life.

In this bulletin everything from a description of the station to the scope of the station's work and the cost of operation is covered. He concludes that the station is an excellent investment for the public by which it is supported.

He found out, as it tells in the bulletin, that in the 18 years ending with 1944, about 30 machines, or parts of machines, have been devised, built and tested at the station. These include a basin lister, the use of which is now widely effective in the conservation of moisture for the soil; a small grain nursery combined harvester and thresher, used extensively in conduct of experiments for the improvement of cereal grains; a machine for harvesting and threshing buffalo grass seed; a calf dehorning chute; an automatic field hay baler; a sweet clover seed scarifier; a motorized hay buck; a road roller; a motorized grasshopper dozer; an automatic seed-treating machine; a power post-hole digger; and many others.

In the conduct of research on new crops and new farm practices, the need for new or improved mechanical devices frequently arises. The presence of this need at the Hays station, together with a practically inventive superintendent and the opportunity to give adequate trials to new devices and improvements could hardly have failed to produce an imposing list of valuable mechanical innovations.

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## Variety of Jobs Await Grads Upon Completion of Work

In accordance to a recent statement released by Dean R. I. Throckmorton the total of our mid-term graduates having jobs lined up is extremely high. Of the 108 receiving their degrees January 27, 1950, 81 percent know what they will do and several of the others are waiting to make their choice among various jobs, the dean explained.

Dean Throckmorton has interviewed over a hundred of the seniors in the past few weeks, as is customary in the Ag school preceding graduation. The remaining ones had talked with the dean in previous interviews. Over half of the hundred recent interviewees, 58, are married, with families ranging from no children to four.

About a fourth of the January grads will return to the farm; 26 are going to wheat farms, stock ranches, dairies, and other types of farm enterprises. Undecided are 19, many of them waiting to make a choice of jobs already offered. Industry related to agriculture, commercial hatcheries, creameries, feed companies, milling companies, farm implement companies, etc. claims 15, while 12 will do graduate work at K-State or some other institution. County agent, club agent, or other Extension work gets 11, and teaching vocational agriculture or on-the-job GI trainees will take 9. Employment with the Soil Conservation Service, the Bureau of Plant Industry, the Farm Credit Association, or other Federal agencies accounts for 8.

This is the largest fall semester graduating class in history of the School of Agriculture at Kansas State College.

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Professor: I won't begin today's lecture until the room settles down.

Voice from the rear: Why not go home and sleep it off.

---

They say swimming develops form and grace, but have you ever taken a good look at a duck?

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Her knees are knocking  
But not from fright  
She thinks it's safer  
To keep them tight.

A-Sittin' by the Fire

## Regulated Conditions for Chicken Raising Show Influence on Eggs

By BILL JOHNSON

During the past four years there has been a small flock of the gallinaeous group (chickens to us laymen) who, to coin an old phrase "never had it so good". They had what so many of us have caught ourselves wishing for several times throughout the year. How many times have you hoped for the day when you could have the weather-control buttons at the tips of your fingers? If you could, just what would be the results? Well, most of us would find the optimum temperature and continue to dwell in an atmosphere highly uniform and closely controlled in respect to the thermometer and relative humidity.

Such is the case with selected birds. Of course privacy wasn't just what it might have been. Every day some one would come around collecting some sort of data. Close observation and analysis apparently were the wages of such comfort and evidently there was an endless list of items that could be considered in determining the effects of fluctuations in temperature, humidity, and light on the physiology of our fine feathered friends.

To determine these effects there had to be a controlled group like those mentioned above. It was found that the optimum temperature ranges around 60 degrees Fahrenheit so this pen was subjected to close thermostat control. As found by previous investigators the prevailing humidity should also be held static at 65 percent. To cope with another influential atmospheric condition, light, automatic clock controlled circuits were installed. The pen was built without windows. With this automatic electric light switch control, 12 hours of dark and 12 hours of daylight each day could be maintained.

An elaborate cooling and ventilation system which was controlled by a thermostat served as a means of keeping the temperature uniform. In order to help keep operating costs at a minimum the walls were constructed of moderately thick concrete to serve as insulation and the room is of basement type. With this arrangement we have the essentials for controlling the atmosphere. Everyone at

the college poultry farm refers to this particular house as the "C. T.", Constant Temperature house.

Now, a second group of laying hens are used in this experiment. This group was subjected to the normal fluctuating temperature and humidity of the weather as would be any ordinary group of laying hens housed on our farms throughout the state. However they were not subjected to normal seasonal and daily lighting effects and changes. The light was regulated as with the lot above, that is with 12 hours of dark and 12 hours of daylight out of each 24 hour period.

A third group of fowl, a control group, consisting of the same number and breed of chickens were also a part of the experiment. This lot was privileged to the same atmospheric conditions that any ordinary farm flock would have. No artificial control of any of the so-called "elements" was used.

In order to prevent any one group from being handicapped due to a late start or having the advantage of being older than the others, all the birds in this experiment were hatched on the same day, February 27, 1948. Also each group received the same ration and same care and management. These three groups were reared as well as housed under the conditions mentioned above.

Since the chickens are hatched, divided into three equal lots, and grown, all we have to do is sit back and observe with the very utmost of interest. This is no easy trick. All during the coming laying year eggs must be weighed, shell thickness measured, production curves plotted, albumen content measured, other chemical tests made and continual observance kept and tabulated in respect to molt, broodiness and all around health of each individual bird.

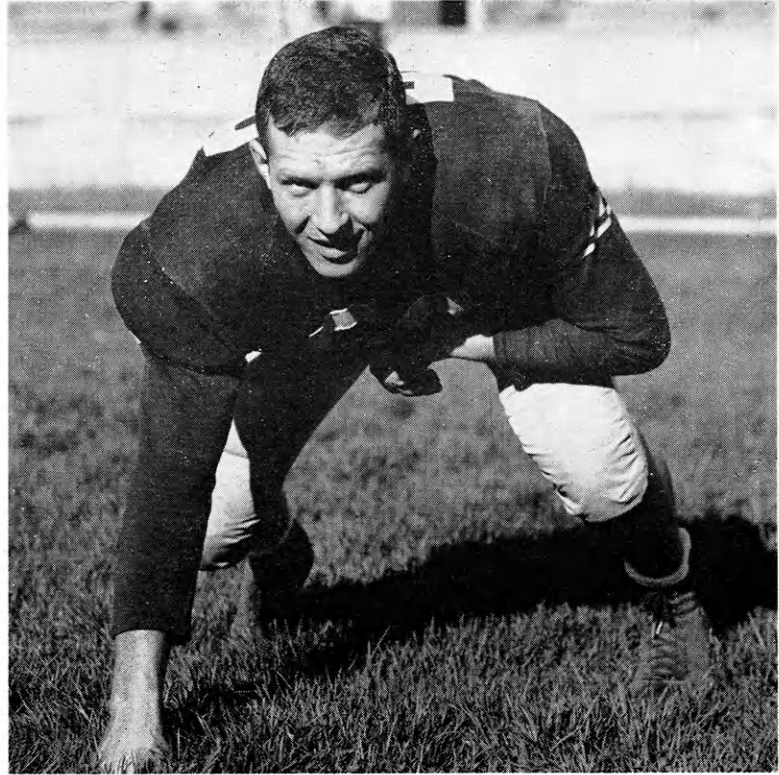
A detailed analysis of the test shows that the laying hens in the constant temperature room responded more favorably to their environment than the other two lots with respect to production throughout the testing

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# Varsity Team Rep



Lloyd Estes

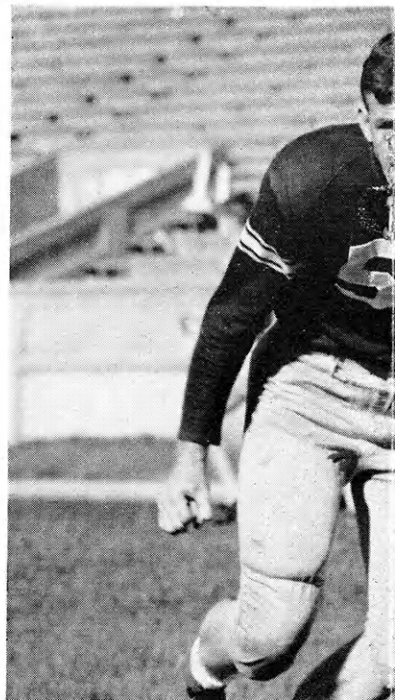


Walt Gehlbach

Ross Estes

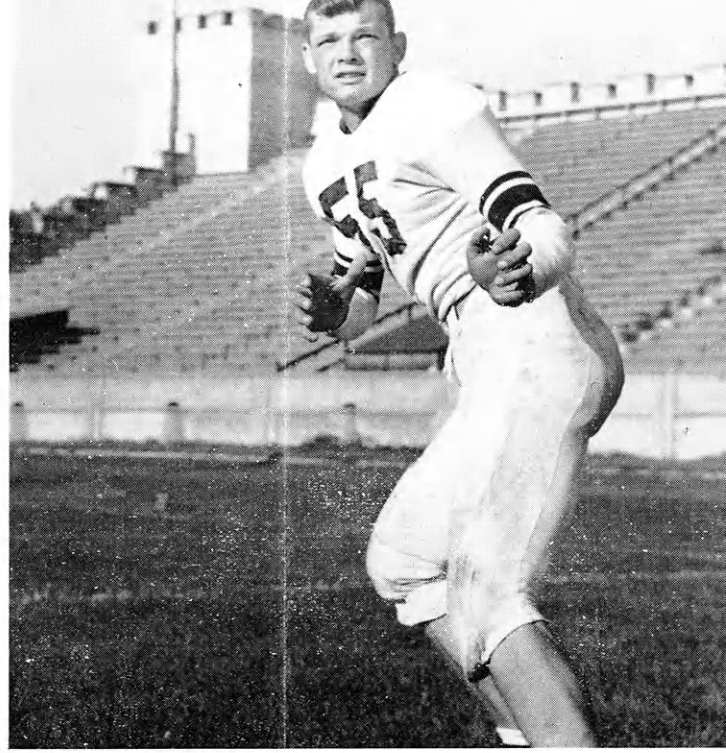


Lynn





*presented with Aqs*

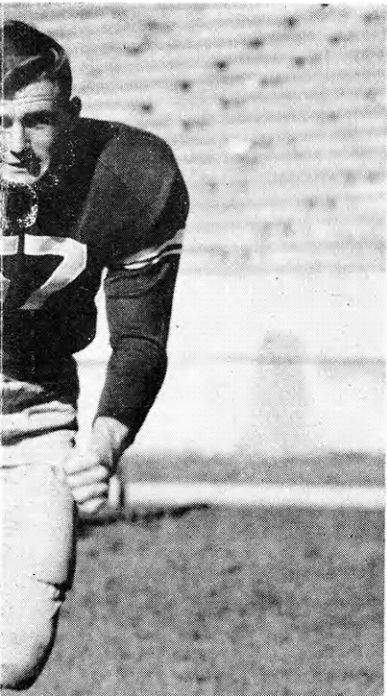


Ken Hartung



George Smith

Burris



Hi Faubion



# Dickens Hall Has Most Complete Herbarium Collection in This Area

By DON KASTL

Have you ever wondered what was in the fire-proof vault in the basement of Dickens hall?

Housed in this vault which is built to withstand two and one-half times the weight above it in case the building should burn down, is the most complete state-county collection of plants west of New England, known as the Kansas State Herbarium, and referred to locally as the "Herbarium." The collection is maintained by Dr. F. C. Gates, taxonomist, of the Botany Department, Kansas State college.

About 1877, small collections by M. A. Carleton and W. A. Kellerman established the herbarium at Manhattan. During the 1890's, while A. S. Hitchcock was head of the Botany Department at Kansas State college, very active collecting was carried on throughout the state with ultimate goal of a complete collection from every county. A remarkable volume of collecting was done by Hitchcock and his associates.

Following the transfer of Hitchcock to the National Herbarium at Washington, D. C., further work towards a complete collection of Kansas was carried on by B. B. Smyth, curator of the State Museum of National History in Topeka. Smyth's own herbarium contained about 4,000 sheets of mounted Kansas plants. This herbarium was donated to Kansas State college by gift of his widow in 1926.

With the coming of Dr. Gates to Kansas State in 1919, an active state collection program was set up. During the past twenty years more than 15,000 Kansas specimens have been added to the state herbarium. The goal is still "to have a specimen of every plant in the county from each county in Kansas." The counties in which extensive collecting has resulted in nearly complete representation in the herbarium are: Riley, Wyandotte, Wabaunsee, Clay, Ellsworth, Cloud, Saline, Rooks, Sheridan, Sedgwick and Douglas. Every one of the 105 counties has contributed more than a hundred species to

the herbarium. From some about 800 species are present. In the herbarium are specimens of two species, the buffalobur (*Solanum rostratum*) and side-oats grama (*Bouteloua curtipendula*), from every county in the state. The extreme southeastern corner of the state is different from other parts. That is where a little part of the Ozarkian region is present.

New plants upon arrival at the herbarium are identified by comparing them to specimens already contained in the herbarium, then they are labeled, poisoned and mounted on cardboard, enclosed in folders, and placed in one of the six rows of cabinets. Exchanges have been received from all continents. They include a plant collected in 1809.

Many worthwhile stories are told by the collection, an example of which is the increase or decrease of certain plants over a period of years. Maps are made showing the location and distribution of plants in Kansas, along with the important papers that are written on the flora of different counties. For instance, data for certain quarterly reports of the State Board of Agriculture were compiled at this herbarium. These reports contain information and illustrations regarding trees, wild flowers, grasses, and weeds as they occur in Kansas. The last two are still available at the secretary of agriculture office in the state house in Topeka. "Poisonous Plants in Kansas" is another technical bulletin based on collections in this herbarium.

Poultrymen who are marketing eggs from both hens and pullets should keep them separated. That's the suggestion of M. E. Jackson, Kansas State College extension poultryman, Manhattan, who says that when the large hen eggs and small pullet eggs are marketed in the same case, the entire case sometimes is docked. His advice is to put the hen eggs and the larger pullet eggs in one case, the small pullet eggs in another.

# Ag Students Represented On Varsity Football Team

By GEORGE L. SMITH

On any Saturday afternoon in the fall when the Kansas State Wildcats enter Memorial stadium to do battle, the bleachers will be filled with thousands of Aggie rooters. Included will be hundreds of faithful guys from the School of Agriculture. Win, lose or draw, these true Aggies back the team for the team represents their college. But there is an association there which may be more close than college ties, it is with the fellow ag students who are on the team. These seven "farmers", as their teammates call them, are the representatives of the ag school and every ag student can be proud of the showing they have made.

Lynn "Buddy" Burris, a sophomore in landscape design, plays a rugged defensive halfback. A product of Wellington, Buddy stands six feet one-half inch, weighs 170 pounds and is 19. His father is a graduate of Kansas State, class of '24.

A star at Wellington in 1946 and '47, Buddy won two letters in football and three in basketball. Although these sports are his favorites, hunting runs a close third. Buddy was a runner-up in this year's F. M. O. C. contest, representing Delta Tau Delta Fraternity of which he is a member. After graduation he plans to follow his chosen field.

Another sophomore on the Wildcat grid team representing the School of Agriculture, is Lloyd Estes. A guard, Lloyd packs 190 pounds, is five feet eleven inches and is 19. He graduated from St. John High School where he earned three letters in football and two in track.

Flying is Lloyd's hobby and favorite recreation. He now has a private pilot's license. After he gets his degree in ag administration, he plans to return to the farm.

Dozens of times this season the fans saw number 65 sweep the ends for long gains or pick up yardage through the middle of the line. The boy wearing that number was Hi Faubion, a sophomore in Animal Husbandry from Phillipsburg. He was one of the state's best high school athletes two years ago. He won 12

(Continued on page 23)



# Poultry Team Gathers Fourth Place At Mid-West Contest in Chicago

By BILL JOHNSON

When the Kansas State poultry judging team left for Chicago for the 26th Mid-West Intercollegiate Poultry Judging Contest they were well aware that a great deal was expected of them. Paul C. Barrett, Topeka, Forrest L. Smith, Wilmore, Gerald E. Lawrence, Winfield, and Charles W. Smith, Wichita, were students picked to judge. Charles Smith was alternate for the team and all members chosen were seniors.

When the contest was over we found the team hadn't let us down. They placed fourth in the contest while Texas, the first place team, scored only 28 points out of a possible 4,500 team points more than they.

The top ten teams listed in order of their final placing are Texas, Iowa, Oklahoma, Kansas State, Arkansas, Missouri, Kentucky, Illinois, Louisiana and Michigan. As indicated by the close margin between first place and fourth place this contest was one of the closest of the 26 held since the first one in 1922. Since that time a similar contest has been an annual affair except during the four war years 1942, 1943, 1944 and 1945.

The contest was divided into three divisions. There were exhibitions in which Kansas State ranked second, market poultry and eggs, Kansas State ranking eighth, and production judging of which we again ranked eighth. Gerald Lawrence was ninth individual in all around judging and Paul Barrett placed fourth in the judging

A small boy was sitting on a curb with a cigar in his mouth, a pint of whisky in one hand, and a copy of Esquire in the other. A stately lady came down the street and asked him:

"Little boy, why aren't you in school?"

He indignantly replied: "Well damm it lady, I'm only four years old."

"All right team," said the coach as he finished his pep talk, "as I tell my cat when he starts toward his sand box—get in there and do a job."

of market products.

At present there is a rotating cup which is to be received by the first team to win three times. The cup has been rotating since 1933 while Kansas State won the previous one. Kansas State along with the University of Missouri, Purdue University, and University of Minnesota has two legs toward winning the cup.

Kansas State has won more total firsts than any other team having competed in 24 of the 26 contests held in Chicago.

Following the contest the teams were given a banquet at the Sherman Hotel. Here the medals and awards were given. The Team members were also initiated into the National Good Egg club. They share this honor with celebrities throughout the United States such as President Truman and Thomas E. Dewey.

While in Chicago, Swift & Company sponsored a marketing tour over Chicago through which the teams visited the Chicago Board of Trade, Swift & Company packing and processing center and other large poultry establishments.

Before returning home the boys visited the International Livestock Exposition. They were also guests of the Pioneer Seed Corn Co. in Des Moines.

Later the Kansas State, Texas and Oklahoma teams were guests of Ralston Purina Company at St. Louis where they visited the Purina research laboratories and also their experiment farm.



## Handbook--

There is a new book on the market entitled Tropical Agriculture. The book is written by G. B. Masfield and printed by Oxford at the Clarendon Press, London, 1949.

The book Tropical Agriculture is, as indicated, a handbook for the practical farmer, business man, and administrator. It would not prove of much use to a specialist in any of the tropical crops but does present a brief, overall view of those crops and, even more briefly, domesticated animals.

Contrasts between temperate and tropical climates and soils are clearly drawn and shown as basic to all agricultural production in the tropics.

Tropical crops are grouped under such conventional names as cereals, fibers, fruits, vegetables, etc., to which are added a number of groups or individual crops, illustrated by spices, beverages, and rubber. Additional parts of the book treat of diseases and insects, and livestock. No illustrations are used.

The book is well bound in cloth, the type is easy on the eyes, the paper is good, the index is adequate but the choice of materials for the five appendixes seems peculiar to an American reader.

Anyone interested in brief, non-technical information regarding the agriculture of the tropics can find it presented in an interesting manner in this book by Professor Masfield.

Kansas is losing its horses and mules faster than the country as a whole, says Boyd Cathcart, Kansas State College animal husbandman. From 1920 to 1945 Kansas horses decreased by 68 percent, mules by 82 percent.

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# Dairy Products Team Wins in Western Contest

By HAROLD RAMSEY

It wasn't held in the Hollywood Bowl and the crowd that watched it was small but there was an unusual intercollegiate match staged October 23 in Los Angeles. Teams from 18 land grant colleges, from Connecticut to California, matched their skills to see who were the top amateur tasters, sniffers, and fine point ferreters of dairy products in all this wide milk-loving land. The crack amateurs of today will probably be important professionals a few years hence, joining a select group in a so far comparatively rare but important craft.

Known as the Collegiate Students International Contest in Judging Dairy Products, this dairy science annual classic, since its inauguration in 1916, has developed keen rivalry among major colleges and universities. Contestants usually are college seniors in the dairy manufacturing departments of the agricultural schools, who have been carefully trained by veteran coaches to appraise the quality of the four major dairy products—milk, butter, cheese, and ice cream. The event is sponsored by the American Dairy Science Association and the Dairy Industries Supply Association.

The contest was the kick-off event in Dairy Industries Week in Los Angeles. This is the first time that the contest has been held on the coast since 1939 in San Francisco. Since judging teams must pay their own transportation, this year's match saw many more of the western colleges represented than usual, although some teams crossed the continent for the event.

The teams spend hours with their dairy manufacturing coaches in the few weeks between the opening of the colleges and the late October Dairy Industries Week. Team members are picked not only for their backgrounds in dairy science, but for their natural acuteness of taste, smell, touch and sight. They have roughly

four minutes for each sample—a 40 minute period for each product, and each contestant has to make and record some 600 decisions. Like tea tasters, the judges never swallow the samples. They rinse their mouth often, or bite an apple, to restore their taste buds to peak acuteness.

Par for the course was set an hour earlier by a panel of top professional tasters, each an expert in the product for which he is official judge, and by a committee of professors appointed from the colleges. Winners in the contest are those who come nearest to this official scoring. Individuals are on their own in the judging—there is no consultation allowed—but scores are computed on the basis of both individual achievement and aggregate winnings of the three-man team.

The Kansas State team was coached by Prof. W. H. Chilson. Team members were Owen Fennema, Howard Sherrod, Harold Ramsey, and John Wilk. When the scores had been tallied and the results were announced at the banquet it was found that Kansas State had carried away its share of honors. Coach Chilson's boys won the milk cup by topping the other 17 teams. They also finished fourth in all products. Not content with just team honors, Howard Sherrod went out in front as high individual in judging milk, setting a new all-time "low" in the entire history of the contest. Harold Ramsey was eighth high individual in milk, third in ice cream, and eighth in all products. Mississippi State college was the high team in all products.

Warts of cattle in general may be controlled by surgical removal or by the use of wart vaccine. Cattle warts are caused by a specific wart virus, and it is from such material that the vaccine is made. In mild cases, one injection of wart vaccine is sufficient—in other more severe cases, two or three doses are required, one to two weeks apart.—E. E. Leasure, veterinary medicine.



## Ag Curriculums

(Continued from page 15)

A modern dairy barn located north of the campus houses purebred herds of Holstein, Guernsey, Jersey, and Ayrshire cattle. These cattle are owned by the college and are used for judging classes and for feeding and breeding experiments.

The dairy department also is equipped with a dairy products processing plant in West Waters Hall. This plant gives students actual experience in the processing of dairy products. Milk, cheese, ice cream, and other dairy products from this plant are used by the College Cafeteria, Student Union and Dairy Bar.

The curriculum calls for a minimum of 132 hours of credit for graduation. Included in this total are 25 hours of electives.

### CURRICULUMS OF MILLING INDUSTRY

Kansas State College holds an exclusive advantage over all other educational institutions of the nation in the field of milling. It is the only college in the United States that has its own complete flour mill and offers the degree of Bachelor of Science in Milling Industry. This fact helps to insure a job opening for prospective millers graduating from K-State.

The flour mill, which is located in East Waters Hall, is equipped as a commercial plant and has a 65 barrel daily capacity. A baking laboratory is equipped with dough mixers, proofing cabinets, ovens and equipment for work on advanced problems.

There are three curriculums offered under the general title of Milling Industry. They are Milling Administration, Milling Chemistry and Milling Technology. These curriculums lead to positions such as grain supervisors, flour mill engineers, managers, superintendents, laboratory specialists, cereal chemists, technicians in distilleries and other jobs related to the milling industry.

All three curriculums in milling require 132 hours of credit for graduation with 14, 13, and 7 hours of electives allowed for Milling Administration, Milling Technology and Milling Chemistry respectively.

Since Kansas State is the only college to offer curriculums in Milling Industry, there are naturally many

(Continued on page 25)

## Football Team

(Continued from page 20)

letters in football, basketball and track at Phillipsburg, was the state high hurdles champion and was selected as an all-state back in football. Hi is a good horseman and likes to try his hand at roping occasionally. His favorite pastime is eating, when he isn't drinking coffee. Hi is a member of Farmhouse Fraternity. He plans to farm after graduation.

A junior in ag education, Walt Gehlbach comes to K-State from Beason, Ill. Walt is a powerhouse, offensive tackle, weighing in at 195. He is six feet one inch tall and is 21 years old. Walt won all-state honors in football at Lincoln, Ill., high, and was picked as the best blocker on the Wildcat team his sophomore year.

Since football season ended, Walt spends most of his time just being a student. He is a member of Tau Kappa Epsilon Fraternity and plans to follow some phase of agriculture after he leaves college.

One of Junction City's contributions to the K-State team is Kenny Hartung. Ken is a junior in ag education. He is a 190 pound, six foot two inch, end and is 19 years old. Ken was hampered most of the season by a knee injury but that didn't stop him. In high school he was a star basketball player and also lettered in football and track. He has a brother, Gerald, at K-State who played on this year's freshman team. Ken is a member of Delta Sigma Phi Fraternity and plans to follow his curriculum in agriculture after graduation.

Bob Julian, a sophomore guard from Belpre, played his first varsity football for Kansas State this year. Bob is a hustling 182 pounder with a lot of speed. He graduated from Trousdale High School where he won four letters each in football, basketball and track. He is five feet eleven inches tall and is 19. Keeping his studies caught up consumes most of Bob's time but hunting is his favorite sport, especially when he is out home where there are plenty of facilities. He is majoring in ag administration and plans to farm after leaving school.

Last, but not least is George Smith. George played guard this year and won his third football letter. He played end his sophomore

(Continued on page 31)

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A \$1,000 scholarship award has been given to Donald Whelpley, a freshman from Coldwater, for 1949 by the Fulton Bag and Cotton Mills of Atlanta, Georgia. This company is planning to give one \$1,000 scholarship a year to a freshman student enrolling in a milling curriculum. These scholarships will be given for four years, 1949 being the first year. The student must apply for this before enrolling at K-State.

The student who wins the scholarship will receive \$250 a year for the four years he is in college. The scholarship is given on the basis of scholarship and extra-curricular activities in high school.

#### LARSON VISITS MILLING DEPARTMENT

Dr. Leif Larson, who is the director of Bakery Institute for the Norwegian Government at Oslo, was a visitor at the college November 29. Mr. Larson visited the milling department. He is interested in baking and cereal technology and came to the college to see the baking equipment.

A speaker who does not strike oil in ten minutes should stop boring.

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## Ag Information

(Continued from page 12)

by the agricultural economics department and published and distributed by the Kansas Extension Service.

The Kansas Agricultural Situation is issued monthly and summarizes economic conditions affecting agriculture generally. Factors affecting prices of farm products important in Kansas are analyzed in this four-page leaflet. Specific price forecasts are made for such commodities as wheat, feed grains, beef cattle, hogs, lambs, dairy products, and poultry and eggs. The analysis for each commodity is made by a marketing specialist in that particular field.

Since the appearance of the Kansas Agricultural Situation in 1924, several other market outlook services have been made available to Kansas farmers. A weekly service to farmers is provided by the Weekly Trend of the Markets. This is primarily a radio release over KSAC, the college radio station, but it is also distributed by the extension service to county agricultural agents and farm management associations.

Commodity outlooks for feed grains, poultry, dairy products, wheat, hogs and sheep are prepared once a year. A cattle outlook is prepared twice yearly by the Department of Agricultural Economics and distributed by the Kansas Extension Service. The extension service distributed 2,577 copies of the 1949-50 Feed Outlook on November second.

Market forecasters, like weather forecasters, find that their forecasts are not always completely accurate. R. J. Eggert and R. E. Seltzer, former staff members at Kansas State college, have made a study of the accuracy of hog and cattle price

forecasts in the Kansas Agricultural Situation. They found that from 1925 to 1940 the hog price forecasts in this monthly leaflet averaged 64 percent correct. An interesting sidelight on this study was the fact that during certain months the forecasts were more accurate than during others. The least accurate months were August and April. November was the month when the most accurate predictions were made, averaging 77 percent correct during the 16 year period.

Cattle price forecasts in the Kansas Agricultural Situation during this 1925 to 1949 period averaged 62.7 percent correct. During the year 1929 cattle price predictions were 94 percent accurate.

Undoubtedly the best known of the outlook publications is the monthly Kansas Agricultural Situation. The number of copies distributed each month has risen continuously since its beginning in 1924. The average monthly distribution in 1928 was 2,325 copies, in 1938 it was 8,750 copies, and in 1948 it was 14,080 copies. In November 1949, 18,150 copies were distributed. The bulk of these copies are sent to county agents who, in turn, distribute them to their Farm Bureau members.

Information contained in the Kansas Agricultural Situation is released to the radio and press by the college news bureau. Some 47 radio stations in and near Kansas that cooperate with the Department of Extension Information at Kansas State college relay the information carried in the Kansas Agricultural Situation to their listeners.

When a man has a birthday he takes a day off, but when his wife has one, she takes a year off.

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## Meats Team

(Continued from page 15)

ceives 8 points; if he misses two-thirds, he receives five points and if he misses a full grade, he loses all ten possible points. The contestant also receives two points for sexing or classifying the carcasses correctly.

The contest consists of judging two classes of beef carcasses, one light and one heavy; two classes of lamb carcasses, one light and one heavy; one class of hog carcasses; one class of fresh skinned hams; one class of fresh bellies or bacon; one class of beef ribs; and one class of beef chucks. Written reasons for placement must be submitted for five of the above classes. The student is graded in the judging division by having 50 possible points for the correct placing of each class and 50 possible points on each set of reasons given.

The Morrell company had the contestants, officials of Kansas State college, Morrell officials, and other dignitaries of the livestock and meat packing industry as guests for an informal banquet at the Hotel Jayhawk that evening. The consensus of the guests was that the enormous T-bone steaks, served at the banquet, were prize enough for anyone. Merrill Werts, Agriculture Service man for the Topeka plant and a graduate of Kansas State, was master-of-ceremonies at the informal gathering.

The following men from Kansas State took part in the contest: William R. Edwards, Manhattan; Daniel R. Gardiner, Hartford; Robert P. Kuhn, Salina; Ninian L. Christopher, Bucklin; Elmer L. Pelton, Raymond; George C. Heiser, Hope, N. J.; John V. Maxwell, Aspinwall, Pa.; Fred W. Boren, Grad., Manhattan and Albert J. Clawson, Grad., Manhattan.

## Ag Curriculums

(Continued from page 23)

foreign and out-of-state students enrolled. Enrollment must be limited because of the facilities present at the college.

### CURRICULUM OF AGRICULTURAL ADMINISTRATION

The curriculum in Agricultural Administration is one of the newer curriculums in the agricultural department. It was formulated so that a student could take a course which would give him the main principles of agriculture and combine it with business courses. Many industries related to agriculture are looking for men with training in both of these fields. A few industries are agricultural services, rural banking, development and sale of lands, processing and marketing of grains.

The first two years of the curriculum are planned similarly to other agricultural curriculums. General agricultural courses such as the Elements of Dairying, Farm Poultry Production, Farm Crops and others give the student general knowledge of agriculture. Also included are the Man's Physical World and Biology in Relation to Man comprehensive courses.

A total of 128 hours are needed for a student to graduate with a degree in this curriculum. Almost one-third of these hours are electives. The electives are grouped as follows: Major electives (9) to be chosen from the courses in the Department of Agricultural Economics; Minor Agricultural Electives (15) to be chosen from the departments in the School of Agriculture to strengthen the student's preparation in agriculture, and General Electives (17) to be chosen to meet individual needs.

## On the Cover

(Continued from page 1)

seed by hand, as the early pioneers did. Beyond him, the modern tractor and grain elevators illustrate the development of farming from crude hand methods into the modern science it is today in Kansas.

The other figures surrounding the central panel are, in a clockwise fashion, Melchizedek, the "Righteous King"; The Wise and Foolish Virgins; the Prodigal Son; the Good Samaritan; the House Built upon a Rock; and Isaiah, the prophet who sustained the hope and faith of the Jewish people in a time of great tribulation and oppression.

Thus agriculture is given proper emphasis in the central panel of the main window, with all else evolving around it. The smaller windows of the Meditation wing are symbolic of other cultures in our nation and at the same time, of the comprehensive courses at Kansas State College. They represent the physical, social, biological, and cultural worlds that are so integrated into the life we live today.

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## Regulated Light

(Continued from page 9)

John Ray observed the differences in flowering due to light variation, it was fully two centuries later before any comprehensive research was undertaken. Since then many of the fundamentals have been established. The credit for the most outstanding research concerning light and its effect on the time of flowering goes to W. W. Garner and H. A. Allard, pillars in the field of floriculture. Their recent work has formed the basis for the practical application of light manipulation.

The duration of light or length of day affects the time of flowering of almost every plant and is called photoperiodism. Plants may be grouped into three classes with respect to their response to light duration. Short day plants are those plants which will form flower buds when the sunlight per day is 12 hours or less. Long day plants are those which will flower when the sunlight per day is more than 12 hours. The third group is an intermediate group of plants which will form flower buds irrespective of the amount of light per day.

Some of the most common short day plants are gardenia, chrysanthemum, begonia, and poinsettia. Long day plants include China aster, calceolaria, and many of the annuals grown for spring flowering. The rose and carnation are indeterminate plants and produce flowers at all seasons of the year.

Let us now turn to the practical application of light manipulation as practiced in the greenhouse today. For example the chrysanthemum is a short day plant and blooms only when the length of light per day is less than 12 hours. (Its normal blooming period outside the greenhouse is from late September till frost.) If the grower wants his chrysanthemums to flower late and be available for sale during the Christmas holidays he will light his plants artificially to make sure that they receive more than 12 hours of light per day. This keeps the plants from setting flower buds. Approximately five weeks before Christmas he will remove the lights and let the plants start blooming so they will be in full flower by the holiday season.

By the same token he may want to have flowers earlier than the

normal flowering date so instead of using lights to prolong the flowering date he will shade his plants. This practice insures that there will be less than 12 hours of light per day or that amount of light necessary for flower formation. He then gets his blooms early.

Photoperiodism is a very useful tool and the flower grower uses it with much success. Photoperiodism also helps to explain why there is an abundance of desirable flowers on the market during all seasons of the year.

## Chick Raising

(Continued from page 8)

are twelve days old and are given every other day until ten injections have been given. Both groups are parasitized at fourteen days of age with roundworm eggs. The females are handled in the same manner except they are given diethylstilbestrol which is a female sex hormone.

The experiments have not been run long enough to note any conclusive results as to the effects on roundworms. However, interesting results have been noted as a side effect of the use of the hormones. Within a remarkably short time the young cockerels develop the typical pugnacious attitude common to their elders. There isn't such a noticeable difference in the young pullets although they are much less flighty and have a more mature attitude. An internal examination will reveal unusually large oviducts.

Dr. Ackert, professor of zoology since 1918, served as dean of the graduate school from 1931 to 1945 and is now dean emeritus. He is a charter member of the American Society of Biologists and has edited several articles on the resistance of animals to parasitism as affected by age, vitamins, proteins, blood loss and breeds and strains of animals.

Kansas has less than one million acres of woodland, all in small ownerships. That represents less than one percent of the total forest acreage in farm ownership. However, says Paul Collins, Kansas State College extension forester at Manhattan, many valuable species are native and do well here. There is a need, he adds, for planting windbreaks, shelterbelts, and other protective plantings.

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## Double-Muscling

(Continued from page 8)

er." Since that time there have been several published descriptions and explanations on why it occurred. It has been well established that it is of hereditary origin and for this reason it has been of importance to breeders of purebred cattle.

Prof. William J. Loffel of the Department of Animal Husbandry at the University of Nebraska obtained a Hereford heifer in the early 1930's from a breeder who thought he had developed a new breed type. This animal was fattened and later slaughtered. Professor Loffel made studies of the carcass. He said it corresponded very closely to a type known to the packers as "Yorkshires." This quality was not favored by them, due to its lack of marbling and tendency toward coarseness of grain in the meat.

Dr. A. D. Weber and Dr. H. L. Ibsen, both of the Kansas State college Department of Animal Husbandry, reported the occurrence of the double-muscling character at the annual meeting of the American Society of Animal Production in 1934.

They knew that not too much was known about the mode of inheritance at this time. So a plan was outlined to make further study. In 1936 an Angus cow was purchased which showed this double-muscling. This cow was mated to a bull without the characteristic. Her first calf was the start of a new herd of cattle. By inbreeding, 28 animals bearing relationship to the original cow were produced during this experiment.

This experiment was conducted chiefly to study the mode of inheritance and the characteristics, which also included study of the carcass for its palatability and the anatomical and histological standpoint.

The results of the breeding program did show some very interesting findings. This trait was due to a single autosomal recessive gene. This simply means that one animal may carry this trait and it may go unobserved until a mating is made with another animal which has the same trait, thus producing a double-muscling calf.

On previous accounts there had been reports that double-muscling cows were poor reproducers or sterile, and that would be no danger in pass-

ing this peculiarity on to future generations. In the KSC experiment no such trouble was observed but cows did have trouble calving and death of one cow and several calves was recorded. These deaths were attributed to a large development of the hind quarters of the calf making it impossible to pass through the birth canal normally. This same condition was also reported by the European observers.

Of the calves that were born alive they appeared normal except for the large rear quarters. It should be kept in mind that not all calves produced in this experimental herd showed the double-muscling characteristic. Those that do not are termed normal heterozygotes, since they are carrying the characteristic in the recessive form. Actually only eight calves produced showed this double-muscling, six being males and two females. Since there were only a small number of animals produced in this work that actually showed this quality, it is really not conclusive and there may be other factors which cause this trait.

Carcasses were studied showing double-muscling and were compared

with normal ones. There was quite a bit of difference in the quality of the meat. In the double-muscling individuals the carcasses were proportionally heavier in the affected regions, showed less fat covering and little or no marbling. The meat was coarse in texture and was lacking in compactness which means to the packer that it is undesirable to the consumer and for storage. Studies of palatability showed the cooked parts were less tender and lacked natural juiciness.

There is a misconception about the double-muscling trait. Many persons believe there is an actual doubling of the muscles, but this is not true. What happens is that the muscles which are located in the hindquarters have increased in size due to a larger number of cells.

Whether double-muscling can be of advantage is a good question. To date it seems to cause trouble at time of birth and the quality of meat is not wanted by the packer. One important fact is that it can be kept from a pure bred herd by proper breeding management.

Twenty-two states have names of Indian origin.

## Education by Protection

Protect your chances for using your education by practicing safety during your advanced study of the business of farming.

Farming is a business, and as a business it brings many of the hazards of an industrial occupation. That fact must always be considered. Safety practices of the farm can prevent the annual average of 6,000 farm work accidents.

The Kansas Agricultural student can learn while still in college to make the most of farm safety practices.

## FARM BUREAU MUTUAL INSURANCE COMPANY

Manhattan, Kansas

# Research Shows Cottontails Are Half of Coyotes' Diet

The coyote did an estimated \$1,-500,000 worth of damage in Kansas in 1947 according to J. C. Mohler, secretary of the Kansas State Board of Agriculture. In 1948, a survey of 85 counties, conducted by a graduate student in Zoology, showed approximately \$325,000 worth of damage. Bounties paid in Kansas on coyotes total \$30,000 annually. This would indicate that the coyote is quite an expensive animal to have around. However, other findings indicate that the coyote is probably blamed for damage done by other animals.

The cottontail makes up about 50.1 percent of a coyote's diet according to findings at Kansas State College. The College is in the third year of a proposed five year study of the contents of coyote stomachs. Dr. O. W. Tiemeier of Zoology is in charge of the investigation on food habits.

Of the total 421 animals studied, 305 had material in their stomachs. Eighteen of these coyotes were from western Kansas and the rest of them were from the eastern third of the state.

While cottontails made up a large percent of the diet, jackrabbits amounted to only 11.2 percent of the total food found.

Carrion, consisting of beef hide and hair, hog skin, and pieces of wool, was second in the coyote's diet, making up 24 percent of the total food. There was 10 percent more carrion found in 1948 than in 1947. Rodents, such as muskrats, fox squirrels, gophers, prairie dogs, barn rats, pack rats, and different species of mice, were next to carrion with 13.8 percent. This category dropped considerably in 1948. As many as 16 large meadow mice were found in the stomach of some coyotes.

Chickens and game birds have a small part in the winter diet of a coyote. In 1947, chickens amounted to 6.1 percent of the diet. In 1948, they dropped to 3.1 percent. Game birds amount to only .2 percent.

Garbage accounted for 4.5 percent of the diet. All other foods amounted to .9 percent.

According to Dr. Tiemeier, rabbits, carrion, and rodents are the natural food of coyotes. They amount to 75 percent of the total diet. In the opinion of the researchers, most of the chickens consumed by the coyotes were ones that had died and been thrown out by the farmer.

Some are of the opinion that the coyote plays an important role in nature's balance of animals. J. D. Black, of the Museum of Birds and Mammals of the University of Kansas, states in his "Mammals of Kansas" that the war against rabbits in the thirties, culminating in the rabbit drives, would have been unnecessary if similar drives against coyotes had not taken place.

The coyote, originally a native of the plains country, is moving into the mountain and arctic regions.

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crops and produce the mountains of meat needed to provide an adequate, well-balanced diet for our people. This abundance of food not only helps to safeguard the nation's health, but nurtures happiness and contentment.

Because of their faith in the land, in themselves, and in divine providence, farmers—who seem to take for granted that each new year will be better than the last—set a shining example for us all. They face the future hopefully—unafraid!

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## Feeds Book

(Continued from page 9)

added. The tenth to the fourteenth editions were written by Professor Henry with the assistance of Prof. F. B. Morrison, who, because of ill health and the death of Professor Henry, has assumed responsibility of the later edition. Professor Morrison is a professor of animal husbandry and animal nutrition at Cornell University.

No, the Russians didn't write the book but in 1912, it was translated into Russian to be used in agricultural schools and other institutions. It has also been translated into Portuguese and Spanish. In the United States as well as in other countries it was soon used more widely as a text book and as a reference book than any other book on livestock feeding.

I'm sure that all agricultural students of Kansas State have at some time or other used this seven dollar book in class work or as a reference. And I will venture to say that many of them will use it again in the future.

## Square Dance

(Continued from page 11)

dances and the calls, except perhaps in rare cases, were transmitted from caller to caller by word of mouth.

It was to the cattle range and the mining camps of the West that adventurers, fortune hunters and settlers came from every state in the Union and even from foreign countries. They brought with them the dances of their own section. The West became the great melting pot of the dances of many sections and countries. Out of this melting pot developed the true American dance, the square dance.

The traditional dancing of the people of the world is inherently wholesome and sociable. Many Americans are discovering the simple fun of an older social order—to laugh and play together stimulated by the rhythm of good folk music.

Square dancing is here to stay.

In 1942 more than 24,000 garments were completed by Kansas 4-H Club girls. That's a lot of stitching, girls.

## Education and Insurance For Your Future

Education prepares the Kansas Agricultural student for the Future.

Life insurance helps to give the student the same preparation for the future. Life insurance as a companion in the Kansas Agricultural student's life can give the protection and security that all men seek in life.

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Manhattan, Kansas



# Few Horses Used On Modern Farm For Work or Profit

By JAMES CHENOWETH

Last spring while attending a community sale in North Central Kansas there happened to be a team of horses being auctioned off. Not that a more surprising situation could be than to see horses sell through the sale ring, nor was the price too far out of line. Previous reports stated that draft horses were not worth much. This team of apparently good draft horses was being sold by the pound. Three cents was tops for the day.

No longer do you hear the familiar shout above the voice of the auctioneer, "Here is the best team I've ever drawn a line on", and someone else opening the horse's mouth to determine its age. These factors are of relatively no importance. The prospective buyers are interested in them as meat animals only, as they are soon to be dog food and tankage.

When rubber tire tractors were introduced the progressive farmers realized that there was no longer a place for draft horses on Kansas farms. These men sold their horses and made room for extra beef or dairy cattle. There were also farmers who refused to part with their horses. There are many farms that still have one remaining team. The average of these horses will not be in the harness two full weeks of a year.

A number of these farmers were asked why they still keep their horses. Some say they intend to use them to pick corn and others just say they don't want to be without a team. The latter answer probably accounts for most of the farm teams as corn picking alone does not justify keeping a team.

One man with a team can pick a maximum of 100 bushels of corn in a day. He can hire someone with a corn picker to pick the corn for 10 cents a bushel and have the job finished in a much shorter time than he could do it by hand. Providing the farmer had nothing else to do he could just about break even with his horses during corn picking.

## Oat Disease

(Continued from page 11)

off. Many plants shrivel and die before the heads are filled. The lower joints are blackened, and the internodes are brownish and translucent. Lodging occurs abundantly and the fungus causing Victoria blight of oats may live over winter on the seed or in the soil.

Seed of susceptible varieties should not be purchased from areas where high losses from Victoria blight have occurred. Crop rotation is of value, especially before the disease has become well established. After Victoria blight has become established crop rotation helps to control the disease.

Seed treatment with New Improved Ceresan will control the fungus present in the seed. This treatment is of only partial value if the seed is planted in infested soil.

Oat seed should be planted as early as the season permits. Victoria blight is favored by high temperatures therefore early planting will help reduce the amount of disease in the seedling stage. The plants will be able to mature earlier and thus escape the disease to a certain extent.

The best means of escaping Victoria blight of oats appears to be through resistant varieties. In Kansas, Kanota and Fulton are resistant to Victoria blight but are susceptible to rust and Kanota is susceptible to smut. Osage, Neosho, Tama and Boone are resistant to rust and smut but are susceptible to Victoria blight. Cherokee and Nemaha are the recommended varieties for growing in Kansas. Clinton was formerly recommended but is now highly susceptible to crown rust. Cherokee and Nemaha are resistant to Victoria blight, crown rust, and smut.

## Old Landmarks

(Continued from page 12)

1935-36 would have been slowed down considerably.

I am sure all people engaged in agriculture believe in the preservation of our wildlife regardless of the views of our city cousins. As a person walks along hedge rows in the winter time he will see many rabbits running about in the row, a covey of quail will "flutter" out from under the protection of the hedge. In many areas there is no timber near by so

the hedge rows keep our wildlife from starving and freezing to death. Hedge rows also serve as protection for the game birds against the large predatory animals. They also serve as shelter for the farm animals during winter snows and furnish shade during the summer.

Cost of pulling the hedge, cutting and moving the posts are problems to consider before pulling your hedge. Unless the posts are numerous, straight, long, and of large diameter the amount you get out of the posts will not pay expenses. The trees also serve as indicators as to the seasonal conditions, is the season late or early. Some farmers say that when the leaves get as big as a squirrel's ear it is time to get the corn in.

Before removing your hedge rows consider both sides of the question and give much consideration to their value before destroying them.

## Football Team

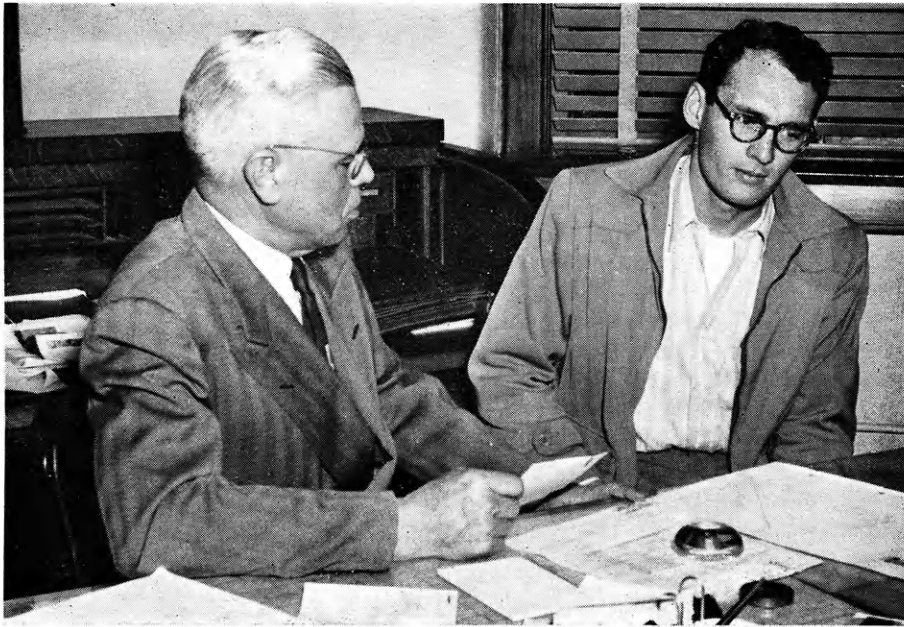
(Continued from page 23)

year and did some quarterbacking in his junior year. George weighed in at 188 pounds and is six feet one inch tall.

George is a senior in ag journalism. He hails from Miltonvale and is a member of Alpha Kappa Lambda Fraternity, of which he is past president. George is not married but is engaged. He also belongs to Sigma Delta Chi, professional journalism fraternity.

Drainageways are the keystones to soil conservation, points out R. C. Lind, extension soil conservationist at Kansas State College in Manhattan. Usually draws or drainageways running through a cultivated field grow up to weeds, or crops growing in them are washed out. These areas seeded to grass and alfalfa will produce more in dollars of production as hay or forage than any other crop on the farm, Lind says.

The first Texas trail herd through what is now Kansas, according to the census report for 1880, was one driven in 1859 by John C. Dawson. These cattle came into Kansas on the 96th meridian, proceeding north and west through the present town of Sedgwick, Harvey county, to about Great Bend on the Arkansas river, thence west to Pueblo and on to the vicinity of where Denver is now situated.



Frank E. Huddleston, Milling Industry, talks with Dean R. I. Throckmorton in the dean's 100th interview with seniors to be graduated from the School of Agriculture in January, 1950. Huddleston is going to choose between private business and a job in milling. He is married and has no children and Hoisington is his home town. The class of 108 is the largest mid-term group to receive degrees in the history of the School of Agriculture at Kansas State College.

Cattle owners are reminded to vaccinate all calves that have been dropped through the summer months for blackleg and malignant edema. These two diseases of cattle are close-

ly related and often cannot be differentiated except by laboratory procedure. The vaccine used is most commonly called clostridium chauvei-septicus bacterin.

## Few Horses

(Continued from page 31)

Let us now do some simple calculating to see how much it is costing to keep the team on the farm. We will be reasonable and say that a team will eat no more than two beef cows. The cost of their feed will be at least \$75 each year. During this same year though each cow will raise a \$100 calf. These modest figures show that the horses are costing \$75 each year while the two cows would be making a net profit of \$125. This means that the team is actually costing \$200 each year, a figure that can't be overlooked even in these times.

Occasionally someone brings up the subject of raising colts. This enterprise can be covered with very few words. Stallion fees are seldom less than \$15. Yearling colts will not bring more than \$25. One needs to go only as far as the veterinary bill to see that this is very definitely not a money making business. That is, unless the government starts supporting their price. It could happen you know, although I would rather chance putting my money on the nose of a thoroughbred.

There are no doubt occasions on the farm when a team would come in quite handy. What usually happens though is that the horses are somewhere near the far end of the pasture when they are needed. Rather than to go after them the farmer will either let the job go or do the best he can with his tractor or automobile, depending on the nature of the job.

Many draft horses are still seen in our large livestock shows. It is seldom that any signs of harness marks can be found on any of these fine horses though. They are for exhibition purposes only and have no real economic value.

It may be a few years before all Kansas farmers realize the facts that have just been presented. Some of the older farmers will never part with their horses, just as they have stayed with the age old idea of planting their crops by certain signs of the moon.

Dairymen who have a good fertilizer program including legumes on their farms do not need to worry about their dairy cows lacking for minerals, except salt.

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# Creep-Fed Calves Reap Greater Profit

So you want to make big money? Here's a reasonably sure way to raise beef and sell it for a good profit. The important thing under present conditions and prices is that it changes low-priced and surplus corn into higher-priced and scarce fat cattle. All you have to do to reap these profits is follow the system of beef production known as creep-fed calves.

Creep-fed calves are calves that have been fed grain while they are nursing their mothers and possibly for a short time after weaning. In this way they go to market at an early age but with a high degree of finish and a small amount of feed consumed.

Production of creep-fed calves is most desirable for farmers who are limited to less than 100 cows. It is desirable but not necessary that the farmer produce his own grain and also enough roughage to keep his cows fed in good shape.

Early winter or fall calves are an important requirement. This gives the calves a little more time to get ready to top the market at the high time of the year. The cows will also be in their high milk production in the winter, and about the time they normally start slacking up will be the time they go to grass. This will help keep their production up.

Another important factor is to get the calves started on grain as early as possible. Since the calves are born during the winter they will need to be close to a barn or shed so start them on a creep then. At the latest, have them used to a creep before they go on grass. At grass time, if they run with their mothers, the creep could be near the watering place where it is handy for them. If they are kept at the barn, they can have feed before them all the time and be turned in to their mothers to nurse twice a day.

If the calves are born early enough in the winter or fall, they can be weaned between eight and nine months of age. At this time they should be put into a dry lot and full-

fed. The length of time they may be kept after weaning depends on the market and owner, but it should not exceed three months for best results.

This will put the calves on the market when they are just short of a year old. If the calves are born around January they will go on the market around November. This is the high time of the year for them since there are so many grass fat cattle on the market but few grain fat cattle.

Calves that are born in January should consume around 10 bushels of grain per head before weaning. From weaning to marketing time, if they are kept for around three months, they will eat almost 20 bushels per head. A mixture of corn and oats is good to start the calves on and add more corn and protein later as needed.

When these calves are sold, they should weigh between 700 and 800 pounds. Since they come in contact with grain at an early stage in life they not only produce the most beef for the amount of feed but it is the highest quality beef due to the added marbling.

## Dr. Farrell

(Continued from page 16)

A discussion on one of the first pioneers in rural electrification was chosen by Dr. Farrell for the second of the series. This is a discussion of an instance in which members of a small rural community met an important community need through their own efforts and with marked satisfaction.

The need was for improved lighting facilities primarily and for other electrical facilities secondarily. It was met in an impressively simple way through the exercise of self-reliance, thrift, industry, good sense, and mutual faith.

Throughout a quarter-century the rural community has had an efficient and constantly improving rural electrification service through the operations of a farmers' cooperative association at Berwick in the northeastern corner of Nemaha County, Kansas. Dr. Farrell makes a complete coverage of this case in his bulletin.

The bulletin, "A County Agricultural Center" published in 1947, is the complete story of how Rice County has taken a lead in making

(Continued on page 36)

## Keep Kansas In The Blue

85% of Flour from Kansas Wheat  
Goes to the Bake Shop.

Encouraging the use of proper varieties and good  
storage and handling practices is our job.

## Kansas Wheat Improvement Association

Manhattan, Kansas

## Ideal Conditions

(Continued from page 17)

period as a whole. As the first of the laying season progressed the lots exposed to the atmospheric conditions surged into the lead which they held during the winter and spring. Then as the hot summer season arrived, production began to drop while that of the cool constant temperature group remained much more steady. Thus the margin decreased and soon the C. T. pen assumed the lead.

In comparing the lot kept under uniform conditions with the other two lots several items of interest were brought to light. The comb size of birds in the C. T. pen was considerably greater. Body weight was influenced. During the winter the constant temperature was less favorable but in the summer there was an observed reverse effect with them enjoying more favorable conditions for greater body weight than birds exposed to normal summer temperatures. As far as could be determined the albumen content of eggs was not affected. Neither could marked effects be found in the incidence of blood spots which is believed to be credited to hereditary factors more

so than to environmental factors.

It is hoped that not everyone will go out and convert their laying house to a constant temperature and humidity house but this test provides evidence that extreme atmospheric conditions do influence intensive and high quality egg production.

## Rust in Wheat

(Continued from page 13)

ease resistance. It is his task to identify the causal organism in the case of a disease and to determine all of the characteristics so that intelligent plant breeding can be accomplished.

When the plant breeder and pathologist discover a new variety that shows all of the desirable characteristics plus rust resistance, their work is not done. Mutations and hybridizations may bring about an annual increase in the number of races or produce a race that will attack their new variety.

This is why the plant breeder and the pathologist must be on the alert, and always searching for new and better varieties of wheat.

Her father was a six-gun man but what a blank she turned out to be.

## Dr. Barham

(Continued from page 13)

brewing industry. These same sorghum grits can be broken down into starch and protein. About 75 per cent of the sorghum grain is grit, of this approximately 10 per cent is protein. The protein + bran + germ makes good cow feed. The starch will compete with the starch derived from corn depending on the variety of sorghum processed. Some sorghums have the characteristics of tapioca. These varieties make good adhesives. The flour of some varieties will make good hot cereal, pancakes, and waffles.

How does this affect the Kansas farmer? There are three major occurrences that are affecting Kansas right now. The European corn borer is moving in and is becoming a serious menace to corn production in some areas. Accordingly a need may arise for a cash and feed crop to replace corn. The inauguration of the wheat allotment plan by the government will have its effect. Many farmers are finding they have a few extra acres that they would like to put in a cash crop. Another thing is that if moisture conditions are unfavorable in the fall, there is always an opportunity to put in another cash crop in the spring.

This will not happen tomorrow or in the near future. Dr. Barham stated that if progress in his research continues at the same rate it will still be several years before industry is ready to absorb sufficient quantity of sorghum grain to be felt by the farmer.

A salesman stranded in a small town was asking a local resident about some entertainment.

"Do you have a local theater?"

"No."

"How about a pool hall?"

"No."

"Well, what the heck do you do for amusement?"

"Come on down to the drug store. There is a freshman home from college."

Girl: "Would you come to my aid in distress?"

Boy: "I would come to your aid if you weren't wearing anything."

Small deeds done are better than great deeds planned.

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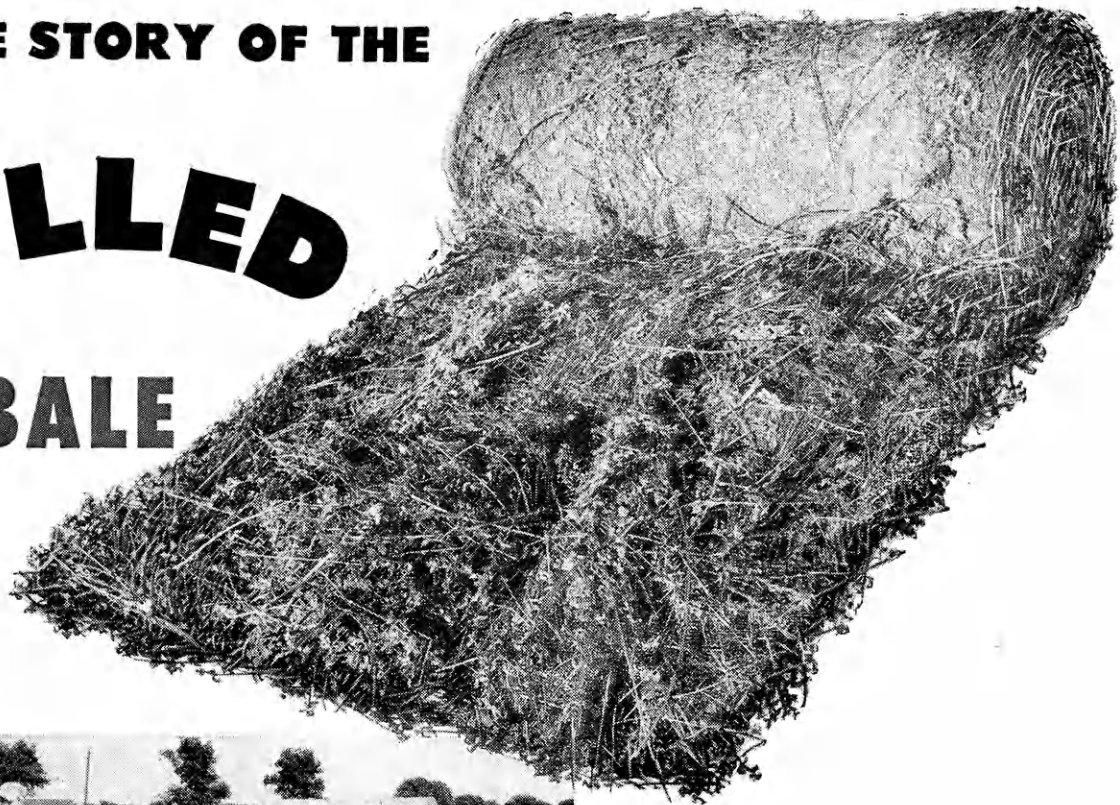
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The ONE MAN ROTO-BALER, for the first time, makes possible home ownership of your own machine. You can save your crop the hour it is ready. Once hay is in the rolled bale, you can breathe easy, *for it sheds rain like a thatched roof.*

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TRACTOR DIVISION MILWAUKEE 1, U. S. A.



# The Last Word



Dr. Farrell

(Continued from page 33)

a comprehensive plan for a county agricultural center and has made a substantial beginning in the application of the plan.

In his bulletin Dr. Farrell relates all of the plans and pains taken to get the center started. He states that it, up to this time, has cost little more than one dollar per capita of the county's population. He goes on to tell how this cost was much less than the cost of one mile of a two-lane concrete road at prewar prices.

The 1948 bulletin was a case study of Mutual Insurance. Dr. Farrell's research disclosed that in its first fifty years the Kansas rural institution discussed in his bulletin withstood a number of severe tests. The institution was first the Kansas Farmers Mutual Insurance Association, but since December 18, 1940, it has been Upland Mutual Insurance, Incorporated.

As he states in his bulletin, "Beginning with 40 members and wishing to obtain insurance totaling \$52,500, it completed its first half century with 15,639 members and with total insurance in force amounting to \$51,941,000. Its experience provides an example of the value of mutual insurance and indications of the price that must be paid in integrity, good faith, and devotion of that value is to be realized."

For his 1949 case study, Dr. Farrell picked a very important one, that of rural churches. In this bulletin he picks out three churches over the state to represent his studies.

In his own words from this bulletin, "Potentially the rural church is one of the most important factors for the improvement of agriculture and rural life. Its influence affects not only the affairs and the inhabitants of the countryside but also the national welfare. Its importance is not generally given adequate recognition."

"Whether a rural church is good, bad, or indifferent, whether it is active or inactive, it exerts an influence, for good or ill, upon its immediate neighborhood and upon the general welfare. Whether the influence is beneficial or the reverse depends upon what the church does or fails to do. Even an unused church may be influential, negatively."

## Grads Must Take Advantage Of Opportunities in Kansas

By PROF. ELBERT B. MACY

Kansas must get out of the exporting business—the business of exporting our brains, our vitality, our know-how, and our educational training. We bring our children into the world, train and educate them, then send them out of the state to make their careers. Too many of them, that is.

Since the first World War more and more machinery has been used on Kansas farms, and since that time we have had a declining population in spite of a birth rate exceeding our death rate. A farmer now farms more land better and faster with much less help than he did a generation ago. Today a combine operator and truck driver replace the old time harvesting crew, threshing crew, and grain haulers. Two or three men do the work of 15 or 20. And so it goes in every farming operation.

This marginal labor naturally has left the rural areas. Our young farm people have gone to industrial centers to find work. What has this cost us? It would be difficult to set the cost of rearing and educating the hundreds of thousands of Kansans who have migrated to other states, and we haven't been getting many of their natives in return. Figure too the purchasing power and tax base the state loses when its people leave.

Is there anything wrong with Kansas? Not as a place to live. Take it from thousands who were in the armed services and had a chance to live in the North, the South and on the two coasts. Our climate gives us variety without extremes. Our topography gives us a choice of scenery from the level plains to the wooded hills. Our location in the center of the nation makes us closer

to all the places we want to visit as well as to markets for our products. We are the hub of nationwide transportation—rail, automobile, and air.

Kansas is the *safest* place to live. Roger Babson says so!

What is the answer? There are two. First, Kansas must see that her bright young people have opportunities at home to make careers. The ball is rolling now. The Kansas Industrial Development Commission was organized a few years ago with the express purpose of bringing industry to Kansas. Kansas State college collaborated with the commission in 1945 in sponsoring the First Industrial-Agricultural Week, which was a conference on the campus bringing the state's industry and agriculture into common thinking on the problem. New results show up every day.

The other answer must come from the young people themselves. *Look* for the opportunities at home. If there isn't a job left for you on the home farm, investigate first the opportunities within the state for jobs connected with agriculture, or jobs with industry related to agriculture. The taxpayers who saw you through from first grade to the end of college deserve a break. The next move is yours—if you're graduating—and let's hope it's not too far.

Encouragement of scholarship is one way in which the organization of Alpha Zeta urges freshman Aggies to step up front. This year the fraternity awarded a scholarship medal to Armin E. Grosse, a sophomore in general agriculture from Jamestown, Kans. This award was given in recognition of the lead Armin took during his freshman year as shown by his grade point average.