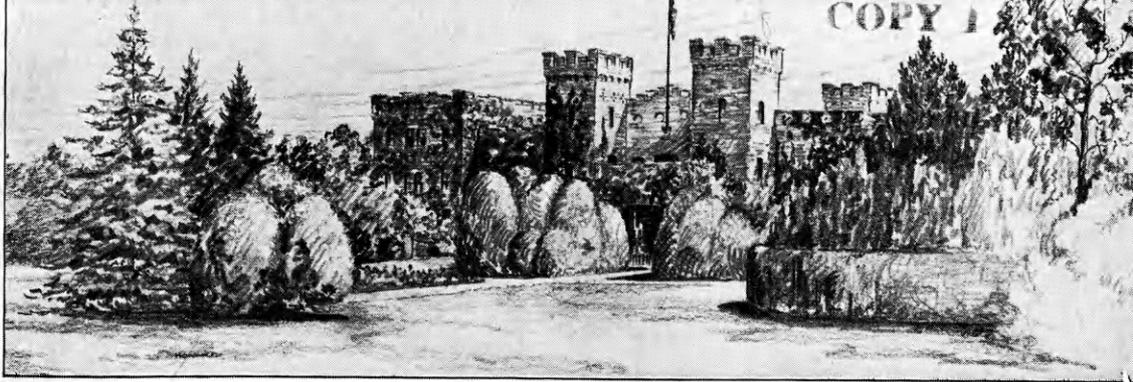
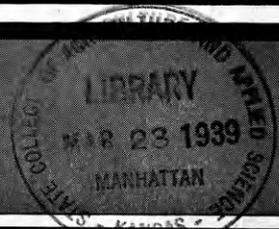


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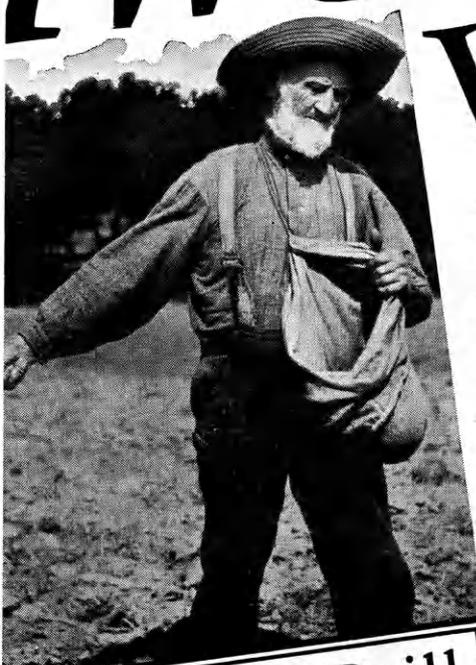
THE KANSAS AGRICULTURAL STUDENT

MANHATTAN, KANSAS



VOL. XVIII
No. 3
MARCH, 1939

TWO SOWERS Went Forth



One went with arms swinging, synchronized with tramping feet, flinging measured handfuls of seeds along regular arcs, his unfolding fingers timed to gauge and guide the flow of seed, to correlate angle with area. His work was both art and athletics, yet with all his skill and toil he strewed thick and thin. Covered haphazardly by harrowing . . . some deep, some shallow, some not at all . . . his sowing could not be uniform in stand, germination, nor maturity.

The other sower rode a Case tractor. Behind him was a Case drill, each of its outlets equipped with a Seedmeter, the most accurate seeding mechanism ever devised. Working in a deep seed pocket . . . itself a guard against cracking or clogging . . . the scientifically shaped metering roll delivered the seed not in spurts but in a steady stream. Whether he sowed beans or flax, whether he set it for pecks or pounds, each Seedmeter on his drill measured out uniform amounts. Amazing accuracy of alignment and penetration by the furrow openers covered the evenly spaced seed at uniform depth. Because germination, stand, and growth were uniform there were few weeds, and when the harvest came he had more grain, cleaner grain, and drier grain in the bin of his Case combine . . . all from the fact that he took a Case Seedmeter drill when he went forth to sow.

Precision of performance by Case machines begins with precision in manufacture . . . indeed, with precision of thinking by designers and engineers. You, who spend the seed-time of life in quest of precise mental equipment, are invited to keep acquainted with Case as the creator of precise mechanical equipment . . . precise in the ways that count for superb performance, long life and low farming costs.

J. I. CASE COMPANY, RACINE, WISCONSIN

New Steel Drill
With the CASE
Seedmeter
BIGGEST ADVANCE IN
ACCURATE SEEDING . . .



IT COSTS LESS TO FARM WITH CASE

The Kansas Agricultural Student

VOL. XVIII

Manhattan, Kansas, March, 1939

No. 3

The Ag Student Staff



Top row, left to right—Robert N. Shoffner, George W. Aicher, Prof. C. W. Mullen (advisory editor), Willis R. Wenrich, William G. Alsop.

Middle row—Farland E. Fansher, Ronald Morton, Joe W. Lewis, Powell H. Heide.

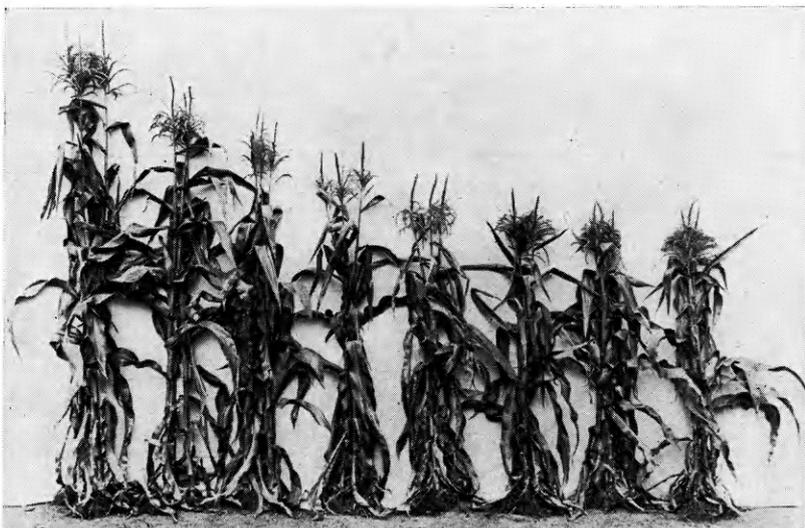
Front row—Meade C. Harris, Wilbert W. Duitsman, Frank W. Farley, John G. Dean, A. Jack Bozarth. (Linus H. Burton not present.)

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Reduction in vigor as a result of seven generations of inbreeding. (Courtesy Connecticut Agricultural Experiment Station.)

■

The Pro and Con About Hybrid Corn

By
Paul E.
Smith



THE hybrid corn acreage of Kansas this year probably will be double last year's acreage. This estimated increase is significant, for about one-fourth the crop acreage in Kansas is devoted to corn. The prediction is based on year-to-year increases of hybrid corn acreages in other states in this section. Last year, over the United States, the hybrid corn acreage was over four times as much as the 1937 acreage.

Hybrid corn is not a cross between standard varieties. It is a "tailor-made" corn. The best standard varieties are literally taken to pieces and a new variety developed which includes the better characteristics of the standard varieties.

The crop grown from commercial hybrid corn should not be used for seed the following year. The accompanying illustration shows the effects of inbreeding hybrid corn.

It is difficult for many persons to understand why new seed is necessary, but when one stops to think that hybrids have as parents unrelated inbred lines, the reasons are obvious. Each seed produced by the hybrid possesses the same ancestry and when planted, results in a form of inbreeding. This inbreeding gives rise to a reduction in yield from 10 to 20 percent less than

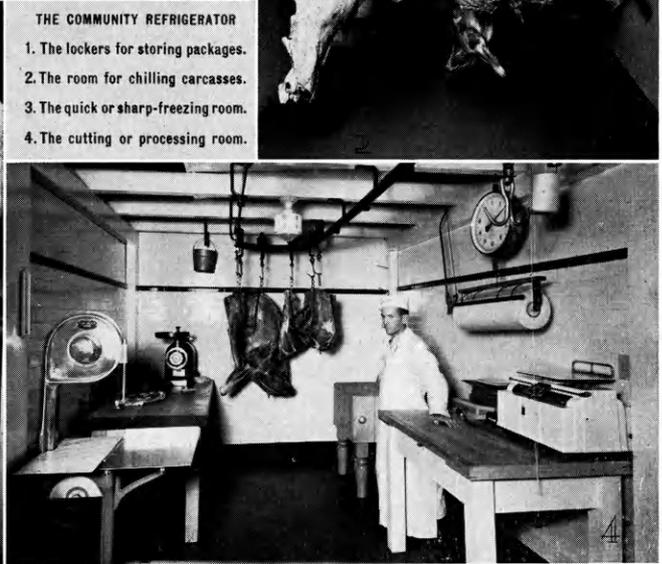
the yield of newly crossed hybrid seed.

Kansas farmers should plant standard adapted varieties until the local adaptation and consistent superiority of any hybrid can be established. If any farmer desires to plant hybrid corn, however, he should insist on knowing what specific hybrid he is buying so that he may again obtain the same hybrid if it proves satisfactory. Only a few acres should be planted to any one hybrid. Or better yet, "test plots" of several different hybrids should be planted in the same field and under similar conditions. The locally adapted variety can be used as a check. After a number of years, the farmer can see for himself what hybrid is best for his locality. The conclusions on a hybrid's performance should not be based on only one or two years' results.

A variety of corn is made up of numerous strains which can be separated by inbreeding. Corn is ordinarily cross-pollinated and inbreeding is accomplished by applying to the silks of a corn plant the pollen from the same plant. Inbreeding results in a marked decrease in vigor and productivity, accompanied by a rapid approach toward plant uniformity within any line. After six or seven generations of self-pollination, or "selfing," the lines are prac-

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THE COMMUNITY REFRIGERATOR
 1. The lockers for storing packages.
 2. The room for chilling carcasses.
 3. The quick or sharp-freezing room.
 4. The cutting or processing room.

From Mother Hubbard's Cupboard To the Community Refrigerator

By W. A. Ljungdahl

THE widespread adoption of freezer storage facilities in Kansas within the past two or three years shows that the "community refrigerator" isn't a passing fancy, but is here to stay. There are over 100 locker plants in Kansas today. The first plant was opened in 1930.

Freezer storage was used in Kansas prior to that date, but there were no lockers. The Carey Ice and Cold Storage Company of Hutchinson had an empty storage room where meat could

be stored. Many families made use of the storage room, but due to an increase in the storage business, the service was discontinued and not until 1930 was it resumed.

There is a very substantial saving for those who use freezer lockers, varying, of course, with the amount of meat used and the varying service charges. Another advantage is the higher quality meat that the farmer will store. Freezing eliminates some of the drudgery of

(Please turn to page 91)

Keeping Two Hops Ahead of the 'Hoppers

By George W. Aicher

GRASSHOPPERS have been a problem, more or less, since Kansas was settled. Necessity is the mother of invention and Kansas ingenuity has been responsible for countless devices, contraptions and machines designed to destroy the pests.

Some of the machines probably resembled creations of Rube Goldberg, comic cartoonist famous for his mechanical marvels. Kansas has been the battle ground and the proving ground for the grasshopper catching machines. Historians failed to record where and when the first 'hopper dozer was built, but it is a safe assumption that the "where" was Kansas, and the "when" was back in the '70s. Some persons maintain the dozer has developed like a habit—the idea just grew on with time. In any event, its history extends back more than 60 years, for many unusual types were described in the first annual report of the U. S. Entomological Commission, published in 1877.

One contrivance described was equipped with a revolving brush to sweep up the 'hoppers. It wasn't a very discriminating machine and besides

'hoppers, it swept up everything else it could handle. The report tells how the machine had to be stopped frequently to allow the removal of trash and dirt. This contrivance from a distance probably looked like a small whirlwind going down a field.

And then another ingenious Kansan introduced his crushing machine—a sort of a sorghum mill principle with 'hopper collectors attached. This type of machine was characterized by a large sheet metal or canvas hood covering a corrugated elevating belt. As the insects entered the hood they were carried up the belt to the crushing rollers, if they didn't get wise and hop to freedom. The entomological report states this type was being used extensively at that time.

The Gargantuan vacuum cleaner idea was used, of course. In theory, the 'hoppers were to be drawn into the collector bag by a strong air current. The machine did have a lot of suction, all right; so much, in fact, that it sucked in dirt, trash, and 'most anything else in its path.

(Please turn to page 90)



This 'hopper dozer, designed and built at the Fort Hays Branch Experiment Station, is capable of "harvesting" from 100 to 120 acres of grasshoppers per day. The pan is 16 feet wide. The machine travels approximately 8 miles per hour on average fields.

LOUIS P. REITZ JOINS AGRONOMY DEPARTMENT FACULTY

Reitz Returns to Kansas

After an absence of eight years, Louis P. Reitz returned to the campus February 1 as associate professor of crop improvement, succeeding Dr. John H. Parker, resigned. He was graduated from Kansas State College in 1930, majoring in agronomy.

For six years after he left Kansas Professor Reitz was on the staff of the



LOUIS P. REITZ

Montana State College, Bozeman, Montana, teaching and doing research work in agronomy. During the college year, 1936-37, he was at the University of Nebraska doing graduate work and there received the degree of master of science in June, 1937. Since that

time he has been employed by the Bureau of Plant Industry of the United States Department of Agriculture in charge of federal and state cooperative grass research. He will do some teaching and will carry on the work in plant breeding and crop improvement which has been under the direction of Dr. Parker.

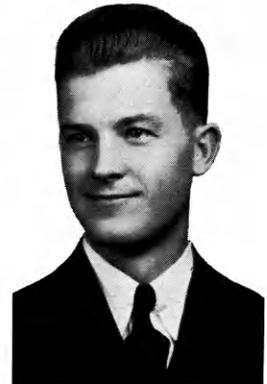
Louis participated in many extra-curricular activities as an undergraduate at Kansas State. He was a member of Farm House Fraternity, sang in the glee club, served as vice-president of the Klod and Kernel Klub, and was on the staff of The Kansas Agricultural Student. He was elected to Alpha Zeta in the second semester of his sophomore year and went to the International as a member of the grain judging team in his junior year. As a senior he was elected to Gamma Sigma Delta and Phi Kappa Phi. His many friends among the faculty welcome him back to Kansas State.

A Hand to Ike Kern

We salute this issue the president of the Kansas State Agricultural Association, "Ike" Kern. The big book records the name as Charles I. Kern, but who remembers when anyone called him "Charles"?

It isn't surprising that Ike came to the top in leadership responsibility at Kansas State.

Back home in Smith county near the Nebraska-Kansas line Ike gained for himself a reputation as a worker and a leader in 4-H Club work. For five years he was a member of his local club, carrying many projects. He showed dairy stock at many shows and



CHARLES I. KERN

in 1931 his dairy heifer was included in the herd that went to the National Dairy Show at St. Louis. He was also a member of the orchestra that won first place at the state round-up in 1933.

At Kansas State, Ike has been a member of the Collegiate 4-H Club and has sung with the 4-H Club quartet. He was elected vice-president of the Collegiate 4-H Club in the spring of 1938 and was elected president that fall. He has been a member of the Y. M. C. A. Gospel Team.

Ike was elected to Alpha Zeta and served as historian of that organization one semester. He has been an active member of Klod and Kernel Klub and was chosen president of the Agricultural Association for 1938-39. Farm House Fraternity has been his home since the spring of 1938. Ike has worked his way through college, beginning at the dairy barn as a freshman and ending up on the third floor of Waters Hall working for Professor Davis.

Some Problems in the Battle Against Take-All

By Dr. Hurley Fellows

BREEDING and selecting for resistance to plant disease offer the most promise in the entire field of plant disease control, especially in cereal crops and specifically as a control measure for take-all foot-rot of wheat.

Some cereal diseases may be controlled by seed treatment prior to planting. There is always some expense and

tion, the resistant character most sought for must be inherent in one of the parents.

Suppose that immunity to a disease is found in some plant or variety. Usually the plant or variety lacks other desirable characters. A great number of crosses must be made and the results of these crosses observed until a combination is finally created that gives the desirable characters. Anyone who knows anything about the theory of genetics and the mathematics of permutation can appreciate something of the difficulty of getting the happy combination of desirable characters.

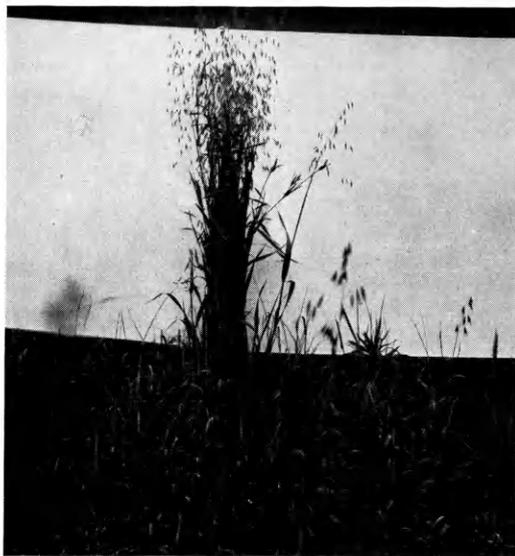
It is seldom that resistance to two or



The effects of organic matter on soil infested with take-all foot-rot. Pot No. 1, infested soil with no organic matter added; Pot No. 2, infested soil with organic matter added; Pot No. 3, uninfested soil with organic matter added.

extra work connected with seed treatment and a large proportion of farmers won't take time or spend the money to treat seed. There are, too, some cereal diseases, which by their very nature, cannot be controlled by any effort the farmer can reasonably be expected to exert prior to planting.

Selection of resistant individual plants within a variety, or hybridization, presents the most promising prospects of discovering or creating disease-resistant strains. In hybridiza-



Oats growing in a spot infested with take-all. Oats is entirely resistant to this disease and is adapted for rotation with wheat in infested fields. The short plants are wheat plants.

more diseases is found to be coincidental. If progress is made in the development of a plant resistant to one disease, we have next the problem of retaining that character while we combine it with resistance to another disease of economic importance affecting the same crop.

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A Farm Shelterbelt Program for Kansas



By T. Russell Reitz¹

SHELTERBELTS of trees are planted to protect agricultural resources. The trees may keep soils, crops, livestock and even humans from being subjected to the effects of strong winds. During the past five years the Forest Service has cooperated with more than 3,600 farmers in 28 counties in Kansas and more than 20 million forest trees will have been planted by the end of April this year.

A need exists for tree planting in Kansas. Such trees as we now have on many farms were planted by our forefathers as they settled Kansas. As a generation, we have enjoyed the shade, the protection, and the beauty of the trees our fathers planted. We have used the wood and posts produced. However, we have done little to perpetuate the tree resources on many farms.

Shelterbelts are adapted to the needs of many farms in central Kansas for forest trees. A shelterbelt's principal purpose is to provide protection from wind but along with that protection the farmer can secure wood, fence posts, poles, and, in some instances, lumber from the shelterbelt.

Experiments conducted in several states have furnished data for conducting shelterbelt plantings. It has been found that from five to ten rows of trees are necessary. The species used should consist of at least one row of shrubs on the outside of the belt. A shrub can sometimes be selected that will produce berries or fruit suitable for human consumption or wildlife. Chokecherry, wild plum, or sand plum are examples of suitable shrubs. One or two rows of evergreens are very desirable in a shelterbelt. Red cedar, Western Yellow pine, or Austrian pine are well adapted. These trees give permanence to the planting since they are usually of long life.

Practically every farmer wants some post trees on the farm and toward the

center of the shelterbelt and depending on soil conditions such species as catalpa, black locust and Osage orange should be included. Some quick-growing tree like cottonwood or Chinese elm should be included in the belt so that the windbreak will give protection from wind in the fewest possible years.

The protected area is proportional to the height of the trees. Beneficial effects occur for distances of 20 or more times the height of the trees. The length



Four-years' growth in a Kansas farm shelterbelt.

of the belt is important. Generally long belts are best and breaks or gaps in the belt are undesirable and reduce the effectiveness of the windbreak.

The trees must have good care after planting. Livestock must be excluded and the trees must be cultivated. In the first year the trees can be cultivated like corn. An ordinary six-shovel, horse-drawn, corn cultivator can be used on the tree rows. The spaces between the tree rows can be disked or cultivated with duck-foot or spring-tooth cultivators. The trees respond to good cultivation and care and many cottonwood, Chinese elm and honey locust trees have grown more than six feet in a single season in the shelterbelts which have received good care. If weeds are allowed to grow the trees usually die.

¹ State Director, Prairie States Forestry Project, U. S. Forest Service, Dept. of Agriculture.

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Latta's Job Interesting

The boys who come back to the campus after an absence of one or more years, and who in the meantime have obtained jobs somewhere in the United States, are frequently able to bring back information and advice that may mean considerable to those of us yet in college. It is through their suggestions that we can profit in making decisions and in selecting the right courses to complete our college training.

Bob Latta, '37, was making office calls in Waters Hall during the holidays. Bob is located at Barron, Wis., where he is employed by the Federal Land Bank of St. Paul as a farm supervisor. Bob received his master's degree in the spring of 1938 at the University of Wisconsin, where he continued his major study in agronomy.

The land bank owns 225 farms in Barron county, having been required to foreclose on them after their original owners couldn't "make a go of it." The bank rents the farms and Bob's task is supervising 125 of these farms. Tenants follow cropping plans prescribed by supervisors and Bob says that the big job in Wisconsin (just as in Kansas) is to get farmers to retire worn-out and badly eroded land and plant grass and legumes instead of cultivated crops—grasses to stop erosion and legumes to build up the soil.

"Barron county was one of the many over-rated counties in Wisconsin 12 or 15 years ago when land bank loans were being made," Bob said. He explained that farmers of the county turned to dairying on an intensive scale. The low prices of dairy products in recent years bankrupted a large number of these farmers. The farms are small, averaging about 80 acres, and these small, worn-out farms are not large enough to support a family except by some form of intensive farming, and dairying has failed them.

"How to pull these farmers out of trouble and get them back on their feet

Clyde Mueller Goes to Cornell

Clyde Mueller has received notice of his appointment to the position of graduate assistant at Cornell University, effective September 1, 1939. He will major in poultry genetics and will study under Dr. F. B. Hutt.

It was three years ago last fall that Clyde heard Professor Payne give a talk



CLYDE MUELLER

in Freshman Lectures in which he described the requirements for graduate study at Cornell. At once, Clyde made a mental note that he must not overlook the necessity of including at least nine hours of foreign languages among his electives.

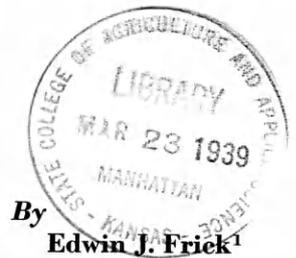
From that day to the day of his appointment, it can be said that in the back of his mind always there was a desire and an ambition to do graduate work at Cornell.

By hard study and diligent application, Clyde Mueller has attained one of his first major ambitions. And that is the way any goal is attained. His point average for seven semesters is 2.56.

financially is no simple problem," Bob stated.

When asked what courses had turned out to be most helpful to him, Bob said that his fundamental courses in botany, plant physiology and plant pathology had benefited him most. In agronomy his courses in soils and soil management were basic for his present job. Agricultural finance is another course which helped fit him for this job. He wishes he had taken more courses in business—courses such as farm accounting or principles of accounting and business or farm law.

Sleeping Sickness in Horses—



By
Edwin J. Frick¹

BECAUSE of recent outbreaks in the midwest of sleeping sickness in horses, a better understanding of this disease by all persons handling horses should be of general value. The correct name for "sleeping sickness" is equine encephalomyelitis, meaning equine (horse), encephalo (head or brain), and myelitis (spinal-cord inflammation).

The condition is a disease of horses and mules characterized by an inflammation of the brain and spinal cord. In the past it has been known under many other names, some of which are brain fever, Kansas-Nebraska horse plague, forage poisoning, mould or grass staggers, blind staggers, sleeping sickness, and Borna disease.

Diseases similar to this have been widely disseminated throughout the United States for years, running back perhaps to colonial days, and were unknown in Europe as early as 1813. In this country, in 1847, it was described by Large of New York, later by other research men. In 1882 it appeared in Texas and Iowa. In 1895, Pearson of Pennsylvania attributed its cause to forage poisoning. In 1912, the so-called Kansas horse sickness occurred along the Arkansas valley and was reported in northeastern Colorado and southeastern and central Nebraska.

Disease Caused by a Virus

In 1930, Meyer, Haring, and Howitt, of California, found a virus to be a causative factor. Records and Vawter, of Nevada, also recovered the virus, followed by a number of others, all of which definitely established a virus as the cause of the disease. A differentiation has been made between the eastern and western types of virus, the eastern type being more virulent. We now believe that the two American strains of virus are different from at least two other European strains, one the old Borna disease and the other a new Russian virus.

1. Head, Dept. of Surgery and Medicine, Division of Vet. Medicine.

In 1934 few cases were reported, but 1935 and 1936 were bad years. The year 1937 was the worst reported, with an estimate of 300,000 cases and a mortality of 90 percent with eastern virus, and 40 percent with western virus infection. In Kansas, even with a poor statistical disease report, there were reported from 63 counties a total of 16,267 cases with death losses amounting to 2,583 for 1937. The 1938 reports are not tabulated as yet, but will probably show a marked increase in disease incidence.

Equine encephalomyelitis is a virus infection caused by two immunologically different strains of virus. A virus is a disease germ, too small to be seen by any microscope; yet, when this clear fluid is injected into a susceptible animal, the disease will be reproduced.

The two strains of equine encephalomyelitis virus have never been isolated in the same area, the eastern strain being confined to the Atlantic seaboard east of the Appalachian mountains, and the western strain being isolated in all other areas where the disease occurred.

There is no cross-protection. Animals which have recovered from the eastern virus infection are susceptible to the western virus infection, and vice versa. Due to the fact that the disease dies off after the first killing frost, it is believed that insects are the carriers.

Transmittal of the Disease

Definite knowledge as to how the disease is transmitted from animal to animal, disseminated over wide areas and perpetuated between outbreaks is still lacking. Of the methods of experimental infection so far proven successful, mosquito transmission and infection by the intra-nasal route seem to be the only ones apt to occur under natural conditions.

There are many things we do not know about this disease. Why do only one or two horses out of 10 or 20 come

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Personal Notes

Irwin Miller, '39, accepted a position at Holcomb as vocational agriculture teacher before the end of the first semester.

William Brady, '39, entered Farm Security service January 30, just ahead of the application of civil service rules to that agency.

Elbert Johnson, '39, has a position with the Farm Security Administration, beginning January 23. He will be located at Howard, Kansas.

John Brainard, '39, major in dairy production, completed his work in December and went to his first job January 1. He is in charge of herd improvement at Dodge City and travels over nine counties west, northeast, east and southeast of Ford county. At the present time he is making official tests of 25 herds in the nine counties.

Richard King, '38, brought his smiling face back to Kansas State during Farm and Home week. He is now county club agent in Crawford county with office at the county seat, Girard. Until January 6, when he took over his new position, he served as assistant county agent. He had been particularly anxious to get into club work and is happy in his new connection.

Bob Bonnett, '13, Moscow, Idaho, was again on the campus during Farm and Home week. Bob was for a number of years connected with the University of Idaho at Moscow. He then went into the business of producing seed beans and peas by the hundreds of acres. Seed are shipped all over the United States and to Europe. His business has taken him abroad two or three times. Part of the seed are produced on farms controlled by his own company and part by farmers on contract.

Mr. H. W. Hewitt of Coldwater, Kan., was named as one of the premier seed growers of Kansas during Farm and

Home week. He has set a good pattern for some of our graduates and others who return to the farm. It happens that Mr. Hewitt has specialized in producing Tenmarq wheat for seed. He has a combination cleaner, grader, and treater which he uses to prepare his seed for sale. His farm includes 481 acres. One-third of the land is in summer fallow every year.

Hybrid Corn in Kansas

(Continued from page 68)

tically purified. There may be such differences as strength of stalk and root, disease resistance and drought resistance between lines.

Inbreeding makes possible pure lines and the elimination of lines which possess undesirable characteristics. Each line breeds true for certain characteristics and by knowing the parents of any hybrid, its performance can be predicted year after year. Only the best unrelated inbred lines are crossed to make hybrids, and these in turn are tested many times to determine the best combination.

After a hybrid is released for commercial production the seed must, of necessity, be produced in fairly large quantities. This is facilitated by growing the parent strains to be crossed in alternate blocks in a field isolated from other corn. The distance of isolation should never be closer than 40 rods. The rows on which the hybrid seed is to be produced are completely detasseled.

The ratio of tasseled (or male) rows which produce the pollen to the detasseled (or female) rows also varies with the type of hybrid produced. If inbred lines are used, one tasseled to two detasseled rows is necessary, but if single-crossed plants are used, one male row may be planted to every three or four female rows.

The hybrid seed is harvested from the detasseled rows only. That produced on the tasseled plants is not hybrid seed since it has been self-pollinated.

Dawdy, Watson Win in '39 Little Royal

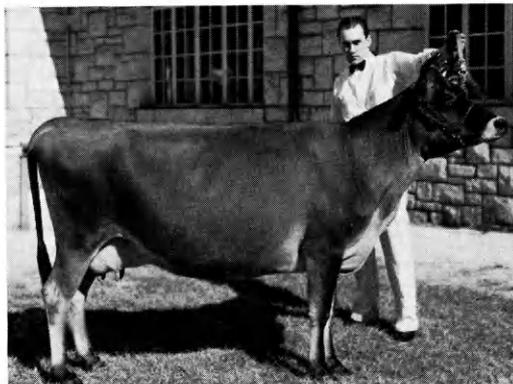
By Phil Allen

TOP honors in this year's Little American Royal went to Max Dawdy, Washington, and Eugene Watson, Peck, both sophomores in the Division of Agriculture. Dawdy won the Dairy division trophy with his exhibit of a Jersey cow and Watson was first in the Block and Bridle division with his Hampshire ewe lamb.

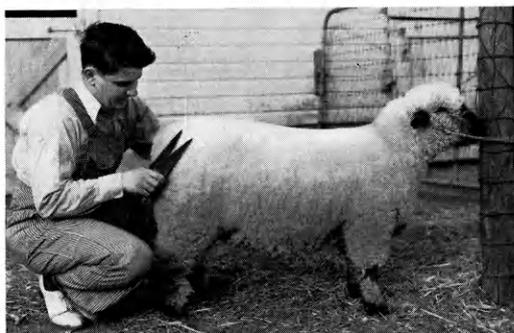
A large audience packed the livestock pavilion on the evening of February 9 in spite of the cold and sleet. Farm and Home week guests of the show cheered as the two showmen were handed the trophies by Will J. Miller, Kansas State Livestock Sanitary Commissioner. Hard work and expert showmanship placed Max and Eugene at the top of more than 130 exhibitors.

The Little American Royal, outstanding show event of the Division of Agriculture, has been held annually since 1924. The show is the joint proj-

The same program was presented successively in the south side and then on the north side of the pavilion in order to accommodate the large crowd. Charles I. (Ike) Kern, president of the Agricultural association, was master of ceremonies in the south side. Kenyon Payne, vice-president of the associa-



Max Dawdy and his prize-winning entry.



Eugene Watson grooming his prize-winning Hampshire ewe.

ect of the Block and Bridle club, the Dairy club and the Agricultural association. The Little American Royal gains each year in size and interest, and many persons who have seen the show for years termed the 1939 show the best one yet.

Trophies this year were donated by the American Royal Livestock show and the Kansas City Stock Yards Company. The ribbons were donated by the Division of College Extension.

tion, presided in the north side. Kern was general manager of the show.

Exhibitors drew for animals three weeks before the contest. Time, hard work, patience and experience helped determine the top-notchers. Winners were picked on improvement in appearance of the animal, and the exhibitor's ability to show the animal in the ring. The high-ranking students in each class of the Dairy division were:

Ayrshire heifers, Theodore Levin, Agra; Ayrshire cows, Cecil Robinson, Nashville; Guernsey cows, Lee Frey, Manhattan; Guernsey heifers, Conrad Jackson, Elsmore; Holstein cows, Ed Reed, Lyons; Holstein heifers, Clifford Claar, Rexford; Jersey cows, Max Dawdy, Washington; Jersey heifers, Bert Gardner, Carbondale.

Robinson was champion showman for the Ayrshire breed. The animal he showed was the same animal with which his brother won first place in the Dairy division in the 1937 show.

Winner of the Guernsey breed championship was Conrad Jackson, while

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“Standing Room Only”

What would we have done with the crowds at the Sixteenth Little American Royal if the weather had been decent? The temperature was hovering near zero.

In spite of the most adverse weather conditions under which the Little American Royal has shown for a good many years, both sides of the pavilion were packed with spectators. Many were standing at the doors where they were barely able to get inside.

What would we have done with one hundred legislators and their wives if the weather had permitted their attendance, as had been planned?

What would we do with the crowds, if students, faculty members and townspeople of Manhattan did not have consideration for the limited seating capacity of our stable and, remembering the great number of out-of-town visitors here for Farm and Home week, voluntarily remain at home so that the visitors might attend the show?

In the present pavilion, there are times when four classes of students are taking judging work at the same hour. Any disturbance in one group directly

affects the attention of the other groups. Within the entire pavilion there are no lavatory facilities. Instructors can only endeavor to conduct their classes as best they can under such conditions.

In view of the fact that the training received in this work is of tremendous value to the students in agriculture and to the livestock industry of Kansas, it does seem that a more adequate pavilion ought to be provided.

If Kansas State had a pavilion comparable in size and seating capacity with show places of other leading agricultural colleges, we would be able adequately to care for the large crowds which attend such affairs as the Little American Royal, Feeders' Day Programs, Better Livestock Day and so many other events which would be scheduled if there were a more desirable place in which to hold them.

Kansas is recognized as a livestock producing state. It produces both fat stock and breeding livestock that goes into other states. Its grass lands and forage crops are adequate for a still further expansion of the livestock industry.

If Kansas is to enhance its place of



recognized importance in the livestock industry, the college should have a pavilion in which to hold educational meetings, demonstrations and livestock shows for the advancement of the livestock industry and a place to entertain visitors from other states who come here to visit our college. Farmers, who come here for better livestock events which occur during the year, cannot go away with the feeling that livestock is regarded on the hill as being of a great deal of importance when the college itself can offer its farmer-guests only a good-sized stable in which to entertain its livestock producers.

Kansas State ought to have a pavilion which is on a par with pavilions of other agricultural colleges, such as Oklahoma, Texas, Nebraska, Iowa and Missouri.—W. G. A.

ity fall on one who has not in a former year had any connection with that event, as Bill Lobenstein will testify.

Another suggestion has to do with the selection of the editor of The Kansas Agricultural Student. He should have at least some training in journalism. He should desire the position for what he believes he can do for the magazine. He should be ready and willing to assume responsibility for the editorial policy of the publication. He should be competent to plan articles and edit copy. The present editor has done a good job. However, at election time we need again to be reminded that the editorship of The Kansas Agricultural Student is not a position that just anyone can fill satisfactorily.—Ike Kern, President, Agricultural Association.

Two Needed Amendments

By the time the May issue of The Kansas Agricultural Student is off the press, the annual election of the Agricultural Association will be over. It will be held Thursday, May 4.

Here is something that needs to be decided by that time. Should the constitution of the association be amended to permit the election of an assistant manager of the Ag Barnwarmer? The constitution now provides for the election only of a manager for that big annual event. Would it be well if, in succeeding years, the assistant manager of the preceding year might be considered the logical successor to the responsibilities of manager? Having served as an assistant during the preceding year as a sort of under-study, would he not be in a better position than anyone else to manage the Barnwarmer?

If the constitution is amended, thereafter, each year the association would elect a manager and an assistant manager, and unless the assistant had failed to measure up to expectations, he would in all probability each year be elected to managership.

It is no snap to have that responsibil-

Double the Circulation

Let's double the circulation of The Kansas Agricultural Student. There are articles in this issue, just as there are articles in every issue of the magazine, that would be of interest to our parents back home. We can double the circulation, double the effectiveness and usefulness of our articles, double the coverage for our advertisers, if each student will send the magazine home. It will go for three cents postage. Some of our parents would probably read the magazine with almost as much interest as they read letters from their boys at Kansas State. Envelopes for mailing can be obtained in the office of the dean. If anyone may want extra copies to send to friends or acquaintances, there are always a few extra copies in the dean's office.

"We must see that under constitutional government, economic opportunity is reestablished in our land."

"Enemies of our government have concluded that the rank and file do not know what it is all about, anyway, and that the American people do not care what becomes of their government."

THE 1939 LITTLE



(1) Charles Streeter holding his Holstein entry in line. (2) The Horse class in the ring. (3) Will J. Miller, State Livestock Sanitary Commissioner, presenting Eugene Watson with the Block and Bridle first-place trophy. (4) Delbert Taylor, Robert Yunghans, Ronald Campbell and Conrad

Jackson showing their entries. (5) Richard Wellman, Donald Bertholf, Darrell Bozarth, Edward Elling and Ray Morrison fitting their Hereford entries. (6) Kenyon Payne at the "mike" and Dean H. Umberger. (7) This year's floor design worked out by Francis Friedli, Sidney Brown

AMERICAN ROYAL



and Gerald Wagstad. (8) Charles I. (Ike) Kern, general manager of the show. (9) Dr. W. E. Grimes caught in a profile view. (10) Pres. F. D. Farrell and Mr. Miller enjoying one of the entertainment acts. (11) Eugene Watson with his entry. (12) Paul Sanford coaxing his entry into the

show ring. (13) The honor guests—President Farrell, Mr. C. A. Hendry, F. C. P., Perth, Australia; Mr. Miller and Dean L. E. Call. The men standing in the background are former Ag. Association presidents. (14) Grayson Murphy and Leslie Clow fitting their entries.

Livestock Judging Team Banqueted

It must be a lot of fun to be a member of Kansas State's world champion stock-judging team. Yes, that's right. All comers were invited to get into the ring and fight it out to a finish at the International. Twenty-seven teams participated and Kansas State's team came out on top.

The entire team, including Prof. F. W. Bell, was banqueted by the Kansas State Board of Agriculture at a dinner on the roof garden of the Hotel Jayhawk, Topeka, on the evening of January 11. More than 500 farmers and legislators were packed into the banquet hall. Orchestral music filled the hall—along with clouds of tobacco smoke. Gov. Payne H. Ratner and Mrs. Ratner were introduced. Justice Hugo T. Wedell of the Supreme Court of Kansas gave the principal address of the evening. Highlights of that address can be traced through this issue of *The Kansas Agricultural Student*.

Finally there came the "Presentation of Our Honor Guests." Dan D. Casement, good friend of Kansas State, close friend of all students in animal husbandry, and intimate friend of Professor Bell and his stock-judging teams, introduced each member of the team. He identified each man as to county and home town and indicated his individual rank among the hundreds of participants in the contest at the International.

The climax of the evening program was the introduction of Professor Bell. Mr. Casement was high in praise of the work of Coach Bell, who responded modestly to say that he was proud to be engaged in animal husbandry work. Professor Bell pointed out that a great number of students, prominent in stock judging and related work in the department of animal husbandry while in college, are now equally prominent as stockmen and leaders in the livestock industry in the state of Kansas.

Mrs. Bell was introduced and was given a "big hand" by the banquetees. Mrs. Bell is as much interested in each member of the judging team as is the

coach. She sees them off on every trip and meets them on their return. There is a strong feeling of attachment between the team members and their unofficial sponsor who is sometimes affectionately referred to by the boys as "Mother Bell."

Little American Royal

(Continued from page 77)

Ed Reed took first place in Holsteins. Max Dawdy was champion in the Jersey breed, first in the Dairy division.

Judges for the Dairy division were D. M. Seath and J. W. Linn, extension specialists; Ballard K. Bennett, herdsman in charge of the college dairy herd; and A. M. Paterson, Kansas City. Verlin Rosenkranz, president of the Dairy club, announced in the south side and Noel N. Robb, Dodge City, made the announcements in the north side.

Class winners in the Block and Bridle division were:

Aged mares, Roscoe Long, Drexel; young horses, William H. Dieterich, Sivey; Short-horn and Hereford steers, Floyd Bacon, Sylvan Grove; Matador Hereford steers, Edward Elling, Manhattan; Shorthorn heifers, Eugene Smith, Bloomington; Rambouillet ewes, Rodney Port, Cheyenne, Wyo.; South-down ewe lambs, Scott Kelsey, Topeka; Hampshire and Shropshire ewe lambs, Eugene Watson, Peck; Poland China hogs, Paul Sanford, Milford; Duroc hogs, Charles Sanford, Milford.

Champion horse showman was Dieterich. Bacon was first in beef cattle. Charles Sanford won over his brother Paul for the title of champion hog showman. Watson was first as sheep showman and was picked as winner of the Block and Bridle division.

Block and Bridle judges were A. M. Paterson, Kansas City, and J. J. Moxley, Manhattan. Neal McVay, president of Block and Bridle club, officiated in the south side, and William Ljungdahl, vice-president, on the north side.

"Constitutional government is now in grave peril. For too many years the rank and file have given too little consideration to constitutional government."

INTERNATIONALLY FAMOUS FACULTY MEMBER LEAVES US

Doctor Parker to New Position

Kansas State College lost the direct services of one of her highly respected faculty members with the resignation of Dr. John H. Parker, for 21 years Professor of Crop Improvement at this institution and plant breeder for the Kansas Agricultural Experiment Station.

Doctor Parker, whose resignation became effective February 1, 1939, has

established an enviable record and international fame as a successful plant breeder and geneticist, having led in the development of Tenmarq and Kawvale wheats, varieties which are being grown on several million acres in Kansas and adjoining states



DR. J. H. PARKER

this year, Fulton oats which is being increased for distribution at the present time, and Atlas sorghum, the most popular sweet sorghum variety of eastern Kansas.

Doctor Parker was graduated from the University of Minnesota in 1913, and was then employed as scientific assistant in the office of cereal investigations, United States Department of Agriculture. In 1915-1916 he took graduate work at Cornell University, majoring in plant breeding, and received his master's degree in 1916. Since 1917 he has been in charge of small grain and sorghum breeding at the Kansas Agricultural Experiment Station, and has continued as collaborating agronomist of the Bureau of Plant Industry, U. S. D. A.

He spent 1925-1926 in England as a research student at Cambridge University under Sir Rowland Biffen, receiving his Ph. D. in crop improvement in 1928. He joined the Kansas State Col-

lege staff in 1917 as Assistant Professor of Crop Improvement and received the title of professor in 1921.

Doctor Parker leaves the college to become director of the Kansas Wheat Improvement Association. This organization, sponsored by flour milling companies of the southwest, has as its chief aim the improvement of the quality of Kansas wheat by encouraging farmers to grow only pure seed of those varieties which are recommended by the Kansas Crop Improvement Association. A nine-acre tract of land on College Heights Road west of the campus has been purchased by Doctor Parker for the use of the association.

In his years of service at Kansas State College, Doctor Parker has been recognized for the expert training and guidance which he has contributed toward the development of many prominent leaders in crop improvement work today.

To him, a salute, from the Agricultural Association and profound wishes for continued success in his new position.—Kenyon Payne.

Mr. and Mrs. Jonas Voran, Moundridge, Kan., own a flock of 467 U. S. Certified White Leghorns which in one year averaged 212 eggs per bird and returned \$1.05 labor income for each bird originally placed in the laying house.

There is something to think about for some of our students who do not believe it is worth while to take much interest in poultry. Kansas farmers last year sold \$19,920,000 worth of poultry and eggs. Ninety percent of the farms in Kansas produce some poultry, but the difficulty is that on so many farms the hens are just average hens. They produce an average of only 75 eggs per year.

“Those who would change our government are following the strategy of giving lip service to Democracy but all the time chiseling from within. They believe the battle will be over before the masses know what has happened.”



CROP ROTATION ONLY SURE CURE FOR TAKE-ALL FOOT-ROT

Take-All Foot-Rot

(Continued from page 72)

The causal organism of foot-rot of wheat is soil-borne and the plant is subject to infection during most of its life history. All underground portions of the plant are attacked. Resistant varieties would be important to the control of this disease, since chemical protection of the seed does not protect the roots.

Any wheat plant possesses a degree of resistance to take-all. Certain tissues in the root, coleoptile and subcrown, react in such a way as to indicate resistance definitely. The outer epidermal cell walls, in the presence of masses of mycelium, become thickened. Xylem cell walls and the walls of adjoining cells become lignified in the presence of invading hyphae. The endodermis of a root resists the entry of hyphae.

As yet, no wheat variety has been found that may be recommended to farmers as sufficiently resistant to take-all.

There is no graduation in the matter of resistance to take-all. When wheat plants are attacked by this disease the loss may be, and most often is, complete. Apparent resistance in individual plants has been observed among plants in an infested plot. These have proved to be false alarms, for their progeny turned out no better than the variety.

The field of hybridization has not yet been explored extensively. We lack breeding stock until such time as we discover a truly resistant variety.

Rye is resistant to foot-rot; wheat-rye hybrids, however, do not show any more resistance than the wheat parent.

Another possible point of attack in an effort to control take-all is through the application to the soil of organic matter such as straw, horse manure and decaying alfalfa leaves and stems. These materials give considerable control. Our hypothesis with reference to the reason for this control is based on the following reasoning:

Organic matter in the soil greatly increases the bacterial and fungal count. It is obvious from many experiments

and observations that there is competition among soil organisms. Certain organisms are known to excrete materials toxic to other organisms. It is definitely known that take-all disease may be modified by the addition of certain organisms to the soil. We foster those organisms by supplying an abundance of organic matter.

Phosphorus is the only inorganic material which aids in the control of take-all. It has been known to increase the yield in badly infested fields by 91 percent. Since the average yield in badly infested fields after treating with phosphorus was only 8 bushels in contrast to 0.94 bushel in the untreated field, it is recommended for use in mildly infested fields.

At the present time, the most certain control results from that old stand-by for controlling diseases and insects—rotation. Take-all thrives most abundantly in the presence of wheat or other hosts common to wheat fields. In their absence, the presence of take-all in the soil becomes insignificant.

The most effective rotation begins with three years of cropping to a crop not susceptible to the disease. This may be followed with two years of wheat. Or an immune crop may be planted for two years only, followed with one year of wheat. A less desirable rotation would be one year to an immune crop, followed by one year of wheat.

Rye is resistant to take-all, barley partially so, oats not at all susceptible. Corn and the sorghums are immune. Legumes are not subject to attack, but take-all may appear in a field following alfalfa due to susceptible grass and weeds growing among the alfalfa plants.

Until more definite progress has been made in other directions, we must continue to resort mainly to crop rotation for control of take-all in fields where this soil-borne disease has gained a strong foothold. Phosphorus may be used if the disease is not too strongly entrenched.

“If America is lost, it will be lost by you and men like you.”

Not All Farmers Would Make Desirable Husbands

By Mary Manhunter

Six out of ten girls I know do not, under any circumstances, want to be farmers' wives.

I know. I asked them.

I don't believe, however, that their reasons are any too good. Most of the girls seemed to have the opinion that farmers, as a group, were a lot of fellows who wore overalls, battered hats and squeaky shoes.

We didn't waste any time arguing, even though I didn't agree with them. But I did take time to consider some of the "ifs" that I'd ponder if I had to choose between Joe Country and Jack City.

My farmer-husband would have to possess a standard college education in agriculture. In these days of scientific research and progress, it is absolutely essential that a farmer have a sound scientific background in agriculture, as well as real farm experience. Farming no longer is a subsistence occupation. Farming is a business, every bit as much as running a grocery store or a garage or a clothing store is a business. If you don't believe farming is just as much a business as the other enterprises I mentioned, consider what has happened to two farm industries—dairying and poultry raising. There's no "hit-or-miss" method in either of those branches of agriculture. They're all business. They've got to be, and a scientific training is necessary for the profitable operation of either enterprise.

Well, I hope you see why I insist that my Joe Country must have a college education in agriculture. But I wouldn't want my Joe to be one of these all-work-and-no-play fellows. I would like for Joe to have some education in the appreciation of the arts such as music, literature and painting. He wouldn't have to be able to recognize Brahms or Beethoven or Wagner; he wouldn't have to be a member of the Book-of-the-Month Club; he wouldn't have to rave about Cezanne or Picasso; but he

would have to be able to appreciate something better than Benny Goodman or Artie Shaw; something better than the blood-and-sand stories in the "thrillers," and I wouldn't like it if his only "art" was that he gets from the illustrations in the advertisements.

You see, we might meet the city banker or doctor or architect or school superintendent or some other educated person. I wouldn't want my Joe to be "like a fish out of water."

He should know something else besides farming. People, when they get together, have a habit of talking about things, and I'm afraid an evening of conversation entirely about farming would be tiring. Of course the city men are just as likely to be boring if they don't know anything at all about the business of farming.

It may surprise you to learn that 80 percent of the farm commodities are produced by 20 percent of the farmers. It is a pretty safe bet that a large proportion out of that productive 20 percent are college graduates. I'd want my Joe to be in that upper 20 percent.

They're the fellows the newspapers call "farm leaders." They're the fellows who know the whys and wherefores of scientific farming. They know what crops to grow and where and when to grow them. And it takes an awfully long time to learn those fundamental facts by the "trial-and-error" method down on the farm. The scientists have learned the whys and wherefores by systematic research and experimentation.

Salaries, not too good but at least attractive, are taking the majority of our college-trained farmers away from the farms these days. Farm management work, U. S. D. A. work, soil conservation and other agencies hire the young men at satisfactory salaries. Those fellows are reasonably sure of an income.

But the farmer who has to gamble

(Continued on page 86)

Where Do Our Seniors Go?

The dean's office is presumed to have the answer to the question, Where do our seniors go? It isn't easy to accumulate that information and keep it up to date. Seniors are frequently so pleased to get a job that they forget to notify either the head of their department or the dean's office.

It is important that the dean's office have a record of the address of all graduates. Opportunities for advancement to better positions frequently come through the office of the dean. There are times when it is desirable to reach an alumnus by long distance telephone or telegraph. The delay of tracing a graduate through friends or relatives would sometimes be fatal, in as far as the prospective position is concerned.

For that reason, seniors and former graduates of the Division of Agriculture are urged to be sure the file record in the dean's office is always up to date. In all probability, it may mean more, much more, to the alumnus than to anyone else. In truth, it is entirely for the benefit of graduates and former students who did not graduate that an effort is made to maintain an up-to-date address record of men who have studied at Kansas State.

Farmers as Husbands

(Continued from page 85)

with the wind, the rain (or lack of it), the grasshoppers, the chinch bugs, isn't so sure of an income.

The old-timers like to reminisce about "the good old days" when all they had to do to get a corn crop was to plant it, cultivate it two or three times, then sit back until corn-shucking time to reap a bumper crop. The corn just grew.

Well, corn doesn't always just grow. Neither does wheat, oats, alfalfa, sorghum or any of the other crops. Droughts, insects and plant diseases must be combated. A scientific agricultural training will teach Joe how to combat those things. The scientists

will go ahead discovering new things and new ways to combat old pests after Joe is out of college. It will be up to him to keep step with the steady onward march of science.

The smartest farmers are those who keep in touch with the times, the new developments in scientific farming, etc. Joe would have to be able to interpret those new developments in terms of dollars and cents to his farm, and then apply them to his farm to best advantage.

So, you see, I'd like to be a farmer's wife, if—just dare one to ask me.

—Peggy.

Farm Shelterbelts

(Continued from page 73)

The Forest Service through the Prairie States Forestry Project is authorized to furnish trees to farmers for use in shelterbelts. A simple cooperative agreement is signed. The farmer is required to furnish the land, prepare it for planting, furnish fence materials, do necessary cultivation and maintain the planting and control rodents. The trees are planted with local relief labor.

The shelterbelt program is carried on as a community improvement project. Plans for the placement of shelterbelts in the townships are drawn by volunteer township tree committees of farmers. There are now over 140 such committees with more than 460 members. Some of the township planting plans call for from 50 to 65 miles of shelterbelts. Actual plantings have been made in some townships to such an extent that about 50 percent of the shelterbelts planned by the committee are actually planted.

Students of agriculture can well afford to give attention to the need for trees in the agricultural economy of our state. Tree planting on practically every farm is needed. It will require real leadership to bring a broad tree planting program to the state.

Paul Hodler, '38, is employed by the National Milling Company in Toledo, Ohio.

New Greenhouses

The departments of agronomy and botany are looking forward with high anticipation to occupying the new laboratory building and greenhouses that are now completed. With the addition of the two new greenhouses and the adjoining laboratory building, much additional experimental work can be planned for the future.

The new greenhouses are located directly east of the present houses. One will be used by the department of agronomy, the other by the department of botany. Floor space will be doubled by the addition of these new units. Most of the bulky equipment now in the old greenhouses will be placed in the new laboratory building.

The laboratory building or head house, constructed of native stone, with modern finishing throughout, extends along the north end of the four greenhouses with doorways leading into each greenhouse. The building is 20 feet wide by 130 feet long and has a basement.

The basement will be used mainly for the storage of pots, seeds, soil, soil sterilizer and so on. Service equipment, light regulators, and a refrigerator will also be placed there. The east portion will be used for garage space and as a packing room by the department of horticulture. An elevator is being installed to facilitate transportation of material from the basement to the greenhouses or to the laboratories.

Five laboratory rooms are located on the first floor; three will be used by the department of agronomy and two by the department of botany. These modern laboratories will enable the station research workers and graduate assistants to carry on their work much more conveniently than has been possible heretofore.

Work benches and potting tables will be located along the south wall of the building. Provision has been made for an attendant to live in the laboratory building. His duty will be to maintain proper and even temperature and ventilation at all times. —Hilbert Grote.

Sleeping Sickness in Horses

(Continued from page 75)

down with it when kept under identical conditions? Many of our horses are not susceptible. Have they had a mild form that was unnoticed and so developed an immunity?

On the other hand, we have knowledge that chickens and turkeys have been found to be carriers of this virus even though they do not contract the disease. Forts Riley, Snelling, Leavenworth, and other U. S. Army posts are good examples of improved sanitation lessening the incidence of disease. Although horses are the most common animals naturally affected by this disease, the eastern strain particularly has been known to attack humans, with a 50 percent mortality.

Precautions are definitely necessary in handling this disease.

While the clinical picture of equine encephalomyelitis shows considerable variation in the individual cases and in different outbreaks, an average and not too acute case may be expected to answer the following description: First stage is attended by a marked fever, even to 107 degrees F. A horse's normal temperature is 100 to 102 degrees F. The mucous membranes of the mouth and eye become a dull red instead of a light pink. The horse is depressed and appears constipated. His movements are slow.

Send for a Veterinarian

An observing horseman can readily detect these symptoms; and this is the time to see that the animal is given the utmost consideration. When this disease is suspected, call a veterinarian at once.

Second stage, occurring in a day or so, is evidenced by a disturbance in locomotion, staggering gait, and frequent twitching of body or face muscles. There is little desire for feed or water. Marked loss of weight occurs. Inability to swallow feed or liquid is a frequent symptom. There is nasal discharge. A

(Concluded on page 89)

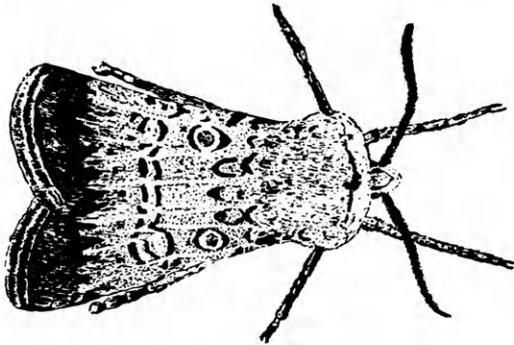


Drouth Favors Pale Cutworm in Kansas

By Morris W. Phillips

RECENT drouths have resulted in an important entomological change and development in western Kansas. The dry summers have favored the migration of the pale western cutworm. It has now extended its range from the Panhandle of Oklahoma into west-central Kansas.

The pest probably spread from the north to New Mexico along the eastern slope of the continental divide and from



The adult male pale cutworm moth.

there to the Panhandle of Oklahoma and Texas, then into western Kansas.

Chief damage of the cutworm is to wheat. It is estimated that 30,000 acres of wheat were destroyed in western Kansas in 1937 and a like amount in 1938. We may anticipate further damage in 1939.

In Kansas, the over-wintering eggs hatch during the first warm weather in February or March. The larvae are nearly uniform, slate-gray cutworms with light brown heads. They are lighter or paler than other cutworms. Nearly all others are striped.

The larvae feed above the ground on the tender sprouts of the wheat only during the first two weeks. Following this two weeks' period, they go below the ground to feed and remain there until fully grown. In the soil they feed just above the moisture line. The larvae, seeking the line of least resis-

tance in feeding, often follow the drill furrows. Wheat in wheel tracks, and in soil packed by horses rolling upon it, is not injured.

After the larvae cease feeding, they come up nearer the surface into dry soil, construct earthen cells, and remain inactive as pre-pupae for two or three months. Late in August, they transform to pupae which are dark brown and measure about three-fourths of an inch long. The pupal stage lasts normally three or four weeks.

The adult is a dull gray moth, often with a greenish tinge. Its out-stretched wings measure slightly less than one and a half inches in breadth. Moths emerge the latter half of September in Kansas. There is a pre-oviposition feeding period of four or five days after which each female will normally deposit from 250 to 300 eggs. The length of life of the moths is 10 or 11 days.

Eggs are deposited in loose, mellow soil one-fourth to one-half inch below the surface of the soil. Moths avoid encrusted soil when laying eggs, but they will oviposit in hoof prints where the crust of the soil has been broken.

Although the damage of the pale western cutworm is principally to wheat, it will feed on nearly all other field and garden crops and weeds. The larvae kill the wheat by clipping it just above the crown. The first visible evidence of infestation is the occurrence of patches of wheat turning brown. The plants gradually die, leaving bare spots. Entire fields of wheat may be killed. Most of the damage is done between April 20 and May 10.

With a few summers of average rainfall, the insect will probably disappear in Kansas.

Land which is plowed soon after harvest and not cultivated during August is not attractive to the moths for oviposition. The best known control method for Kansas at the present time is summer fallow.

Department Heads Fete Judging Teams

The recognition banquet given by Dean L. E. Call and the heads of the departments each fall for the judging teams that have participated in judging events during the first semester is one of the year's highlights. All departments are represented with the exception of the milling department, which has no judging team.

The dinner took place this year on the evening of January 20 at Thompson Hall. Wives of the department heads, including Mrs. Call, were hostesses. On them fell the responsibility of planning the banquet. Dr. W. F. Pickett, toastmaster, read the intriguing little story of Ferdinand the Bull, who had the silly habit of sitting in the shade and smelling flowers. Again those present were reminded that "Ferdinand" is not a fitting name for the big bronze bull that will be returned to the campus next fall.

Coaches and members of the various teams were introduced and properly razzed by a representative of each team. Surprising "facts" came to light with reference to the conduct of some of the team members and coaches on their various trips last fall. Professor Cave has not denied that he procured the autograph of beautiful Miss America for 1937. It is probably true that Gay Tuis insisted on spending his evenings window shopping. No surprise that Jess Cooper was taken for an orchestra leader.

In Chicago someone sized up Edward Moody and Hoy Etling of the meat judging team and wondered what our football team must look like. It may be true that Bill Alsop had an extensive display of cosmetics on his dressing table at the Chicago hotel. No one doubts that Joe Lewis probably broke the glass out of a revolving door with his oversized suitcase. And it isn't surprising that John Perrier wanted to go by a little red school house on the way to Kansas City where a young lady who

was on the campus last year is now teaching school. Those are a few of the "reports" made by team representatives at the banquet.

In addition each team representative gave a short talk on a subject pertinent to the situation and the occasion.

Dr. C. W. McCampbell, absent on vacation, had prepared a statement in recognition of Professor Bell's good work as livestock judging coach at Kansas State. The statement was read by Doctor Pickett.

Sleeping Sickness in Horses

(Concluded from page 87)

fetid odor develops. The animal's vision is often impaired.

Third stage is that of prostration; the animal is no longer able to stand. Clonic spasms and convulsions occur, followed by complications and death. As a rule, the horse passes through the three stages in three or four days.

Treatment consists of good nursing. Keep the animal standing as long as possible, with the aid of slings and stocks. The use of the stomach tube to water and feed the animal, and the administration of serum and drugs will be dependent on the findings of your graduate veterinarian.

Preventive treatment takes two forms: First, the use of vaccines to try to build up an immunity. A very effective new vaccine has just been developed, almost perfect from a preventive standpoint. With such insurance against this disease, it is very poor business to leave good horses in an infected area unprotected.

Second, the removal of all horses from pasture seems to check the spread of the disease, and protection from flies and mosquitoes probably explains the good reports at army stations.

Improved sanitation and preventive vaccination offer our surest protection against this disease to date.

"Constitutional government is now faced by some of the most formidable enemies any government has ever had to face."

KANSAS THE PROVING GROUND FOR GRASSHOPPER 'HARVESTERS'

'Hopper Dozers

(Continued from page 70)

Another machine had a reel, much like that on a header or combine, which revolved in front of and above a long and shallow oil pan. The purpose of the reel was to bat the 'hoppers back into the oil and subject them to a dipping after which there was no escape.

Kansas State College in 1877 developed a machine for combating the 'hoppers. At the front was a large canvas mouth-like opening. This opening tapered back to a small chamber on which a gunny sack was attached. If the grasshoppers could be coaxed into entering the yawning maw of this machine, their ultimate destination was the chicken yard, via the gunny sack.

The "crush 'em" idea popped up next in using a large, heavy road packer on the fields. Its purpose was to crush the 'hoppers on the ground. The theory included crushing the eggs near the surface, too.

The simple and inexpensive broad, shallow kerosene pans were the most successful in combating the 'hopper plagues. A backboard, or perhaps more aptly called a "bangboard," four or five feet high was fastened to the rear of the pan. The pan was then dragged over the field and as the 'hoppers struck the backboard they rebounded into the oil which immediately suffocated them. This type of device has been used extensively during years of heavy grasshopper infestation. One adaptation of this plan is to build a pan to fit the tray of a sweep rake or "hay buck."

The latest type of 'hopper dozer, and probably the most efficient yet designed, uses the oil pan and backboard principle. The machine was designed and built at the Fort Hays Experiment Station last year.

Eight steel pans each two feet by four feet were fastened to a platform 16 feet long. These small pans prevent "sloshing." To the pan platform a vertical sheet metal backboard and side fenders were fastened. The top was screened the width of the platform. This assembly was then attached to the rear of an

old automobile chassis which cost \$10. It was attached in such a way that the platform could be raised and lowered like the sickle and floor of a combine. This permitted greater speed and safety in moving from field to field.

The transmission of the automobile chassis was reversed. This provided three speeds backward for the car (but forward for the 'hopper dozer). In other words, the car really goes backward but does so in the speeds made to go forward.

Advantages of this "Corrigan" adaptation are, first, it allows more free air to the radiator, keeping the motor cooler than when it was covered by a platform backboard; second, the machine steers much more easily by not having the pan carried over the turning wheels. Shorter turns are made possible, too.

Diesel fuel oil only, instead of kerosene on top of water, is used in the Fort Hays station machine. Diesel fuel is cheaper than kerosene and once the 'hoppers hit the oil, their hops are extracted.

The machine can average about eight miles per hour on average fields. It may be speeded up and occasionally rough fields necessitate slower speeds to avoid splashing the oil. From 100 to 120 acres can be covered on an average day. "It's really a go-getter," L. C. Aicher, superintendent of the Hays station, says. "We have to measure the 'hoppers by the bushel. I guess about 200 bushels were harvested last year with the machine."

Like a silver thread, there runs through this issue of *The Kansas Agricultural Student*, significant statements taken from the address of Justice Hugo T. Wedell of the Kansas Supreme Court, which was given before more than 500 farmers and legislators at the annual dinner of the Kansas State Board of Agriculture at Topeka, January 11. Go back now and pick up these statements in consecutive order. Read them all together. In them is a challenge and a warning. "If America is lost, it will be lost by you and men like you."



TYPES OF REFRIGERATION PLANTS IN KANSAS

Community Refrigerators

(Continued from page 69)

home canning and helps to utilize the carcass to better advantage. This system makes possible the slaughtering of animals in seasons during which it would otherwise be impossible. By the increased use of lockers, a better balanced diet with greater variety is made possible the year round. Home-grown fresh vegetables may be used during winter months and a good supply of reasonably cheap meat will be on hand for summer. This is especially true for farm families who often have a large amount of hired help during the harvest seasons.

Freezing retards the development of molds, yeasts, bacteria, and enzymatic action. Temperatures of from 0° F. to 10° are recommended for storage of food, and sub-zero temperatures should be used for quick freezing.

The plants in Kansas vary widely as to size, type, and services performed. The simplest is an antiquated ice plant in which there is an extra storage room where a temperature of about 15° to 20° F. is maintained. A charge of one cent a pound is made when the foods are placed in storage. No lockers, bins, or boxes are provided in this type, so it is not very convenient.

Many creameries and produce houses operate plants for the use of their patrons. Lockers are usually home-made, but are neatly arranged in tiers and a temperature of 15° F. or lower maintained. No other services are offered in this type of plant. The plan is fairly satisfactory.

A third type, usually operated in connection with cold storage plants, is frequent in Kansas. Additional facilities of this type include a chill room and, in some instances, a sharp freezer. Usually a cutting and processing room is available where the patron may prepare the meat for storage and in some plants an experienced meat cutter is employed.

Finally there are the complete service plants. Here the attendant does all the cutting, processing, and wrap-

ping. These plants are operated in connection with some type of refrigeration plant, such as in an ice cream factory, retail meat market, produce station, or cold storage plant. Included in the complete service plant are facilities for chilling, aging, cutting, processing, and sharp freezing in addition to the regular locker storage space. Fees charged vary widely in different localities and the receipts from processing and cutting exceed the locker rental revenue.

A few plants in the state might be called the "deluxe" type, since they are complete plants where the sole business is that of food processing and storage. All types of services are available in these plants.

In building new plants the owners usually profit by the mistakes made in building the "pioneer" plants, so today the new plants have all of the good and none of the undesirable features of the earlier types.

Preferences on the kind of paper to use for wrapping meat have changed a good deal in the last two years. Common butcher paper, parchment, and cheap oil papers have proved to be unsatisfactory. Several paper companies have put on the market tough, heavy, glazed, waterproof papers which seem to be much more desirable. Double-waxed containers for ground meat, poultry, and vegetables seem to be proving satisfactory.

There has been much discussion as to whether or not sharp freezing is necessary. Its use insures rapid and complete freezing of all products which tends to avoid shrinkage, freezer burn, and losses in general. If large quantities of meat are brought in at a time, it is best to have a sharp freezer because when the packages are piled up it may take several days before the center pieces become frozen and spoilage may take place in the meantime.

Well-fattened beef and lamb seem to stand storage better and for a longer length of time than thinner cuts. If beef and lamb carry good finish, these should be aged from one to two weeks

(Concluded on page 92)

Herman Reitz Honored

Herman J. Reitz has been selected as the outstanding senior of the Division of Agriculture for the class of 1939. Mr. Reitz is the youngest of a family of four children who grew up on a fruit farm near Belle Plaine in Sumner county.

His two brothers, Russell and Louis, are graduates of the college and fill important positions; Louis on the faculty here. Herman's sister is a graduate of Southwestern College of Winfield and the wife of a prominent minister in California.



HERMAN J. REITZ

The Reitz home is one of culture and the land is intelligently managed.

Herman's first year in college indicated high future accomplishments. He quickly earned a place in the group granted divisional honors, freshman honors from Phi Kappa Phi, the Alpha Zeta scholarship medal, and joined the Farm House social fraternity.

As a sophomore he again earned scholastic honors, was elected to active membership in Alpha Zeta and found time to sing with the college glee club.

Herman's junior year brought a load of honors and extra-curricular activities which would daunt any but the ablest students. He served as a departmental editor of the Kansas Agricultural Student, president of the Horticulture Club, an active member in Dynamis, especially in the campaign for the Student Union building, and won the Danforth Foundation scholarship for the summer of 1938.

Reitz's senior year has again been one of high accomplishment. He was high man in the intercollegiate apple judging contest, was elected to active membership in Phi Kappa Phi, is scribe in Alpha Zeta, and is business manager of Farm House. He has been self-supporting to the extent of one-half or more of his college expenses.

It is with confidence that I foretell a life of high attainment and of great usefulness for Herman J. Reitz, a representative student of the Division of Agriculture.—R. J. Barnett.

Community Refrigerators

(Concluded from page 91)

before cutting. On the other hand, pork should be thoroughly chilled, cut, and frozen as quickly as possible. It is not advisable to keep frozen pork for periods of over six months, for there is a tendency for it to become rancid if held for longer periods of time. Sausage and other ground meats should not be seasoned until they have been removed from the locker and thawed. This type of meat should not be kept for long periods of time as it tends to lose its color and dries out rapidly. Cured meats may also be stored. However, if proper curing methods are followed, this should not be necessary.

When meat is removed from the locker, it may be cooked immediately without thawing, using a low temperature in cooking. If not cooked immediately, it should be placed in a refrigerator or kept covered so that it will not thaw too rapidly. Meat which has been frozen breaks down much more rapidly than fresh meat.

THESE KANSAS STATE BOYS REALLY KNOW THEIR APPLES

Apple Judgers Win Again

The Kansas State Apple Judging Team placed first, for the fourth consecutive year, in the Intercollegiate Apple Judging Contest held at the college in connection with the Horticultural Show December 12, 1938. Herman Reitz, Belle Plaine, a member of the Kansas State team, was high individual in the contest with a score of 2,120 out of a possible 2,225 points. Other members of the Kansas State team were M. R. Peterson, Riley, who placed third in the entire contest; E. F. Kientz, and D. E. Johnson of Manhattan. Dr. G. A. Filinger coached the team.

Teams participating in the contest and their scores, out of a possible 6,675 points, were: Kansas State, 6,050; University of Missouri, 5,965; Oklahoma A. and M., 5,295; and Texas Tech. College, 5,080. Each team consisted of three men and an alternate.

The contest included 100 apples from 25 varieties for identification. Each school contributed a part of the apples

used in the contest, thus assembling many types of each variety resulting from ecological differences during growth. Also in the contest were 15 judging classes of three plates each with five apples to the plate. These were judged on the basis of condition, form, uniformity, size, and color. The highest possible individual score was 500 points for identification of the 100 apples, 225 points for identification of the apples in the judging classes, and 1,500 points for judging, making a total of 2,225 points.

It was an unusually exciting contest. Reitz's paper was the last to be graded and it had to be the highest score in the contest for Kansas State to win over Missouri whose team was well ahead at the time. Reitz came through and the good record of the Kansas State apple judgers was maintained for another year.—Otto Wenger.

Herbert Davies, '38, is with the Pet Milk Company and is located in Neosho, Missouri.

Champion Apple Judgers



Top—Dr. G. A. Filinger, coach; Herman J. Reitz.
Bottom—Dale Johnson, Melvin Peterson, Emile Kientz.



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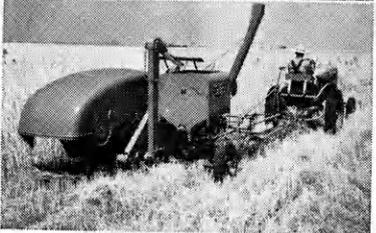
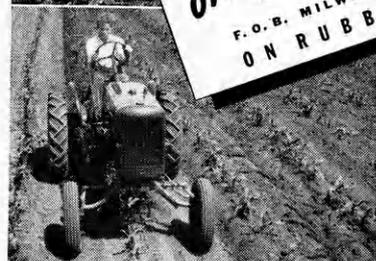


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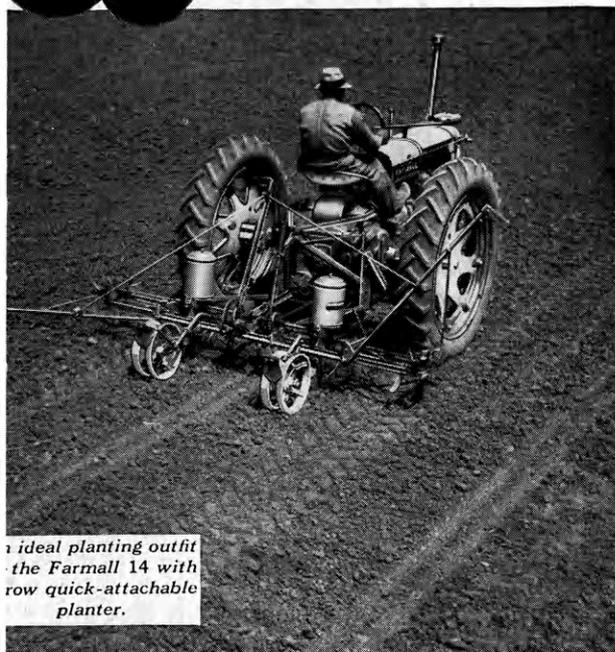
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