THE KANSAS Agricultural Student

MAY · 1941

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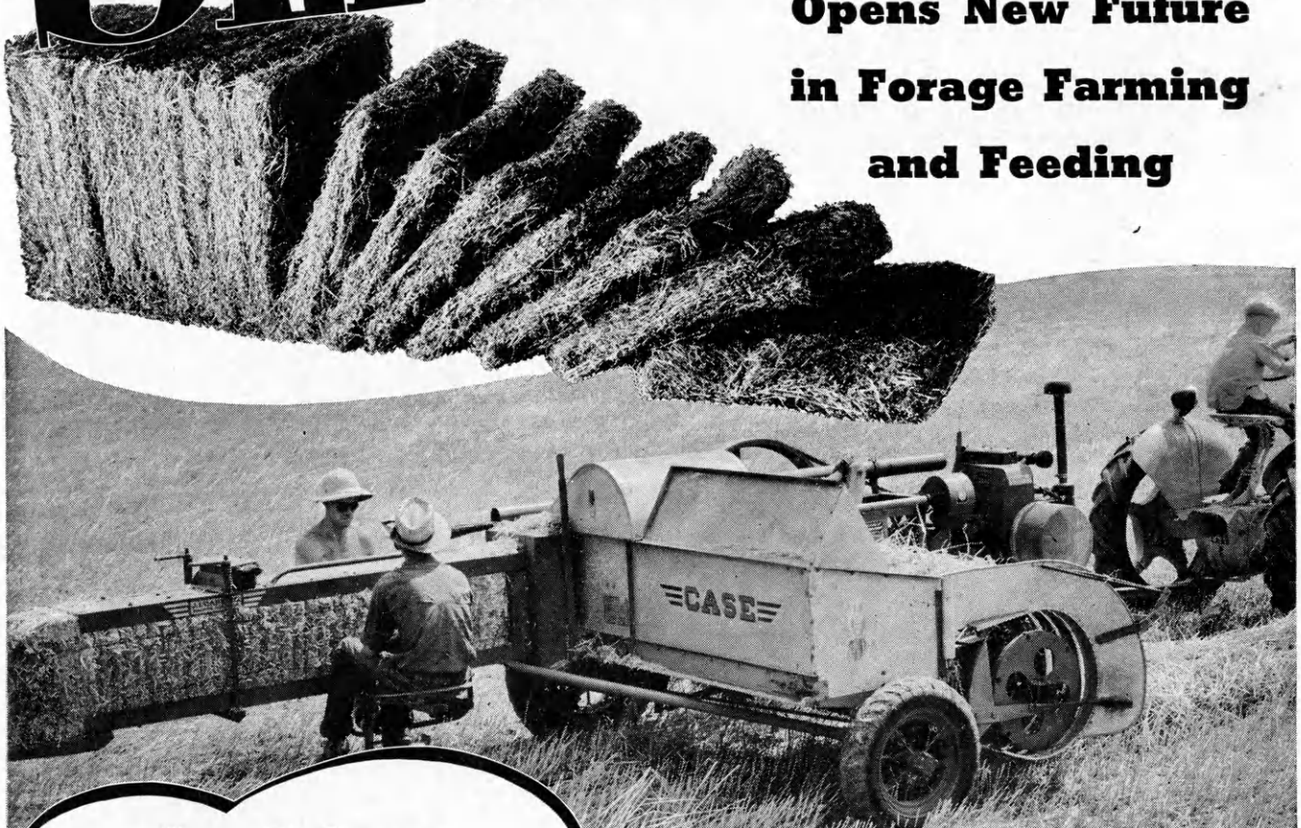
SLICED HAY

Opens New Future in Forage Farming and Feeding



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CASE

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

VOL. XX MAY, 1941 No. 4

Contents

ABOUT THE COVER PICTURE—Did you ever see such a pretty pair of horses? Oh, yes, the girl is Mary Jean Grentner, an up-and-coming journalism student. Although not particularly experienced with horses, she soon had the Farceur brothers well under control. Paul Dittemore took the picture.

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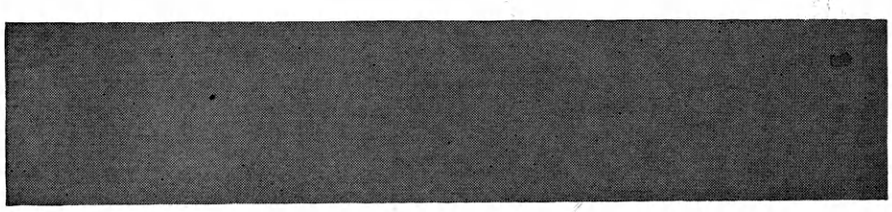

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HIGHLIGHTS OF THE ANNUAL AGRICULTURE JUDGING CONTEST

(1) New officers of the State F. F. A. are (left to right) George W. Stelter, Abilene, president; A. P. Davidson, adviser; Leonard Sharp, Great Bend, vice-president; Keith Loyd, St. Francis, reporter; Merwin Gilmore, Osborne, secretary; Lavern Oltmer, Olathe, treasurer.

(2) The four young men shown in the picture were the high individuals in the different divisions of the judging contest. They are, from left to right, Danny Zumbrunn, Chanute, Animal Husbandry; Kenneth Parker, Manhattan, Poultry; Robert Blosser, Newton, dairy husbandry; and Phillip Cooper, Chanute, Crops.

(3) The boys look over one of the cows during the dairy husbandry part of the contest. (4) A husky young blacksmith doing a welding job. (5) The Dairy Department sales counter was a busy place for two days. (6) Ralph Bonewitz listens attentively to one of the contestant's reasons for placing the cattle.

Ottawa and Downs Chapters Win F. F. A. Contest

Nearly 1200 Kansas farm boys were entertained on the campus April 28 and 29 during the twenty-first annual state high school vocational agriculture judging and farm mechanics contest.

The Ottawa High School team coached by C. O. Banta was the winner of the Agriculture contests followed by Chanute High School coached by E. L. Collins and the Manhattan team with H. L. Kugler as coach. The contest was won last year by Abilene High School. The high individual in the contest was Mervin Gilmore of the Osborne team coached by E. F. Yoxall. One hundred thirty three teams competed in this contest.

The farm mechanics contest had 83 teams entered and was won by Downs High School, Charles Mantz, coach. Second place was won by the Decatur community team coached by L. R. Chilson. Third place went to Iola coached by J. A. Watson. The high individual in this contest was Wilfred Hillstrom of the Randolph team coached by Charles Carter.

There were 46 entries in the public speaking contest. The winner, Harold Ray of Iola will represent the Kansas FFA Association in the North Central Regional public speaking contest to be held at Des Moines, Iowa in August. Second and third place winners, respectively, were Carl Wood, Abilene and Dale Watson, Mulvane.

One hundred boys were elected to the degree of State Farmer by the house of delegates. Four candidates were selected for American Farmer degrees. They are Carl Buerkens, Neodesha; Raymond Kaup, Smith Center; Grant Poole, Manhattan; and Harold McKinney, Coldwater.

The ten chapters that were judged to have planned and executed the best programs of work for the year are Chanute, Earl Collins, adviser; Great Bend, Fred Schultis, adviser; Highland Park, F. E. Carpenter, adviser, Holton, M. O. Castle, adviser; Lebanon, F. A. Blauer, adviser; Manhattan, Harold Kugler, adviser; Olathe, E. L. Raines, adviser; Shawnee Mission, H. D. Garver, adviser; Smith Center, Paul Gilpin, adviser; and Winfield, Ira Plank and John Lowe, advisers.

Dairy Products Contest Won by Wilson and Fish

Winners in judging all products in the Dairy Products contest held April 19 were Chase Wilson in the senior division and Keith Fish in the junior division. Other winners in judging all products were Charles Schwab, second, and Maynard Abrahams, third, in the senior competition. Emerson Cyphers was second and Carl Gray third in the junior class.

Individual product winners in the senior division include: Milk—Chase Wilson, Charles Baxter and Maynard Abrahams; Butter—Charles Schwab, Chase Wilson, and Maynard Abrahams; Cheese—Chase Wilson, Ed Reed, and Maynard Abrahams.

In the junior division, entered by students who have had no advanced courses in products judging, the class winners were: Milk—Keith Fish, Carl Gray, and Emerson Cyphers; Butter—Ernest Harris, Emerson Cyphers, and Howard Carnahan.—*Jim Cavanaugh.*

Ag Students Working Their Way Take Top Honors in the Division

● *All kinds of work from slinging hash to milking cows help* 450 *Ag students make an education pay for itself.*

By Oscar Norby

WORKING enough to stay in school while taking a full schedule is no bed of roses as more than one-third of the Ag students will testify. More than 200 of the 617 men in the Division of Agriculture are working their way through college in the various departments of the Division of Agriculture alone. Another 250 work outside the Division doing anything from washing dishes to working in the state highway testing laboratory.

The men who are interested enough in going to school to work their way are the ones who must make an education pay for itself. They are willing to sacrifice a "jelly date" in the afternoon and a show in the evening for a session with some more or less dry textbook or an afternoon of work.

They are the boys who hold a large percentage of the responsible positions in their departmental clubs and other clubs. Bertil Danielson, president of the Agricultural Economics club, is working his way in the Economics department. The president of the Agronomy club, Bob Wagner, works for Dr. H. H. Laude in the Agronomy department. The Dairy Club president, Dale Brown, works in the college creamery all of his spare hours. George Inskeep finds time to be president of the Block and Bridle club besides working on a livestock farm north of Manhattan. Walter Keith, president of the Horticulture club; Eugene Woolley, president of the Milling Association; and Dave Long, president of the Poultry Club, are all working their way through school in their respective departments.

They are the men who make Phi Kappa Phi, Alpha Zeta and Gamma Sigma Delta, honorary organizations for agricultural students.

In the Agronomy and Agricultural Economics departments we find the largest number working, with the Dairy department running a close third. Both the Agronomy and Agricultural Economics Departments employ approximately 50 students each the year around.

In the soils laboratory Floyd Smith tests soil samples for their chemical properties most of the time he is not in class. He is laboratory assistant for Dr. H. E. Myers and does a lot of technical work with soils.

Numerous other students hold important jobs in the Agronomy department both on the farm and in the laboratories. Paul Smith, Orville Burtis, Paul Brown, and Dick Atkins are a few of the fellows who have worked their way through college in the Agronomy Department.

Harold Fox has a desk right along with the professors in the Agricultural Economics Department on the top floor of West Ag. Harold can be found at his own desk or directing the work of several underlings on the work of analyzing the activities of the cooperative elevator and oil companies operating in Kansas.

And then if you really want to get the lowdown on yourself, just drop around and see Stan Winter, Russell Miller or Leigh Hines who work in Dean Mullen's office. They are re-

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EXPERIENCE WITH TEXT-BOOK KNOWLEDGE

The men pictured above are only a few representative examples of the many students in the Division of Agriculture who support themselves partially while attending Kansas State. Bert Gardner (upper left) works as an assistant to Prof. D. L. (Davey) Mackintosh in the meats laboratory. George Cochran (lower left) is a part-time employee of the Department of Botany. George is pictured while regulating the moisture content of a sorghum plant pot. Bert Danielson (upper right) is shown doing some drafting in the Agricultural Economics statistical laboratory. Elwin Todd (center right) works in the baking laboratory in the Department of Milling Industry. He is pictured while weighing a sample loaf of bread. Russell Miller, Frank Howard, Rush Elmore and Edwin Gordon are shown doing clerical and stenographic work in the Dean's office during registration.

Kilowatts to Kansas Farms By the R. E. A. Highlines

●*Cooperative Rural Electrification brings push-button power to Kansas farms.*

By PAUL KELLEY

NEW features are being added to Kansas rural landscapes. For miles along many country roads, glimmering copper wires are bringing power to Kansas farmers. It is the answer of agriculture in keeping its place in the sun.

It has been a well known fact that for years countries such as Denmark and Holland have been far ahead of the United States in the percentage of farms receiving electric current. In 1935 only 10 percent of farm families in United States had electricity while Denmark had 85 percent electrified.

Electricity can be an efficient tool to the modern farmer. During the past five years more farms have been electrified than in the previous fifty years. This increase has been due to government promotion by the creation of the Rural Electrification Administration, which is now a part of the United States Department of Agriculture. With the assistance of utility companies and private contractors, the job of electrifying rural America was started.

In 1934, shortly before the establishment of the REA, an estimated one-twelfth of Kansas farms had electric utility service. One year later, approximately twenty seven thousand or about one-sixth of the occupied farm homes in Kansas were receiving electric current. Kansas now ranks about thirty-fifth among the States in percentage of electrified farms.

Electricity lends itself to use on practically every type of farm, but for economic reasons it finds its best use on the well developed and diversified farm. Its successful use like any other form of power requires proper planning.

Electric lighting heads the list of uses. It is no longer necessary to read by an oil lamp, for electric illumination takes its place at the flip of a switch. Electric stoves, refrigerators, and washing machines lighten the work of the housewife. Possibly a vacuum cleaner or an electric mixer may be included in the list of labor saving devices.

Typical of the electrified farms of Kansas is that of Mr. Eli McCullough of Solomon, who has one of the best equipped Brown Swiss dairies in the state. His new barn has electric lights and an electrically operated milking machine which makes early morning milking much easier. The milk is taken directly to the milk house where it is cooled by a mechanical refrigeration unit operated by an electric motor. Running water is piped to the milk house and dairy barn from an automatic pressure pump in the basement of the home. In the milk house an electric bottle washer speeds up the task of bottle washing. A light installed on the windmill lights the entire farm yard at night.

Many farmers would landscape their farm grounds if they had a convenient source of water. Native shrubs growing in woodlots and along rivers can be used effectively, while native buffalo grass makes an ideal lawn in the western half of the state. Mr. McCullough uses his home water system to keep his shrubs and lawn green in the summer. Such electric water systems can be used with a windmill. When the wind blows which it usually does the windmill is used, otherwise the electric pump maintains the pressure in the water lines.

Since five cents worth of electricity can do as much mechanical work as one man can do in an eight hour day, it no longer pays to pump water by hand. A commercial company in cooperation with many agricultural colleges has made a study of actual installations. It was found that an average farm water system pumping two hundred seventy-five gallons of water per day cost about three cents per day to operate. This figure included depreciation, electricity, and maintenance cost.

The electrified farm shop saves many trips to the blacksmith. Paul Donmyer, who lives on a farm near Solomon, uses his shop to repair machinery on rainy days. He installed a one-third horse power electric motor on a grindstone and finds sharpening mowing machine sickles with electric power is much easier than turning the grindstone by hand. He also has a power driven drill. A forge and a fine set of tools complete the shop. All minor and some major repair jobs can be handled in Paul's shop.

Many farmers would increase their poultry flock if the hazards and work of brooding were reduced. The answer to this problem in many cases has been the electric brooder. Successful experience backed by thorough experiments under all manner of brooding conditions proves that the time and labor of brooder care can be cut in half by the use of an electric brooder.

Day in and day out, electricity is more reliable than coal or oil heat. The chances of power failure even under severe storm conditions are not great. Should the current fail temporarily, an alarm rings in the farmer's house. During these temporary emergencies the insulation of the brooder retains the body heat of the chicks and prevents chilling. Constant uniform temperature control is one of the best advantages of an electric brooder. No longer is it necessary for the farmer to inspect his brooder house several times during the night. An automatic thermostat maintains the desired temperature under varying weather conditions.

Under average operating conditions and operating in average weather conditions, it is generally estimated that the cost of electricity amounts to about one-half cent per chick per six weeks brooding season.

The intelligent use of artificial lights will increase egg production among hens or pullets during the fall and winter months. Experiments at the Kansas Agricultural Experiment Station have shown, however, that lights paid well when used on Leghorn hens, but that pullets under lights were *less* profitable on a yearly basis than those without lights. The greatest value from lights comes from a change in the distribution of egg production rather than in a greater egg yield. Production is increased during the fall and winter months when prices are higher.

High Vitamin Bread By a New Peeling Process

● *Removal of the bran coat by a flotation process makes possible a whole wheat bread with appearance and taste of white bread.*

By Ed Elling

SINCE the earliest days of modern milling the possible advantages of removing the outer coating of bran layers of the wheat kernel have been discussed seriously and with a great deal of interest by millers in all parts of the world. Wheat "peelers" or "hullers" have been a sort of an inventor's dream for many years. Practical millers have never been in agreement that the removal of the bran coats from the endosperm before grinding would offer any advantage over the present system of breaking the whole berry and then reducing the endosperm and separating out the particles. Nevertheless, possibilities have continued to arouse interest and there has been some apprehension among millers that the removal of the bran from the wheat kernel before it is broken might some day change the business of flour milling completely.

The peeled wheat that is being produced by a baking company in Kansas City is a step in this direction. The wheat is cleaned, while dry, in the ordinary manner. The wheat is then sent through a battery of flotation units which contain impellers and stationary paddles which cause the wheat kernels to rub against each other and the paddles, thus loosening the "beeswing" layers of the bran. Small amounts of sodium carbonate are added to the first flotation unit to control the acidity of the recirculating water solution. A small amount of pine oil is added to the flotation units to assist in the formation of air bubbles which carry the beeswing to the top of the water. The beeswing is then removed as a soggy mass which is sent to a press to recover the water solution which is then recirculated through the flotation units.

As the wheat leaves the flotation units, after a 10 minute bath, it has a moisture content of about 24%. A centrifuge reduces this to about 18% or 19%, and a further reduction to about 15% is accomplished in a drying device. From the drying unit the wheat goes to a battery of five hammer mills. These pulverize the berries, producing particles smaller than those of most whole wheat flour. The fibrous material removed from the berries amounts to about 1.9% of the total weight of the grain.

This process was discovered and patented by Theodore Earle, a mining engineer. He found that the outer layers of the bran coats of wheat, that had been left in the flotation liquid too long, had been loosened by the action of the liquid. Consequently they could be removed by agitation and floated off as a soggy mass.

This method of grinding the wheat has several advantages. The beeswing, that at present is being thrown away, may become a new material for the production of insulating material or plastics. The bread produced from wheat treated in this manner has a greater loaf volume than the ordinary whole wheat bread. The palatability of it is increased because the epidermis is removed. Ordinary whole wheat bread has a rather limited sale because it does not have the pleasing appearance and taste that white bread has. This slightly bitter taste in ordinary whole wheat bread is due to this outer semi-transparent layer of the bran.

This new bread, called "Staff," is also a cheap and convenient source of vitamins and minerals. It has been known for some time that the epidermis of wheat is of questionable value from a nutritional standpoint and that the rest of the under coats of the bran are rich in minerals and vitamins. Consequently, this bread is a good source of these diet essentials. This bread is being successfully marketed in over one hundred cities throughout the United States and is known as Earle Process Whole Wheat Bread.

Sally Rand recently lectured at the University of Wisconsin, on "The value of white space in advertising."

The Vindication Of An Old Friend

FOR years it has bothered us to understand why old Spot, who had always been such a good milker during the years that Mother had cared for her, utterly refused to give down a drop of milk when Mother was ill and Dad was forced to make one of his infrequent excursions to the barn with the milk pail. Mother would never allow Spot to be beaten, or chased by the dog. She claimed after that kind of treatment Spot "wouldn't give down her milk." Dad always contended that Spot was just a "damn stubborn female." But that explanation has failed to satisfy scientists.

Now it has been discovered by Dr. W. E. Peterson of Minnesota that the cow is a creature of habit. To upset radically those habits affects the hormones adrenalin and pitocin that regulate the milk flow.

Pressure of milk secreted by a good cow may cause her some discomfort; at least she is known to feel relieved when the milk has been removed. That may explain why old Spot always came up to the lot gate and bawled at 6 o'clock. As she plodded home from her day of gastronomic satisfaction in the pastures, her udder full of milk may have caused her some irritation, and being a creature of habit, she knew that coming home meant to be relieved. According to Doctor Peterson, when the cow has it in her head that it is milking time, a hormone commercially called pitocin is released into the blood stream, which causes a concentration of the smooth muscles of the udder, allowing the milk to flow. Muscles of the udder may be so contracted that milk will even drip from the teats.

For the same reason when the cow comes into the familiar stall, is handled carefully by the same milker, and the feed is placed before her at the usual time, she arrives at the conclusion by whatever mental process she is capable that it is milking time, and accordingly pitocin is released into the blood. Student milkers at the college dairy barn have lived in fear since Prof. Glenn Beck injected pitocin into cows' udders immediately after they had been milked, and obtained more than five pounds of milk. It can be used as a check to see which

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From Hawaii to Kansas State For an Education in Agriculture

● *Prospective Hawaiian student tells of agriculture in the "Paradise of the Pacific."*

By HOOSAKU FURUMOTO

I AM a prospective student of Kansas State College responding to your hospitality. Last November, when I was a delegate and orator for the Hawaiian Association of Future Farmers of America, I stopped at Manhattan and visited the college. Your institution's fine appearance and adequate facilities for practical experimentation have attracted me immensely. The visit has created a determination to return some day and study at your institution.

My observations on the mainland persuade me that for sound, practical knowledge, education in a mainland institution is essential.

The office of the Dean of Agriculture has been a very influential factor in the outcome of my decision. I met Professor Mullen at the Alpha Zeta banquet, and have consulted him on matters regarding college work. He, in turn, has asked me to write an article on Hawaiian agriculture for *The Kansas Agricultural Student.*

The Hawaiian Islands, an archipelago inhabited by practically all the racial groups of the world, has a unique civilization. Immigrants from the "four corners" of the world gathered here to seek a better livelihood, and brought with them the customs and traditions of their mother country. With the existence of the American ideals of government, Hawaii has become the "melting pot" of the cultures characteristic of each race and nationality. Even our agriculture is a composite of old and new, the Oriental and Occidental.

Ranching is one of our most important industries in Hawaii, in spite of the common belief that Hawaii is a land of pineapples, sugar cane and sandy beaches. Most of the ranching is practiced on the high slopes far above the plantations. Napier grass is our most important forage grass as well as a valuable pasture and range grass.

The high mountain ranges of many of the ranches in Hawaii are capable of carrying large numbers of breeder cattle; the natural fattening ranges are often inadequate, and byproducts of sugar cane and pineapple mills are used in fattening the cattle. Cane bagasse, cane molasses, pineapple bran, copra, and molasses yeast are fed to feeder cattle and also largely to the dairy cattle on the Islands. Kansas may have had cowboys before Hawaii did, but they certainly never had more difficult terrain to herd the cows over. A horse is a necessity in the mountain range country. We also have large numbers of hogs that are fattened on pineapple sirup, cane molasses, barley, and tuna-fish meal.

It would be impossible to speak of our "Paradise of the Pacific" without mentioning our pineapple plantations, the extensive sugar cane fields, the truck crops of asparagus, tomatoes, celery, cauliflower, potatoes and our Macadamia nuts and papaya fruit. Some of these products may not be familiar to you in Kansas, but to us they are staple crops and form an important part of our diet.

From the mainland universities we have copied the idea of experiment stations; the Hawaii Agricultural Experiment Station is at Honolulu, and there are branch stations or substations at Haleakala, Olinda, Kona, and Poamoho. Because we have borrowed freely from everyone who had anything to offer, an American civilization distinctly different from the typical American civilization has been created in Hawaii. Although the social, economic, political and agricultural aspects of Hawaii are basically American in nature, they are not replicas of a typical American society.

Manhattan, a town of attractive homes, peaceful, friendly people, churches, parks, and schools—a setting which carries out the ideals of Americanism which I learned in my history classes, has appealed to me as typically American. This is the America which I have admired and wish to know more about. I shall willingly give up my living in the "Paradise of the Pacific" to go there for the education I so much desire.

Undoubtedly there are certain duties and responsibilities which are required of every student. I shall do my utmost in all my endeavors to uphold the high standards of your institution.

Jim Cavanaugh walks cautiously these days past Paul Dittemore's office. It seems that Paul gave Jim an excuse from a couple of classes to attend a milk inspection trip in Oklahoma. All was well until later in the week when Paul read that "among those present at the Oklahoma Farm House formal party was James Cavanaugh of Manhattan."

Kapalala ranch cowboys busy cutting out steers on a ranch high in the rugged range country. (Cut courtesy The Hawaii Agricultural Experiment Station, Honolulu, T. H.)

The Probable Future of Hybrid Corn in Kansas

● Hybrid corn cannot be regarded as a cure-all, but will probably be an important factor in Kansas agriculture.

By PAUL SMITH

SIMULTANEOUSLY with the arrival of white men in America, attempts were made to increase the yields of corn. Beginning with the old custom acquired from the Indians of putting fish in the hills, agricultural history has recorded favorable progress toward this end by soil improvement, special machinery and corn breeding. It is the new developments in this latter method which now command the attention of corn breeders throughout the nation. The most recent contribution toward increased corn yields has been the development of high yielding corn hybrids.

The discovery of the possibilities of producing hybrid corn by inbreeding and then recombining unrelated inbred lines in 1905 by G. H. Shull and the publication of his results in 1908 and 1909 marked the beginning of modern corn breeding. Since the adoption of extensive corn breeding programs by the various state experiment stations in 1920, the importance of corn hybrids has grown steadily. Eighty-eight percent of Iowa's corn acreage in 1940 was planted to hybrids and there is evidence of a still greater increase next year. Hybrid corn acreages were only slightly less in other important Corn Belt states.

Kansas is thought of as the great wheat producing state or may be thought of by some as being important primarily from the standpoint of sorghum production; however Kansas is also an important unit of the Corn Belt. The percentage of corn acreage devoted to the growing of hybrids in Kansas increased from three percent in 1938 to eight percent in 1940, representing an increase of approximately 170,000 acres. This may appear insignificant in comparison to other Corn Belt states, but it should be kept in mind that in developing hybrids adapted to Kansas conditions that will outyield the present standard open-pollinated varieties the corn breeder is confronted with a problem of great complexity. He has the task of breeding hybrids that possess a higher degree of drouth resistance than is necessary in the more important Corn Belt states. Drouth resistance is perhaps the most difficult heritable characteristic to be incorporated into a hybrid.

DROUTH RESISTANCE POSSIBLE

In spite of this handicap, corn breeders and the majority of the important corn farmers of the state believe that desirable drouth resistant hybrids can be produced. Several promising hybrids are now being raised commercially in the state and experimental tests made by the Kansas station during the last few years have shown several hybrids that are likely to prove useful. Further testing is required to establish their performance definitely.

The hybrid corn program in Kansas is steadily gaining momentum. Specific evidence of this fact is the appearance in the last few years of various programs, committees, and organizations pertaining to hybrid corn production. The inauguration in 1939 of the "Kansas corn performance tests" was an important step. These tests include adapted open-pollinated varieties and hybrids produced and distributed by federal, state, and commercial agencies. The tests are state wide; in 1939 there were 2250 entries tested in over 9,000 plots.

The formation in 1940 of the "Kansas Independent Hybrid Corn Producers" is indicative of the increased interest in corn hybrids. It is an organization of Kansas farmers interested in developing and producing hybrid seed.

Of recent origin is the hybrid corn section of the Kansas Crop Improvement Association, for the production and advertisement of commercial hybrid seed. Membership is restricted to individuals or concerns producing hybrid seed for certification in Kansas. Rules and regulations for certification in Kansas of hybrid seed corn by

(Concluded on page 85)

ALPHA ZETA'S "COUNTRY JAKES"

Above are pictured 10 of the men in the Division of Agriculture who were elected to Alpha Zeta, honorary agricultural fraternity, at the spring election of members. The men are (standing) Jim Neilson, Lyman Singer, Bill Mudge and George Wreath. Seated are Paul Kelley, Bert Gardner, Doyle LaRosh, Acton Brown, Calvin Doile and Frank Marcy.

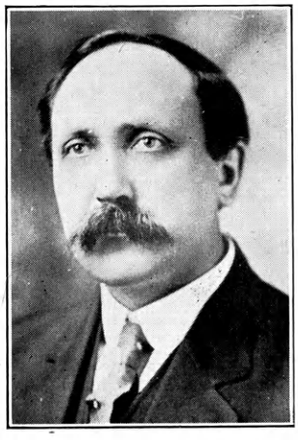
Kansas Plant Hunters "Bring 'em Back Alive"

Our native agronomists have roamed the world and brought back new crops and varieties for production here.

By J. S. WINTER

(Adapted from an article in the 29th Biennial Report of the State Board of Agriculture, by A. L. Clapp, professor of agronomy.)

A STUDY of the advancement of any country shows a strong link between the social history and the development and acquisition of more available, useful plants. Periods of exploration and expansion are usually accompanied or immediately followed by great activity in the importation of plants which are adapted to the climate of the area and needs of the people. We of North America found it necessary to import most of our useful plants, because we have no native grains of importance with the exception of corn, the Indian maize and no native fruits of importance except the plums of the upper Mississippi Valley, blackberries, raspberries and strawberries, and our strawberries in their present state came from Europe.



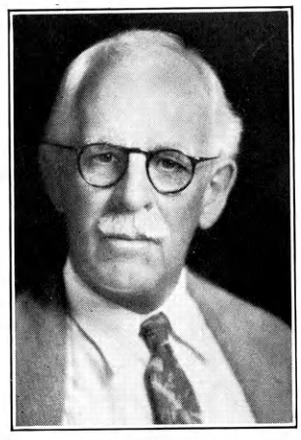
Prof. Mark A. Carleton, Kansas plant explorer. (Cut courtesy Kansas State Board of Agriculture.)

The plants which we now possess have been secured only through strenuous human effort, months or even years of hardship, and through the risk of human life. Only through importation are we able to grow and enjoy wheat, sorghums, oats, barley, rice, alfalfa, soybeans, clover, hemp, flax, cotton, sugar-cane, sugar-beets, hops, melons, apples, peaches, pears, cherries, apricots, oranges, grapefruit, lemons, dates, hard-shelled almonds, walnuts, potatoes, and hundreds of other crop plants.

It was necessary for our forefathers to provide themselves with cultivated plants not native to their adopted country. These importations were made first by immigrants and by traveling Americans sending or bringing back useful plants found in other parts of the world. The patent office was the first government agency to handle the importation and distribution of new plants. This work soon became the principal function of the patent office, consuming a large part of the time and energy of the personnel of the office.

Among the numerous men who have scoured foreign countries for plants to bring to the United States can be found many native Kansans who have played an important part in bringing back plants now important in our agriculture of today. Notable among these was Dr. David G. Fairchild who received his college training as a horticulturist at Kansas State College.

Dr. Fairchild became head of the Office of Foreign Seed and Plant Introduction and while in this office, he organized it into an active functioning service that has imported more than 100,000 specimens. Dr. Fairchild gathered dates on the banks of the Tigris, collected mango seeds from British India, and imported bamboos from Japan. All of these now are grown extensively in the more tropical parts of the United States.



Dr. David Fairchild, plant hunter and author. (Cut courtesy Kansas State Board of Agriculture.)

Another renowned Kansan, Mark A. Carleton, who was raised in Cloud County, Kansas, has erected a monument to himself through his discovery of Kharkov wheat in Russia, and Kubanka, a hardy rust-resistant durum, in Siberia. Returning to the United States, Mr. Carleton educated the farmers to the advantages of growing these wheats here in the

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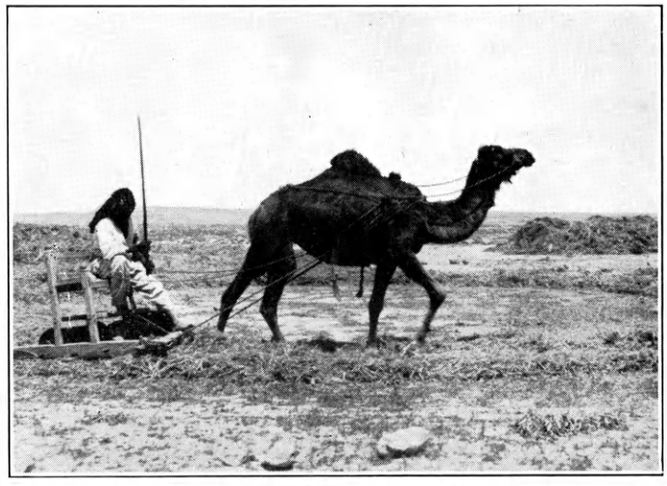


Threshing Mariout barley by camel power and drag in Abyssinia. This variety introduced by Dr. Harlan, now called Club Mariout, is a high yielding variety often grown in northwestern Kansas. (Cut courtesy Kansas State Board of Agriculture.)

Junior Livestock Judging Team Places Well at Ft. Worth Contest

First in beef cattle judging and fourth in all classes at the Ft. Worth contest is the record of this year's junior livestock judging team. The team, which competed with 19 other teams of the West and Southwest, was composed of Calvin Doile, Max Dawdy, Conrad Jackson, Jay Griffith, and Oscar Norby. Dick Wellman was alternate. The senior livestock judging team is usually chosen from this team and the team that judged at Denver. Prof. F. W. Bell is coach of all livestock judging teams.

HYBRID CORN

(Continued from page 83)

the Kansas Crop Improvement Association were established this year. Crossing fields for the production of hybrid seed inspected this year for certification totaled 143 acres.

HYBRIDS ARE REGISTERED

Kansas farmers are now protected by a hybrid seed corn law which requires that each hybrid be registered with the State Board of Agriculture before it can be sold in the state. It further provides that after a hybrid variety has been registered as developed from a certain combination, no change shall be permitted in the combination under that designation.

"One or two years' results do not prove the superiority of any hybrid. Until the local adaptation and consistent superiority of any specific hybrids have been established by careful trial through several years, it is recommended that farmers plant standard adapted varieties in their main fields and that they plant only a few acres of any definite hybrid. In fact, they might try several different hybrids on a small scale. These should all be planted on the same field under similar conditions, and the best standard or locally adapted variety should be included as a check. A farmer should insist on knowing what specific hybrid or combination he is obtaining in order that he may demand the same combination in the future in case it proves satisfactory." These are the recommendations of the Kansas Agricultural Experiment Station, to Kansas farmers regarding hybrid corn.

Hybrid corn cannot be regarded as a cure-all, but with drouth resistance definitely established, the more desirable corn hybrids will be an important factor in Kansas agriculture.

While discussing the downward trend in American population during a recent ag economics seminar, Dr. Harold Howe asked, "In view of the future situation, with the average of the people much older, what kind of business would you want to go into?"

"Undertaking," said Francis Brown.

Marcel "Pete" McVay, AH '40, is with the Cargill Grain Co. at Minneapolis.

Best movie caption of the month, seen at the State theatre:

NOT RECOMMENDED FOR CHILDREN
Free Kites

It may not be polishing, but it sure looks that way when a mob of dairy majors go to a dairy manufacturing class eating ice cream cones.

Donald Kinkaid, AA '40, is working with the Wilson Packing Co. at Kansas City.

Glenn Kruse, AA '40, is teaching vocational agriculture at St. George.

Harry Longberg, AA '40, is teaching vocational agriculture at Hoyt.

Donald McCoy, AA '40, is a graduate assistant at Iowa State College.

Delbert McCune, AA '40, is farming at Stafford.

KANSAS PLANT

(Continued from preceding page)

United States. These wheats have since increased in popularity and are grown extensively in the wheat growing sections of the United States.

Dr. Walter T. Swingle grew to manhood in Manhattan, Kansas. He also received his college training at Kansas State and has made a name for himself by bettering the quality of the dates produced in the United States. In the early 1900's he imported a number of date seedlings and cuttings which have served as the foundation stock for our present large industry.

Dr. Charles F. Swingle imported a specimen of *Euphorbia intisy,* an almost extinct rubber plant, which is now in the experimental stages in the United States.

The improvement of Kansas barley is traceable to Harry V. Harlan, another Kansas plant hunter. Dr. Harlan searched Abyssinia for a better barley to grow in the United States. He brought back several specimens, one of which is Trebi, a high yielding variety grown in the northwestern part of the state. Club Mariout, another important western barley, was also imported by Dr. Harlan. Perhaps the most important importation Dr. Harlan made is that of Lion, the smooth awn parent of Flynn. The production of Flynn is one of the greatest steps made in the improvement of Kansas barley varieties.

Dr. Silas C. Mason, one time head of the Department of Horticulture at Kansas State, also made several successful exploration trips. Dr. Mason succeeded in importing some shoots of the famous "Wahi" date, now grown in the United States.

"A Manual of Tropical and Subtropical Fruits," written by Dr. Wilson Popenoe is a very interesting and original book which discusses the fruits grown in the tropical regions. Dr. Popenoe who was raised on a farm near Topeka, has through years of work in the tropics become an authority on tropical fruits. In this book he discusses the avocado, mango, date, papaya, loquat, guava, karki, and mangosteen. Although not having made any valuable importations, Dr. Popenoe has helped greatly in enabling the people of the United States to become familiar with tropical plants.

C. R. Enlow, one of the more recent plant hunters, has also served a very important part in scouring Europe in search of new grasses, legumes and trees for use in the exhausted crop lands of the United States.

The people can well be proud of the important part that Kansas men have played in the highly interesting, very exciting, but profitable work of scouring the remote corners of the globe for better plants to be grown in the United States.

Then there is the freshman in agriculture who thought the four-times-a-semester meeting of the agricultural association that he was required to attend was called Ag Slumberhour.

Buying a Tractor To Fit the Farm Needs

●*Careful consideration must be given to cost and power needs before buying a tractor.*

By CECIL THOMPSON

BEN Franklin once wrote in his Poor Richard's Almanac that a penny saved is a penny earned. This proverb was true then and it is still true today. The farmer as well as the business man buys his equipment and supplies with this principle in mind. Large factories even employ efficiency experts whose primary responsibility is that of cutting overhead expenses.

It has often been said that the farmer is a jack-of-all-trades. Most successful farmers are also successful business men even though they may have less technical knowledge than other farmers who are less successful. Business ability becomes especially important as the farming operations become more specialized and more extensive.

An important item of expense on the average farm of today is power. Many farms are operated, in part at least, with tractor power. Since these tractors are accompanied by high yearly fuel and overhead costs, it is essential that the farmer select his tractor carefully.

USE "HORSE SENSE" IN BUYING

Many farmers buy tractors with about as much logic as they use in voting: that is, they buy one particular make and model because their neighbor bought one, or because it looks nice or sounds good. Manufacturers have found that they could increase their tractor sales by getting just the proper shade of red or by "streamlining" the fenders just a bit more. Even solid, long-headed farmers are becoming style conscious.

When purchasing a tractor we should consider very carefully our own past experience and that of our neighbors with the various tractors, but in doing so we should very carefully compare the existing conditions on our farm with those of our neighbors who own the various tractors. A tractor that has proved very practical on the 80 acre small grain farm of Bill Smith would probably be very expensive and impractical for John Douglas two miles down the road who operates a 180 acre livestock farm. Of course John Douglas might be trying to raise livestock in a community that was better adapted to small grain, but he wouldn't be helping his condition by using a tractor that was not suited to his farm.

One of the "musts" of the prospective tractor buyer is, or at least should be, Nebraska Agricultural Experiment Station Bulletin Number 325 and its accompanying summary sheet. This bulletin describes the Nebraska tractor tests and gives the specifications of the various current makes and models of tractors, while the summary sheet gives the results of the tests conducted in the past 10 years. By using what horse sense he may have, by consulting the summary sheet, and by studying the bulletin just a little, John Douglas would be fairly certain that it is Model B instead of Model C that he needs. He would probably reason that the summary sheet shows Model B to have almost a half more horse power than a Model C like Bill Smith's, and that would be enough tractor power for the 180 acres even if a team had to be used during corn plowing.

Most farmers have some vague recollection that there are Nebraska tractor tests, but they know very little about them. The Nebraska tractor test is an outgrowth of the Nebraska Tractor Law which became effective in July, 1919. The purpose of the law as stated in the above mentioned bulletin was to encourage the manufacture and sale of improved types of tractors and to contribute to a more successful use of the tractor for farming.

NEBRASKA CHECKS CLAIMS

The law provides that a stock tractor of each make and model sold in the state must be tested and passed upon by a board of three State University engineers. Anyone offering a tractor for sale in Nebraska must have a permit which is issued to the State Railway Commission after the university tests have been compared to the claims of the manufacturers. Another provision of the law is that there must be a service station with a full line of replacement parts within the state and within reasonable shipping distance.

(Concluded on following page)

William Ackley, Arthur Garvin, and Elizabeth Holman, all 1940 graduates in the Department of Horticulture, are now employed as clerks with the Bureau of Census at Washington, D. C.

Testing a rubber tired tractor for fuel consumption, rolling resistance, and traction. The results of this test by the department of agricultural engineering can be used in determining the size of power unit needed on certain jobs.

Foul Fishy Flavor In Storage Fowls

By DAVE LONG

THE problem of flavor rancidity of broilers held in storage is being investigated by Dr. R. M. Conrad, assistant professor in poultry chemistry.

It has been observed by the large poultry packers that there is a difference in the quality of poultry carcasses after a storage period. Some of the birds develop a rancid or fishy flavor after being stored under different conditions. The seriousness of this rancidity seems to vary with the area in which the birds are produced. The best birds or the ones with the best keeping quality, seem to be from regions where more grain is fed and where little fish meal is present.

It is a known fact that birds fed fish oil are more susceptible to oxidation and rancidity than those fed on higher grain rations. It is also suspected that the feeding of fish oil is laid down directly in the carcass fat and that this fat then has the ability to cause rapid oxidation. Since more poultry is being viscerated in packing plants there have been more fishy flavors developed, because in this condition oxidation is favorably influenced.

The problem which is being carried on at the poultry farm is the first work of its kind in this part of the country. The birds are being raised in new combination brooder and range houses and the raising of them is in charge of Professor L. F. Payne, head of the poultry husbandry department.

Two lots of birds are being fed identical rations except that one lot has no fish meal, meat meal, or soybean meal present in the ration. The other lot is being fed these supplements which have been extracted by ether in place of the oil feeds. The diet otherwise consists of a large amount of grain and the fat stored in the body is mainly from corn and wheat. They are fed no cod liver oil and are fed a vitamin D supplement instead.

The birds are to be fed for 14 weeks and are then to be killed, dressed, and stored in six different methods and packing. They are to be stored for periods of 3, 6, 9, 12, 15, and 18 months and at these periods, samples will be cooked and tasted by a tasting committee which is under the direction of Dr. Vail of the Home Economics department. The rest of the carcass will be analyzed as to fatty tissue of the skin and inside the body for the purpose of determining the storage effects.

If the cause of rancid flavors is discovered and remedied as a result of this problem, the packer will be able to handle more poultry and thus increase the trade and consumption of dressed poultry.

DAM EVERYTHING

If you would save your land from drouth,
Dam it east and west and north and south,
Dam road ditches and dam the drains,
Dam the valleys and save the plains.

Dam the fields with contour farming;
Dam the dust-bowl and make it charming.
Dam the holes and dam the hills;
Dam the rivers and dam the rills.

Dam everything, draining the water away,
And dam and dam till the waters stay.
To grow better crops and hold the land,
Thus saving our birthright, the prairie grand;
Dam the mortgage and dam the rent,
Time spent on dams is damn-well spent.
Save the water to grow more trees,
That they in turn may dam the breeze
Which lifts your topsoil high in air,
Leaving only the mortgage there.
To raise the underflow, it takes
Many a pond and many lakes.
But when the underflow we raise,
The roots of grass, of corn, or maize,
Of all things green will drink and grow
From out the wondrous underflow.
For it is life to great and small,
So save the water and you save all.
Damn it all, let's dam our draws,
And so conform to Nature's laws.

—C. N. Constable.

BUYING A TRACTOR

(Continued from preceding page)

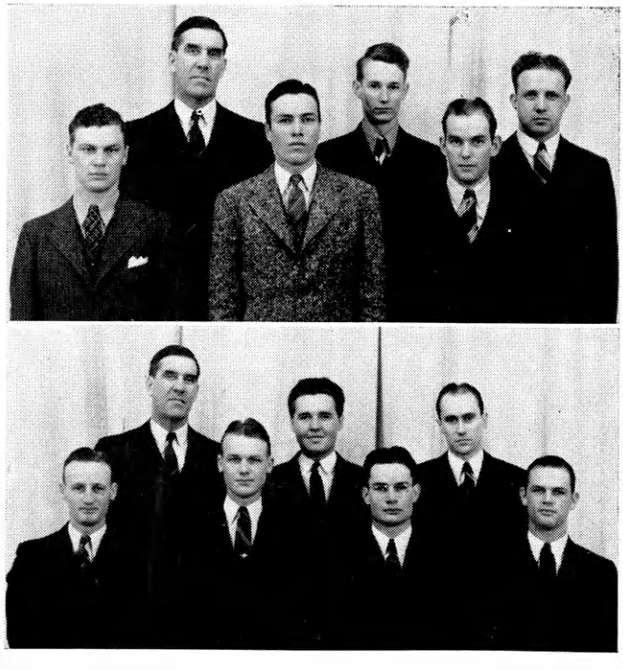
The Nebraska tractor tests have been and will probably continue to be of valuable service to the farmers of the country. They furnish an impartial testing service, the results of which are available to everyone. In this way they help to curb unjustified claims of the manufacturers and keep up the uniform quality of the tractors as well as to educate the farmers.

In the 20 years since these tests began over 325 tests have been conducted and reported. Since 1928 all tests have been made with the "one carburetor setting": that is, the carburetor setting is not changed from the time the test is started until it is ended. In all instances the lowest grade fuel that is recommended for use in the tractor is used in the test. High test fuels are used only in those tractors whose manufacturers recommend the use of no lower grade fuels.

When a farmer buys a tractor, he must consider the size, weight, speed, horse power, initial cost, fuel and oil consumption, and many other points about the tractor, and he must consider the adaptation of these points to his own individual conditions. And if he saves a couple of hundred dollars per year on his tractor expense, he'll probably waste it for something else.—*The Purdue Agriculturist.*

JUNIOR LIVESTOCK JUDGES

These men, pictured with their coach, Prof. F. W. Bell, made up the Denver and the Fort Worth Junior Livestock Judging teams. The Denver team (above) included Bert Danielson, George Wreath, Dean Weckman, Harold Peterson and Frank Marcy. The Fort Worth team, shown below, had as members Calvin Doile, Conrad Jackson, Dick Wellman, Jay Griffith, Max Dawdy and Oscar Norby. The Denver team placed fourth in the National Western contest and the Fort Worth team placed fourth in the contest there.



Next Agricultural Development Toward Grassland Farming

● *The new step is a change from cash grain to a general type of farming which will mean a greater acreage used for grass production.*

By BOYD MCCUNE

"FARMERS must be able to see the value of grass in the farm program before they will be willing to devote an appreciable part of their acreage to its production" stated Prof. R. I. Throckmorton at the last meeting of the State Board of Agriculture. He pointed out that at the present time most of the farmers of Kansas are conscious of the value of grass for erosion control and water conservation, but they are not sufficiently grass minded to give serious consideration to the value of grass as an economic crop.

The agriculture of Kansas has changed in the past and it has now reached another stage in its development. The first agriculture of Kansas was based upon grazing. The early settlers of the state were mainly ranchers and persons engaged in the livestock industry.

The passing of the homestead acts changed much of this to a more general type of agriculture because most of the settlers attempted to follow the same type of agriculture they had practiced at their old homes farther east. The resulting type of general agriculture, with livestock being dominant in certain regions, continued for many years.

The high wheat prices and increased demand for wheat that resulted from the first World War brought on another change in Kansas agriculture. Land speculation and the introduction of power farm machinery brought on the wheat boom and resulted in the plowing of hundreds of thousands of acres of land that should have been left in grass. Thus the change to cash grain crop production was brought about.

Quoting Throckmorton, "The type of agriculture which has endured in the older sections of the world has not been that of grain production but a type based upon grass and the proper use of grass. Some of the most agriculturally stable sections of the world today are those sections where grass is the backbone of the agricultural enterprises. In general those farmers who have financially survived the last ten years of agricultural adversity most successfully have been practicing some type of grassland agriculture and have not depended on cash crops alone for their income.

"The term 'grassland agriculture' does not necessarily mean the use of land for grass alone, although under certain conditions land may be used more economically for grass than for any other crop. Grassland agriculture means a type of agriculture in which grass has a definite place in the cropping system of the cultivated land and in which land not in cultivation of trees will be used permanently for grass production.

"Many phases of the present agricultural programs take into consideration the relation of grass to a sound agriculture. The program of the Agricultural Adjustment Administration makes provision for returning land to grass and provides penalties for breaking grass land in some areas. The program of the Soil Conservation Service stresses the use of grass and in some regions has been responsible for returning large tracts of land to grass.

"Much of the interest in seeding land to grass that has been aroused by the programs of the Soil Conservation Service, the Agricultural Adjustment Administration, and state agencies has been related to the use of grass for the protection of watersheds, the control of erosion by wind and water, and as a means of water conservation. These uses of grass are excellent and the value of grass for such purposes cannot be over-estimated. However, the extent to which land will be reseeded to grass will be determined by its economic value on the farm.

"All of the changes that have taken place in Kansas agriculture during the last quarter of a century as a result of changing economic conditions and the drought period of the past ten years have had a tendency to decrease the acreage of grass land and in general to decrease the grass cover and producing capacity of the land that has remained in grass. A decrease in the grass acreage has led to prematurely early grazing, over-grazing, and other forms of abuse of the remaining grass land.

"The value of the grass of Kansas was not appreciated by most farmers until the period of drought and high temperatures of the thirties threatened to destroy this natural cover. Previous to that period most of the grassland received little or no attention. Grass was taken for granted.

"The agricultural adjustments that apparently must take place to meet the changing world economic conditions will, according to the best authorities, lead to a marked decrease in the acreage devoted to corn and wheat because there will not be adequate markets to absorb the quantity of these two important grain crops that can be produced on the land now used for them. These authorities also point out that the production of beef, wool, and dairy products may well be increased. The economic production of these products means more land devoted to grass.

"It has been estimated that there are about six million acres of land in cultivation in the Great Plains that should be returned to grass. It is my opinion that this estimate is low and that Kansas alone has three million acres under cultivation that should be returned to grass to provide adequate grazing for the livestock which should be maintained. It is evident that the farmers of the state are well aware of the necessity of returning much cultivated land to grass because the reports of County Planning Committees stress this need.

"Thus it seems that the agriculture of Kansas is ready to take the next step in its development and change from a cash grain type to a general type of farming which will mean a greater acreage being used for grass production."

The world's meanest professor has been discovered right here on our campus. He gave a no-cut quiz at four o'clock Thursday p. m. before Easter vacation began.

Coeds Show Good Taste In Dairy Products Judging

Enticed by the thought of plenty of free ice cream, 32 college coeds entered the first annual dairy products contest for girls, held Saturday, April 26. Much to their surprise they also had to sample rancid butter, warm feedy milk, off flavored cheese, and ice cream that was sandy and highly flavored.

The expressions of the contestants as they tasted some of the off flavored samples could hardly be described by words; but when the girls came to a good sample of ice cream or cheese, the sample was soon eaten.

It was rumored that some of the girls entered the contest just to impress the eligible men on the campus with their good food choosing abilities. In turn there was a large turnout of boys to see the prize winning girls make their appearance at Dairy Club meeting to receive their awards.

This contest was sponsored by the Dairy Club as a starting movement towards eventually trying to establish a women's Dairy Products judging team similar to the women's meats judging team.

Miss Adaline Poole, Manhattan, sophomore in the division of home economics was the grand winner in judging all products. She received a Sheaffer pen and pencil set for winning the contest.

Other winners in judging all products in the contest were: second, Drusilla Norby, Pratt; third, Jean Alford, Kansas City, Mo.; fourth, Helen Woodard, Topeka; and fifth, Mary Olson, Dwight. Winners in judging individual products were: Milk, Adaline Poole; Ice Cream, Jeanne Stephenson, Larned; Butter, Adaline Poole; and Cheese, Drusilla Norby.

Professor W. H. Martin, of the Department of Dairy Husbandry, gave a talk on judging and explained the use of the score sheets to the girls before the contest. Each girl was permitted to use a prepared list of instructions during the contest. Professor Martin also served as the official judge.

—Jim Cavanaugh.

Where This Year's Grads Are Going

As graduation looms ahead, this year's seniors begin to search for positions to apply their four years training. The activities of many students will be planned for at least one year. Some will go to the army as privates, and others as second lieutenants.

Six seniors have chosen to continue their education and work for a masters degree. Richard Atkins, an Alpha Zeta man in agronomy, has an assistantship in oats breeding work at Iowa State College. Merton Badenhop, an Alpha Zeta member, has a graduate assistantship in Ag Economics at Louisiana State University. George Cochran, an AZ man in Horticulture has accepted an assistantship in plant pathology at Kansas State. Lloyd Jones, an AZ member from the agronomy department, has a graduate assistantship at North Carolina State College and will work on grass breeding. Paul Sanford, an AZ man who has been on the poultry judging team, chose a graduate assistantship in poultry nutrition at Iowa State College at Ames. Henry Smies, agronomy, will have the obligation of keeping a watchful eye on Lloyd Jones at North Carolina. Henry also has a graduate assistantship there. Rumors have been circulating as to what these boys expect to find down south.

Vocational ag teaching seems to be quite popular as four seniors now have schools and others expect to be placed soon. Wayne Colle, who was on last year's livestock judging team, will teach at Denison. Doyle LaRosh, who was recently elected to AZ and is past president of Wesley Foundation, will be located at Mulvane. Ray Morrison, who was on last year's winning poultry judging team, will teach at Alma. James Peddicord, an AZ man, will take over the duties of vocational ag teacher at Hanover.

The milling department has placed about all their graduates. Willard Meinecke, AZ member, has a position with General Mills at Oklahoma City, Okla. William Briggs will be with the Quaker Oats Company but he is not sure where he will be located. Wayne Deaver will be with the Farm Service of General Mills at Columbus, Ohio. John Geddis is with General Mills at Chicago. Robert Jones has accepted a position with the Standard Milling Company at Kansas City, Kansas. Ted Stivers, Kansas State's milling student from Georgia, will be with Quaker Oats Company at St. Joseph, Mo.

Several men have chosen to go back to the farm in preference to other types of work. These men will be the progressive farmers in years to come. Arden Reiman, AZ man of the agronomy department, will farm at Byers. Eugene Fair, football star, AZ, and SGA man, will be located at Alden. Roscoe Long, agronomy, plans to farm at Drexel, Mo. Ed Betz, AA, will go back to the farm at Enterprise, Kansas. Dewit Ahlerich, AA, will farm at Winfield, Kansas. Byron Wilson, from Manhattan, plans to farm provided "Uncle Sam" does not decide that his services are needed in the army. Lloyd Orrell, agronomy, plans to farm at Peck. Herbert Johnson, agronomy, will farm at his home at Macksville.

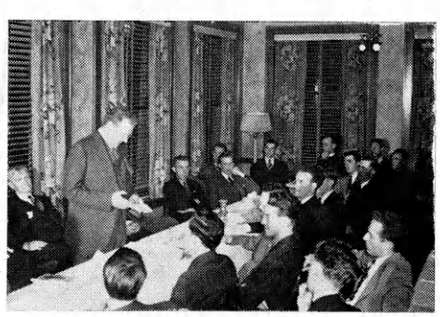
Eugene Watson, AZ member from AH department, member of the livestock judging team, and member of Who's Who in American Colleges and Universities, has accepted the position of Rice county 4-H Club agent at Lyons, Kansas.

Paul Smith, AZ man in agronomy, has decided that the marines was more in his line than the infantry. He will be with the U. S. Marine Officers Training Corps at Quantico, Virginia.

The following men have taken the

(Continued on page 90)

AT THE ALPHA MU BANQUET



Alpha Mu, honorary milling industry fraternity, hears what Edgar S. Miller, editor of *Milling Production,* has to tell them. Alpha Mu's annual banquet was held at the Gillett hotel last month.

Chemical Warfare on Flour Mill Insect Pests

● A perennial problem affecting millers is the controlling of serious insect pests.

By Ed Elling

THE losses caused by insects injurious to stored grain and milled products are tremendous. It is estimated that in the United States these losses represent about $250,000,000 annually or about 5 percent of the total value of the products. This does not take into consideration the reputations of the milling company, the flour broker, and the baker, which suffer when their well-established brands of products are damaged by the presence of insects. People just don't like to find bugs in their flour, so they return the flour to the store from which they got it. This may seem insignificant but when it happens on a large scale it costs the miller in time and money. If the flour is shipped from the mill in a boxcar that is infested with insects, by the time the baker or retail grocer gets the flour it will be full of bugs. So he sends it back to the mill where it is necessary to resift it and sack it up again.

Both the wheat and the flour are attacked by a wide variety of insects, but only a few of them can be considered as major pests. The confused flour beetle, the rust-red flour beetle, and the Mediterranean flour moth are the most serious pests of flour mills in the United States. Other pests causing considerable trouble in flour mills are the cadelle, the Indian meal moth, the black carpet beetle, the saw-toothed grain beetle, and the flat grain beetle.

The confused flour beetle and the rust-red flour beetle are the most difficult to control of the insects found in flour mills. They get into all parts of the milling machinery and are the insects most commonly found in flour after it leaves the mill. The Mediterranean flour moth was formerly the most troublesome pest of flour mills. The larvae spin silken threads wherever they go, webbing and matting the flour particles together until the machinery becomes so clogged that the operation of the mill is seriously impeded. The Indian meal moth is seldom a pest of milling machinery. It is most commonly found in packages of whole-wheat and graham flour. The cadelle is sometimes called the "bolting cloth beetle", because of its habit of cutting the silk cloths in bolting reels and redressing machines. The black carpet beetle, the saw-toothed grain beetle, the flat grain beetle, and cockroaches are also common pests of flour mills. The presence of these insects is undesirable but the amount of damage that they do to wheat products is not significant.

All these pests may be controlled by the proper gas fumigant.

For the fumigation of mills there is no more efficient gas than hydrocyanic acid. It is relatively inexpensive, kills with great rapidity and, although fatal to human life, can be handled with reasonable safety by experienced men. It can be used in all types of mills and is harmless to flour-mill products, as used in ordinary mill fumigation. Hydrocyanic acid gas is commonly produced in four ways, by the liquid method, the barrel or pot method, the calcium cyanide method, the discoid method.

In the liquid method the gas is pumped from cylinders that are placed just outside of the building, into pipes that are equipped with spray nozzles. These pipes carry the gas to all parts of the mill.

By the barrel or pot method the gas is generated inside the building. This is accomplished by placing generators on all of the floors that are being fumigated. These generators consist of barrels or containers of dilute acid into which sodium cyanide is dropped.

The calcium cyanide method consists of spreading calcium cyanide on the floor of the building. It then combines with the moisture in the air to form hydrocyanic acid gas. The discoid method consists of spreading discoids on the floor of the building. These discoids consist of an absorbent material saturated with liquid hydrocyanic acid gas.

If chloropicrin, a war gas, is used it is sprinkled in and about the machinery in the mill. Regardless of the fumigant or method used, all persons engaged in the fumigation must wear gas masks.

PREACHING THE "GOSPEL"

Marco Morrow, assistant publisher of the Capper Publications, caught in a characteristic pose as he gave the principal talk at the annual Alpha Zeta dinner-dance this spring.

AG GRADUATES

(Continued from page 89)

advanced course in ROTC and expect to be called to active service soon after graduation: Paul Brown, Albert Praeger, Boyd McCune, Cecil Wenkheimer, Robert Wells, David Crews, Jack Haymaker, and Carlyle Woelfer.

Probably many of the graduates will be called to service as privates. Bill Winner and Stan Winter expect to be called soon after school is out. Bill was on last year's poultry judging team and Stan was on the livestock judging team.

This is not a complete list, but it includes all the information that could be gathered and probably is a good average of what the graduates will be doing. With conditions as uncertain as they are at present, these plans may be changed if it is decided that more men are needed for national defense.—*Bob Singleton.*

Elmer Heyne, Junior Agronomist, U. S. D. A., is the proud father of an eight pound boy, George Francis, born May 4 at St. Mary's Hospital—Mother and son reported doing fine. Father has bought second box of cigars.

Cliff Jackson, Ag Economist of last year, is a flier with the naval air station at Pensacola, Fla.

Alumni Notes

Ralph Boehner, AA '40, is teaching vocational agriculture at Ford.

Jack Bozarth, AA '40, has gone back to his parents' farm at Liberal.

Ormond Breeden, AA '40, is teaching vocational agriculture at Kismet.

Leo Brenner is teaching vocational agriculture at Holcomb. Leo graduated last spring in ag administration.

Allen Clark, AA '40, is County Supervisor for the Farm Security Administration at Phillipsburg.

Thaine Clark, AA '40, has gone back to his parents' farm at Concordia.

Aaron Schmidt, AA '40, is a graduate assistant at the University of Tennessee.

Frances Shoup, AA '40, is teaching vocational agriculture at Harveyville.

Allen Starosta, AA '40, is teaching vocational agriculture at Halstead.

Jacob Straub, AA '40, is teaching vocational agriculture at Council Grove.

"CARDS WERE PLAYED. . ."

Seniors in the Department of Agricultural Economics try their best Culbertson bridge technique at the annual party for Ag Ec seniors, given by Dr. and Mrs. W. E. Grimes.

WORKING THROUGH SCHOOL

(Continued from page 79)

sponsible for recording the flunk slips and skips or absences, and the various other records that are kept in the Dean's office. They are practically landmarks in that office to most of the students in school now.

Charles Adams has lived out at the livestock barns and fed cattle and horses for four years but even then he found time enough to be on the Student Council for the past year.

Just over the hill to the west are the dairy barns where many boys have lived and worked their way through college and drank grade A milk to keep healthy. Walter Robinson milks cows and washes pails at all hours of the day. In charge of many of the feeding experiments is Bill Mudge, who also stays at the barns.

Helping to cultivate the apple orchards and investigating and testing new varieties of apples and other fruits for the Horticulture Department are Ronald Campbell, Walter Keith, George Cochran, and several others.

At the college creamery another group of dairy students make ice cream, bottle milk, and do the other things necessary to produce grade A milk. Tommy Benton, Hiram Mussett, and Jim Cavanaugh are a few of the men who spend several hours daily washing bottles, scrubbing floors and helping take care of the milk.

One of the groups which has become well known on the campus are the boys at the "Chicken Roost" on the poultry farm. There where all the boys are poultry majors, nine boys live, work, eat, and study if they have any time left. They are an industrious group of hard working fellows. Paul Sanford, Dave Long and Wilbert Greer are three of the men who have lived there longest. Much of the experimental work carried on by the Poultry Department is taken care of by those men.

Several of the campus gang are Ags, most of them N. Y. A. students. They may be seen almost any time of the year planting or cultivating or at work in many ways on the campus.

For the past several years N. Y. A. has been the source of work for nearly all freshmen. Lucky indeed is the freshman who can get work other than N. Y. A. Not being known by the professors, he will find it difficult to get departmental work. By working at a job as an N. Y. A. assistant, he is able to gain the confidence of the professors and when the older students graduate he naturally fills the vacancy.

So eager are the students to work, there are always 10 or more upper classmen ready to snap up any job which opens up. Knowing the older students, the men who hire help will nearly always take the ones who have been here longest.

In the library Ragan Brown, Lyman Singer, Glenn Busset and Kenneth Kirkpatrick spend many hours each week checking books to students and making themselves generally useful.

At the various fraternity and sorority houses, rooming houses, College Cafeteria and boarding houses boys sling hash and scrub dishes and floors for their meals to help reduce their school expenses.

Vernon Geissler, Orville Harold and a few others have been fortunate enough to get part-time employment at grocery stores and dry goods stores in Manhattan.

At least one Ag student, Wilbur Kraisinger, has become politician enough to bet a lot of the engineers out of a state job in the state highway testing laboratory, when he was chosen from an application list of about 250 last fall.

The custodian force, with its so-called "graveyard shift" of 8 to 12 p. m. has furnished employment for several Ags. One Ag set himself up as a garden specialist, and received 50 cents per hour for trimming shrubbery and planning gardens. Raymond Topham sold tickets at a local theatre, and two other boys as "swampers" at an Aggieville cafe. The statement made by one Ag that anyone could get a job at Kansas State if he really wanted it seems to be proved by these examples of boys working through college.

Abt, Cavanaugh Best Dairy Cattle Judges

Roman Abt, freshman dairy student from Medicine Lodge and Jim Cavanaugh, junior in dairy husbandry from Dodge City, were winners in the junior and senior divisions, respectively, of the annual student Dairy Cattle Judging Contest held Saturday afternoon, April 26, in the Livestock Pavilion. There were 53 contestants in the junior division and 23 in the senior competition.

In both divisions, eight classes of cattle were judged with the seniors giving oral reasons on four classes and the juniors writing reasons on two classes. The official judges for the contest were: Ayrshires, J. W. Linn, extension dairyman; Guernseys, Dr. L. O. Gilmore, extension dairyman; Holsteins, E. A. Dawdy, fieldman for the Holstein-Friesian Association of America; and Jerseys, Prof. F. W. Atkeson, head of the Department of Dairy Husbandry.

Prizes which totaled $135.00 were awarded to the winners at the Dairy Club meeting on Tuesday, April 29. Abt received $10.00 in cash and Cavanaugh a pair of Stewart Clipmasters for winning their divisions. Other winners in judging all classes were: Senior division (ten prizes awarded), Merrill Abrahams, John Weir, Freeman Biery, Maynard Abrahams, William Mudge, Bernard Fickel, Conrad Jackson, William Hardy, and Ralph Bonewitz; junior division, Dale Bowyer, James Nielson, John McCall, Roy W. Beem, Harold Riley, Vernon Heitman, Jay Griffith, Roscoe Long, Max Miller, Lester Stewart, Kenneth Bowers, Eugene Kimple, Robert Wagner, and Harold Peterson.

The individual breed winners were: (senior division) Ayrshires—Bernard Fickel, Jim Cavanaugh, and Joseph Rogers; Guernseys—Jim Cavanaugh, William Hardy, and Roger Phillips; Jerseys—Ralph Bonewitz, John Weir, and Walter Lukens; Holsteins—Conrad Jackson, Jim Cavanaugh, and Roger Phillips; (junior division) Ayrshires—Max Benne, Roy Beem, and Dale Bowyer; Guernseys—Vernon Heitman, Roscoe Long, and Harold Riley; Jerseys—Jay Griffith, Harold Riley, and Roman Abt. Holsteins—James Nielson, Roscoe Long, and Max Miller.

Farm Boys Make Good When Honor Societies Elect

The various honor societies mean little to the average freshman student. The Greek letters confuse him, and the purposes of the organization are vague to him. But by the time he becomes a sophomore or junior, he realizes the value and purpose of the societies, and usually makes an effort to become eligible for election. In the Division of Agriculture, election to Alpha Zeta probably means more to the student than do the other honorary organizations. Not only must his grades be acceptable, but his personality, character, leadership and ability are considered before election.

In the spring elections, 13 students were accepted to membership in Alpha Zeta. The men elected were Acton Brown, Calvin Doile, Bert Gardner, Paul Kelley, Doyle LaRosh, Frank Marcy, Bill Mudge, Roger Murphy, Jim Neilson, Ethan Potter, Lyman Singer, Eugene Woolley, and George Wreath. Dr. W. F. Pickett was elected honorary member.

Phi Kappa Phi, the all-College honorary scholastic society probably is a close second to Alpha Zeta in the desires of the agricultural student, probably because of the high grade average required. Only those in the upper 10 percent of the class are eligible for election to this honor society. Seven ag students were elected in the fall election. These men, representing about the upper five percent, were Jim Booth, Glenn Busset, George Cochran, Emerson Cyphers, Lloyd Jones, Boyd McCune, and Henry Smies. Recently honored in the spring election were Leland Groff, Doyle LaRosh, Orville Love, Arden Reiman, Frank Slead, Paul Smith, John S. Winter, and Eugene Woolley.

The honor society of agriculture, limited to the seniors and graduate students of the division, is Gamma Sigma Delta. Men are selected from the upper 25 percent scholastically, and election is made from the upper 15 percent. In addition to the above-

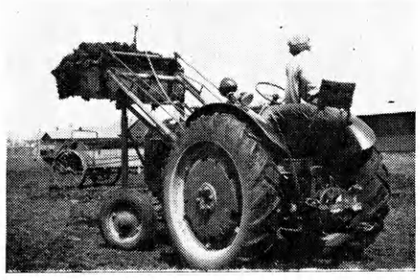
(Concluded on following page)

Taking the Dirt Out of Dirt Farming

Another machine has been devised which ought to go a long way toward keeping the boys down on the farm. Any lad who has been raised on a farm where the job of cleaning out the barns and barn-lots has been a regular slack-time job, will agree that a machine that will take the place of the "armstrong" manure mover at once places a premium on farming as a career.

On the farm of Roy A. Kessler, father of our own Frank Kessler, who was graduated in the spring of 1939, the manure lifter pictured herewith has been able to keep four and five manure spreaders going at top speed for a full day. An average of 100 loads per day is lifted from the feed lots, dropped into a spreader, and moved from a quarter- to a half-mile, there to be spread on a field. Working under open-front sheds, only about 70 loads are handled per day.

MACHINE ELIMINATES WORK



A mechanical loader makes cleaning out the barn a comparatively easy job. The machine was a "farm-built" job, and probably the desire to get out of hard work, rather than necessity, was the mother of invention in this instance.

Again farmers have themselves almost been ahead of the farm machinery companies in perfecting a machine to lighten labor and speed up a farm operation sometimes listed as a drudgery. Two farmer boys operating as the Hesston Machine Company, have been experimenting for some time with the idea of perfecting a manure pick-up machine operating somewhat on the same principle as a hay-stacker.

The latest machine they have welded together lifts approximately 800 pounds to the height as shown in the picture. The carrier-tractor is then moved forward until the load

is directly above the spreader. A trip is released and the load drops into the spreader box. The tractor backs away and the pick-up returns to the ground level. The machine is again headed into the accumulation of manure and bedding. When it has buried itself in a full load, the hoisting gears are thrown into operation and the load is lifted as the tractor backs away to deliver the manure to the spreader box.

In the community there has sprung up a demand for the services of the loader and its operator on those farms where considerable numbers of livestock are kept during the winter. The charge for his services is at the rate of 15 cents a load. That is probably cheaper than any farmer can hire hand labor and clean barnyard lots with fork and shovel.

HONOR SOCIETIES

(Continued from preceding page)

mentioned men elected to Phi Kappa Phi, who were also elected to Gamma Sigma Delta, nine other seniors were elected. They were: Merton Badenhop, Paul Brown, Orville Burtis, Dale Hupe, Milton Manuel, Paul Sanford, Gene Watson, William Winner, and Albert Yoxall.

Only two ag seniors, George Cochran and Lloyd Jones, were elected to Sigma Xi, honoring those who have shown unusual proficiency in science or purely scientific subjects. Many students going on into graduate work are elected to Sigma Xi.

Ed Moody, AH '39, is county agent of Phillips county.

Students Win Rich Prizes In Crops Judging Contest

Bob Wagner, Lowell Penny, and Bill Phillips were winners of the senior, junior, and freshman divisions, respectively, of the Crops Judging Contest held Saturday, May 3. The contest, sponsored by the Klod and Kernel Klub, was open to all College students.

The winners were announced the evening of the contest at a picnic held at Sunset Park. About 60 contestants and Tri-K members were present in spite of the threatening rain.

Wagner was also high point individual of the entire contest, for which he received an 18 inch gold trophy. In addition Bob received a year's subscription to the Daily Drover's Telegram, a gold medal and a $20 scholarship. Individual honors went to LaVerne Harold, who was high man in wheat judging, and Wagner, who was high in corn judging.

In the senior division the first six winners in order were Bob Wagner, Murray Kinman, Clifford Case, Floyd Smith, Vernon Heitman, and Bob Singleton.

The 11 high students of the junior division in order were Lowell Penny, Marvin Clark, LaVerne Harold, Julius Mai, Don Wood, Norman Kruse, Roy Currie, Roger Murphy, Lewis Schafer, Franklin Miller, and Calvin Doile.

Bill Phillips, Billy Parmely, Clair Parcel, Melvin Swenson, and Walter Smith were the high students in the freshman division. All of these winners received prizes.

Prof. C. D. Davis presented ribbons to the winners in each section of the three divisions. The nine medals, which were awarded to the three high men in each division, were presented by Elmer Heyne, faculty sponsor of the Tri-K Club. Prof. R. I. Throckmorton presented the gold trophy to Wagner.

The following is a list of the individual ribbon winners in order of their placing. Senior division—Identification: Don Johnson, Cliff Case, and Bob Wagner. Judging: Wagner, Vernon Heitman, and Bob Singleton. Grading: Murray Kinman, Floyd Smith, and Wagner.

Junior division—Identification: Don Wood, Lowell Penny, LaVerne Harold, Franklin Miller, and Julius Mai. Judging: Roy Currie, Don Wood, Francis Willmeth, Carl Downing, and LaVerne Harold. Grading: Lowell Penny, Marvin Clark, LaVerne Harold, Walter Bieberly, and Arthur Holste.

Freshman division—Identification: Bill Phillips, Billy Parmely, and Melvin Swenson. Judging: Arthur Worthington, Parmely, and Clair Parcel.

AN OLD FRIEND

(Continued from page 81)

milker does the best job of getting milk from his cows.

But let something unusual happen, such as a different milker, change in feed or feeding time, being frightened, or mishandled by the milker and this peace-loving creature of habit automatically releases adrenalin into the blood stream. Adrenalin prevents the normal action of the pitocin on the smooth muscles. The cow becomes nervous and tensed, making it impossible to draw an ounce of milk from her, even by means of a hungry bull calf. She doesn't hold her milk up because of perverted cussedness; she can't let it down. In udder words, there will be no milk until conditions return to normal.

It pleases us no end to have our bovine friend exonerated from suspicions of self-sabotage. She has placidly gone her way all these years, sinned against and misunderstood, without a moo about all the hard knocks she has received when she failed to produce the expected product at the usual time.

The Last Word

Editorial Comment

Ag Students are Farmers at Heart

MORE than two-thirds of the members of this year's graduating class in agriculture at Kansas State College have indicated that they would like to farm if finances and opportunity would permit. But of the Agricultural Relationships class of 86 seniors surveyed, only eight knew definitely that they were returning to the farm at once. Of the 86 men questioned, 14 were seniors in the highly specialized milling curriculum who probably would not expect to farm at all.

This survey seems to indicate that often when boys go out to extension positions, to teach vocational agriculture, to the F. S. A., S. C. S., or to various other "white-collar" jobs that somewhere in the back of their minds is the desire to return to the farm eventually. The salaried position is the means of buying and financing the operation of the ideal farm sometime in the future. Even some of the ten men planning to take graduate work wanted to farm again sometime.

Another pertinent question answered by the graduates concerned their military status. One half of the boys said they expected to be in the army next year, either by conscription or by voluntary action. In answering the question, "If your kid brother would be 21 years old next summer, would you advise him to attend college, or to take a short period of training for defense work?" again more than two-thirds of the seniors said, "College, rather than the short time defense work with its military exemption."

Other information of interest was that one fifth of the men had at some time during their college career had the benefit of a scholarship. Sears, Roebuck and Union Pacific scholarships predominated. Only 13 of the men had done no outside work toward earning college expenses during the academic year, while nearly half of the men had earned as much as one half of their college expenses and some of the graduates had been entirely self-supporting. More than one-half had borrowed at some time for educational purposes. Of the 86 men questioned in the survey, six expressed themselves as being disappointed in future prospects now that they are about to be graduated. It was not ascertained if these men had low draft numbers. Perhaps they were a part of the nine men of the class now married.

Why Editors Die Young

ONCE upon a time there was an editor of a college agricultural publication who decided to publish the best magazine that had ever been devised. The stories would be clever, suave, sparkling, and the information so sugar coated that even a senior would enjoy reading them. The pictures would be colored, profuse, and attractive. The layout would be beyond reproach. The advertisements would be cleverly designed as illustrations. Facts would be presented in a painless manner. It would be the perfect magazine.

With all these things in mind the editor picked his staff carefully. Who but the big men on the campus, the key-men, the subsidized playboys who were into everything, would make the best staff? The editor sallied forth and asked them would they honor the magazine with their contributions? They would, if their pictures appeared frequently, and their names appeared in bold type on the mast head.

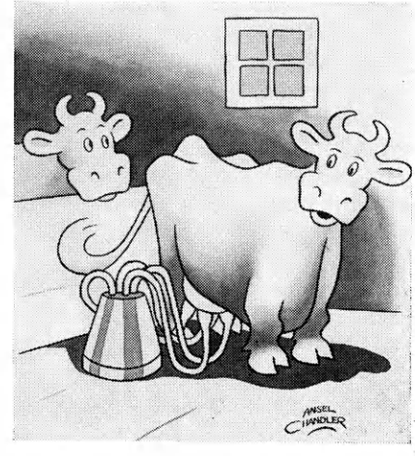
A conference was held. Many brilliant ideas were presented and discussed. Much talk was had involving the words "I" "Me" and "My." Nothing was assigned; everyone was to write his best and turn in the masterpieces as he finished them. The editor was well content. All his dreams were to be realized. He placed thumbs in the arm holes of his vest and leaned back in his swivel chair to wait for the manuscripts to pour in.

Nothing poured. Deadline came, and passed. Still nothing was heard from the aspiring agricultural fourth-estaters. The editor experienced great difficulty in contacting his key-men. Excuses were voluble, varied, and profuse. Too busy. House parties all last week. Judging team. Quizzes. Called home on business. Information not available. Important meetings. Varsities. Committee meetings. —new promises given cheerfully, and again the editor heard the chorus of excuses, some new, mostly old. So when the magazine did appear it was woefully late, and the editor wrote most of the material himself. Instead of a perfect magazine, it was fair to mediocre.

The editor sat alone among the debris and pondered. There was little he could do now; his bright dreams were blemished. But he had learned something. The next time he published a magazine he would obtain for his staff men who had no string of keys, men of common ability and ambition, men known but slightly on the campus, the kind of men whose profile would not cause coeds to lie awake nights. If the man had to work his way through college, so much the better. If his father was not a big shot, fine. The only requirements would be absolute loyalty, the desire to write, and the sterling virtue of doing what he promised to.

Anon——

Malnutrition?



"You know, Gertrude, I think my milk must be losing its power, or something. I've been nursing this thing for five weeks now, and it hasn't gained a pound." (Cut courtesy Successful Farming.)

It pays to keep "PLUGGING AWAY"

WE ALL know the story of the two prospectors who dug and dug for gold and then quit—*just three feet short of one of the world's richest lodes.* It's a story that carries a powerful moral—never quit until the goal is reached.

In the engineering and experimental laboratories of the thirteen great John Deere factories are men who are pledged to follow that same principle . . . men who are engaged in designing, testing, improving, and re-testing new farm equipment . . . men who keep "plugging away" until the final answer is achieved.

The new John Deere No. 490 Planter, shown below, is just one of the many new and better machines that John Deere has developed for 1941. Its unfailing accuracy in checking corn at a new high speed of 5 miles an hour cuts planting costs to rock bottom and enables the farmer to get his seed safely in the ground when the field and weather conditions are right.

The No. 490 is typical of the constant progress that John Deere is making in providing the farmer with improved equipment to lower his costs, speed up his work, and enable him to handle his farm jobs easier and better than ever before.

JOHN DEERE ● MOLINE, ILLINOIS

And at Harvest Time...

4-FOOT NO. 42 McCORMICK-DEERING COMBINE

The popular new small-size combine is shown at left with 12-bushel low-type grain tank. The tractor is the capable medium-size FARMALL-H.

Below: Another view of the No. 42 Combine—equipped with bagger—and power-driven by the small, sturdy FARMALL-A.

All-Year FARMALLS team up with McCORMICK-DEERING COMBINES

HARVEST TIME provides another perfect set-up for the great army of FARMALL Tractors. Whether they're new and streamlined, as shown here, or 17-year-old veterans, the FARMALLS advance from job to job throughout the year—the all-purpose power that has revolutionized farming.

But for many thousands of farmers, *this harvest* is going to be revolutionized, too. They're thinking ahead with *double* pleasure to a quick, easy, economical once-over of the fields. *McCormick-Deering Combines* are in their minds.

Here's what happens when you head into the fields with one of these marvelous new 4-foot No. 42 Combines. In a single, efficient *one-man* operation you save the big cost of paying and feeding extra help. You save equipment, twine, and threshing expenses. And you wind up with *more grain in the bin* because this combine does away with grain losses caused by unnecessary shocking, pitching, hauling, and stacking. The No. 42 does a thorough job on *all threshable crops* at the rate of 8 to 15 acres a day.

Write us for a catalog. Arrange with the International Harvester dealer for a "personal" contact with this handsome, streamlined combine. It's big enough for many a big farm's needs. And, in addition, there are the larger McCormick-Deering Combines, up to 16-foot cut.

On the power end, remember that besides the FARMALLS the International Harvester line also offers TracTracTors and standard wheel tractors. Any of them can, of course, be bought on easy terms on the *Income Purchase Plan.* By arranging payments in accordance with income a man gets the equipment he needs *when he needs it!*

INTERNATIONAL HARVESTER COMPANY
180 North Michigan Avenue Chicago, Illinois

A MIDGET POWER FARMER takes Big FARMALL-M in hand. He's Herbert Sunderman, 3½ years old, of Hiawatha, Kansas. His father, also named Herbert, operates a 400-acre farm, so naturally Junior gets to play with big-scale power. . . . *Note:* This powerful FARMALL is now available with DIESEL engine, too. Here's real operating economy to spread over the years. Write for full details on this new "MD"!

INTERNATIONAL HARVESTER