

**THE KANSAS**  
**AGRICULTURAL STUDENT**  
**MANHATTAN, KANSAS**



**VOL. XIV**  
**No. 4**  
**MAY 1935**

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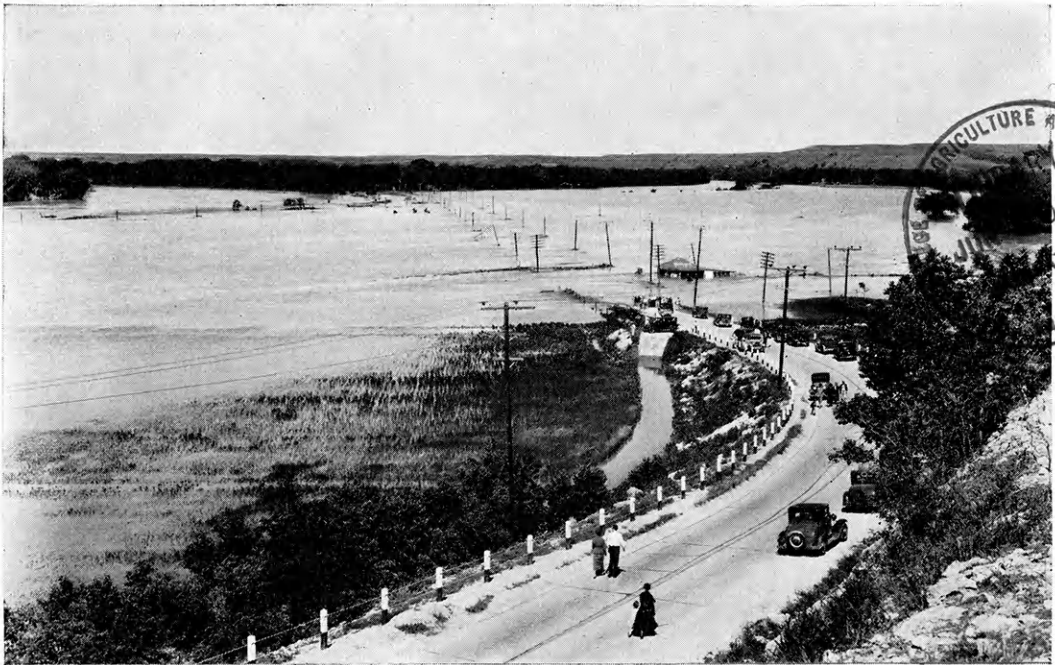
Phone 3912

# The Kansas Agricultural Student

VOL. XIV

Manhattan, Kansas, May, 1935

No. 4



LOOKING WEST ON HIGHWAY 40S OFF STAGG HILL

Some of the run-off from the dust bowl of Colorado, Nebraska, and Kansas makes many highways impassable. The lines of telephone poles in the picture show the location of the highway slab. To the left near the usual north bank of the Kaw, the Union Pacific railroad track may be located by the tops of the telegraph poles. The condition of the track is indicated by two upturned stretches of ties and rails. Those who travel highway 40S do not forget Stagg hill, not far southwest of the city limits of Manhattan.

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# Wind Erosion and Its Control<sup>1</sup>

L. A. Jacobson, '32

Soil erosion by wind has been the most severe in history in the semi-arid region of the Great Plains this year because of the unprecedented drought and the physical condition of the soil, which made conditions ideal for soil blowing. The severity of the erosion was primarily due to the vast region over which it extended and its long duration rather than to the degree of soil blowing in any particular locality. Soil blowing has been just as severe in local areas in the past as it has been this year. The large territory affected at the same time this year, however, caused the formation of great dust clouds which were carried by wind for hundreds of miles and thus attracted much attention.

The intense dust storms which resulted from soil blowing were a menace to the health and well-being of the people in the region. Schools were closed and business was at a standstill during the most severe storms. Transportation was practically stopped because of the lack of visibility on highways and the injurious effect of the dust on motors. The dust particles were so fine that they penetrated into the most modern homes and other buildings. At times the dust was blown far into other sections of the country and caused inconvenience and discomfort.

As a result of the widespread dust storms and the recognition of the need for cooperation over the entire region for effective control of wind erosion, a conference of agricultural college representatives from Texas, New Mexico, Oklahoma, Colorado, and Kansas was held at Garden City, Kan., on April 17, 1935. After a study of the problems involved, a long-time program, as well as emergency measures for the prevention of soil blowing, was recommended.

An appropriation of \$25,000 was se-

cured from government relief funds for the purchase of fuel and oil for tractors. Farmers throughout the soil-blowing areas in Kansas, encouraged by this aid, listed many acres of land in an effort to prevent erosion. As an emergency measure and also to initiate a long-time program of soil erosion control a number of CCC camps may soon be located in this region.

The area over which wind erosion has been taking place includes, in addition to central and western Kansas, parts of Nebraska, Wyoming, Colorado, New Mexico, and the panhandles of Texas and Oklahoma. Some areas in western North Dakota and South Dakota also have been affected by soil blowing in the last two years. Soil blowing in Kansas has occurred for the most part in the area west of a line drawn from the western edge of Republic county to the eastern edge of Meade county. There are a few areas east of the line, especially in the central part of the state, where some blowing has occurred. Much of the land within the affected region in Kansas, however, has been protected by sufficient wheat, native grass, and other soil cover.

The condition of the land within the soil-blowing area varies between two extremes. In some areas where extreme soil blowing occurred the surface condition of the soil is such that it blows whenever heavy winds occur. In other areas where showers last fall made it possible to start wheat and maintain the crop through the winter, very little blowing occurred. Most of the land in the region may be classed as intermediate between the two extremes. As a rule, the fields that are subject to severe erosion are comparatively small and scattered, except in the exceptionally dry and sandy areas.

The severe wind erosion in the Great Plains during 1934 and 1935 was caused by a combination of conditions which

1. The writer is indebted to Dean L. E. Call and Prof. R. I. Throckmorton for most of the material incorporated in this article.

occurred over the region. The low rainfall during the last few years and especially the widespread drought in 1934 and early in 1935, prevented the establishment of vegetative cover and the surface soil became dry and pulverized. The shortage of feed because of the failure of feed crops and the poor condition of pastures caused the use of all available plant material. This caused further exposure of the soil to the action of wind. Methods of cultivation during the past have tended to make the soils more subject to wind erosion. The common practice has been to cultivate the soil with disk types of implements. The use of such implements when the soil is too dry pulverizes the clods and leaves a fine surface layer.

One of the causes of wind erosion on the Great Plains was the expansion of areas under cultivation during and following the World War in response to the demand for increased production of food crops. Much of this land, especially in regions of lighter rainfall and sandy soil, should never have been cultivated.

The general soaking rains which recently have occurred throughout the affected area, have at least temporarily stopped soil blowing. But it must be remembered that they have not solved the problem completely. The soil may blow again within a short time after a heavy rain in areas where extreme blowing has occurred. Much of the soil of western Kansas has a tendency to "run together" during rains and becomes almost impervious to water. As a temporary expedient the soil may be listed to allow penetration of moisture and to make a rough, cloddy surface. However, emergency tillage operations of any character should be considered only as a temporary substitute for a vegetative cover.

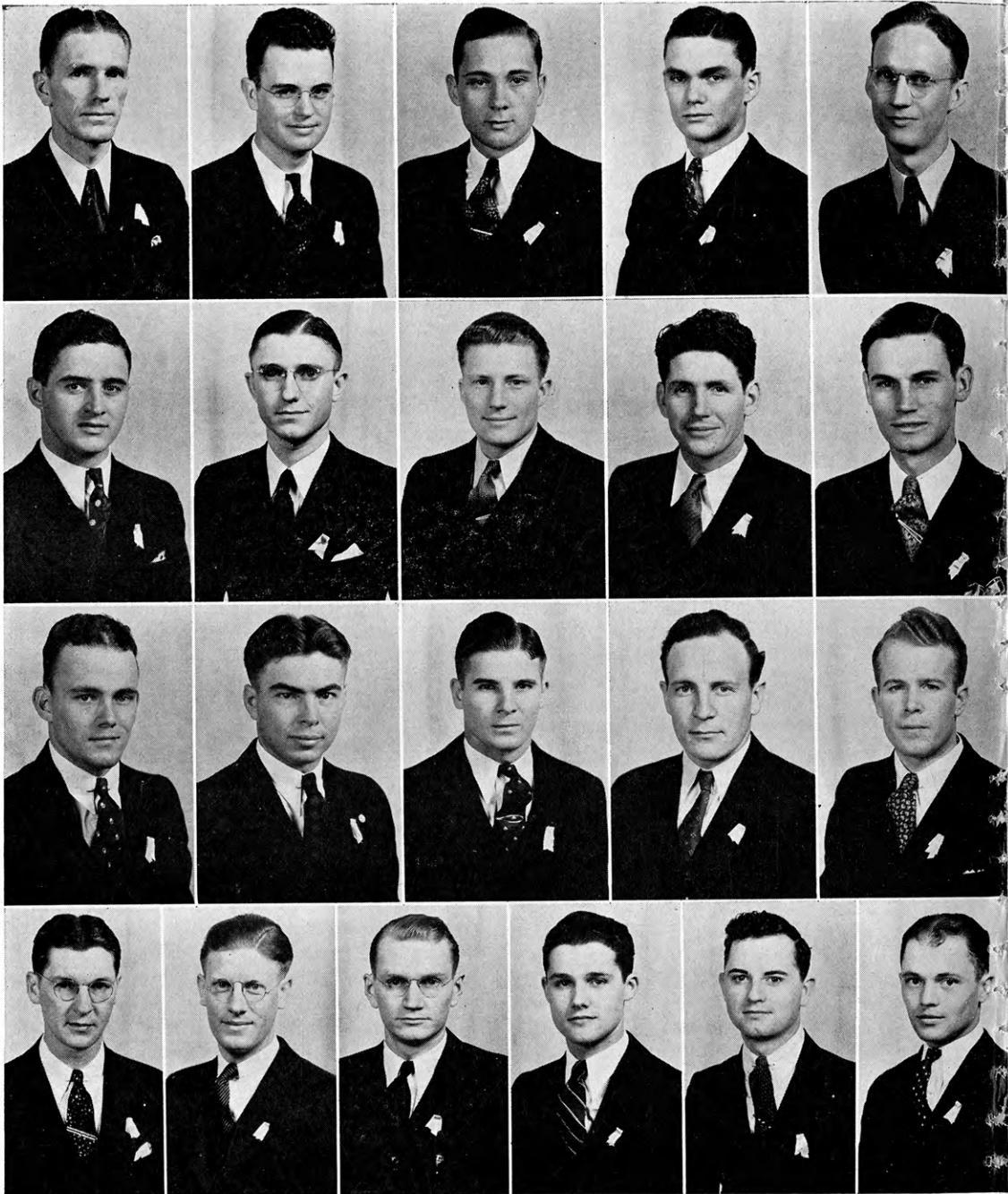
A long-time program for control of soil blowing is needed. The system of farming must be planned to conserve moisture, insure a crop cover, and keep the exposed soil in a cloddy condition.

Some of the more sandy soils, which do not cover a very large area, probably should be taken out of cultivation and some type of vegetative cover established on them. Similar measures may be advisable on some heavier soils that are subject to erosion.

There is a considerable variation in the adaptability of crops for protection against wind erosion. All stooling varieties of sorghums have proved effective in anchoring the soil. The tough, fibrous stalks and abundant root systems are sufficiently durable to hold the soil during seasons of wind erosion. After harvesting the short grain sorghums with the combine, the tall stubble may be left through the winter and early spring to hold snow and prevent soil blowing. The use of the more drought-resistant varieties of crops in this region will aid in keeping a vegetative cover on the land. If for any reason regular crops fail on land subject to wind erosion, off season plantings of emergency cover crops may be made.

Over much of the wind-blown area soil erosion can be prevented by practicing strip farming with alternate strips of wheat, feed crops, and fallow on the fields. These strips should be at right angles to the direction of prevailing winds or, on sloping lands, they should follow the contour. Wheat-stubble land to be fallowed or used for feed crops the following year may be left undisturbed through the winter and until the danger of soil blowing is over the following spring. During years of good summer and fall precipitation this land may be listed in the late fall or early winter and left in a rough condition until late spring. Following a feed crop the land should be listed in the late fall if there is not sufficient stubble to prevent wind erosion.

Timely cultivation with the correct types of implements is an aid in preventing wind erosion. The greater use of the lister, duck-foot, and spring-tooth types of implements, and culti-



## ALPHA ZETA INITIATES, 1934-'35

A. Glenn Pickett  
Earl W. Parsons  
H. Frederick Dudte  
O. J. Reusser

L. Wayne Herring  
Leslie W. King  
Emory L. Morgan  
L. E. Wenger

Ned O. Thompson  
Fred L. Fair  
Robert T. Latta  
L. F. Miller

Clare R. Porter  
J. Raymond Dicken  
Raymond J. Doll  
H. M. Laude

J Forest Wolf  
George L. McCollm  
Clarence L. Bell  
W. B. Thomas

L. R. Shultz

vating when the soil contains enough moisture will tend to leave a cloddy surface that will not blow.

Another important factor in a long-time program of erosion prevention is the carrying over of feed supplies from years of high production so that they can be used in years of drought. This practice would eliminate the necessity of removing all plant growth from the soil and exposing it to the wind at the time when this protection is needed the most.

Although wind erosion has transported enormous quantities of soil from some of the cultivated land, it has not permanently injured the crop-producing capacity of the region. Soils have been permanently injured only in local areas such as the more exposed spots and in sandy regions. In the remaining area the actual removal has been slight. More soil probably is lost from soil erosion during one rain in more humid regions than is lost in one season of wind erosion in the western Great Plains. Much of the land consists of a deep, wind-deposited soil and therefore has not been permanently reduced in productivity by soil blowing.

Although the hazards of farming may be great in the western Great Plains, by the application of a long-time program for control of soil blowing, including conserving moisture, keeping land under vegetative cover as much of the year as possible, and practicing proper methods of cultivation and soil management, these hazards may be materially reduced. The development of a system of agriculture which will control erosion will tend to make farming a more stable and profitable enterprise, and thus materially improve the living conditions in the western Great Plains.

W. A. Wunsch, '17, is county agricultural agent, Carlsbad, N. Mex.

Mrs. Oleve (Manning) Erickson, '27, is located at Towaco, N. J.

## Of Interest to All Students

According to Prof. F. E. Charles of the Department of Industrial Journalism, Horton M. Laude, 1935 winner of the Capper scholarship award in agricultural journalism, won the distinction on simple excellency of routine work. He had no previous experience in journalistic writing, no especial interest in it, and perhaps no thought of winning honors in that field. He merely approached every class assignment with determination to do it creditably. Such an attitude enabled him to obtain something of value from every class meeting and every assignment.

Professor Charles further comments that Laude made the customary mistakes at the beginning but he made them only once, while some classmates made them continuously during four months of study. He caught the simple technique of news writing and was able to make the slight changes in that form of writing to the editorial, the special articles, and other types.

Horton is an outstanding student from every slant. His freshman year he made  $\frac{1}{2}$  credit hour of B and 32 hours of A. Last year, his sophomore year, he was assigned to 34 credit hours and made straight A's.—Ed.

The following students of the Division of Agriculture were awarded sophomore honors at commencement: Horton M. Laude, Clarence L. Bell, Robert T. Latta, Lyle M. Murphy, and Oren J. Reusser.

The members of the staff of The Kansas Agricultural Student for 1935-'36 are as follows:

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Dairy Husbandry.....	Wilmer R. Smittle
Horticulture.....	Ival J. Ramsbottom
Milling Industry.....	Karl F. Finney
Poultry Husbandry.....	David W. Gregory



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ARMAND H. ROUSSEAU.....Milling Industry  
ROBERT E. PHILLIPS, JR., Poultry Husb.

## To Prospective College Students

The seventy-third annual session of Kansas State College of Agriculture and Applied Science begins September

9, 1935. You are invited to enroll. We believe you would like K. S. C. Read what Dr. Holton, dean of our summer school, says on the following page. He sees things in the right perspective. We believe more and more Kansas high school graduates, especially young men with farming experience, should enroll in agriculture. Agricultural curricula are modern; they are cultural; they are timely. Read what Dean L. E. Call of the Division of Agriculture says on the following page.

Finally we invite you to read and consider carefully "The Purpose of Instruction in Agriculture," pages 106 to 109, including the seven chief phases or departments of agriculture into which agricultural instruction in K. S. C. is divided.

For further information, address  
The Kansas Agricultural Student  
Manhattan, Kansas



SOUTH GATE OF THE COLLEGE CAMPUS



# A Modern College with Modern Curricula

We are living in an age of science and technology. Science and technology have changed our home life, our farming, our transportation, our industries. They have brought us gigantic economic and social problems—problems as yet unsolved. They dominate all our thinking. They have given us new philosophy of life. They have brought upon us the problem of unemployment, the problem of an equitable distribution of our national income, the problem of a square deal in human relationships. They challenge our democratic institutions and our capitalistic economic system.

We are face to face with gigantic economic and social problems that must be solved by leaders educated to think in terms of the new social order. The colleges and universities must furnish this new type of leadership for agriculture, for industry, for business, for politics, and for the professions, or revolution is inevitable. A dictator is a possibility. In my judgment the land-

grant colleges, jointly supported by the state and federal governments, such as Kansas State College, are more nearly directed by the underlying philosophy of this age of science and technology, than any of the other types of educational institutions. The origin of the land-grant colleges was a protest against the authoritarianism of a classical age. The basis of their philosophy of education is tested thought and scientific method, as opposed to traditional authoritarianism.

Kansas State College is unique among land-grant colleges, not better but different. It has a controlling democratic philosophy which dominates all its activities. It has an individuality all its own. It is alive to the gigantic unsolved economic and social problems of this age of science and technology. Its guiding principle is expressed in the statement, "Ye shall know the truth, and the truth will make you free."—E. L. Holton, dean of the Summer School.

## Why Study Agriculture?

There are many reasons why the study of agriculture offers excellent opportunities for an education. Our leading educators tell us that an education gives a young person culture and teaches him to think.

What is culture? "Culture consists of a knowledge of, an insight into, and an appreciation of one's environment—biological, physical, and social." The study of agriculture is essentially training in biological, physical, and social sciences, and the application of this training to an understanding of life processes. Agricultural training is, therefore, the best of cultural training.

What is thinking? "Thinking is organizing and reorganizing one's experiences and abstracting from these generalizations. Without experience there can be no thinking." The experience of the young man on the farm

provides the material essential for the cultivation of thought from the very first day in the classroom in courses in agriculture. In no other branch of study can home farm experience be used to such helpful advantage. The study of agriculture, therefore, affords an unusual opportunity for an education for the young person raised on the farm.

Having acquired his education in agriculture, there are many opportunities for the college-trained man to serve society and to be amply rewarded for the service. These opportunities consist of leadership in rural communities, in professional work on agricultural problems, and in business serving agriculture. Many more young men should study agriculture and prepare for service in this field.—L. E. Call, dean of the Division of Agriculture.

# The Purpose of Instruction in Agriculture

The primary purpose of most of the instruction in agriculture in Kansas State College is to promote the improvement of agricultural enterprises of economic importance in Kansas. Many of these enterprises are general farm enterprises. Some, however, deal with the manufacture of food products directly from the products of the farm, as the manufacture of dairy products, the milling industry, and the meat packing industry.

Many students, however, are interested or become interested in service vocations or educational vocations related more or less directly to farm enterprises. These vocations include many business enterprises and the work of agricultural extension specialists and teachers of agriculture in high schools and colleges. Still other students early in their college careers have visions of preparing for research work in some phase of agriculture. Preparation for such work requires graduate work, practically always a doctor's degree.

These related agricultural vocations, however, are incidental and only emphasize the primary purpose of agricultural instruction in K. S. C., the promotion of greater progress and efficiency in Kansas farm enterprises, and of comfort, happiness, and good citizenship in Kansas farm communities.

These purposes of agricultural instruction in K. S. C. are briefly discussed from the point of view of the work of each of the seven departments of the Division of Agriculture in the seven subdivisions discussed below.

## AGRICULTURAL ECONOMICS

Agricultural economics deals with the efforts of farm people to secure and to use things to satisfy their needs and their desires. The farmer and his family are concerned with using the land, labor, and equipment at their disposal to the best possible advantage in producing farm products. After the prod-

ucts are produced they wish to market them in the best possible ways and at the most desirable times. Funds are needed to finance these operations in producing and marketing the products of the farm. The income from the farm must go to help support government in the form of taxes, to pay the costs of production, and to provide the living for the farm family.

In modern economic life the problems involved in conducting a farm business or any other business concern many people. In producing farm products, in marketing them, and in spending the resultant income the farm family has many contacts with other people. The successful farmer must have a good understanding of these relations and so conduct his activities that the relations will be most desirable.

Instructional work in agricultural economics has as its purpose the acquainting of the student with these problems in farm management, marketing, agricultural credit, taxation, and the spending of income. A thorough understanding of these things makes possible a successful and satisfying farm life.

## AGRONOMY

Agronomy, or the science of soils and crop plants, includes a wide range of studies and offers an equally wide range of opportunities to the good well-trained men who may major in this field.

The personnel of the Department of Agronomy consists of a relatively large staff of well-trained men who are sympathetic and helpful to the worthy student. The courses offered by these men have been planned to give the student sound and fundamental training. They are taught in such a manner as to be of the greatest value to the student and to get the student to understand the relationship of the subject matter to the common every-day problems of agriculture and of farm life.

Since the men who receive their training in agronomy may become farmers, farm managers, agricultural extension service workers, research men, teachers, or may be engaged in any one of several fields of commercial work related to agriculture, it is essential that they receive good training in a wide range of subjects and that they also receive specific and exact training. The livestock man, dairyman, or poultryman must know the most economical methods of crop production if he is to be successful and this implies a knowledge of the soil and best methods of soil management as well as the best adapted varieties of farm crops and the best cultural practices.

#### ANIMAL HUSBANDRY

The broad purpose of instruction in animal husbandry may be summarized somewhat as follows:

1. To develop happier and better citizens.
2. To develop better agricultural technicians, especially in the field of animal husbandry.
3. To inculcate in students a respect for farming and a desire to farm.
4. To develop in students an understanding and respect for the scientific approach in the solution of agricultural problems.
5. To broaden the interests and vision of students in agriculture.

Specialized courses of instruction in animal husbandry may be grouped under four general headings—selection, breeding, feeding, and management. However, many basic courses such as chemistry, zoology, bacteriology, anatomy, physiology, etc., must be studied before one is ready for the specialized instruction in animal husbandry listed above. A student is also required to study certain liberalizing courses in order that he may develop a broader understanding of his responsibility to society as a whole and a greater appreciation of the finer things of life.

Specialized instruction in animal

husbandry is offered primarily for six major groups of persons:

1. Those who plan to operate general farms, all of which handle some livestock.
2. Those who plan to make the production of market livestock their chief farm activity.
3. Those who plan to make the production of purebred livestock their main farm project.
4. Those who plan to serve in the capacity of managers of farms or ranches on which the principal product is livestock.
5. Those who plan to engage in agricultural educational work as teachers, investigators, county agricultural agents, or extension specialists.
6. Those who plan to enter one of the many commercial fields requiring a knowledge of the various phases of animal husbandry.

Students who specialize in animal husbandry and do not plan to engage in farming have no trouble in finding jobs if they applied themselves diligently to their studies and took advantage of the many opportunities that presented themselves to gain practical experience while in college.

#### DAIRY HUSBANDRY

Today the young man interested in considering some phase of the dairy business as a vocation must bear in mind that it is a fast-growing, rapidly-changing industry. The modern dairy manufacturing plant is the result of amalgamating the latest information on dairy bacteriology, dairy chemistry, plant management, salesmanship, and business organization; the successful dairy farmer is putting into practice scientific principles of breeding, feeding, disease control, sanitation, and farm organization.

It is astonishing to think back only 57 years to the invention of the farm separator, 45 years to the invention of the Babcock test for butterfat, and 35 years to the discovery of Mendel's law

in breeding. Many other improvements of much more recent origin could be cited. The dairy industry has come a long way in practically the span of one man's lifetime. With the present day background as a foundation, what will the industry be in another 25 or 30 years?

The young man entering the dairy business must not only fit himself for the present-day complex practices, but must have sufficient technical training to keep pace with new developments during the next 25 or 30 years. Future leaders will be those who had the training and capacity to grow with the industry. Technical training is not a substitute for experience or personal initiative but rather a foundation upon which to build. The young man can still learn the dairy business through practical experience as in the old days but the process is longer and he will always be handicapped alongside an equally good man with technical training.

At the Kansas State College, dairy husbandry courses are designed to give a student the latest technical information in all phases of dairying and fit him for a responsible place in the industry not only in the near future but the distant future as well, for the student must face the question of not what kind of a dairy job he can get today but what kind he can hold 20 years from now. The department is equipped to give well-balanced courses to meet the student's needs—courses founded on a mixture of practical and scientific information.

---

#### HORTICULTURE

Horticulture as taught at Kansas State College includes the science and art of producing intensive crops, those which require a large expenditure of money and labor on each acre under cultivation. Common subdivisions are fruits, vegetables, flowers, ornamental plants, and greenhouse crops. The purpose of the Department of Horticulture

is to train young men to become skillful in the production of these crops and to carry on experimental and research work with them.

The production of intensive crops now rests on a firm scientific basis. This foundation has been built by research work in chemistry, physics, zoology, soils, entomology, and botany including plant pathology and bacteriology and the application of this knowledge to the nutrition, care, and protection of the crop to be grown. A knowledge of these underlying sciences is a necessary part of the equipment of either a grower of horticultural crops or an experimental worker with them. This knowledge may be gained through a long apprenticeship under a skilled grower or in a much shorter time and more thorough manner in a school equipped to teach this subject; a school in which the student learns not only how to grow intensive crops but also why the methods taught are the best now known to accomplish definite aims. A man so trained is himself equipped to make contributions to the general store of knowledge regarding these crops.

Improved methods of production, transportation, refrigeration, and marketing have made the growing of these garden crops a safer undertaking and have vastly widened the scope of the industry. Men trained to take part in this expansion and to become worthy citizens of the communities in which they live are in constant demand.

Two more professional types of horticulture are taught by the Department of Horticulture of Kansas State College. These are landscape gardening, in which a full four-year curriculum is offered, and forestry represented by service courses only. The work in both of these lines is very popular at this time and can be recommended to ambitious and able young men.

---

#### POULTRY HUSBANDRY

The purpose of instruction in poul-



try husbandry is to teach the student the most approved methods of producing and marketing the poultry products of this state. Kansas, ranking fourth in the number of chickens kept on farms with practically every farm represented by a poultry flock, is on an export basis throughout the year.

The department is mindful of the fact that many students return to the farm, others may find employment where they must act in an advisory capacity, while still others launch out into specialized fields of poultry husbandry. In whatever field of endeavor the student ultimately becomes engaged, it is the purpose of the Department of Poultry Husbandry to offer the type of instruction that will best meet his needs. To this end the courses in poultry husbandry have been outlined so as to keep abreast of the ever changing conditions by giving the student a working knowledge of the principles of poultry breeding, nutrition, incubation, brooding, marketing, management, and diseases.

#### MILLING INDUSTRY

Kansas State College is the only college or university in the United States that offers a complete curriculum in milling industry. Several institutions give instruction in cereal chemistry, but that is only one phase. Because of this situation in regard to instruction in the milling industry, Kansas State College has attracted students in milling from several European countries and from many states in the Union, including Washington on the Pacific coast and New York on the Atlantic.

The different kinds of work in milling industry for which the student may prepare can be placed in three groups: Administration or business; testing of materials or cereal chemistry; and manufacturing or milling technology.

The curriculum in milling industry has been outlined to meet this situation. The main purpose of a college education is the development of the

personal qualities. Hence the basis of the curriculum is training in the fundamental sciences—mathematics, chemistry, physics, and botany. To these are added cultural subjects which give training in self-expression. On this as a basis the student may elect one of the three groups of subjects which are designed to prepare for work in administration, in cereal chemistry, or in flour manufacture.

The most important moment in a student's life is the one in which he decides on his main line of study while in college. Before a student decides on the curriculum in milling industry he should first get some acquaintance with the general conditions in this field of work. This can be obtained by personal experiment, by observation, or by contact with some friend or relative who knows the industry. If a student, after due thought, decides on milling industry, he can be assured that Kansas State College offers the best facilities for pursuing such studies that can be found anywhere in the United States.

## Angus Field Day

The tenth annual Better Livestock Day program held at the Ralph Poland farm April 18, 1935, was attended by some 2,000 people including about 500 4-H Club and vocational agriculture stock judges.

The judging contests, in charge of Professors F. W. Bell, A. D. Weber, and J. J. Moxley of Kansas State College, were held in the morning. Eight classes of purebred Aberdeen-Angus cattle were judged by vocational agriculture high school teams, 4-H Club teams, and college students. Another contest of guessing the weight of three Aberdeen-Angus cattle was held for farmers and anyone else who cared to try.

One of the new features of the contest this year was the awarding of two Aberdeen-Angus heifers as prizes, one for the best high school or 4-H Club

(Continued on page 123)



#### WINNERS IN STUDENT JUDGING CONTESTS

(A) Winners in the Block and Bridle judging contest, May 11, 1935. Left to right, front row: Howard A. Moreen, Philip W. Ljungdahl, J. D. Dietrich, J. Donald Andrews, Elmer A. Dawdy. Back row: Frank W. Jordan, Arthur A. Boeka, Clarence L. Bell, Roland B. Elling.

(B) Contestants placing first in each section of each of the student judging contests. Left to right, front row: Kenneth A. Fisher, Philip W. Ljungdahl, Elmer A. Dawdy, A. Glenn Pickett. Back row: Clarence L. Bell, H. Frederick Dudte.

# Student Judging Contests

The usual three student judging contests were held on three successive Saturday afternoons, April 27, May 4, and May 11. The winners in each section of each of these contests are shown in (B) of the accompanying illustration. In (A) of the illustrations are presented those who placed first, second, and third in each section of the Block and Bridle contest; also the high man in each kind of livestock in each section of that contest. A brief description of each contest, including a list of the contestants making the most outstanding showings, follows:

## DAIRY JUDGING CONTEST

Clarence L. Bell, McDonald, and H. Frederick Dudte, Newton, won first prizes in the annual dairy judging contest held May 4. Mr. Bell was awarded an electric clipmaster valued at \$17, and Mr. Dudte received \$10 in cash. Substantial prizes were also awarded to those placing second and third in each division of the contest and to the high man on each breed in each division of the contest. The contest was divided into junior and senior divisions, the former including only students who had taken the college course in Advanced Dairy Judging and the latter including all other contestants. In the senior division 16 contestants were entered and in the junior division, 45.

A class of four cows and a class of four heifers of each of the four breeds in the dairy herd were judged. Students in the senior division gave oral reasons and those in the junior division, written reasons on each of the four mature classes. Since 100 points were allowed for each placing and 100 for each set of reasons, the total possible score of each contestant was 1,200.

The high men in each division of the contest and on each breed of dairy cattle are included in the following tabulation:

	Score
<b>Senior Division</b>	Clarence L. Bell.....1,054
	Charles E. Murphey.....1,026
	F. Monroe Coleman.....1,018
	L. Wayne Herring.....1,016
Carl M. Elling.....1,006	
<b>Junior Division</b>	H. Frederick Dudte.....1,108
	Emory L. Morgan.....1,045
	Royse P. Murphy.....1,032
	Elmer A. Dawdy.....1,022
Vernal L. Roth.....1,016	
<b>Ayrshire Breed</b>	Sr., Carl M. Elling..... 285
	Jr., H. Frederick Dudte..... 291
<b>Guernsey Breed</b>	Sr., Arden B. Rinehart..... 276
	Jr., Wilton B. Thomas..... 274
<b>Jersey Breed</b>	Sr., Clarence L. Bell..... 264
	Jr., H. Frederick Dudte..... 282
<b>Holstein Breed</b>	Sr., Ralph R. Dent..... 285
	Jr., Irwin V. Beal..... 294

This annual contest is sponsored by the Dairy Club with the cooperation of the Department of Dairy Husbandry, various manufacturing concerns, machinery and supply houses, and dairy magazines who made substantial contributions toward providing the prizes.

## CROPS JUDGING CONTEST

Fifty students participated in the annual students' crops judging contest held April 27, 1935. The contest was arranged and conducted by the Klod and Kernel Klub, an organization of students in agronomy, and included the identification, grading, and judging of farm crops. A number of business firms and trade organizations contributed prizes in order to increase interest in the contest.

Contestants were divided into three divisions, the classification being based upon the training the students had received in crops work. Students registered in the freshman division had taken no college work in crops. Those registered in the junior division had had nothing more than the college course in Farm Crops, and those registered in the senior division had taken, or were enrolled for the second semester in Grain Grading and Judging. There were 12 contestants in the senior division; 32 in the junior division; and 6 in the freshman division. The pos-



#### SCENES IN THE BLOCK AND BRIDLE JUDGING CONTEST

(A) Contestants grouped about the class of horses just before beginning the work of the contest.

(B) Albert A. Thornbrough presents one of the horses in action.

(C) Lee J. Brewer endeavors to present action on behalf of one of the mules from the mule class in the contest. Prof. F. W. Bell, coach, necessarily gets in some action himself.



sible score in the senior and junior divisions was 1,060; the possible score in the freshman division was 700. The high men in each division were:

	Score
<b>Senior Division</b>	H. Frederick Dudte.....975
	Leon E. Wenger.....963
	Floyd L. Siegrist.....934
	J. Edwin McColm.....917
	David A. Reid.....865
Donald R. Cornelius.....845	
<b>Junior Division</b>	A. Glenn Pickett.....840
	Carrol L. Wahl.....837
	Wilton B. Thomas.....831
	Darrell Morey.....824
	Paul H. Nelson.....808
Robert T. Latta.....799	
<b>Freshman Division</b>	Kenneth A. Fisher.....635
	Dean D. Dicken.....626
	Elmer A. Dawdy.....505

**BLOCK AND BRIDLE JUDGING CONTEST**

The thirty-second annual Block and Bridle judging contest was held May 11. The contest was divided into two divisions, a senior and a junior. Students having had advanced work in livestock judging were entered in the senior division and those having had no advanced work in livestock judging were entered in the junior. In the senior division there were 21 contestants and in the junior division, 116.

Elmer A. Dawdy of Washington and Clarence L. Bell of McDonald, made the highest score in the junior division. As usual in such cases, the high man on reasons was declared the winner and the honor went to Mr. Dawdy. He was awarded the silver trophy presented by the American Royal Livestock Show and the Kansas City Livestock Exchange. Dr. Bell received a gold medal. High honors in the senior division went to Philip W. Ljungdahl, Menlo, who was presented the gold medal offered by the National Block and Bridle Club.

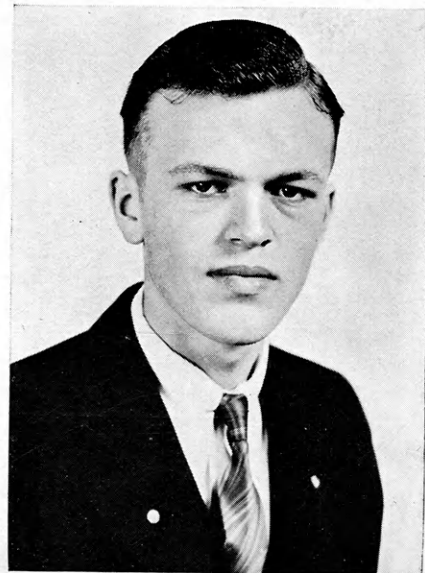
The high men in each division and on each breed of livestock in each division are given in the accompanying tabulation of outstanding results of the contest:

**WINNERS IN LIVESTOCK JUDGING CONTEST**

		Entire Contest	Score
<b>Senior Division</b>	{	Philip W. Ljungdahl.....	533
		Arthur A. Boeka.....	531
		Howard A. Moreen.....	525
		J. Edwin McColm.....	519
		Lester A. Zerbe.....	519
<b>Junior Division</b>	{	Elmer A. Dawdy.....	567
		Clarence L. Bell.....	567
		J. Donald Andrews.....	566
		Frank W. Jordan.....	551
		Elmore G. Stout.....	539
Cecil L. Boehner.....	539		
<b>Senior Division</b>			
<b>Beef Cattle</b>	{	Howard A. Moreen.....	144
		Edwin C. Sample.....	139
		Arthur C. Ausherman.....	135
<b>Swine</b>	{	Philip W. Ljungdahl.....	136
		J. Edwin McColm.....	134
		Gilbert A. Guthrie.....	132
<b>Horses and Mules</b>	{	Arthur A. Boeka.....	135
		Carl M. Elling.....	135
		Howard A. Moreen.....	133
<b>Sheep</b>	{	Arthur A. Boeka.....	142
		Glenn H. Dearing.....	142
		Wilton B. Thomas.....	140
<b>Junior Division</b>			
<b>Beef Cattle</b>	{	Elmer A. Dawdy.....	146
		Clarence L. Bell.....	144
		J. Donald Andrews.....	143
<b>Swine</b>	{	Roland B. Elling.....	145
		H. Allen Nottorf.....	145
		Elmer A. Dawdy.....	144
<b>Horses and Mules</b>	{	Clarence L. Bell.....	146
		Irwin V. Beal.....	145
		D. P. Heigele.....	145
<b>Sheep</b>	{	J. D. Dietrich.....	145
		J. Donald Andrews.....	144
		Carrol L. Wahl.....	143

A get-together meeting was held Monday evening following the contest. It was attended by about 100 of the contestants. The program included a talk on the history of Block and Bridle judging contests by Dr. C. W. McCampbell, the awarding of prizes by Prof. F. W. Bell, and an address by Mr. Dan Casement on "Beginnings."

L. Wayne Herring, '36, Tulia, Tex., was awarded the Danforth Foundation fellowship for 1935—four weeks of valuable training, two weeks in the Purina Mills, St. Louis, and two at the American Youth Foundation camp, Shelby, Mich.



# State Congress of Future Farmers of America

The seventh annual convention of the House of Delegates of the Kansas Association of Future Farmers of America was held in connection with the fifteenth annual state high school judging contest at K. S. C., April 29 and 30, 1935. The state officers in charge of the meeting were: Paul Leck, Washington, president; Ellwood Baker, Abilene, vice president; Donald Baughman, Howard, secretary; Leonard Brown, Smith Center, treasurer; Arthur Leonhard, Lawrence, reporter; L. B. Pollom, Topeka, advisor; and Prof. A. P. Davidson, Manhattan, executive advisor.

There are 102 chapters of Future Farmers of America in Kansas with a total active membership of 2,161. This is a gain of 6 new chapters and 468 members over the previous year. Each

chapter in Kansas is entitled to two delegates to this convention. The delegates elected the following officers for 1935-'36: J. W. England III, Shawnee Mission, president; Richard Fisher, Lebanon, vice president; Donald Chandler, Arkansas City, secretary; Wilbert Duitsman, Linn, treasurer; and Arthur Jones, Reading, reporter. (See opposite page.)

The House of Delegates elected 24 Future Farmer members to the degree of State Farmer. (See opposite page.) This degree represents a balanced record of achievement in scholarship, various high school organizations, leadership, project progress, and home practice work. Dean L. E. Call of the Division of Agriculture, K. S. C., and Mr. C. M. Miller, director of vocational education for Kansas, were recipients of the Honorary State Farmer degree.

Out of 66 chapters submitting well-planned activity programs to the State Advisor, L. B. Pollom, last fall, the following chapters were listed as being outstanding in the type of program submitted and in the achievement accomplished: Lawrence, Shawnee Mission, Winfield, Linn, Washington, Mound City, Morrowville, Ottawa, Lebanon, and Howard.

There were 15 contestants entered in the annual State F. F. A. public speaking contest, Tuesday morning, April 30. The winners were: Frederick C. Renich, Newton, first; Richard Fisher, Lebanon, second; and Lee Allan Burress, Mulvane, third. The judges were Dr. C. V. Williams, Dr. Randall C. Hill, and Prof. Harold Howe of the K. S. C. faculty. The picture of the winner is shown on the opposite page.

The annual banquet given by the Manhattan Chamber of Commerce was held Tuesday evening, April 30, at the Community House. It was attended by approximately 600 F. F. A. members, including judging teams, alternates, coaches, State Farmers, visitors, and

(Continued on page 123)

## Legends for Opposite Page

### (Upper)

#### FUTURE FARMERS RAISED TO THE DEGREE OF STATE FARMER AT THE 1935 MEETING OF THE KANSAS ASSOCIATION OF FUTURE FARMERS OF AMERICA

Left to right: Front row—Paul Smith, Lebanon; Norman Lohmeyer, Linn; John Woods, Lebanon; Richard Fisher, Lebanon; Verlin Rosenkranz, Washington; Maynard Reinecke, Ottawa; Harold Theate, Lebanon; William Neilson, Waterville; Kenneth Johnson, Lawrence.

Middle row—Clifford Beyler, Harper; Carroll Alvin Mogge, Goodland; Robert Gorrill, Lawrence; Harvey Lee Loveland, Miltonvale; J. W. England III, Shawnee Mission; Arthur Jones, Reading; Philip Mosher, Ottawa; Walter Houk, Lawrence.

Back row—Glover Laird, Harper; Dale Schable, Fairview; Donald Chandler, Arkansas City; Jettie C. Fuller, Miltonvale; Robert E. Green, Mound City; Earl Moore, Morrowville; Louis Beurman, Lawrence.

### (Lower Left)

#### OFFICERS OF KANSAS ASSOCIATION OF FUTURE FARMERS OF AMERICA FOR 1935-'36

Left to right: Wilbert Duitsman, treasurer; J. W. England III, president; Richard Fisher, vice president; Donald Chandler, secretary; Arthur Jones, reporter.

### (Lower Right)

#### FREDERICK C. RENICH

Winner of the annual Kansas Future Farmers of America public speaking contest, Tuesday, April 30, 1935. He represented Newton High School and his subject was "Under All—The Land." Frederick was high individual in the 1934 state vocational agriculture contest in the judging of farm products.

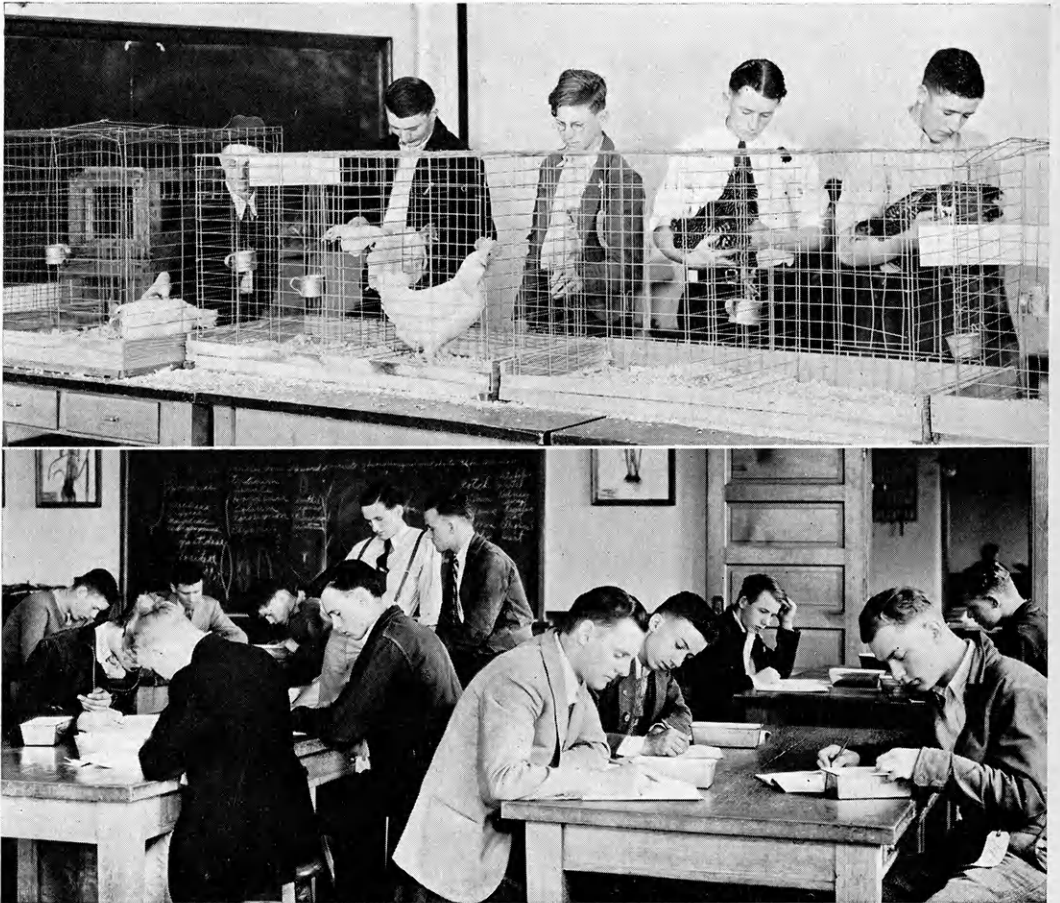
# State Vocational Agriculture Judging Contest

For the third successive year the team of the Newton High School, coached by Mr. R. M. Karns, won the annual state high school vocational agriculture contest in the judging of farm products. The members of Mr. Karns's team this year were first, third, and fourth high individuals in the entire contest. Thus Mr. Karns carried off the honors in the fifteenth annual state contest held April 29 and 30, 1935. In 1934 the members of Mr. Karns's team ranked first, second, and third.

Just as in recent years, the contest was divided into four sections. Sec. I

consisted of judging two classes each of horses, beef cattle, sheep, and swine and giving oral reasons on one class of each kind of livestock; Sec. II, judging four classes of dairy cows and giving oral reasons on two of the classes; Sec. III, (1) judging crops, (2) identifying grain and forage crops and weeds, and (3) grading wheat, grain sorghum, shelled corn, and alfalfa; Sec. IV, placing four classes of hens for past production and taking a written examination on the American Standard of Perfection.

Sixty-eight teams competed in the



SCENES FROM THE POULTRY JUDGING AND CROPS JUDGING SECTIONS OF THE STATE HIGH SCHOOL CONTEST



HIGH TEAMS IN THE ENTIRE CONTEST

High School	Score					Coach
	I	II	III	IV	Total	
Newton H. S.	1,307	666	1,986	1,107	5,066	R. M. Karns
Lebanon H. S.	1,313	646	1,786	1,055	4,800	F. A. Blauer
Quinter R. H. S.	1,313	762	1,696	973	4,744	J. F. Shea
Washington H. S.	1,329	697	1,712	997	4,735	H. H. Brown
Linn R. H. S.	1,329	746	1,642	936	4,653	F. E. Carpenter
Reading R. H. S.	1,387	672	1,598	932	4,589	J. W. Taylor
Wakefield R. H. S.	1,350	647	1,579	992	4,568	L. J. Schmutz
Morrowville R. H. S.	1,300	626	1,685	921	4,532	I. E. Peterson
Howard H. S.	1,239	699	1,523	1,069	4,530	S. S. Bergsma
Carbondale R. H. S.	1,236	716	1,497	1,027	4,476	E. I. Chilcott

HIGH INDIVIDUALS IN THE ENTIRE CONTEST

Contestant	Score					High School	Coach
	I	II	III	IV	Total		
Paul Renich	463	241	672	367	1,743	Newton H. S.	R. M. Karns
Michael Younger	495	268	576	338	1,677	Quinter R. H. S.	J. F. Shea
Aaron Schmidt	417	206	672	371	1,666	Newton H. S.	R. M. Karns
Clyde Zook	427	219	642	369	1,657	Newton H. S.	R. M. Karns
Paul Smith	448	190	656	353	1,653	Lebanon H. S.	F. A. Blauer
Thello Dodd	489	235	549	343	1,616	Linn R. H. S.	F. E. Carpenter
William Keesecker	449	199	623	334	1,605	Washington H. S.	H. H. Brown
Orval Meinecke	465	224	588	328	1,605	Marysville H. S.	R. W. Russell
Leslie Cooper	450	236	578	339	1,603	Chase Co. Com. H. S.	A. W. Miller
Lewis Luthey	468	237	552	342	1,599	Carbondale R. H. S.	E. I. Chilcott

HIGH TEAMS IN EACH SECTION OF THE CONTEST

High School	Sec.	Score	Coach
Fredonia H. S.	I	1,414	J. A. Watson
Pratt H. S.	I	1,413	Earl Martin
Clay Co. Com. H. S.	I	1,398	Edwin Hedstrom
Reading R. H. S.	I	1,387	J. W. Taylor
McDonald R. H. S.	I	1,381	R. E. Frisbie
Quinter R. H. S.	II	762	J. F. Shea
Linn R. H. S.	II	746	F. E. Carpenter
Fredonia H. S.	II	735	J. A. Watson
McDonald R. H. S.	II	727	R. E. Frisbie
Carbondale R. H. S.	II	716	E. I. Chilcott
Newton H. S.	III	1,986	R. M. Karns
Lebanon H. S.	III	1,786	F. A. Blauer
Washington H. S.	III	1,712	H. H. Brown
Quinter R. H. S.	III	1,696	J. F. Shea
Morrowville R. H. S.	III	1,685	I. E. Peterson
Newton H. S.	IV	1,107	R. M. Karns
Howard H. S.	IV	1,069	S. S. Bergsma
Lebanon H. S.	IV	1,055	F. A. Blauer
Wellsville H. S.	IV	1,046	T. G. Betts
Silver Lake R. H. S.	IV	1,037	E. P. Schrag

HIGH INDIVIDUALS IN EACH SECTION OF THE CONTEST

Contestant	Sec.	Score	High School
Junior Norby	I	512	Pratt H. S.
John Banbury	I	511	Pratt H. S.
Lloyd Newton	I	500	Reading R. H. S.
Michael Younger	I	495	Quinter R. H. S.
Thello Dodd	I	489	Linn R. H. S.
Max Dawdy	II	272	Washington H. S.
Michael Younger	II	268	Quinter R. H. S.
Gay Tuis	II	265	Fredonia H. S.
Marion Woods	II	264	Bird City R. H. S.
Ellsworth Nippert	II	264	McDonald R. H. S.
Maynard Reinecke	III	674	Ottawa H. S.
Aaron Schmidt	III	672	Newton H. S.
Paul Renich	III	672	Newton H. S.
Paul Smith	III	656	Lebanon H. S.
Clyde Zook	III	642	Newton H. S.
Eugene Templer	IV	373	Howard H. S.
Aaron Schmidt	IV	371	Newton H. S.
Clyde Zook	IV	369	Newton H. S.
Paul Renich	IV	367	Newton H. S.
Walter Sanderson	IV	367	Newton H. S.
Wesley Indermill	IV	367	Marysville H. S.
			Howard H. S.

contest. The scores of the winners and others meriting honorable mention, both teams and individuals, are given in the accompanying tabulation of results.

## State High School Contest in Farm Mechanics

The tenth annual state high school contest in farm mechanics was held April 29 and 30, 1935. One division of the contest was conducted by the Department of Agricultural Engineering. It was divided into three sections—Sec. I, gas engine valve timing; Sec. II, farm machinery; and Sec. III, concrete work. The other division of the contest was conducted by the Department of Shop Practice and also consisted of three sections as follows: Sec. I, roof framing; Sec. II, sheet metal work; and Sec. III, forging.

The team of the Decatur County Community High School, consisting of Harry C. Brown and Byron E. McCartney, placed first; Mound City High School placed second; and Carbondale Rural High School, third.

This is the third successive year that



WINNERS IN THE 1935 STATE HIGH SCHOOL JUDGING CONTESTS

(Upper) Team of the Newton High School and their coach—high team in the entire contest in the judging of farm products. Left to right—Front row: Aaron K. Schmidt, Paul W. Renich, Clyde M. Zook. Second row: Ralph M. Karns, coach.

(Lower) Team of the Decatur County Community High School (Oberlin) and their coaches—high team in the entire contest in farm mechanics. Left to right—Front row: Harry C. Brown, Thue Jorgensen, assistant coach, Byron E. McCartney. Second row: Sherman H. Howard, coach.

a team from Oberlin, the Decatur County Community High School, has won the contest. The team of this high school in 1932 placed second and since that time have regularly outdistanced their competitors.

The coaches of the team from Oberlin are S. H. Howard and Thue Jorgensen. Mr. Howard generously and enthusiastically gives a large portion of the credit for the splendid showing of his teams to Mr. Jorgensen, the assistant coach. Mr. Jorgensen has been teaching blacksmithing and tool finishing in the Decatur County Community High School for 13 years. He learned his trade in his native land, Denmark. According to Mr. Howard, Mr. Jorgensen is familiarly known as "Dad," and is a worthy father and teacher of his boys. He is happy and enthusiastic in his work and the high marks of skill his students attain attest his success. The scores of the high teams and of the high individuals in the entire contest and in each section of both divisions of the contest are indicated in the following tabulation of results:

**HIGH TEAMS**

Entire Contest	Score	Coach
Decatur Co. Com. H. S.	4,820	S. H. Howard
Mound City H. S.	4,289	E. L. Raines
Carbondale R. H. S.	3,964	E. I. Chilcott

**Agricultural Engineering**

Sec. I Howard H. S.	792	S. S. Bergsma
Sec. II Wakefield R. H. S.	772	L. J. Schmutz
Sec. III Saffordville R. H. S.	1,000	Marvin Castle

**Shop Practice**

Sec. I Carbondale R. H. S.	1,825	E. I. Chilcott
Sec. II Lawrence H. S.	1,885	W. R. Essick
Sec. III Decatur Co. Com. H. S.	1,880	S. H. Howard

**HIGH INDIVIDUALS**

Entire Contest	High School	Score
Harry C. Brown	Decatur Co. Com. H. S.	4,893
Byron E. McCartney	Decatur Co. Com. H. S.	4,747
Vernon Akers	Mound City H. S.	4,341

**Agricultural Engineering**

Sec. I Elvis Cole	Mulvane H. S.	903
Sec. II Louis Beurman	Lawrence H. S.	814
Sec. III Clair Markley	Saffordville R. H. S.	1,000

**Shop Practice**

Sec. I Donald Ehmke	Winfield H. S.	1,000
Sec. II Louis Beurman	Lawrence H. S.	960
Sec. III Harry C. Brown	Decatur Co. Com. H. S.	950

## Russian Thistles As an Emergency Feed

The drought of 1934 resulted in a shortage of roughage on most farms and ranches of Kansas. The situation was so acute over a considerable portion of the state that cattlemen were forced to utilize every form of plant life available that offered any hope of providing some nourishment. Russian thistles were available on many farms and ranches in the western part of the state and were harvested for feed in large quantities. They were not harvested, however, until more or less mature.

Since the Fort Hays Branch Agricultural Experiment Station was confronted with a roughage shortage it was decided to utilize and make a study of more or less mature Russian thistles as a winter roughage for stock calves. This study indicated that the most satisfactory way to harvest and utilize more or less mature Russian thistles is in the form of hay which should be ground before feeding.

Ground Russian thistle hay alone is not a satisfactory winter ration for stock calves, but ground Russian thistle hay plus 1 pound of cottonseed cake per head daily is quite satisfactory. Calves fed this ration gained 0.96 of a pound per head daily.

During the winter of 1918-'19 the Hays station compared a daily ration averaging 9.4 pounds of Russian thistle hay, 11.9 pounds of wheat straw, and 15 pounds of silage with a daily ration averaging 9.6 pounds of alfalfa hay, 11.4 pounds of wheat straw, and 15 pounds of silage as wintering rations for stock cows. The Russian thistle hay used in this test was cut before the spines had hardened and proved in this particular test to have about the same feeding value, pound for pound, as good alfalfa hay.

Nine lots of Russian thistles were ensiled alone or in mixtures with other

feeds at the U. S. Redfield, S. Dak., Field Station. The results published by H. L. Westover in the Journal of the American Society of Agronomy for February, 1934, indicated that nearly mature thistles ensiled with equal amounts of alfalfa hay produced silage in good condition when opened, having a pleasant odor and being readily eaten by livestock. Nearly mature thistles ensiled alone made a silage that kept well and possessed a pleasant odor but was only partially eaten by livestock. Thistles cut in full bloom and ensiled with straw produced a silage in good condition, with a fair odor when opened, but which was eaten reluctantly by livestock. When cut in the bloom stage and ensiled alone the thistles made poor silage which livestock refused to eat.

Russian thistles are grazed readily by cattle and sheep for a period of six to eight weeks. After this time the plants become woody and spiny. Both classes of livestock may be maintained satisfactorily for a limited period of time on wheat stubble fields where thistles were the principal growth. The thistles have a very laxative effect, particularly in the early part of the season when green and succulent, but cattle and sheep will thrive well on them. When pastured down close, thistles may be pastured longer than six to eight weeks because tender stems are shooting out in the fall.

Russian thistles should be looked upon only as a last resort emergency feed because of their low feeding value; low yield compared to other roughages, especially sorghum crops; and high cost of harvesting.—Walter M. Lewis, '35.

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## Junior Livestock Judging Team Ranks High

The Kansas State junior livestock judging team placed third with nine teams competing in the annual inter-

collegiate judging contest of the Southwestern Exposition and Fat Stock Show in Fort Worth, Tex., Saturday, March 6, 1935. Twelve classes of livestock were judged, three each of beef cattle, hogs, and sheep; two of mules; and one of horses. Oral reasons were given on eight classes.

The team was coached by Prof. F. W. Bell of the Department of Animal Husbandry, who accompanied the students on the trip. The members were: J. Edwin McColm, Emporia; Howard

a possible 1,250 and winning a silver cup. J. Edwin McColm was second high individual in the entire contest with 858 points out of a possible 1,000, winning a silver medal. Howard A. Moreen placed eighth with 834 points. McColm placed high on sheep with 225 points out of 250, winning a gold medal. L. Wayne Herring placed third on cattle. Philip W. Ljungdahl placed fourth on horses and mules.

The awards were made at a banquet Sunday noon at which the teams were



JUNIOR LIVESTOCK JUDGING TEAM

Left to right: Prof. F. W. Bell, coach, J. Edwin McColm, L. Wayne Herring, Arthur C. Aushman, Philip W. Ljungdahl, H. Frederick Dudte, Howard A. Moreen.

A. Moreen, Salina; Philip W. Ljungdahl, Menlo; L. Wayne Herring, Tulia, Tex.; H. Frederick Dudte, Newton; Arthur C. Aushman (alt.), Elmont.

The scores of the competing teams were:

Texas Technological College.....	4,173
University of Nebraska.....	4,155
Kansas State College.....	4,135
Oklahoma A. & M. College.....	4,108
A. & M. College of Texas.....	4,103
University of Missouri.....	4,058
University of Wyoming.....	4,021
Panhandle A. & M. College.....	3,910
Louisiana State University.....	3,889

The Kansas team was high in judging cattle, scoring 1,124 points out of

guests of the Southwestern Exposition.

On the way to Fort Worth, the Kansas team stopped at Wichita to visit the C. B. Team Mule Company. This is one of the leading firms in the country, handling several hundred mules every week. Mr. Team provided several classes for the students to work on and also gave them much information about the business.

After leaving Wichita, the team spent some time at the Oklahoma A. & M. College, where they studied the livestock and equipment of the Department



of Animal Husbandry.

This was the first trip through Oklahoma and Texas for most of the members of the team. It provided an excellent opportunity to learn more about the agriculture of this section and particularly livestock production in these states.

All teams competing at the Southwestern Exposition were guests of the Texas Motor Coach Company on a trip to Arlington Downs, Tex.—Arthur C. Ausherman, '36.

## Judging Contests at the Fort Hays Station

Three series of contests are sponsored annually by the staff of the Fort Hays Branch Agricultural Experiment Station. These contests are held the day before the annual Cattlemen's Round-Up held each year the last Saturday in April. The contests are in livestock judging, grain judging, and clothing judging.

This year 27 teams competed in the vocational agriculture livestock judging contest and 32 teams in the 4-H Club division of the same contest. In grain judging 15 vocational agriculture teams competed and 11 4-H Club teams. In clothing judging 22 teams competed, 19 being 4-H Club teams and only three being high school teams. Thus the total number of teams in all the contests was 107. They represented 31 counties in western Kansas.

In the vocational agriculture section of the livestock judging contest the team of the Pratt High School coached by Earl Martin placed first. The vocational agriculture section of the grain judging contest was won by the team coached by Leroy E. Melia of the Coldwater High School. Richard Fisher of Lebanon High School (F. A. Blauer, coach) was high individual in livestock judging and Harry Lightner of Garden City High School (J. D. Adams, coach), high individual in grain judging.

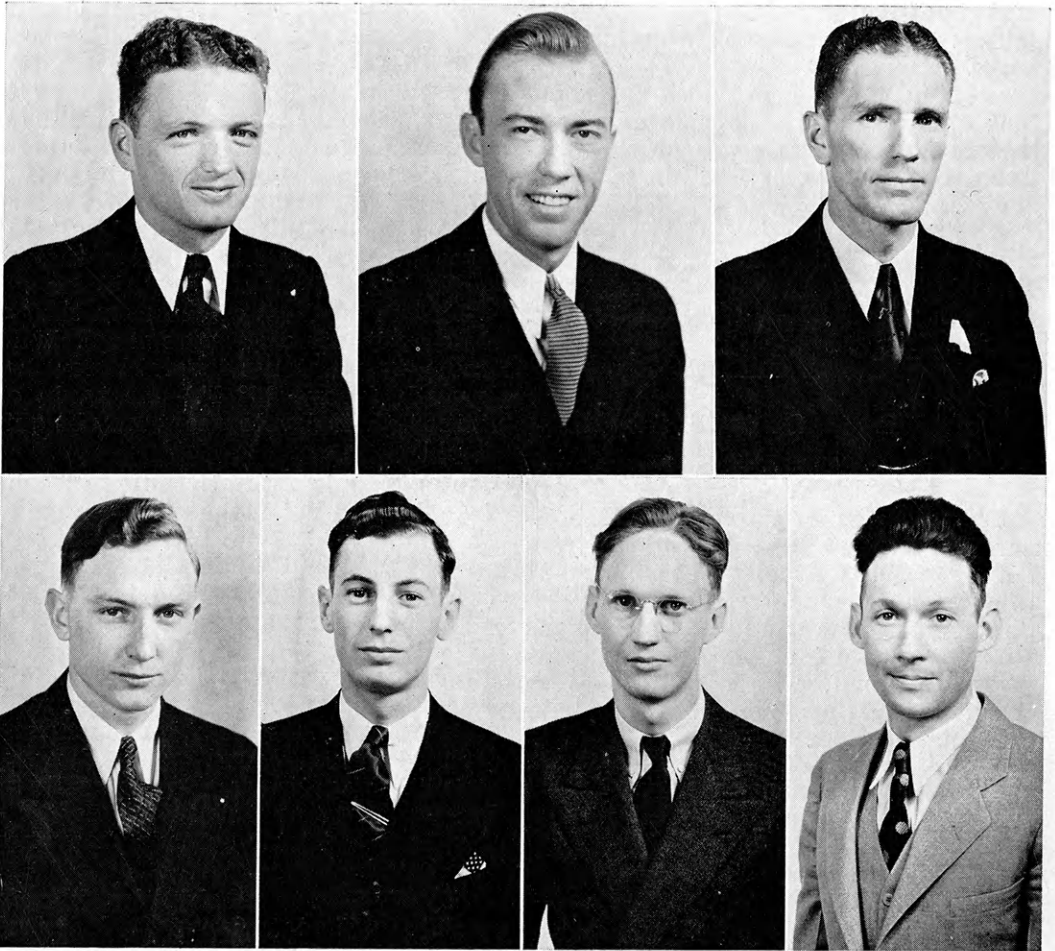
## Ropiness in Bread

With the advent of warm weather once more the housewife, as well as the baker, becomes concerned with the appearance of rope in bread. This bread disease is caused directly by the growth of bacteria belonging to the group known as "bacillus mesentericus." This type of organism is called a thermophile, that is heat resistant. When subjected to the heat of the oven they go into an inactive or spore stage. When room temperatures favorable for their growth (above 85° F.) are again obtained, their development may be quite rapid.

Ropiness is not noticeable in freshly baked bread but makes its appearance from 12 to 36 hours after leaving the oven. The first indication of a ropy condition is usually the detection of a peculiar unpleasant odor and taste resembling that of an overripe cantaloupe. This odor and taste are faint during the early stages of the development of the disease, but become stronger and more obnoxious as the ropy condition continues. Rope usually becomes apparent first in the center of the loaf and later spreads throughout the bread.

In addition to an objectionable odor and taste the interior of the loaf darkens and becomes sticky. If a small portion of the crumb is pressed between the fingers and pulled apart, it will sometimes stretch readily into long strands. This is probably the reason why this condition has been called rope.

The source of this infection is varied. The rope organisms, like other bacteria and molds, are present practically everywhere in the air and are carried by dust particles. If conditions are not favorable and they do not occur in abundance the organisms will not produce any apparent evidence of rope. While flour and certain other raw materials may become infested with rope organisms it is not correct to attribute



AGS ELECTED TO PHI KAPPA PHI, 1934-'35

Charles E. Murphey  
George A. Rogler

Albert A. Thornbrough  
Donald R. Cornelius

J Forest Wolf

A. Glenn Pickett  
Ralph D. Shipp

the occurrence of this disease to the flour. The fact is that rope organisms are nearly always present in bread doughs. During hot weather the bread cools slowly after baking, causing a favorable condition for development of ropiness. For this reason rope seldom occurs during the winter months; nor is rope always due to uncleanness. An infestation may occur in a spotless bakery or kitchen.

This condition in bread is controllable. The rope organisms even when

present in large quantities will not thrive in a finished loaf if there is sufficient acid in the dough. If about five teaspoonfuls of ordinary vinegar are added for each pint of water used in mixing the dough, the acidity will be raised to a point where development of rope will not take place. If the bread tastes sour use less vinegar; if rope develops use more. It is also possible, if desired, to replace half of the water with sour milk.

One of the most efficient methods of

controlling rope is to cool the bread immediately after leaving the oven. For this reason most bakers plan their baking schedules in order that the bread will come out of the oven during the night, thus taking advantage of the cooler temperature.

Although rope is the most obnoxious infestation in bread, mold is of sufficient occurrence to be mentioned. The word mold refers to a certain class of tiny plants which are visible to the naked eye and which are made up largely of a cottony, thread-like structure which has a furry appearance. Molds are unquestionably familiar to everyone, since nearly all household foods, if kept for a period of time under warm or moist conditions, will exhibit mold growth. There are various types of molds, differing in general appearance, color, and rapidity of growth. While the majority of common molds are non-poisonous, a few of them may be harmful to health. Since the development of mold is favored by high humidity, bread should be stored in a cool place as dry as practicable.—A. H. Rousseau, '35.

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#### STATE F. F. A. CONGRESS

(Continued from page 115)

guests. The program was furnished by the Kansas Association of Future Farmers of America, Pres. Paul Leck presiding. Included on the program were numbers by a boys' quartet from Fairview, composed of Emerson Cyphers, Neal Sawyer, Forrest Snyder, and Hillary Cyphers; a violin number by Delmar Knight of Smith Center; and cowboy songs by Raymond Bryan, Ottawa. The raising of the class of Future Farmers to the State Farmer degree was another feature of the banquet. W. A. Cochel, editor of the Weekly Kansas City Star, was the principal speaker on the program. Dean L. E. Call welcomed the guests on behalf of the college, and Dr. C. W. McCampbell had charge of announcing the win-

ners in the various contests.—Elmer B. Winner, '36.

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#### ANGUS FIELD DAY

(Continued from page 109)

judge and one for the best weight guesser. Wayne Kaiser, Miltonvale, was awarded the heifer for being the best judge, and Mrs. Andrew Olson, Junction City, beat all the men at guessing the weights of three Aberdeen-Angus cattle, thus winning the other heifer.

Most of the college students attending the program entered the cattle judging contest, competing among themselves. The highest score made was that of Boyd D. Phillips, Sedgwick. H. Frederick Dudte, Newton, placed second, and Caldwell Davis, Jr., Bronson, third. The usual blue, red, and white ribbons were awarded for these three placings.

A free lunch of prime Aberdeen-Angus beef was served at noon by the Aberdeen-Angus Breeders Association of Geary and Dickinson counties, and the afternoon program was given over to speeches. Thomas Anderson, Waukegan, Ill., was first on the program. He was one of the first breeders of the Bonnie Blacks in this country. Dr. C. W. McCampbell of the college gave some important pointers on the rebuilding of herds in Kansas. Ralph Munson, Junction City, gave the history of Angus herds in the Angus center of Kansas. Col. E. N. Wentworth, Chicago, gave some of the history of the Angus breed in its native Scotland home, and the last speaker on the program was Dean L. E. Call of Kansas State College, who discussed some financial problems as related to farmers and stockmen today.—H. Frederick Dudte, '36.

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Paul G. Roofe, '24, Ph. D., University of Chicago, '34, is professor of anatomy in the medical school of the University of Louisville, Louisville, Ky.

## Cattle Feeding Tests for the Winter of 1934-'35

Because of the extreme shortage of feed in 1934 no range-bred steers were purchased by the Agricultural Experiment Station for experimental feeding last winter. Nevertheless, a few head of cattle were fed on some short feeding trials the results of which were presented by Prof. A. D. Weber of the Department of Animal Husbandry at Cattle Feeders' day, May 24, and which are briefly summarized below.

Most of the time during the past year tankage has been a cheaper source of protein than cottonseed meal, so a test with yearling steers was run to determine the palatability and effect of feeding tankage to cattle. The test was run for 77 days and the steers were fed a daily ration of 11.31 pounds of wheat straw and 3 pounds of molasses daily in addition to their tankage. At first the steers did not relish the tankage so a mixture of tankage and cottonseed meal was fed for the first 11 days after which time no more cottonseed meal was given. The tankage was then increased gradually to 4 pounds per head daily on the 41st day, and held at this level for the remaining 37 days. The average daily consumption of tankage was 2.84 pounds. One of the steers was slaughtered at the close of the feeding period and a careful examination revealed no signs that the tankage had caused any deleterious effects on the carcass.

Another test in which immature corn silage was fed against cottonseed hulls and a mixture of corn silage and cottonseed hulls was conducted. Results indicate that the immature corn silage is the best, a mixture of cottonseed hulls and corn silage, next, and cottonseed hulls the poorest of the three rations. In addition to the roughage fed, the heifers were given 2 pounds of cottonseed meal and one-tenth pound of Bomin per head daily. Although the

test favors the immature corn silage the cottonseed hulls apparently were entirely satisfactory as an emergency roughage for a short feeding period. The test also demonstrated the practicability of substituting cottonseed hulls for part of the silage in a wintering ration, as the heifers on this mixture were in as satisfactory condition for breeding purposes as those fed silage.

In a third test molasses was fed to determine whether or not it had an appetizing effect on good-quality roughages. Two trials were conducted with good-quality wheat straw and cottonseed hulls. The procedure followed was to first get the cattle accustomed to the roughage before adding molasses and then add the molasses and see if there was an increase in consumption of the roughage. The molasses was diluted with water and sprinkled over the roughage.

In neither case did the cattle increase their consumption of roughage, but on the contrary their feed consumption decreased somewhat. Thus it can be seen that the value of molasses as an appetizer is generally overestimated especially with high-quality feeds and a balanced ration. It does have a place in rations with poor-quality roughages. In most cases, however, molasses should be purchased for its feeding value and not for its appetizing effect. For fattening cattle molasses is worth fully 85 per cent as much pound for pound as corn.—Charles E. Murphey, '35.

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H. E. Dodge, '13, is state dairy commissioner, with headquarters in Topeka.

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W. R. Horlacher, '20, is professor of genetics in the A. & M. College of Texas, College Station.

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L. E. Howard, '17, is sales manager for the Derby Grain Company. His headquarters is Topeka.



# Searching for Plants Useful in Light Rainfall Areas<sup>1</sup>

Royse P. Murphy, '36

Much has come out of Russia that has been of agricultural value to the light rainfall belt in central United States. Immigrants from the plains of Russia brought their wheat to the plains of Kansas and made a great addition to the wheat-growing industry. Now in the search for grasses for this Great Plains area, two Americans have back tracked the trail to Russia. C. R. Enlow, '20, has spent six months of the past year in Russia and Turkey exploring for plants for the light rainfall belt of the United States. Mr. Enlow spent two months in the western sections of the United States upon his return studying plans for trials of grasses which were found in Russia, Turkey, and in the western United States.

The exploring party left New York for Russia the first of May and returned in late October. Four months were spent in Russia, Turkestan, and areas bordering China. Before returning, Turkey was also explored for two months. The party started from Moscow and were in the company of Russian botanists during the trip through Turkestan. All of these regions are in the light rainfall belt of Asia with some great deserts. In areas of 4-inch annual rainfall excellent grass and shrub covers were found. The great Kara-Kum desert and surrounding mountains were covered by some grasses, legumes, and shrubs; and this cover increased in amount toward Afghanistan. The lightness of grazing in this desert country partly accounted for the excellent cover of grass as the number of livestock was greatly decreased when Russia began collective farming. Many interesting plants and plant associations of hopeful value were found in

the steppes and desert country near the Chinese border.

Some of the more promising plants found in these regions that may be considered of possible economic value to the United States are described below.

*Aeluropes litoralis* is a short grass which resembles our Bermuda grass. It is palatable although frequently very salty. It was found in the Kara-Kum desert on high alkali flats and should have a future under similar conditions in our Southwest. The grass cover was dense and no bare spots appeared.

*Aristida pennata* var. *minor* and var. *Karalini* are the primary vegetation cover on the sandy regions. These are two nearly related species which are soft and palatable. These bunch grasses were found in the Kara-Kum desert where temperatures range from 120 to -25 degrees, with a rainfall of 4 inches annually. They should be very good on our western sandy lands and dunes.

*Carex physodes* is the sedge that is also dominant in the Kara-Kum desert in the sandy regions. It furnishes excellent grazing cover in its region as well as being valuable for wind erosion control. No viable seed was obtained but it propagates by root stalks. The ability of these root stalks to withstand adverse conditions was accidentally proved when they were delayed in shipment to Moscow in May from Turkestan. They finally arrived in Washington in October and grew very well in the greenhouses although they had been packed dry for several months.

*Poa bulbosa* was found in many dry regions of Turkestan, Turkey, and along the shores of the Mediterranean sea. It is distinctly a desert type and should be valuable for the southwestern deserts of the United States.

*Salsola* sp. are perennial Russian thistles that grow over wide areas. The

1. This report is taken from a paper prepared by C. R. Enlow, acting in charge, Soil Erosion Nurseries, Soil Erosion Service, United States Department of Agriculture.

Russians consider them excellent as grazing crops and soil binders.

*Agropyron buonopartis*, *A. orientale*, and other species are rather short but are very good for dry and sandy areas. They are the bunch grass types.

*Tamarix* sp. were found blooming profusely in the desert and presented a beautiful appearance. *Tamarix* is an excellent sand binder in the Kara-Kum desert.

*Astragalus* sp. were plentiful in the deserts. Some species were grazed but others may be poisonous, as our common locos.

*Convolvulus divaricata* is grazed considerably. It is a bushy, herbaceous plant, and has many beautiful flowers. It does not have root stalks and is a good plant for dry sand.

In the Kopet Dagh mountain region, adjoining Persia and the Kara-Kum desert, some plants of possible future value in the United States were found. They are used for grazing and appear to have great value for erosion control in our western mountain region. Their orchard grass is very similar to our *Dactylis glomerata*. There are also many species of *Stipa*, *Festuca*, *Lolium*, and *Onobrychis*; all of which are excellent grazing plants occurring in rather limited areas in the mountains. Two low-growing *Prunus* species were found with good fruit and which gave excellent erosion control.

*Crambe Kotschyana* is a broad-leaved plant closely resembling rhubarb. It grows in the foothills and mountains. The roots are harvested for their starch and the leaves are eaten by livestock in dry years. The plant makes excellent cover for dry land, and would be excellent for erosion control, although under more favorable conditions it might be a pest.

In Kirghizia some excellent bunch grasses were found on the dry hillsides of the Chu river canyon. One important bunch grass which should be of special importance in the Palouse region of the Northwest is a species of

*Agropyron* closely resembling our slender wheat grass but truly perennial. Many other *Agropyron* species were found farther south which should have a future and be better adapted than crested wheat grass to the southern Great Plains and the Southwest. Some rather palatable *Artemisia* species were found which the Russians consider valuable for grazing purposes.

The past year is the first time a real effort has been made to collect seed of native plants in the western section of the United States. One ounce to 50 pounds of seed of each species has been collected. The Cheyenne (Wyo.) station has collected approximately 440 species; Pullman (Wash.), 250 species; and Stillwater (Okla.), 400 species. In the above are found 19 species of *Agropyron*, 17 species of *Bromus*, and 9 species of *Astragalus*.

Immediate attention is being given to all the species collected in the western states, Russia, and Turkey. The plants are being grown in the nurseries to determine methods of seed production, harvesting, threshing, cleaning, and seeding.

One of the important problems facing the workers is the germination and production of seed. Seeds are viable under some conditions and not under others. To illustrate this, Japanese lawn grass would not germinate in the seed laboratory but when planted in the fall in Ohio came up the following June, and when planted one spring in South Dakota, germinated the next spring. Chewings fescue from New Zealand has never given good germination. There is a great need for further studies of grass seed. It recently has been found that if the grass is allowed to remain in the stack for a month or so before threshing, the seed holds its germination fairly well. When irrigated, crested wheat grass yielded 1,200 pounds per acre at Bozeman, Mont. Slender wheat grass at Pullman, without irrigation, yielded 250 pounds per acre the same year as planted and 1,500

pounds per acre the second year.

The value of protection from grazing to the sage brush lands adjoining the Palouse region of Oregon and Washington was well demonstrated accidentally by a rancher. An area of range sage brush was fenced off by mistake for two years in a large pasture. In two years there was a fair stand of grass, and in six years the ground was covered with an excellent cover of grass while one-third of the sage brush had died.

The soil erosion problem can be controlled practically only by the use of plant cover. Some of these plants may furnish such cover. Ranchers are becoming greatly interested in this problem as shown recently by large attendance at a meeting in Denver concerning administration of the Taylor Grazing Bill.

The grass breeding program is starting now. One hundred thousand dollars has been appropriated and the work will be done in cooperation with soil erosion nurseries, the Bureau of Plant Industry, and state agricultural experiment stations.

## Iris in Kansas

Few flowering perennials are better adapted to Kansas conditions than the common iris. Hardy, drought-resistant, and long-lived, iris plants require little care and thrive on a wide variety of soils. For years they have been favorites of Kansas flower lovers.

In 1931, iris plantings were made on the Kansas State College campus in an effort to determine which varieties were best adapted to Kansas conditions and to provide a display from which Kansas flower lovers could pick varieties which they wanted. The original plantings were made on a plot of ground north of the experimental greenhouses. In June, 1933, a new garden was started on the terraced slope east of the formal garden. Plantings were made during 1933 and 1934 until

at present over 400 varieties are represented.

In late spring and early summer the iris garden is a riot of color. The garden also contains 29 fall-blooming varieties which were secured from the Hill Iris and Peony farm at LaFontaine, Kan. Some plantings were secured from Mrs. H. W. Manning of Emporia, and some from the gardens at Cornell University. However, most of the varieties were given to the college by Mrs. W. H. Peckham who is in charge of the test gardens of the American Iris Society, located at New Rochelle, N. Y.

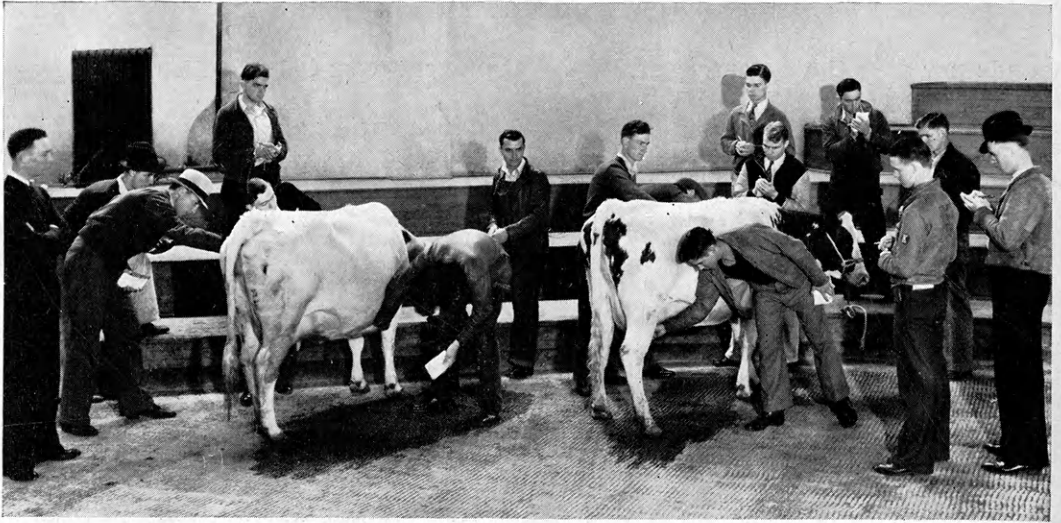
The experimental work is being carried on in cooperation with the American Iris Society. Plans for the future call for an increase in the number of plantings by the addition of new varieties. Those not suited to Kansas conditions will be discontinued.—Wayne D. Shier, '36.

L. D. Keller, '24, is assistant manager of the experimental farm of the Ralston-Purina Mills, St. Louis, Mo. The farm usually carries about 225 head of beef cattle, 150 dairy cows, 4,000 White Leghorn chickens, and 600 to 800 hogs. Pasture crops for the cattle and corn for silage are the only crops grown. The Danforth Foundation fellowship boys spend a few days each summer studying the experimental work on the farm.

H. O. Stuart, M. S. '27, is co-author of a 436-page book on "Commercial Poultry Farming," which is just off the press.

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A SCENE IN THE STUDENT DAIRY JUDGING CONTEST

The 61 contestants were divided into four groups. In this group are shown 15 contestants and the director in charge. They were judging a class of four mature Holstein cows. In the picture, however, the contestants are shown with only two of the cows of the class. (See page 111.)



WINNING MEAT JUDGING TEAM

Did they win? They not only won the intercollegiate meat judging contest at Chicago, Tuesday, December 4, 1934, but made the highest score ever recorded in these contests. There were nine teams in the contest. The members of the team from left to right are: J. Edwin McColm, Prof. D. L. Mackintosh, coach, Philip W. Ljungdahl, Robert R. Teagarden, Howard A. Moreen, Herbert T. Niles.