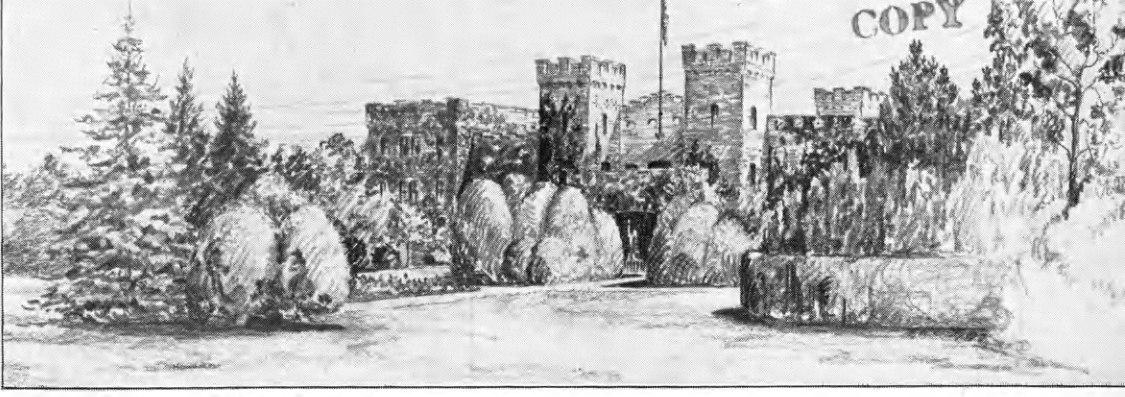
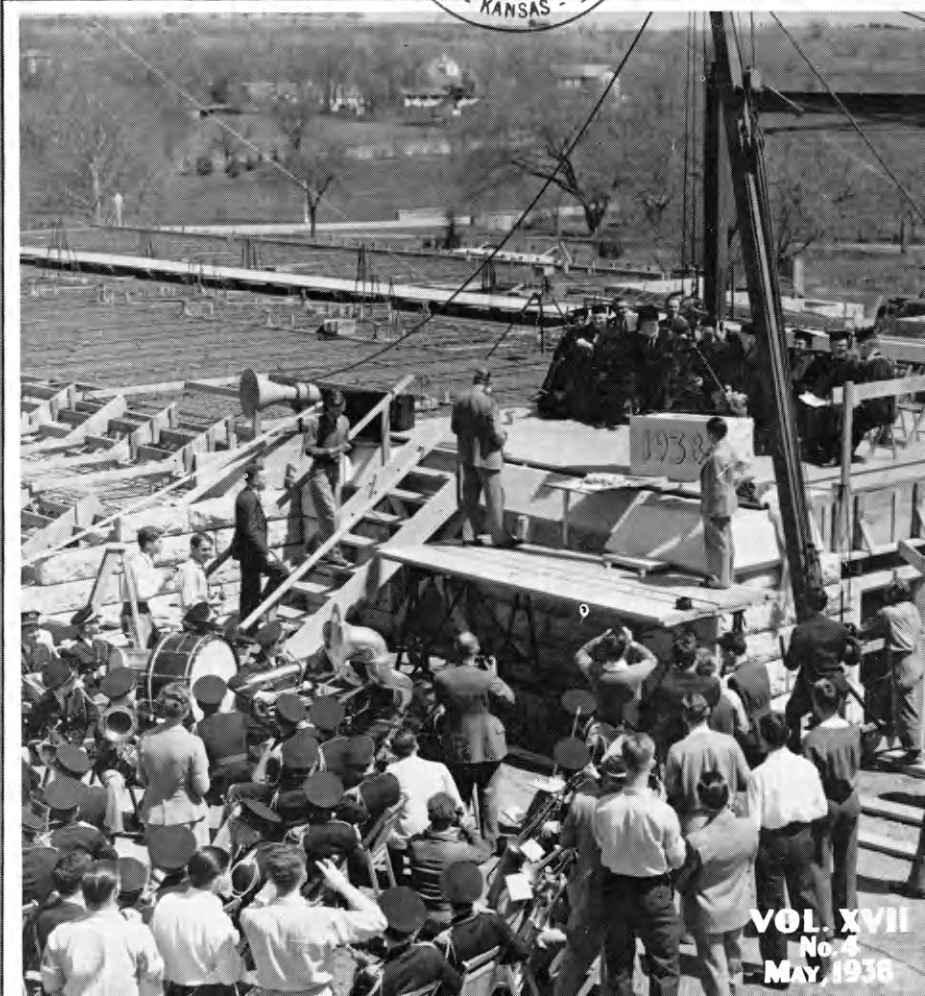


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# THE KANSAS AGRICULTURAL STUDENT

MANHATTAN, KANSAS



VOL. XVII  
No. 4  
MAY, 1938

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# The Kansas Agricultural Student

VOL. XVII

Manhattan, Kansas, May, 1938

No. 4



EDITORIAL STAFF OF THE KANSAS AGRICULTURAL STUDENT, 1937-'38

Top row: F. Louis Brooks, Roland B. Elling, Forrest R. Fansher, Willis R. Wenrich, Emmett B. Hannawald.

Middle row: Robert O. Baber, Waldo W. Poovey, Clyde D. Mueller, Herman J. Reitz.

Bottom row: Francis L. Blaesi, Robert F. Sloan, William R. Allen, Leonard W. Schruben, Arthur F. Leonhard.

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### Value of 4-H Club Work

Agriculture is the greatest industry in the world. 4-H work is the branch of agriculture that contains so many opportunities for young people.

4-H Club work affords a splendid opportunity for social activities. At community, county, or state meetings where club members form new friendships, they are taught to play and work together, thus promoting desirable plans for the future, overcoming shyness, and learning to mingle and associate with each other.

Through 4-H there is an opportunity for members to learn to do by doing. This statement sums up the reason why 4-H Clubs give so much practical value to the rural boys and girls of our country. What could be more practical than to create a more capable future generation with more efficient education concerning the breeding, feeding, and management of livestock, poultry, and crops?

One of the most important things gained through club work is the development of leadership through the leadership project. Club members have the opportunity of learning how to conduct a local, county, or state meeting. No community can be more progressive than its leaders, and 4-H Clubs are doing much toward improving them. Club work is one of the greatest forces today building strong character, higher standards, and worthy ambitions among rural boys and girls. Outstanding 4-H leaders receive very worthwhile recognition, such as trips to the National 4-H Club Congress and the National 4-H Club Encampment at Washington, D. C.

There are many awards, scholarships, and others that may be achieved through 4-H Club work. Club members take great pride in becoming a winner among many in competition. The boys and girls learn the meaning of true sportsmanship—"to win without losing their heads and to be a loser without losing heart." Through trips to the round-up or to the state fair encamp-

ments the value of further training becomes more thoroughly established. Scholarships often give one the opportunity of starting a college course and anything once begun by a club member is seldom left unfinished. A large percentage of the former 4-H Club members now attending Kansas State College can attribute their reason for entering college to contacts or experiences gained through their 4-H Club work.

To broaden the life of the farm boy and girl, 4-H Club work is built on the foundation of the fourfold development of the head, heart, hands, and health. It trains the head, through new information; the health, through better living and a clearer view of the ideals and purposes for which to live; and the hand, through actually doing the things learned. As to practical value, 4-H Clubs have met a need which is offered by nothing else in developing the farm youth into a type of manhood and womanhood which will improve the future over the past.—Paul E. Sanford, '41.

### 4-H Club Work, 1937-'38

Boys and girls of Kansas, over 21,000 of them, received inspiration and training for life's situations in 4-H Club work during 1937-'38. Despite adverse conditions and inadequate personnel, they earned \$250,000 in 32,000 agricultural and home economics projects, with a completion record of 79 percent. They were directed and assisted in their activities by 2,377 local volunteer leaders and 1,300 Junior leaders.

Through 4-H Club work rural boys and girls are brought into contact with the finer and more significant things of life, including better practices in agriculture, home making, and community service. It is through these contacts and guidances that a great number of these boys and girls are influenced to come to college. Members who have done outstanding work are awarded trips to the National Dairy Show, International Livestock Show, and to the National Conference in



## 4-H CLUB WORK PAYS

Washington, D. C. Every year 53 scholarships amounting to approximately \$6,500 are awarded to members who are outstanding leaders, by organizations that have taken a great interest in 4-H Club work.

At Kansas State College alone, 25.5 percent of the entire enrollment is made up of former 4-H Club members. These members have organized the Collegiate 4-H Club which is the largest single organization on the campus and is very influential in school activities. The Collegiate Club sponsors a weekly radio broadcast from 12:30 to 1:30 on Saturday afternoons. It publishes a 4-H year book, the **Who's Whoot**, which is an illustrated and interesting account of 4-H work for the past year. Each spring it sponsors a Rural Life Conference for those interested members who have become too old to compete in regular 4-H Club work.—Bob Shoffner, '40.

### 4-H Club Work Pays

Walter Campbell has been an outstanding 4-H Club member for a period of seven years. During this time he has carried 30 projects, the profit from which totaled \$870.75. He was a leader for five years; made a total of 18 exhibits from which he won 22 county and state prizes; a poultry leader for two years for the County Poultry Improvement program; and a member of seven judging teams, including two crops, three poultry, and two baking. Last year he was selected to represent the agricultural freshmen of the college at the American Youth Foundation Camp in western Michigan.

Robert Shoffner, who is a sophomore in Agricultural Administration at Kansas State College, has been a 4-H Club member since 1926. During this time he completed 28 projects and was a Junior leader for four years. He has held most of the offices in his local club; has been president of Geary county's Who's Who; has coached five demonstration teams; has been superintendent of the poultry show in his county;

and has worked on 16 judging teams. At the present time, Robert is president of the state Who's Who 4-H Club and also president of the Master 4-H Club which is an organization of all 4-H Club members who have attended the National 4-H Club encampment at Washington, D. C.

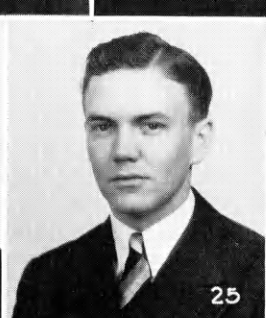
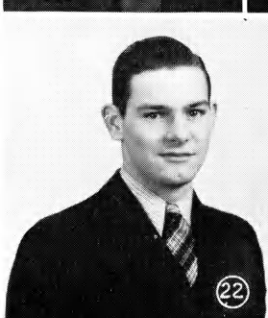
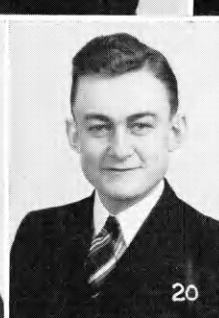
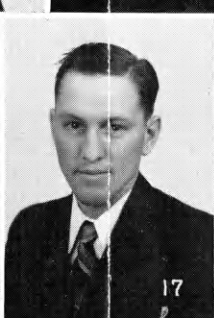
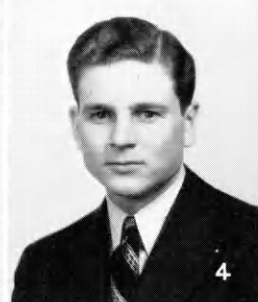
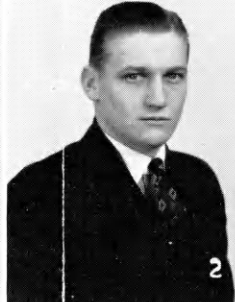
Paul Sanford is a student in poultry husbandry at Kansas State College. He has been a 4-H Club member in Geary county since 1932. During these six years he has completed 32 projects including four years in junior leadership. He has shown a total of 179 exhibits from which he received 275 prizes having a cash value of more than \$278.25. The profit from his projects totals \$1,250.00. He has been a member of 15 judging teams, a member of the winning state and national poultry judging team in 1935 in which he was fourth high individual in the national contest. He has also been second high individual in the state in two livestock judging contests.

Paul is one of 15 students in the college who is competing for a scholarship for an extra year of study offered by Sears, Roebuck and Company. He is holding two scholarships this year—one offered by Sears, Roebuck and Company and one for being national poultry champion, awarded for his outstanding record in 4-H work.

A. E. Jones, '16, has been appointed director of Soil Conservation Service in the Central Great Plains and will be in charge of the service program in the larger parts of Kansas, Oklahoma, and Nebraska.

Glenn S. Fox, '33, has accepted a position as head of the Department of Auditing and Finance with the Consumers Co-operative Association of North Kansas City, Mo.

H. A. Perkins, '38, was appointed to the faculty of the Prairie View State Normal and Industrial College, Prairie View, Tex. This is one of the largest land-grant colleges for colored people in the United States.



## New Members in Alpha Zeta

**A**LPHA Zeta, National Honorary Agricultural Fraternity, elects into its membership twice each year the outstanding men in the Division of Agriculture. Selection of members is made by the active chapter on scholarship, leadership, extra curricular activities, and character. To be eligible for election a man must first rank in the upper two fifths of his class scholastically. Selection of membership is made from second semester sophomore, junior, and senior classes.

Membership in Alpha Zeta is an honor recognized by both the students and the alumni. Together with this honor goes the responsibility of carrying on the ideals of the organization—that of banding together a group of outstanding men who will be leaders in the field of agriculture after their school days are over.

During the school year 1937-'38 the following men were initiated into the fraternity:

1. GEORGE W. AICHER, Hays
2. WILLIAM G. ALSOP, Wakefield
3. ELLWOOD T. BAKER, Abilene
4. JAMES F. BOOTH, Fairview
5. EARL J. COOK, Parker
6. DON E. CRUMBAKER, Onaga
7. JOHN G. DEAN, Baldwin
8. FARLAND E. FANSHER, Hutchinson
9. HAROLD R. FOX, Rozel
10. ROY R. GREEN, Silver Spring, Md.
11. EMMETT B. HANNAWALD, Pratt
12. MEADE C. HARRIS, Tecumseh
13. J. ELBERT JOHNSON, R. 1, Winfield
14. L. A. KIDDER, 407 W. 5th, Pittsburg
15. RALPH E. KRENZIN, Kinsley
16. KENNETH E. KRUSE, Barnes
17. ALVIN G. LAW, Hill City
18. WILLIAM A. LJUNGDAHL, Menlo
19. C. W. LOBENSTEIN, Edwardsville
20. DALE E. MCCARTY, Oneida
21. EARL E. MILLER, Sublette
22. CLYDE D. MUELLER, Sawyer
23. H. ALLEN NOTTORF, Abilene
24. WILLIAM W. PETERSON, Manhattan
25. KENNETH B. PORTER, Stafford
26. CLYDE C. REED, Kanopolis
27. LEONARD W. SCHRUBEN, Dresden
28. CLIFFORD W. STONE, El Dorado
29. ELMORE G. STOUT, Cottonwood Falls
30. G. L. TERMAN, R. 6, Columbia City, Ind.
31. J. ELWYN TOPLIFF, Jewell

—Elmer Dawdy, '38.

## Certificate for Teaching Vocational Agriculture

### *An opportunity for good men*

We will not attempt to make a complete listing of requirements for teachers of Vocational Agriculture in this publication, but Kansas State is prepared to meet these specific requirements in the training of future teachers. Considering that there are now about 150 schools in Kansas where vocational agriculture is taught, this line of work should be worth while to young men. There are steady demands for extra schools and undoubtedly as many more schools will be approved for the work this fall as can be provided with qualified teachers and equipment to handle the job. This makes a real demand on Kansas State College.

The requirements are pretty well understood by students of Vocational Agriculture. If you want to prepare for such a job you should examine yourself first and see if you would take a liking to this special line of teaching. If you are interested you can readily find out the requirements—full particulars may be found in the college catalogue.

It is desirable that preparation for this work begin early in your college career, for the requirements of teaching vocational agriculture should be sandwiched in the last two years and preferably the last three years of the college curriculum. There is practically one year of professional requirements in education and training in mechanical lines that must be included in the four years of the curriculum in Agricultural Administration.

If you are interested in this field you are advised to think over the matter and study the requirements in the near future.

—Advisory Editor.

### High School Boys!

This issue of the Kansas Agricultural Student is recommended for and complimentary to each member of the high school class of 1938.



# THE KANSAS AGRICULTURAL STUDENT

KANSAS STATE COLLEGE OF AGRICULTURE  
AND APPLIED SCIENCE

MANHATTAN, KANSAS

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ROBERT O. BABER.....Milling Industry  
CLYDE D. MUELLER.....Poultry Husbandry

## WILLARD HALL IS DEDICATED

April 20, the day of the dedication of Willard Hall, was a day of beauty such as Kansas can bring forth. Why shouldn't it be when arrangements were all completed for the dedication of the greatest of buildings that Kansas State College has yet known. . . . the building that was appropriately dedicated "Willard Hall."

Mr. C. M. Harger, chairman of the Board of Regents, was the master of ceremonies. Short speeches were made, all dealing with the history of physical science in Kansas State. As usual Gov. W. A. Huxman capped the climax by his brief and splendid address.

Cameras clicked just before Dr. J. T. Willard arose to perform the closing ceremonies as the cover page indicates. Ask where the crowd is. They are all in the shade of the library building. Loudspeakers made it easy to hear the address at a long distance away and it was warm enough to enjoy the shade.

—Advisory Editor.

## SUCCESSFUL ARTICLES—THANK YOU

Bouquets of flowers consisting of words of praise are presented to the boys who worked on the articles in this issue—attaining such marked success. The department articles are written for high school boys. If you don't read them, boys—you will be the losers. They deal with the seven chief departments of the Division of Agriculture of Kansas State. Their titles will indicate the departments, and reading of the articles we believe will not only be interesting, but instructive to you. We liked them and hope you also will like them.

Not only do I want to praise the articles in this magazine but as this is the last issue for the school year, I want to take this opportunity to thank all the boys who have contributed such fine articles and otherwise assisted in the work of the 1937-'38 magazines. Your willing co-operation has been greatly appreciated.

—Advisory Editor.



# Variation in Grasses

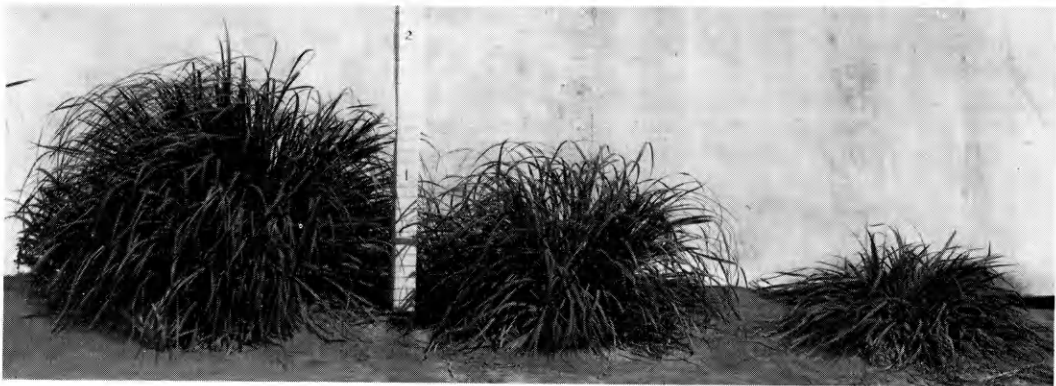


SINCE the beginning of time grass has been a major factor in the advancement of civilization. The agriculture of the world is built on grasses, both wild and cultivated, and a country abundantly supplied with grass will be able to practice a better balanced, long time, self sufficing agriculture which will result in a higher standard of living for the entire population.

Cultivated grasses such as wheat, rice, corn, rye, oats, barley, and many others are the principal source of food for man and animals throughout the world. Both wild and cultivated grasses

acres have been plowed and cropped that will have to be returned to grass if Kansas agriculture is to maintain its past standard of leadership. The severe dust storms of recent years show only too clearly the result of destroying the native sod and other vegetation, which normally restrains the loose soils of central and western Kansas from blowing.

In an effort to correct this condition and to get strains of native grass that may be more useful over the state, a grass-breeding nursery was organized in the spring of 1935 on the Agronomy



VARIABILITY IN BIG BLUESTEM

are used for silage, forage, soil binders, lawns, golf courses, and in the manufacture of innumerable articles useful to man. In a group of plants adapted to such a variety of uses, it naturally follows that there will be a great variation of characteristics and appearances. For example, in the tropical and sub-tropical areas, there are huge bamboo "trees" towering high in the air, and at the other extreme tiny annual grasses less than 1 inch high can be found. Grass is found in the deepest valleys along the equator, and far above timber line on the high mountain passes. Here in Kansas these extremes in variation are not important, however interesting they may be.

About one third of the state is in permanent pasture that produces food for livestock and aids in controlling wind and water erosion. Thousands of

Farm of the Kansas Agricultural Experiment Station under the supervision of Dr. A. E. Aldous of the Department of Agronomy. The original nursery contained selections from native pastures of the following grasses: big bluestem (*Andropogon furcatus*), little bluestem (*Andropogon scoparius*), side oats grama (*Bouteloua curtipendula*), blue grama (*Bouteloua gracilis*), switch grass (*Panicum virgatum*), Indian grass (*Sorghastrum nutans*), some imported wheat grasses (*Agropyron* species), and brome grass (*Bromus inermis*), a tame grass. Selected seed from these plants, including about 850 buffalo grass plants (*Buchloe dactyloides*) from Oklahoma and Hays, Kan., was started in the greenhouse in February, 1936. The seedlings were set out in a larger nursery containing about four

(Continued on page 121)

# Horticulture

*Prepares men  
for four fields  
of work*

1. Fruit Growing
2. Vegetable Gardening
3. Landscape Gardening
4. Floriculture

**F**EW fields of agricultural endeavor have as many advantages and disadvantages as horticulture. I believe I should mention these first because there are few reasons for considering a profession if you are frightened by its disadvantages, and there are fewer reasons for reading an article if it isn't interesting.

Horticulture, originally, was thought of as the cultivation of gardens, while agriculture was the cultivation of fields. Today, however, agriculture signifies any type of cultivation of the soil for food products, while horticulture, a branch of agriculture, has broadened to include not only general horticulture but also all fruit growing, nut growing, flower and vegetable seed production, vegetable gardening, floriculture and greenhouse practice, growing of nursery stock, tree surgery, landscape gardening, and horticultural research and teaching.

In Kansas and in many other sections of the United States horticultural practice is truly a problem, for its success depends largely upon the uncontrollable forces of nature. When it rains the weeds grow twice as fast as the crops, and when the drought sets in the crops die twice as fast as the weeds. When the florist needs sunshine, cloudy weather may cause a crop to mature too slowly for a timely market. In the summer when clouds would be welcomed the sun shines so brightly that even the owls get tanned in the moonlight. Late spring frosts often ruin the fruit, and hail tamps the tops of plants into the mud, then a dust storm uncovers the roots. Pray for a shower and you are just as apt to get a flood and everything will be so wet that

an old broomstick will turn green and put out shoots. Plant diseases get the crop in the field and the taxes get the one in the bin. Insect pests and marauders have an eye on everything that is edible. It is said to require at least two men to raise a good crop of melons; one to carry a spray gun and keep the insects off the vines, while the other carries a shotgun to keep the melons on the vines.

One year it was reported here in Kansas that late frost reduced the apple crop 25 percent, hail damage was 30 percent, insects cut the crop 50 percent, plant diseases reduced it 20 percent and drought reduced the size of the fruit 10 percent; even then other conditions were so favorable that the orchard made an average yield of 10 bushels per tree. The trees were rather young and would never have been able to have supported the load anyhow so perhaps the scourges were a blessing.

Along with all these disadvantages horticulture also has many advantages. It may be ranked with farming as one of the most healthful of all occupations. There is fresh air and sunshine for those who like the great outdoors. But, if one should have a dislike for sunshine he might go into his cellar and raise mushrooms and still be a successful horticulturist. There are also many office, research, and teaching positions for those who prefer this to the manual labor.

The horticulturist, with a business of his own, to a certain degree has the privilege of being independent. He can live in the section of the country he chooses, grow what most appeals to him, and exercise his initiative and individuality by using a portion of his

## HORTICULTURE

land as a laboratory for experiments when finances permit.

Horticulture offers work for both the brain and the hands and is less monotonous than many other occupations, as its diversified nature requires different tasks from day to day and season to season. The possibilities in horticulture have merely been touched. With the growth of population, popularization of fruits and vegetables, flowers, parks and recreational centers, development of canning processes, perfection of plant species by breeding and selection, horticulture will require in the future many times the present number employed in the field.

Fruit growing is the most important branch of horticultural practice, although it is rather restricted by markets and climatic conditions to certain regions adapted to one or more of the many kinds of fruit in demand. Large areas in New York, California, Arkansas, Georgia, and many other states are devoted to the growing of important deciduous tree fruits such as apples, peaches, plums, pears, apricots, and cherries. California, Florida, and Texas are the largest growers of oranges, grapefruit, lemons, and other citrus fruits. Grapes, strawberries, raspberries, blackberries, cranberries, and many other small fruits are grown in the United States, with practically every state contributing to the production of one or more of these fruits.

Nut growing in the United States is a youthful industry closely related to fruit growing, and is becoming established as another important branch of horticulture. The nuts of greatest importance are Persian walnuts, pecans, and almonds. I was recently talking with a pioneer in the industry and he stated that his biggest competitor was a neighbor who started out with only a dozen saplings, for he said they were now scattered all over the county raising little nuts of their own.

Vegetable growing and truck farming includes small and large scale production of potatoes, cabbage, spinach, cauliflower, melons, cucumbers, toma-

atoes, onions, celery, radishes, etc., and mushrooms are sometimes grown as a major crop or as a sideline. One authority on the subject of horticulture suggests the growing of several crops in combination in order to distribute the labor and income throughout the year, and without doubt it is a wise plan for the producer to follow. He further suggests that the major expenses be met with the income from the fruit while current expenditures be paid with that from vegetables. Well, I would like to add that it might be wise to deposit the fruit profits in the First National Bank, and the vegetable profits



*Linus Burton*

## HORTICULTURE

in the Fourth National Bank so they won't get mixed; then they would be rather hard to uncover if we should get a big dust storm and find everything deposited in the sand bank.

Thousands of men and women are continuously employed in floriculture throughout the United States. The hothouse is literally the florist's factory in which roses, carnations, violets, and countless varieties of cutting flowers and potted plants are brought to maturity by highly specialized horticulturists who must know their flowers and the public that buys them. Again buying, propagation, growing, planting and marketing are the essential problems. Floriculture and greenhouse management is more than a profession and a livelihood. To the successful florist it is a pleasure and an art.

One of the most important developments in horticulture is the growing of flower and vegetable seeds. This branch of horticulture is another highly specialized industry requiring experts in seed production, harvesting, handling, and marketing. More than 32 important vegetables alone, with from two to several hundred varieties each are grown purely to supply the seed demand of home and market gardens. In addition hundreds of varieties of flower seeds are supplied by special growers and farmers usually under contract with the large seed houses or dealers.

Many horticulturists have gained their first experience and practical knowledge in the nursery, and many nurseries have experienced their first success by the application of practical and technical knowledge by a well trained and industrious horticulturist. The function of the nursery is to supply fruit trees to the orchardist, ornamental and shade trees, shrubs, plants, bulbs, and seeds for farm, park, private estate, or city planting. The nurseryman receives his stock from all parts of the world and technical knowledge of plants, and their propagation by budding, cutting, grafting, tip layering, and rooting is essential. Marketing is accomplished by mail order or by sales-

men, and often planting and landscape service is rendered by experienced men from the nursery.

The landscape gardener is the technically trained specialized horticulturist who not only draws plans and designs for park, city, estate, and private home plantings, but supervises the planting and makes reality of his ideas. The landscape gardener deals with ground forms, vegetation, and structures in their relation to landscape. He must have a love of nature and a knowledge of natural forms enabling him to create and preserve beauty in the surroundings of human habitations. Any man or woman with some patience and a spade can plant an elm tree, but it takes a trained landscape gardener with memories of many yesterdays and visions of the distant future to plant an *Ulmus americana* that will grow to maturity and serve its intended purpose in the exact spot for greatest beauty and utility. The landscape artist must know plants, their adaptation to climate and soil, their growing habits, and their characteristics. He must have a keen eye for form, color, and texture harmony, and a mental perception of line values, contours, and vistas in order to build with living materials an ever-changing design that will be beautiful in all stages of its growth.

Tree surgery is developing into an important field of specialized horticulture. Martin L. Davey started as a tree surgeon in the footsteps of his father, later becoming president of the Davey Tree Expert Company, and he is now governor of Ohio. Of course not all tree surgeons become governors of Ohio, but this shows that a tree surgeon does learn how to climb. Tree surgery is a profession requiring special knowledge in correct pruning, principles of cavity treatment, bracing and cabling, and tree planting, in addition to the botany and other subjects taught in a college course in general horticulture.

Research and teaching may be termed professional fields of horticulture. It is often stated that a man who can't make a living practicing in his



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field gets a job teaching it. Teaching and research, however, require traits of personality, and ones in this field must meet high educational requirements. Although practical experience is certainly beneficial to both the teacher and his student, it alone is not sufficient to stamp an impression on the supersaturated mind of the youthful student. The Civil Service Commission offers competitive examinations for about two dozen different horticultural positions in the Department of Agriculture. The Department of the Interior also requires horticultural assistance.

Kansas State College is one of the foremost schools in the United States offering training in horticulture. In addition to the credit given for horticultural problems and research, the Department of Horticulture offers 26 courses, including 70 semester hours of work of which 23 are in landscape gardening, 16 in vegetable gardening and floriculture, 13 in pomology, 9 in forestry, and 9 in general horticulture.

The 80-acre horticultural farm, the 150-acre campus, and college greenhouses provide outdoor laboratories for many of the courses, and also work for quite a number of students with ambition who require financial assistance while attending college.

More positions for the well trained horticulturist are opening each year and the field is not so overcrowded as are many others. For the past 16 years an average of eight students per year have graduated from Kansas State College with a major in some field of horticulture. From the 1938 report of 90 graduates in horticulture from Kansas State College the salaries ranged from \$500 to \$4,200 per year with an average of \$1,840. The figures of this report are somewhat lower than those of a similar report five years earlier, but such would be expected at this time with depression not yet entirely a thing of the past. Twenty-six occupations were listed in the report, and alumni are stationed in 18 states and two foreign countries. The list included 14 college employees, 10 in the U. S. D. A., 7 commercial flor-

ists, and 6 county agricultural agents. Five were employed in each of the following fields: U. S. Department of the Interior (Park Service), state agricultural experiment stations, nurserymen, fruit growers, graduate students, and highway landscape gardeners. Four are teaching in high schools and four are clerks; two each in park work and professional landscape gardening, and one in each of eleven other types of employment ranging from housewife through gold mining to an officer in the U. S. Army.

Perhaps only a small percent of high school graduates are interested in horticulture as a career, but they are all interested in a more prosperous future and higher standard of living which a college education in some field of agriculture will enable them to attain. It has not been my intention to give advice to the high school graduate, but information—interesting information relating to horticulture.

Now I have been told that there are "no days like the old days," but it is my opinion that today is its nearest equal, and I've never heard of anything being accomplished on a tomorrow. I have suggested possible ultimate goals which await interested, hardworking students with the foresight to make a decision and the grit to make the attempt, and in conclusion I would like to add another bit of my crude philosophy: if at some time during our lives we had never once made the attempt to walk, we would all yet be crawling on our hands and knees.

—Linus H. Burton, '39.

### Horticulture Department:

George D. Oberle, '31, who received his master's degree at Kansas State College at the end of the first semester, 1935-'36, will receive his doctor's degree in plant breeding at Cornell University, Ithaca, N. Y., this spring.

Phares Decker, '34, is working on his doctor's degree at Cornell University after receiving his master's degree at the University of Minnesota.

# Dairy Husbandry

## *Prepares men for two fields of work*

1. Dairy Production
2. Dairy Manufacturing

**I**N writing an article primarily for those interested in making dairy husbandry their life work I find it difficult to decide just how much of the field to cover. There are many factors that will determine the success of the individual in this line of work. I feel that there will be some value in presenting not only material concerning our college department but also some personal observations that I've made outside of college. So to the prospective dairy production student I give these experiences and observations for what they may be worth. The reader may draw his own conclusions.

To be successful in any vocation the individual should be definitely and genuinely interested in it. This is especially true in dairy production work. A majority of those that enter this field will spend a part of their lives working with dairy cattle. Cows must be milked at least twice daily; they must be cared for and watched closely. This necessitates not only getting up at four or five o'clock in the morning but also being on the job every day of the year. To many this would be just plain monotony, but to the good herdsman it's part of his job—his life. With him the welfare and the advancement of the dairy cow is paramount.

Unfortunately many of us have difficulty in choosing a vocation. To you that are uncertain or lukewarm, so to speak, I suggest that you look elsewhere for an occupation.

Why should the boy interested in dairy cattle come to college? There are numerous reasons and I shall mention only a few. It would be difficult to visit any large dairy or breeding establishment in this country today without finding several young men employed. For the most part they are ambitious, hard-working, often above average in

intelligence yet lacking a college education. Yet it is a fact that probably nine out of ten of these employees will never receive a monthly check that will exceed two figures. Think this over before you decide definitely against going to college.

Many of these boys say they cannot afford to attend college. I enrolled at Kansas State with little more than a hole in my pocket and except for the fact that that hole has somewhat increased in size, my financial status has changed little. Today the lack of funds is no abili. The Department of Dairy Husbandry makes an effort to furnish work to every deserving dairy student to help him through school.

A number of the dairy production students are given work at the college dairy barn caring for the herd which numbers one hundred fifty head of purebred dairy cattle. This barn was completed in 1933 and is one of the most modern and elaborate structures of its kind in the Middle West. Other jobs include work with various experiments, milk testing, and advanced students are given record work at the dairy office. At present a majority of the students in the dairy department earn a portion of their expenses.

It is only natural that I take this opportunity to toss a bouquet to my Dairy Husbandry instructors. Someone has said that the teacher is more important than the course. Certainly those of us who spend four years associating both in and out of classes with Professors Atkeson, Cave, and Riddell, have gotten far more than text book material.

Perhaps a brief statement would be in order concerning these men, who to no small extent direct the destinies of Kansas State dairy production students.

Professor Atkeson received his Master's Degree from Kansas State in 1929

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and returned in 1935 to assume his duties as Head of the Department of Dairy Husbandry. Previously he held a similar position in the University of Idaho. Because he has a personality all his own, because he is so deeply interested in the advancement of the Dairy Industry, and because he is a brilliant teacher genuinely sincere in endeavoring to better prepare us for our chosen work, he has won our praise and respect.

Probably Professor Cave is closer to the undergraduates. He has charge of the college dairy herd in addition to his various class duties. He is recognized as one of the better coaches of college dairy judging teams. As one student remarked, "Professor Cave seems to have a knack of making something out of nothing."

Professor Riddell not only is a popular teacher, but has done important work with vitamins and minerals in the field of nutrition. He also has charge of official testing in Kansas.

It is interesting to note that these three men have worked their way up to their present position. All have had actual experience in milking, feeding, showing, and testing dairy cows. In addition to fitting them for their teaching work and building their character, it no doubt helps them a great deal in understanding the needs of the students today.

The Department of Dairy Husbandry offers courses in judging dairy cattle, feeding and management methods, pedigree and herd studies, and various dairy manufacturing courses. The student may use his own discretion to a certain extent as to the courses he takes outside of the dairy department. Some courses that have been of particular value to me include genetics, animal nutrition, and bacteriology.

A majority of the Kansas State dairy production graduates sooner or later operate their own dairy farms. Some become county agents or vocational

agricultural teachers. Others are employed by breed associations, dairy feed, or supply companies. Many are employed as farm managers.

The fact that many of the leaders in the dairy world today are graduates of Kansas State College indicates that our Dairy Department is on a par with those of other similar institutions throughout the country.

Some students find it impossible to attend school for four consecutive years. Personally I believe there are several advantages of working one or more years before graduating. Most students that follow this plan will get more out of college when they return because they usually know why they are attending college. Also this offers an opportunity for the dairy student to obtain practical experience which is so important in this line of work. Work-



ing as test-cow milker and with show herds for two years in addition to summers since graduating from high school has afforded me experiences and contacts that will no doubt be of inestimable value in the years to come. Many graduates lack practical experience and consequently don't obtain the better jobs. How much easier it would have been for them to have gotten experience earlier at a time when small salaries were in order.

Ours is a great industry. In the United States last year dairy cattle pro-

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duced one fifth or twenty percent of the total farm income. We are producing that most important food—milk, a product that can be almost termed a public utility. Vast changes and improvements have been made in the dairy world in recent years but we find conditions that offer room for vast improvement. For example the world's record dairy cow has produced 38,606 pounds of milk containing nearly one ton of butter in one year. To date over 300 dairy cows have produced over 1,000 pounds of butterfat in a year. Yet **each year** in the United States approximately **25 million** dairy cows averaged **160 pounds butterfat**. I look upon this as a challenge to all connected with dairy husbandry work. Through better methods of breeding, feeding, and management this condition will continue to be improved.

—Forrest Fansher, '38.

**I**N 1935 milk and other dairy products in Kansas were valued at twelve percent of all farm products produced. Of that portion about eighty-eight percent was in the form of manufactured products which is handled by the dairy manufacturer. In Kansas, as in many other states, a large percentage of dairy products goes through the dairy manufacturing plants before it is offered to the consumer.

Since dairying as a whole makes such a substantial contribution to the farmer's income it was only natural for Kansas State College to organize a dairy department as it did in 1905. Among the first courses taught were butter making, ice cream making, and market milk.

At the present time the Kansas State College Creamery is located in the west wing of Waters Hall. The first floor of this modern stone building, which is 80 x 169 feet, with a one-story annex at the north end is used for teaching and research work in the field of dairy products. Facilities are provided for the receiving, separating, pasteurizing, and bottling of milk and the manufacture of butter, cheese, ice cream, and

condensed milk. Modern equipment is available for these operations on a quantity basis and the department is equipped far better than ever before to instruct students interested in the manufacturing side of dairying.

All of the equipment with which the market milk (that portion which is consumed as fluid milk) comes in contact is constructed of bright and shiny stainless steel. This material has desirable sanitary features and is the latest in market milk equipment material.

One large room is provided for the manufacturing of butter, ice cream, and condensed milk. Adequate equipment is also supplied here for the production of dairy products on a commercial basis.

Two additional rooms are provided for cheese making. One room is for the making of cheese curd while the other room is for pressing the curd into forms. Several kinds of high-quality cheese are made during each year.

A number of other products are made in the College Creamery, the main ones being cultured buttermilk made from skim milk, and chocolate milk made from whole or partially defatted milk flavored with chocolate syrup. These products require no special or additional equipment for their manufacture.

Two ammonia compressors are used to produce the necessary refrigeration for cooling milk, freezing ice cream, making ice, and the storage of dairy products until sold. These two machines have a refrigeration capacity equivalent to the melting of twenty tons of ice every twenty-four hours. This amount of refrigeration is not developed, however, as the machines are operated only from six to eight hours daily.

The creamery equipment and other scientific apparatus are used not only for commercial work but also in connection with various research projects. These research projects deal mainly with manufacturing processes which will make it possible to improve the quality of the product or to bring about



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more economical manufacture.

During the past year the volume of business done by the creamery amounted to \$42,000 through the sale of butter, ice cream, cheese, and market milk. Grade A raw and pasteurized milk are sold wholesale to a local milk distributor, sweet cream butter is sold wholesale to local grocery stores, and the other products are sold at the dairy sales room, college girls' dormitory, and college cafeteria. This arrangement makes it possible to give adequate instruction in the manufacturing and marketing of dairy products and at the same time provides excellent facilities for research work.

A splendid means of keeping abreast with new developments in the dairy products field are the courses designed especially for plant operators. These courses usually last about one week each since the students cannot conveniently be away from their regular work a longer period of time. A small fee covers all expenses.

Prof. W. H. Martin, who has been at Kansas State since 1925 and is now in charge of dairy products, received his Master's degree from Pennsylvania State College in 1922. Prof. W. J. Caulfield, a member of the department since 1927, also received his Master's degree from Pennsylvania State.

Many of the dairy manufacturing students work "part time." Much of this work consists of working in the creamery or sales room or it might be plant work, testing of dairy products in the laboratory, or assisting in experimental work. This offers a fine opportunity for the energetic students to earn a percent of their expenses and also to gain valuable experience.

In the last ten years, twenty-nine students have specialized in dairy manufacturing. Some representative positions these men hold and their names are: Department Manager, Fairmount Creamery Company, Pius Hostetler; Ice Cream Maker, Wayne Jacobs; Plant Superintendent, University of Wisconsin Creamery, Everett Byers; Leavenworth City Milk Inspector, Glen

H. Boyles; Laboratory Analyst, Bowman Dairies, Wilmer Smittle; Instructor in Dairy Manufacturing, L. G. Harmon; and Graduate Assistant, F. G. Warren.

You ask, "What will I gain by going to college for four years to learn to handle milk and its products?"

Naturally if you major in dairy manufacturing, you will learn much more about milk and its products than you could ever imagine could be true, but not only that—let us consider some other things. Personality—by associating with college or university people this personality is improved. Why? Because you are away from guiding hands so that you must go much on your own decisions or as the old saying goes "either sink or swim." My bet is that you, as other college students have done, will swim. It is true that associating with people from all over the United States and other countries, your knowledge of their customs, means of maintaining a livelihood, and different aspects on any question discussed, is broadened. Then considering that ever-big question—What will my salary be? Only a small percentage of young men in dairy work unless technically trained ever receive over \$100 a month, while many men graduating from dairy manufacturing secure positions starting at that amount or more. And last but not least, after four years of sincere preparation for your life's work, you will feel that you can do your job well and as you all know—self-satisfaction sets the "goal" high.

—Herb Davies, '38.

### Dairy Department:

R. R. Graves, '09, is now president of the American Dairy Science Association. He is in research and administration work with the Bureau of Dairy Industry, Washington, D. C.

Amer B. Nystrom, '07, is senior dairy husbandryman with the U. S. D. A. in the Bureau of Dairy Industry.

H. P. Miller, '18, is assistant superintendent of the Cudahy Packing Company, Kansas City, Kan.

# Agronomy

## *Prepares men for three fields of work*

1. General Farming and Improved Seed Production
2. Soil Management and Conservation
3. Investigations in Soil Science and Crop Production and Improvement

**G**UIDE: To give us a perspective of what's new in store for the dirt farmer we'll make a survey of the Department of Agronomy. You may notice the soils display at the head of the stairs on the third floor, which probably suggests to you the soils department. And your guess isn't wrong either. We'll begin our tour here and then go up—oh, there's Prof. R. I. Throckmorton, head of the Department of Agronomy, whose subtle sarcasm identifies him wherever he goes. He also heads the soils department and is known to his students as a real square-shooter. Professor Throckmorton, would you tell us a little about the Department of Agronomy?

Throckmorton: Certainly, I'd be glad to. The Department of Agronomy is divided into two distinct fields, that of soils and that of crops. Of course they are closely associated with each other and neither can do without the other, hence it's only natural they are included in the same department. The department was first organized as the Farm Department when the College was established, then later the other departments split away from it as the need for specialized instruction arose.

Question: Is all your work and time devoted merely to theory or do you make some practical tests in the field, the results of which can be applied to average farm conditions?

Throckmorton: Theories, you know, just don't drop out of the sky without some facts upon which they are based. Practically all of the data made available for research study are the result of actual practice and hard work out on the college agronomy farm and its experiment station branches at Hays, Garden City, Colby, and Tribune be-

sides several co-operative experimental fields over the state. But your tour will include the farm so I'll not discuss more about it now.

Guide: Thank you, Professor Throckmorton. Now, if we enter the door to the left we can visit the soils student laboratory. It is here the sophomores get their first instruction in practical soil study and its application. Dr. J. C. Hide, quiet, sandy-haired Canadian, has charge of the lab and despite his youth is really an authority on his subject.

Question: You mentioned soil study; just what does this class study? I always thought "dirt" was "dirt" wherever it was.

Guide: Soils do vary considerably, depending upon climate, origin, age, and other factors. These students receive basic training in different types of soils; the effect of organic matter on the soil; how to test for soils deficient in phosphorus, potassium, and calcium; and scores of other interesting experiments pertaining to soil investigations. You notice those celluloid cylinders standing over there. They are used to demonstrate capillary and gravitational penetration of water in different types of soil. There's quite a variation between the sandy soil and the dark, heavy loam, isn't there?

And now if we go up to the fourth floor we'll visit the crops laboratory before going out to the agronomy farm. This course in Farm Crops is taught by Prof. C. D. Davis, the silvery-thatched philosopher of the department. Besides teaching students characteristics of all the farm crops, and giving them a little common philosophy on the side, "C. D.," as he is referred to, can give the "lowdown" on

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every fellow that was ever to be in his class. Isn't that right, Professor Davis?

Davis: That's right, now for instance when you were in my Farm Crops class. . . .

Guide: That's enough. . . . Did you have a question?

Question: Yes, what are all these mounted specimens hanging on the wall and what are they used for?

Davis: They are there to give students an idea of the growth habits and other relative characteristics of farm plants and noxious weeds. You see, in class only occasionally do we study much concerning the plant itself. We just don't have the time to study the grains and plants both so we aim to touch on all the seeds and only a few of the plants themselves.

Guide: There are courses in Advanced Crops, Grain Grading and Judging, and an Advanced Grain Judging class—all under the guidance of mild-mannered Prof. J. W. Zahnley, coach of the grain judging team. His laboratory may be reached right through this door; that's right, open it and go on into the room.

Question: Just what are these fellows picking out of those pie tins or whatever they are? I'd get cross-eyed doing that.

Zahnley: They're separating hard red winter and soft red winter wheat in order to determine the grade of the grain. This becomes quite a task, especially when inclement weather limits light in the room. Then, too, some of these new semi-hard soft wheats resemble our hard wheats quite closely.

Question: You mentioned a grain judging team when introducing Professor Zahnley; do they have a team that makes trips as I've heard that the livestock team does?

Guide: Yes, the team went to Kansas City and Chicago last fall and placed sixth at the International Grain Exposition.

Question: But aren't there any local contests for those who don't make the team?

Guide: Yes, annually in the spring

the Tri-K boys sponsor a contest which has three divisions, one for those having had Grain Grading, one for those having had only Farm Crops, and one for those having had only high school or 4-H Club training, at least no training in college. Very elaborate trophies and plaques are awarded and the contest is certainly well worth one's time and effort.

Question: Who are the Tri-K boys you spoke of regarding the contest?

Guide: They are the departmental club, known as the Klod and Kernel



*George Aicher*

Klub, a junior affiliate of the American Society of Agronomy. Now, we'll head out to the agronomy farm to get a little glimpse of what's going on out there. The farm itself is made up of 320 acres devoted to all phases of agronomic experimentation.

Question: Well, so far there is only

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one thing puzzling me. What are those funny little clumps of grass out there on that plot?

Guide: Those are Doctor Aldous' grass experiments. During the aftermath following the sod-breaking hysteria there has been a great demand for quick-covering, soil-holding grasses. See that vigorous growing bunch of grass right there? That's big bluestem. Over here is little bluestem. Both are native to the eastern third of Kansas. Down at the east end, that short, curly interwoven mat, is the famed buffalo grass that has long withstood the rigors of the western plains.

Question: Have any new grasses been developed that may be prospective toward developing into a good grass?

Guide: There are some that appear quite favorable, but not superior to any of the native grasses.

Question: Well, why are they conducting this dilatory experiment? Why don't they assume that the native grasses are the best and just start to set the soil back to bluestem or buffalo?

Guide: And that would be an easy task too if it were not for harvesting the seed. Buffalo grass seed lies right on the ground's surface, making it almost impossible to pick up, hence the difficulty in reseeding. You may be interested to know that the Hays Agricultural Experiment Station has constructed a buffalo grass seed harvester, which resembles very closely a modern vacuum sweeper on a gigantic scale. And it does a fairly good job, too.

Question: What do all these white stakes over here indicate?

Guide: These are the soil fertility plots. But here is Doctor Myers with his Soil Management class. He is a very aggressive and a thorough young fellow; let's have him explain the experiments.

Myers: The purpose of these experimental plots is to determine the most effective crop rotation and soil treatment for increasing production and at the same time to retain the soil fertility for future use.

Question: Doctor Myers, I'm sort of

a "know-nothing" about all this—will you explain a little more completely the value of crop rotation?

Myers: Crop rotation is the biggest item of true soil conservation. Without such a cropping system all other erosion control practices are virtually useless. You see, good crop rotation with a legume incorporates valuable nitrogenous organic matter and colloidal material into the soil as well as providing a number of other benefits from the chemical and physical standpoint.

Guide: The effect of a legume in the crop rotation is shown in these one tenth acre corn plots: on the right the test rotation included a legume, while the smaller, yellow looking plants to the left have had none.

Myers: And if you'll look over here, this series is a fertilizer test. Besides nitrogen, some of the other needed elements are calcium, phosphorus, and potassium. Consequently these tests are conducted to study the best proportion of fertilizer as well as their profitability from the practical standpoint.

Guide: Thank you very much, Doctor Myers. Now fellows, over here Doctor Parker conducts some of his varietal tests. There's a long road ahead of a favorable hybrid selection before it is given a name and distributed.

Question: Would you mind giving us the procedure of developing a variety?

Guide: Plant breeding begins in the greenhouse. First the varieties having desirable characteristics are crossed. The following season selected heads are isolated to avert further cross-pollination. Later the hybrids are tested in these varietal plots—all the time being known solely by a hybrid number. If the variety continues to withstand climatic and soil conditions, and ravages of fungus and insect pests, it is distributed to the branch experiment stations at Hays, Colby, Tribune, and Garden City. Further studies are made of the variety. It is then sent to co-operative farmers for testing and finally it is given a name and distributed for sale to the public, a total of eight



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to twelve years after it was first originated.

Question: Say, that is some history, isn't it? Why does it take so long before distribution? What's the purpose of all these tests?

Guide: That is necessary in order to be certain the variety is well adapted; that it matures earlier; is a heavier yielder or in some way is superior to its existing competitors. Now, we'll go back to visit the plant breeding nursery at the greenhouses near the horticultural building.

Question: What are some of Doctor Parker's released varieties that have become prominent?

Guide: Well, there is Kawvale, a leaf rust-resisting, semi-hard wheat, and Tenmarq, a stiff-strawed hard wheat, both promising varieties, and Atlas Sorgo, an outstanding sorghum which is sweeping the country with its high forage and grain yields.

Question: This is all very interesting, but I'm afraid our time is running short and we'll have to be hurrying along. Is there anything that we have missed in our tour of the Department of Agronomy?

Guide: Yes, there is. We haven't quite completed the cycle yet, but if you are in a hurry I'll tell you a little about those whom we have not seen. There is Doctor Laude, who teaches Crop Ecology, a study that deals with the adaptation of crops to soils, and Principles of Agronomic Experimentation. He also helps with the Crop Problems course. Doctor Metzger, in the soils department, teaches Development and Classification of Soils, Dry Land Farming, and helps with research in soils and soil problems.

Question: Say, what is the Kansas Crop Improvement Association which I have heard so much about?

Guide: It is an association of farmers in co-operation with the College whose purpose is primarily to improve the quality of Kansas crops by the production and use of pure, certified seed.

Their central office is here at the College and is under the direction of Prof. A. L. Clapp.

Question: I have only one more question but it is a big one. What do students do upon graduation in agronomy?

Guide: Yes, that is a tremendous question. Of course many go back to the farm which is encouraged by almost everyone in the Division of Agriculture. For those who have no farm to fall back upon, some may take advanced work and may obtain a graduate assistantship or fellowship. Then some may teach vocational agriculture in high schools or maybe get a position on a college teaching staff. Still others may work into the United States Department of Agriculture in the Soil Conservation Service, or some of the other divisions or bureaus in the Department.

For those who have industrial interests in connection with agriculture they may get jobs associating them on some of the large chemurgic or commercial plants. Canning companies often need well-educated field contact men. They may have an educational job for company advertising purposes for consumers and also producers whose main purpose should be the production of quality rather than quantity. There are numerous other jobs that I have not touched upon. In general, a few of the more important ones have been summarized and I think they will give you an insight into the opportunities for a position after graduation.

—George Aicher, '39.

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### Agronomy Department:

A. M. Brunson who is associated with the Bureau of Plant Industry, U. S. D. A., has been transferred to Purdue University, La Fayette, Ind. While here he was in charge of Corn Breeding and Improvement. Prof. A. W. Jugenheimer has been transferred here from Iowa State College to take his place.

# Agricultural Economics

## *Prepares men for two fields of work*

1. Farm Organization and Land Economics
2. Marketing Agricultural Products

**I**F someone had asked your grandfather the question, "Who can farm?" he would have replied emphatically, "Anyone can farm." The fact that anyone not fitted to make a living in any other line of work should farm was accepted by the majority of people until comparatively recent times. Recently, many people have found that the fact is no longer true. They have come to the realization that to make a living on the farm, a person must have a training as thorough as that of any professional man. When a farm youth becomes aware of that fact, he realizes that two courses are open to him. One is to give up the farm and go into some other line of work, the other is to gain an education which will fit him for a successful career on the farm. Outstanding among the requirements in the training of a farmer is a knowledge of the highly important business problems of agriculture. The college curriculum in agricultural administration and the course work in agricultural economics supply these needs.

What is the advantage of a college education to the farmer? An attempt will be made to answer this question by describing the content of specific college courses in two of the branches of agricultural economics, namely, Land Economics and Farm Organization.

In the course Farm Organization, the students study records of actual Kansas farms. They learn to make farm records listing the separate enterprises of the farm business. By studying these records, they find which of the enterprises are making a profit for the farmer and which cause him to lose money. In this way, they find how to organize the farm to make the greatest possible profit. One of the methods of farm organization is through Farm Cost Accounting. This course deals

with methods of finding the cost of man labor, the cost of the use of machinery, the cost of horse work, and other costs of the farm business.

Many prospective students ask the question, "Is the course practical or is all the work done on a sheet of paper?" A great deal of the class work in Farm Organization is based on the records of actual Kansas farms. In the course in Advanced Farm Organization, a trip lasting two to five days is taken through the state. A study of the methods used on the better farms in each section is made.

Land Economics, another major phase of the work in agricultural economics, is a study of the problems related to the use and ownership of land. Taxation, conservation of the resources of the land, methods of determining the value of land, problems relating to the renting of land, and related subjects are studied. Agricultural Land Problems is the most general course offered in land economics. It is a study of general problems met in the use of farm land. Government land policies, the effect of population on the land supply, land ownership, and the renting of land are discussed.

The problems of taxation in a farming state are studied in the course Taxation and Land Ownership which considers the different types of taxes and the effect of each on the farmer. The various types of credit available to the farmer are studied in the course in Agricultural Finance. Commercial banks, mortgage companies, the Federal Reserve System, and the Farm Credit Administration are discussed in detail in the course.

Teaching the fact that conservation means the wise use and not the disuse of resources is the main objective of the course in Conservation of Agricul-

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tural Resources. A study of the resources of the land in all parts of the United States and the methods of conserving these resources is made.

Anyone who is trying to decide which course to take in college and why to take that course will naturally have several questions to ask. Some of the probable questions will now be answered:

1. Question: To whom is a course in Farm Organization and Land Economics valuable?

Answer: These courses are valuable to the farmer. Too often, the farmer neglects the management of the farm and does not realize which of the phases are making money and which are causing him to lose money. Men in certain lines of business which are closely related to agriculture will find a course in Farm Organization or Land Economics important in their relations with farmers. This is especially true in the business of selling real-estate and insurance, milling, selling farm machinery, and agricultural writing. The courses are valuable to county agricultural agents and other extension workers. Many fields of research work are open in both land economics and farm organization. A number of these require graduate study.

2. Question: Will opportunities in these fields increase in the future?

Answer: They are two of the newest and fastest growing fields.

3. Question: Of what practical advantage to the farmer are the courses in the field of Land Economics?

Answer: As the course in Farm Organization aids the farmer in adjusting his crop and livestock enterprises within the confines of the home farm, the Land Economics work gives him the answer to the multitude of questions that confront him beyond his own line fence. It answers such questions as "Should I, as a wide-awake farmer, be in favor of the new tax that is being proposed? How will it affect my farm business?"

4. Question: What are some of the specific positions which majors in Farm Management might fill?

Answer: A few of the positions are those in farm management service, professional farm management, and accredited rural appraising, each of which is becoming increasingly important. Men in the farm management service are employed by a group of farmers through the Extension Division in co-operation with the department of agricultural economics to give the farmers expert technical advice in farm management problems. Professional farm managers are employed to manage estates and land belonging to business men and others who do not have the



time or professional ability necessary for the management of the farm.

—Morris W. Phillips, '39.

**H**AVE you, as a producer, often wondered what the market price will be of the pig, calf, wheat, or alfalfa which is in the process of being produced? It certainly is no easy task to determine the future market price. Have you always trusted to luck in "hitting the market" or have you actually studied market conditions in trying to decide the best commodity or products for you to produce on the basis of market worth

## AGRICULTURAL ECONOMICS

and on the basis of profit? Practically every farm boy has taken his father's produce to the market and received the pay for the commodity and yet he has not understood why he received one price one day and another price a week later.

Ability to judge the market is one of the most important factors in determining the success or failure of the farm business. The problem of when to market a commodity to receive the greatest net return has become more important as more farm products are produced for sale. The problem can probably be answered best by a careful study of current market conditions and a knowledge of price trends. An estimate of the market price can be made by taking into account the current supply of and the demand for the commodity and the trend of the price in past years. The price of any commodity is a reflection of the demand for and the supply of the commodity so that it is essential that it be taken into account when attempting to forecast the market price at a future time.

For an effective study of the market price it is necessary to know several things about the price of the commodity itself. The present price, the price a week ago, the price a month ago, six months ago, and a year ago should be known by the producer to enable him to know whether the price is generally advancing or declining. This will enable the producer to judge whether to invest in additional productive units, whether to hold the commodity and store it, or to sell it when it is first ready for the market.

Demand and supply are closely related and may be considered at the same time by the producer in determining the price of his commodity. The supply of a commodity must be considered from two different standpoints: the amount of the commodity which will be produced and marketed in competition with the individual producer's commodity, and the substitutes which will be available to the purchaser.

The supply of a commodity may be

estimated by the amount in storage, the amount being produced, or the receipts in the market. This information can usually be obtained from the daily newspaper or county agricultural agent.

It is desirable to have a knowledge of the price and supply of related commodities which may affect the price of the commodity in question. For example, it has been found that a 10 percent increase in the number of hogs has about the same effect on the price of corn as a 3 percent decrease in the supply of corn. The prices of these related commodities may be obtained in the same manner as was the price of the commodity in question.

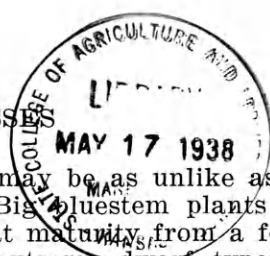
A discussion of this kind always brings many questions to the mind of the reader. One of these may be the question of where can a course of instruction be obtained which deals with the marketing of agricultural products. The department of Economics and Sociology at Kansas State College offers several courses in agricultural marketing. They are adapted to different classes or kinds of agricultural products. For example, a general course in marketing is offered each semester. For men interested in grain a special course in grain marketing is offered. For men interested in livestock, a special course is given. A course is provided for those especially interested in the marketing of dairy products. A course is also taught in the principles of cooperation for those interested in cooperative marketing.

The general course in marketing takes into consideration two phases of marketing, the organization of the market, and the study of market prices. The student is interested because of important connections which he may have with the marketing process in the future. The farmer may be interested in a course of this kind because it will help him to determine future farming and marketing policies.

Another question may be with what accuracy may a price forecast be made. The department of Economics and So-



## VARIATION IN GRASSES



ciology at Kansas State College has been making market forecasts of Kansas agricultural products for about fifteen years. In this length of time it has forecast correctly 70 to 80 percent of the time or from 7 to 8 times out of 10.

—Leonard W. Schruben, '39.

### VARIATION IN GRASSES

(Continued from page 105)

acres. Selected seed from these plants, including some close pollinated seed obtained by bagging the heads of some plants during pollination, was again started in the greenhouse and set out later in the spring of 1937. This planting increased the nursery acreage to seven acres. Further selection and selfing were practiced during the 1937 growing season and the nursery will be increased again this year.

Any program of crop improvement by breeding requires first that the plants be self pollinated, either naturally or artificially, to gain information as to the lines to be used and the strains to be crossed to combine the various desired characteristics of each strain. Since most of the native grasses are cross pollinated this involves many difficulties. Selfing these heterozygous plants results, in many cases, in the loss of vigor in the offspring, or the production of albinos, both of which tend to eliminate many strains. It is difficult to get seed set under the bags owing partly to the high temperatures resulting from lack of air circulation.

Selection is an important part of plant breeding, and without it no plant improvement program will obtain results. In the case of grasses it is probably more important than the actual selfing and crossing of plants. Selection of various strains in the nursery is based on a number of characteristics including the total height of the plant, leafiness, number of culms, habit of growth, uniformity of offspring, total leaf area, date of maturity, viability of seed, resistance to drouth, disease, and insect injury, and the texture or quality of the plants.

Two plants belonging to the same

species may be as unlike as day and night. Big bluestem plants range in height at maturity from a few inches in the extreme dwarf types to over 8 feet in some of the more vigorous lines. They vary in the number of culms produced from one to six hundred. Plants that are decumbent and spreading are found side by side with those which have an erect, branched habit of growth. In regard to leafiness several factors are considered. The variation in total number of leaves ranges from less than 100 per plant to over 3,000. In average length leaves may vary from 15 to 80 centimeters and in average width from 5 to 15 millimeters.

Palatability, as indicated by the texture and quality of the plant, is an important factor to consider in selection work. Some of the plants have coarse, harsh leaves, and thick, woody stems, while others are more succulent. Total leaf area as measured by the product of the length, width, and number of leaves on each plant varies from less than 100 square centimeters to over 50,000. And when the total leaf area is correlated with height and yield, it shows marked variation between strains. Some plants indicate high degrees of resistance to rust and various other fungous diseases, while others are particularly susceptible. This resistance and susceptibility are apparently inherited.

Great variation has also been observed in time of maturity between plants as well as between heads on the same plant, some plants maturing as much as 60 days before others, while on the same plant heads may be maturing over a period of 40 days. In comparing seed production of different plants it was found that some open pollinated plants produced over 12,000 seeds while others produced only 500. Research work shows that self-fertilization tends to reduce seed production somewhat; that seed from the selfed plants germinates more slowly; and that selfed seed produces more albino seedlings.

Little bluestem, side oats grama, and blue grama give somewhat the same variations but to a lesser degree. Nei-

(Continued on page 128)

# Animal Husbandry

*Prepares men  
for three fields  
of work*

1. General Livestock Farming
2. Purebred Livestock Production
3. Specialized Phases of the Livestock and Meat Industry

**W**E know that you boys are all interested in livestock and we have arranged this tour so that you may see some of the interesting things in the Department of Animal Husbandry. If there are questions as we go along, we will try to answer them. Follow us and we will go directly to the horse barn.

"The colts in these lots along the road are all purebred raised here at the college. You will see their mothers and other mares in the barn."

"What kind of horses are they?"

"The black colts you see are Percherons; the others are Belgians. These are the only breeds of horses raised here at the college. Now here in the west end of the barn you will see the brood mares and the young mares. They are used for breeding purposes and also for instruction in judging."

"Only half of this barn is used for horses. The other part is used for fitting show cattle. Here is the washrack and equipment for fitting and showing. This should be of especial interest to some of you boys who have been fitting and showing animals in the 4-H club and vocational agriculture work."

"Do students ever get to use this equipment?"

"Yes. Each year a 'fitting and showing' contest is held during Farm and Home week which gives the students an opportunity to use it and demonstrate their ability along these lines. A course in Animal Practicums is also given which deals with practical problems that come up on the farm. This course teaches the proper use of the equipment at these barns."

"You spoke of using these horses for judging instruction as well as in the breeding herd. What did you mean by that?"

"Every freshman in the Department of Animal Husbandry takes at least one semester of livestock judging. This teaches the principles of correct livestock selection. Much of the livestock you will see today is used in practice classes."

"Is one semester of judging all that the students get?"

"No indeed! Advanced Judging is taught the junior and senior years. Anyone may try out for the Junior and Senior Livestock Judging teams and have the opportunity to take the advanced work then."

"What contests do these teams enter?"

"The Junior class this year has sent one team to the National Western Livestock Show at Denver, Colo., and an entirely different team to the Southwestern Livestock Exposition at Fort Worth, Tex. These trips are very educational and give much needed experience for the Senior team. The Senior team participates in two main contests—one at the American Royal in Kansas City and the other at the International Livestock Exposition in Chicago. As you may know, the Senior team from here has won the International contest two successive years—but we must move on to the sheep barn."

"We maintain five breeds of sheep but have the largest number of Shropshires, Southdowns, and Hampshires. We do keep a few Rambouillets and Dorsets. As we go through this barn you can see the many parallel pens in the barn which provide ample room for lambing and feeding."

"Those are the first Rambouillet sheep I have ever seen. Are they of much importance around here?"

"No, they aren't. They are, however,

## ANIMAL HUSBANDRY

of importance in the Southwestern and Western Range districts. Only a few flocks are maintained in Kansas. We will now go back toward the hog houses and the hog barn.

"All those small lots that extend back from the hog sheds are pasture lots for the hogs. You can see that there is alfalfa and barley in some of them now. Those others have just been sowed to rye and wheat. In this way green pasture is kept for the hogs as much of the time as possible. You can also see the open sheds that are erected to provide shade during the summer. Some of your farms might benefit from such a construction. You know how easy it is for hogs to get too hot.

"Here is the main barn. Notice the concrete floor. This makes it much easier to keep clean. These pens in the barn are used for sows during farrowing season. At other times they are used for feeding pens."

"Do you have only Durocs and Poland Chinas? That is all I've seen."

"They are the two breeds that we raise. We sometimes buy others. They are farther up around the hill there where you can see the sheds. We have some Spotted Poland Chinas, Hampshires, and a few Chester Whites and Berkshires. Those hogs are used for practice judging and many of them will be fitted and shown next fall."

"I am more interested in the cattle than the hogs. When do we see them?"

"We will go to the cattle now. They are just a short distance up the road here. I want you to see the cow herd first. We have Herefords, Angus, and Shorthorns—all of them purebreds. These cows are fed under conditions that would correspond to actual farm surroundings. The experimental feeding is done with steers and heifers. We will see some of these experimental cattle now."

"What is the purpose of the experiments being conducted?"

"Various experiments are being carried on here at the experimental barn. Feeding trials are being conducted to determine values of different feeds that will interest farmers out over the state. In general, this information is being obtained in a practical way so that proper advice can be given to cattle men."

"Are such experiments carried on only with cattle?"

"No. Similar experiments are con-



*Elmore Stout      Willis Wenrich*

ducted with hogs and sheep."

"How can you find how much of a feed is digested by cattle? Such experiments were mentioned in our Vocational Agriculture Class."

## ANIMAL HUSBANDRY

"Experiments of that kind are carried on in that new barn down there to the west known as our 'Nutritional Laboratory.' In this barn we have facilities to collect and determine all of the waste products from the cattle and also to determine that part which is digested. This probably sounds quite scientific to you, and it is both scientific and complicated, but it is also practical because the results are of great importance as class room studies.

"We must hurry back to the east Ag building now or we won't have time to see things there. As we go, I hope some of you will ask questions, because I have undoubtedly failed to tell you some of the things you would like to know."

"You said some of this stock is used for judging classes. Do the classes come out here to the barns to judge it?"

"Only occasionally. The stock is generally taken to the pavilion where the judging classes meet. The pavilion is the building from which we started."

"To what livestock shows does the college send stock?"

"Generally the American Royal is the only one where we show livestock."

"Does the college ever sell purebred stock for breeding purposes?"

"Oh yes. For instance the college had thirteen head of Herefords in the annual Hereford Round-up and Consignment Sale at Kansas City this year."

"Is the livestock all sold for breeding purposes?"

"No, some is sold just as market stock. Barrows, for instance, are fattened out and sold on the market, as are steers and lambs.

"Now we will take you into the 'meats' laboratory. You might think of this as being a small packing house. Cattle, hogs, and sheep are butchered in here. The work is done by students under the direction of an instructor. In this way, the proper methods of slaughtering are learned.

"Here we have large coolers which as you can see have several hog carcasses hanging in them. Those hogs were slaughtered yesterday and put in

here to cool properly. Tomorrow these carcasses will be used by a meats class which will cut them up into the proper wholesale and retail cuts of meat. The meat to be cured will then be taken to the basement where it will be packed, cured, and after curing will be smoked. These hogs were brought in by a farmer who lives close to town. Most of this work is 'custom' work done for farmers living near here. It is necessary to do this in order to have a sufficient volume for continued classroom instruction. The farmers bring the animals in alive and come back later after the cured meat. Only a very small charge is made to cover expenses."

"Do only boys take these courses in meats?"

"No, there are also classes for Home Economics students. They do not do the butchering, but do the cutting work, thus learning principles that will aid them in identifying, preparing, and cooking meat.

"We have two 'meat judging' teams trained in these classes. This year the men's team entered the contests at the American Royal at Kansas City and the International at Chicago. The Home Economics team participated in the contest at the American Royal and entered and won the contest held at Wichita during the 4-H Fat Stock Show.

"We will now go around to the main part of the building. It is necessary to go 'out and around' because this room has no inside connection with the other part.

"This room we are going into now is the 'Block and Bridle' room."

"What do you mean by 'Block and Bridle'?"

"It is a national organization for students interested in livestock. We have the Kansas Chapter here. This club sponsors a judging contest each spring for college students. Some of you will probably be in it next year. This chapter is also quite active in lines other than judging. Of the four awards offered to local clubs by the National Block and Bridle last year, Kansas won three first prizes and one second prize."



## SOIL TESTING

"What are all the books on those shelves for?"

"Most of those are herd books put there primarily for the animal husbandry students. Pedigrees of animals can be traced in these books. Some of the leading livestock publications such as the **Hereford Journal** and **Shorthorn World** are also kept in here. This makes a good place for studying."

"What are the pictures hanging there on the wall?"

"Those are pictures of some of the most famous animals in history. Animal Husbandry students may take a course in which they study those animals and the effect they have had on their respective breeds. In this course, the developments of most of the important breeds of livestock are studied from their origin."

"I also saw some pictures of men on the walls out in the hall. Who are they?"

"Those pictures in the hall were put up by the Block and Bridle club. They represent some of the most successful livestock breeders of the country. This collection is being added to each year. Pictures of outstanding cattle are also being hung in the classrooms in order to make the rooms more attractive."

"It seems as though we have completed our tour, and we hope that you have seen some things that have interested you. We also hope that there will be many of you here in college next year taking the Animal Husbandry course. We believe you will like it."—Elmore Stout, '38, and Willis Wenrich, '39.

### Soil Testing at Kansas State College

**K**ANSAS State College through the department of agronomy maintains a free testing service for soil and limestone samples submitted by residents of the state of Kansas. The tests made on the soil samples include quick qualitative tests of acidity, available phosphorus, and common alkali salts.

Limestone samples are tested for purity and if crushed the degree of fineness is also determined. Quantitative analyses of soil samples that determine the exact amount of the different constituents present are not made free of charge. Results of such tests are usually of limited value to the average farmer and therefore are not recommended. These tests are important in research work where specific problems are being studied such as determining changes that take place in soils as a result of treatment or in studying differences between soils.

The quick tests for soil deficiencies have been standardized with soils in which the value of certain soil treatments is known. This makes possible a fairly satisfactory interpretation of the results, but it is recognized that the results are not always accurate. The reliability is great enough, however, to justify their use.

The soils of eastern Kansas are tested for acidity and available phosphorus. High rainfall in this region has leached and eroded away much of the plant nutrient supply; therefore fertilizer and limestone are often necessary. Soils from the western three fifths of the state are seldom acid and are usually high in available phosphorus. Most of the soil trouble in this region is due to excess soluble salts—alkali soils; therefore tests on these samples are made for the salts commonly found in alkali soils. Often it is necessary to test for the alkalinity of these soils. For this purpose an indicator solution is used which changes color with varying degrees of acidity or alkalinity.

As stated before, limestone may be submitted in the rock form or as crushed limestone. In the case of the latter a screen or sieve test is applied and the percentage of the sample passing through 10-, 40-, and 100-mesh screens is calculated. This gives some idea of the immediate availability of the limestone when applied to the soil. The percentage of purity with respect

(Continued on page 135)

# Milling Industry

## *Prepares men for three fields of work*

1. Flour Mill Operation
2. Products Control (Laboratory)
3. Flour Mill Administration

**T**O the Kansas high school senior, the next few weeks will be among the most thrilling and important periods of his life. He will be at the center of the stage of attraction in every city and community throughout the state. He will receive many honors. Senior Day, Senior Play, Baccalaureate, Commencement—all these will add to his distinction and self-esteem, and all will remind him that he is rapidly approaching manhood. After all these are over, and his high school days of activities and achievements are but a memory, he must ask himself the question—Where do I go from here?

Some will go directly back to the farm; others may have laid plans to enter some particular business; and others may merely "get a job"; but to those students who have shown to themselves by their high school work that they have talents along academic lines, the question becomes—Where, and in what field, shall I continue my education?

Kansas is the greatest wheatfield in the world. The prosperity of Kansas and the bread of a nation depend upon the Kansas wheat crop. Here, wheat must be grown to make the flour for the greatest nation on the earth.

Undoubtedly, Kansas will continue to grow the wheat for the nation. But, the profits that are to be derived from the crop depend not only on economical farming methods, but upon the manner in which this grain is marketed, and the products manufactured and sold. The Milling Industry accomplishes the latter phases of the golden grain cycle, and therein are many opportunities for the student who is searching for a field which has inexhaustible resources, and yet one with which he, as a Kansan, is vitally concerned.

The Department of Milling Industry in Kansas State College had its actual start in 1912 when foresighted men realized that there was a necessity for research upon the manufacture of wheat products, and a dire need for trained men who could make wheat products economically and efficiently so that the entire country might receive greater benefits from this basic American crop.

Since that time, men trained in various phases of milling have graduated from K. S. C. and have gone into all parts of the world to apply their knowledge toward the improvement of the industry **at a profit to themselves.**

However, the Department of Milling Industry is not for students of every type, and as a result, the powers that be have formulated certain requirements that a student must meet before he may be admitted to this small group where everyone must be a specialist in his line. Nevertheless, such requirements and limitations assure the student that the **field will not be overcrowded**, and that he will be one of a specialized, technically trained group of men who are prepared to become the operators and managers of the second largest manufacturing industry in Kansas. At the present, there are probably fewer than one hundred college-trained millers in the United States, and as only a few are graduated each year, it is extremely unlikely that the demand for them will cease, as Kansas State bears the distinction of being the only school in the United States where a student may obtain a degree in milling.

A student who fulfills the requirements and gains permission to enter this department may prepare himself for one of the three major fields of the industry—operative milling, products

## MILLING INDUSTRY

control (laboratory), or milling administration. However, all milling students spend their first two years in taking almost identical subjects, thus giving them a general foundation for work concerning the industry. In their junior and senior years, the courses consist chiefly of electives from which they may choose to prepare themselves for their respective fields.

In the freshman and sophomore years, all students are required to take Elements of Milling, a course which offers the student an excellent opportunity for interesting milling training through work on small laboratory mills, and for securing a great deal of valuable milling information from the lectures. These laboratory mills are similar to the larger commercial mills except they are built and operated on a much smaller scale. In Flow Sheets, the student is taught many of the principles of mill construction, and how to draw and interpret the flow sheets which are the miller's "blue prints" that indicate the placing of the various machines and processors in a mill. Milling Practice I and II are valuable subjects for they give the students their first training on a mill of commercial scale. Here, the students are given an opportunity to become acquainted with almost every phase of operative milling, as they operate the well equipped 65-barrel college mill for a 4-hour period every week. Lectures are also given in this course upon general milling, milling machinery, and construction principles.

After completing these first two years, the student is required to choose his major. If he wishes to become an operative miller, thereby eventually advancing to a position as superintendent of a flour mill, he will choose his subjects in milling technology. Such studies teach him how to properly grind wheat, how to plan alterations in a mill, what machinery is necessary to equip a mill, and how to efficiently operate the mill. Certain engineering

courses may be chosen for his electives.

If he desires to become a milling chemist and take charge of a mill or bakery laboratory, he will select his major subjects in chemistry. He will learn how to grade wheat and other grains, how to test wheat and flour for quality, what the baker requires in the flour he buys, how to maintain uniform wheat and flour blends in a mill, and to advise the bakers regarding the best methods of baking the flour produced.

A student majoring in the third field — milling administration — expects someday to become the manager of a mill and direct its entire organization. Many very interesting and practical courses are included in the milling administration division. He will choose a group of electives in economics and business with which the student must



become familiar before he can hope to become an executive.

Upon graduating, the milling student is given recommendations from the college to help him in securing a position, and so far, the students have been very successful in getting jobs in their chosen fields.

Recently, a letter was sent out to the graduates asking for their opinion of the milling curriculum. Printed below are quotations from two men, who have been successful in the industry, that ex-

## MILLING INDUSTRY

press the general attitude of the graduates:

"Any comment of mine could not express my high regard for your curriculum. I believe your department offers wonderful opportunities to the young man."

"The Flour Milling Industry is passing through a radical change at the present time. A few years ago flour milling was an art. Now, it is in the process of becoming a science. Most of the head millers and millers of my acquaintance are men past middle age. Their places will be taken by the younger men in the not too far distant future. Due to increasing competition and more rigid specifications on flour. . . . these men must be technically trained. In the near future an urgent need for technically trained men will develop in our industry. The courses offered in the milling industry department qualify a graduate to obtain employment in many industries closely allied to milling. These opportunities offered to the graduate. . . . will invariably increase due to the harmonious relationships existing among those industries using flour or flour products."

With conditions as they are, and with graduates expressing such sincere and enthusiastic confidence in the milling department, it seems obvious that a student sufficiently interested, and meeting the necessary qualifications—would make no mistake in training himself for the industry. In determining which students shall be allowed to enter the department, preferences are given to Kansas residents who have been associated with milling and whose high school records show them to be good students. After entering the department, the students must maintain a "C" average in order to remain.

High school graduates who are interested in milling should consider the milling department of Kansas State College and think about their possibilities in the field. If they are interested, they should either write or interview Dr. C. O. Swanson, head of the Department of Milling Industry, sometime be-

fore enrollment next September. If they meet the qualifications, and make a decision to enter the field of milling, they should consider themselves fortunate to be an integral part of the vast machinery that raises and markets the greatest crop on earth.—Joe E. Robertson, '40, and Dave Page, '38.

### VARIATION IN GRASSES

(Continued from page 121)

ther of the grama grasses has been studied as extensively as the bluestems. Buffalo grass exhibits many interesting variations. It is normally diecious (having the staminate and pistillate flowers on different plants) but several monocious plants have been found and isolated for further study. Some plants are very vigorous, producing many runners and spreading over a large area, while others produce few runners and spread but little. The habit of buffalo grass in producing seed just above the surface of the ground makes seed collection commercially impossible and thus prohibits the use of seed for propagation on a large scale. Plants with relatively long seed stalks have been found which may provide a solution to the problem. Other factors studied are resistance, especially in regard to nematode injury; length of leaves; and density of turf.

By continued selection of desirable types, Dr. Aldous hopes to develop strains of the various grasses that are superior in forage value, uniformity of type, aggressiveness, drouth resistance, and seed production. There is strong evidence that uniformity in a given line can be obtained by selection. By inbreeding, strains may be produced that are homozygous for at least some of the characters of a desirable plant. These characters may then be combined by crossing into one or more superior strains. This breeding program requires a long time and in the meantime, much improvement will be made by selection.—Alvin G. Law, '38.

Eugene Sundgren, '35, is manager of the C K Hereford ranch at Brookfield.



# Poultry Husbandry

*Prepares men  
for three fields  
of work*

1. Hatchery Management
2. Poultry Produce Packing Plant Operation
3. Operation of Breeding and Commercial Egg Farms

**L**OOK at that! Isn't it sometimes called a cross between a turkey and a rabbit? It's got feathers like rabbit fur and a bare neck like a turkey," exclaimed Jim Brown, one of a group of vocational agricultural students from Marion county, who recently visited the poultry farm.

"Those are merely inherited characteristics that may be transmitted from one generation to the next," explained the guide. "There are many abnormal conditions produced such as extra toes, web feet, pink eyes, curled feathers, bearded chins, birds without wings, and many others."

"Of what value are such birds? We wouldn't want any of those at home."

"Experiments with these birds help to determine inheritance of useful characteristics, such as high egg production, large egg size, high hatchability, and vigor."

"This is all interesting, but don't you have any standard bred stock here?"

"Oh yes, about seven or eight thousand pedigreed chicks are hatched each year for various types of other experiments. Several of the more popular breeds and varieties are kept for class-work in judging, marketing, canning, etc."

"Are there courses offered in these subjects?"

"Yes, the Department of Poultry Husbandry has a complete curriculum covering every phase of the industry. The elementary course, Farm Poultry Production, is required of all students who major in agriculture. It presents some of the problems of poultry keeping on general farms and gives the student introduction to one of the ma-

for fields of agriculture. It presents in a general way several of the more important phases of the poultry industry, such as the principles of incubation and brooding, poultry nutrition, flock culling, breeding, and the killing, dressing, and preparation for market and table. More detailed studies are given to those students specializing in this field.

"One of the most popular courses is Market Poultry and Eggs. It is of special interest to students who are preparing for work in produce plants. Actual experience is gained in the fattening, killing, dressing, grading, and packing of market poultry and in the



candling and grading of eggs.

"Poultry Judging appeals to students since it offers an opportunity to compete with other students for a position on the team which represents the College in the Midwest Intercollegiate Poultry Judging Contest held at Chicago each year. Kansas State has won the contest three times, and taken second place twice in the past eight years.

"Poultry Genetics deals with the history and origin of the fowl, the general

## POULTRY HUSBANDRY

principles of poultry breeding required in practical poultry farm management.

"A study of the baby chick industry and the principles of organizing and operating a hatchery are taken up in the course of Artificial Incubation and Brooding.

"Poultry Sanitation is a specialized course dealing with the cause of all the known diseases and their control. Actual post mortem and diagnosis are made on diseased birds.

"Poultry Management, a course for senior students, is concerned chiefly with the methods of practical poultry production and management with special reference to the cost of production.

"Other courses are offered in Poultry Anatomy, Poultry Farm Organization, Advanced Incubation and Brooding, Poultry Seminar, and Poultry Problems. These subjects are taught by very capable members of the staff of the Department of Poultry Husbandry. Prof. L. F. Payne, head of the department, Dr. D. C. Warren, poultry geneticist, and Prof. H. M. Scott, physiologist, are widely known as leaders in their respective fields."

"What opportunity does the student have for actual experience? Is there any chance for part time employment?"

"Many students who major in poultry husbandry are afforded the opportunity to live at the 'Chicken Roost,' a large stone house located on the college poultry farm, where they may earn a portion of their living by practical work and gain valuable experience in practical poultry care."

"What social activities are open to students in the poultry department?"

"Each major is eligible for membership in the Poultry Club. The club enjoys a fall picnic, and in the spring a chicken barbecue and an egg roast. Weekly meetings are held in the fall semester, at which time matters of current interest to the industry and research in poultry subjects are discussed by junior and senior students. The Poultry Club sponsors every spring a part of the judging contest given for vocational agricultural students. Prizes are awarded to the winners."

"The outlook while in college sounds good to me, but what lines of work do poultry graduates enter?"

"To those interested in summer employment, several of the undergraduates in the past have obtained work with poultry packing companies. Aside from remuneration, this work is valuable for the practical experience it affords in handling market poultry, eggs, and other farm products. Upon graduation there are many lines that a poultry specialist may enter. Many requests come to the Department of Poultry Husbandry for trained men in various branches of work. In the last year commercial jobs from farm managers to highly specialized geneticists and physiologists have come for trained poultry men, with yearly salaries ranging from \$900 to \$4,600. A survey has shown that most of the former students are now engaged in college teaching, research, or extension work. Management of commercial hatcheries is second in importance and the demand in this branch of work is rapidly increasing. Several have returned to their home farms to practice new methods of production. Teaching vocational agriculture has appealed to some, while others have gone into the commercial side of managing or owning poultry produce plants or breeding farms. The United States Department of Agriculture has used an increasing number of men for inspection work in market poultry and eggs the past few years. Civil service examinations have recently been announced for a number of new positions in the poultry industry.

"The egg and poultry industry ranks second in value as compared with all farm enterprises. More people are directly engaged in poultry raising than in any other type of plant or animal production."

"Then I see no reason why a student would not profit by coming to Kansas State College and specializing in poultry."

Floyd Maynard, '38

James Mugglestone, '39

Clyde Mueller, '39.

# Fitting Show Steers

**S**ELECTION of the best individuals in the herd is the first essential for fitting animals for exhibition purposes. Animals that will respond properly to fitting and develop into smooth, thick-fleshed individuals should be chosen. The head should be broad between the eyes; short from eye to nose; nostrils and mouth large, indicating great feed consuming capacity; eyes bright, yet placid, indicating a quiet disposition; legs short; body broad and deep; back and underline straight; tail-head broad and smooth with the tail well set on. Style and quality are essential points. Look, especially in the hair and bone, for quality.

Care should be taken to select animals having all the advantage of age that is possible. For senior calf and yearling classes, animals dropped in September and October should be selected—while for junior classes, January and February calves are best. For calf classes the selection is usually made when the calves are from three weeks to a month old, as the ones nearest perfect at that time will make the best finished animals. In selecting the calf, breeding should not be overlooked, for as are the sire and dam, so will be the offspring.

After the selection has been made, the next important thing will be the feeding and management during the growing period. Success in this will depend largely upon three things: the comfort of the animals, a variety of good feeds, and the skill of the feeder.

The calf should be allowed to nurse the dam as long as possible, as there is no other feed that will keep a calf growing like the mother's milk. In pleasant weather it should run out on pasture where it can get plenty of fresh air and sunshine, but care should be taken that it does not get too much exposure during storms. A calf should not be permitted to lie down in cold, damp places where it is apt to catch cold. When the winter comes on, the calf should be housed in a roomy pen with plenty of air and sunshine, and provided with a

dry bed. During good weather it should be allowed the run of a sheltered lot provided with good water. At the age of from six to eight weeks it should be gradually started on a grain ration consisting of equal parts of shelled corn, whole oats, and bran, with all the clean clover or alfalfa hay it will clean up.

At an early age the calf should be familiarized with grooming. This not only keeps the coat in better condition, but also gets the animal used to handling, which will save a great deal of time and trouble later on.

In the spring the calf should be put on grass, at first only for an hour or so during the middle of the day, and later on should be turned into the grass lot at night. This change to grass may be a period of little gain, but the grass cools its system and prepares it for the heavy feeding which is to follow. During the hot summer months it should be allowed to run in the pasture at night, but through the heat of the day it should be protected from the heat and flies by keeping it blanketed, and by darkening the stalls as much as possible without interfering with ventilation.

When the animal is to be shown in the fall, there is a difference of opinion as to how soon it should be taken off the pasture, but it should certainly be taken in before the middle of the summer. This period between the time of removing from pasture until the time of the show, and especially during the last six weeks, is a time in which special care should be taken, and one which calls for all the skill the feeder possesses. During this time it is necessary to put on the proper amount and quality of flesh, and the finish and bloom necessary to make a prize-winner.

Probably the most important consideration during this latter period of preparation is the feeding. Some succulent food for its laxative and appetizing effect should be given, but care should be taken not to give so much of such feeds as to detract from the con-

## FITTING SHOW STEERS

sistency of the flesh. Roots or corn silage serve well for this purpose. The grain ration should consist of ground oats, corn, and bran, with a little oil meal, but an excess of corn should be avoided, as smoothness of finish rather than excess of tallow is desired. For roughage, a good quality of bright clover or alfalfa hay should be fed. A variety of feeds is very desirable and everything should be done to tempt the appetite, but sudden or violent changes are very disastrous. If an animal shows a tendency to be paunchy, limit the amount of roughage given. An important consideration in feeding cattle for show is regularity. The custom is to feed three or four times a day and water about twice, and this should be done at the same time of day, as the cattle soon become able to know when feed time comes and will be up and looking for their feed with great precision. They should be fed in loose feed boxes that can be taken out, thoroughly cleaned, and occasionally scalded. In order to restore a jaded appetite, the novice is frequently tempted to resort to a tonic, such as iron or some patent stock food which he sees so widely advertised: although these things may have their place, this place certainly is not in the hands of an experienced feeder in fitting cattle for the show ring. The proper handling of a steer with a dull appetite is to withhold all feed for a time and then give him a fill of grass. It is better to avoid a poor appetite by careful feeding than to attempt to cure it by means of some nostrum.

During the latter part of the feeding period, progress depends on nothing more than on content. The animal that eats its fill of any suitable ration that suits the palate and then lies down in peace and quiet to ruminate will make good gains. Rumination is best performed when, for the time being, all the animal's energy is given to this one thing, and hence is best performed while lying down.

When stabled, the animal should be well bedded with fresh, bright straw. The animal should be led from the stall

twice daily and all the droppings and wet straw removed and fresh straw put in. Attention should be paid to ventilation. An abundance of fresh air should be provided, but the barn kept free from draughts. When the barn is well provided with windows it is a good plan to remove them and cover the openings with burlap. For fattening purposes, a darkened stall is preferred to one with too much light.

As the show approaches it should be trained to stand squarely on its feet, with head up, so as to appear to the best advantage.

A good coat of hair, should, if possible, be secured. It has been said that this depends not so much upon what is put on the hair as what is put inside the animal, aided somewhat by what is kept off the hair. Grooming should be commenced some weeks before the show, and for this purpose nothing should be used but a good bristle brush, aided by a flannel cloth or chamois skin. The steel curry combs and steel brushes are not in favor. A good use for the curry comb is to comb out the bristle brush. Some feeders prefer to keep the animals blanketed for six months before the show, never letting the coats see the light of day. This, however, is not thought necessary or even advisable by most feeders. If the animals are kept in darkened stables, blankets are unnecessary except during the last few days. The coat can be greatly improved by a weekly washing with soft water and a good toilet soap, but never use hard water, laundry soap, or washing powders. Some recommend giving the animals a daily wetting with soft water and a spray pump. The one great thing that is liable to play havoc with a coat of hair is founder, and especially grain founder. It cannot be detected until after the harm is done and naked spots appear all over the animal. Cattle just going onto full feed are especially liable to this.

In fitting the horns, thoroughly remove the dead outer coating. First use a sharp, heavy rasp, and finish up with a jack-knife and finally with emery





*Courtesy of the SMS Ranch*

**GOOD BREEDING—GOOD FEEDING—GOOD SHOWING MADE THIS CARLOT OF STEERS CHAMPIONS AT THE INTERNATIONAL**

The upper picture taken at the SMS Ranch, Stamford, Tex., shows the load of calves which, after a turn in the feedlots of Richard Lacy & Son, Kansas, Ill., won the Hereford championship of the fat carlot division at the recent International.

The lower picture, made at Chicago just after having won the purple ribbon, shows the results of the year's feeding. Richard Lacy is at the left, "Dick" Lacy center, and William Lacy at the right.

## THE SEVENTH WORLD'S POULTRY CONGRESS

paper. Cover the horns with sweet-oil and allow a few hours to dry in, then smear them with paste made of sweet-oil and tripoli. Polish them thoroughly with a wide strap or woolen bandage, and repolish them with a strip of cham-ois skin and any good polishing powder. The strap should be wound once around the horn and the powder dusted under it, and friction enough obtained to melt the surface of the horn.

Attention should be given to the hoofs. Where a steer is kept in a deeply bedded stall, the hoof is not subjected to friction and grows out long and unshapely; as there is no moisture present the walls become dry and contract, and the feet become feverish. The former defect can be remedied by trimming the hoofs back at frequent intervals, and the latter by making a clay puddle through which the animal should be led several times each day.

With a considerable number of cattle to ship, a large furniture or vehicle car will be found best suited to the exhibitor's needs; with a smaller number to ship, an ordinary box-car with small doors in the end will be found very satisfactory. The sides of the car may be padded with burlap to prevent bruising. In loading the cattle they should always be tied to the side of the car and shipped "side-to". It is not desirable to have them ride "end-to" as they will be thrown forward against their horns or backward so as to pull on the halter rope.

An animal should not be tied by the nose ring. Neck ropes would better be too light than too heavy, as it is better to have the rope than the animal's neck broken by an excessive jerk. Put enough straw under the animal to insure an easy ride; this should be about eighteen inches. Send along enough helpers to properly care for the cattle.

Securing "bloom" or just that desirable condition of fatness that is most acceptable to the judge is, perhaps, the finest point of the art of fitting cattle for show, and the ability to bring out animals in a little better condition than the others are able to do, is what char-

acterizes some herdsmen as peculiarly skillful. There is, practically speaking, no danger of getting the calf or yearling too fat, or "overdone", while with the two-year-old, such a condition is not uncommon. By following the suggestions given above, however, this danger will be reduced to a minimum. While the calf or yearling is seldom too fat to show as a calf or yearling, it may be made too fat to carry on successfully with a view to making it an acceptable show animal a year later.

—Frank W. Farley, Jr., '39.

## The Seventh World's Poultry Congress and Exposition

The triennial meeting of the Seventh World's Poultry Congress and Exposition which will be held in Cleveland, Ohio, the last of July, 1939, has for its objects: (1) to stimulate interest in world poultry affairs and to promote friendly international relationships by bringing together representatives of a large percentage of the 95 nations which have been invited by our government to participate; (2) to pool the best and most recent knowledge concerning the various aspects of the poultry industry in all parts of the world; (3) to encourage the development of scientific research and education in connection with the production and marketing of poultry products; (4) to note progress in equipment used in other countries; and (5) to encourage the demand for the products of the poultry industry.

National committees consisting of 200 representatives from all phases of the poultry and allied industries, and from the Departments of State, Commerce, and Agriculture of the National Government together with scores of sub-committees including several hundred members, have charge of the details for the Congress and Exposition.

A State Industry Committee was organized in Kansas last summer. It is composed of representatives from eight

(Continued on page 141)

# Scientific Price Forecasting

IT has been only in the last 15 or 20 years, that groups of economists have entered into the field of scientific, methodic price forecasting. Thus, being in its youth, this field of scientific price forecasting is, and has been, open to much criticism and doubt. A great many people are prone to have no faith whatsoever in any such forecasts. The reason for this disbelief is, in my opinion, a lack of knowledge of the basis on which price forecasts are made. Therefore, let us briefly look at the points considered in making price forecasts.

In the first place, price forecasts are statements by persons trained in observing the economic conditions of different commodities. In these statements, observers give their opinion as to the movement up or down of the prices of these commodities at a given time.

As economic conditions constantly change, the person issuing these price trends cannot have any fixed formula for obtaining a forecast. Instead, he arrives at his forecast only after carefully observing the conditions affecting the price of the commodity, and comparing the market situation of the present with similar situations in the past. Along with this consideration of the situation he must take into account the present trend of the business cycle and the position of the commodity in it. This is one of the prime points in making price forecasts on any commodity.

Then, by putting together all the points derived from these observations, the forecaster usually finds that the conclusions point in some direction, indicating that the price is likely to follow that course.

The art of drawing the right conclusion is one that comes only after years of practice in observing market conditions. The forecaster must, in his training, use caution in eliminating the points that lead to the wrong conclusion, and be skillful in retaining the points that seem definitely to lead to the right conclusion.

One might raise the objection that the above necessary qualification for a forecaster is just the reason why they can never be right. That is to say that these persons can not systematically arrive at the right conclusion because of the changing conditions of price. However, it seems logical that one should be willing to accept the opinion of a forecaster, just as one accepts the opinions and diagnoses of an experienced and learned chemist on chemical problems. Admittedly, economic conditions and market conditions are extremely variable, but nevertheless, a person who devotes his life to studying these changing conditions has, unquestionably, a more definite idea as to the likelihood of price occurrences than one who has merely read about them.

Price forecasting does have a basis on which to stand, and even though the forecasts are not always correct, it can be observed that, with a few exceptions, the better known price forecasters are generally right in their conclusions on price and market movements.

—Roy R. Green, '39.

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## SOIL TESTING

(Continued from page 125)

to calcium carbonate is calculated by measuring the amount of carbon dioxide gas produced when one gram of finely ground limestone is treated with acid and comparing this with the quantity of gas produced when one gram of pure calcium carbonate lime is treated with acid.

During 1937 there were 332 acidity and available phosphorus tests made, 84 alkali tests, 67 lime sieve or screen tests, and 99 limestone purity tests. Since these tests are simple they are by no means perfect; but they usually indicate the trouble or narrow the possibilities down so it can more easily be detected. Dr. H. E. Myers, Associate Professor of Soils, makes recommendations after the simple tests have been run.—Dewey Axtell, '39.

# Southwestern Exposition and Fat Stock Show

THE Kansas State junior livestock team selected from the class in Advanced Livestock Judging ranked fifth with fifteen teams competing at the Southwestern Exposition and Fat Stock Show in Fort Worth, Tex., March 8-16.

Scores of the five high teams were as follows:

1. Texas A. and M. ....4218
2. Wisconsin .....4176
3. Nebraska .....4175
4. New Mexico .....4140
5. Kansas State .....4136

An outstanding feature of the Southwestern Exposition is the exhibit of breeding bulls in carload lots. Many carloads of bulls are brought there from the western states to be sold for the improvement of the range cattle.

All college teams were guests at a banquet Sunday noon. The winning teams in each class of livestock were named and the high ranking individuals were also named. After the banquet, talks were made by some of the leading livestock men from that part of



FT. WORTH JUNIOR LIVESTOCK JUDGING TEAM

From left to right—Arthur F. Leonhard, Prof. F. W. Bell, Kenneth E. Kruse, Gay S. Tuis, J. Elwyn Topliff, William G. Alsop, and John P. Perrier.

The students who represented Kansas State were Gay S. Tuis, Fredonia; John Perrier, Olpe; Kenneth Kruse, Barnes; William Alsop, Wakefield; Arthur Leonhard, Lawrence; and J. Elwyn Topliff, Jewell. They were accompanied by Prof. F. W. Bell, coach. All of these students were selected in line with the policy which was established three years ago, whereby one team goes to the National Western Livestock Show at Denver and a different group goes to the Fort Worth, Tex., show.

the country. The superintendent of the contest, Rufus R. Peeples, was awarded a silver platter by the coaches of the different teams for sponsoring one of the largest collegiate judging contests in the world—second only to the International Livestock Show at Chicago.

On the way to Fort Worth, the team stopped at the C. B. Team Horse and Mule Company at Wichita, Kan., where they worked over a few classes of mules. Another stop was made at Stillwater, Okla., visiting the A. and M. College and judging several classes of livestock there.—William Alsop, '39.



# New Work Assigned to the Department of Milling Industry

**M**ANY people do not realize that as a result of the great wheat crop, Kansas has become the leader in the huge industry of grain processing or flour milling. Minnesota still leads the states in flour milling capacity but for the past several years Kansas has actually milled more flour than any other state in the Union.

That leadership in wheat and flour production and the recent improvements in the Department of Flour Milling Industry make Kansas State the logical location for the only school in the United States to give a Bachelor of Science degree in Milling Industry.

Aside from the regular course offered in flour milling the most important work of the department has been research in the field of wheat and flour quality. In this work the department has co-operated rather extensively with the Department of Agronomy in testing new varieties of wheat to determine whether or not they should be released for commercial production.

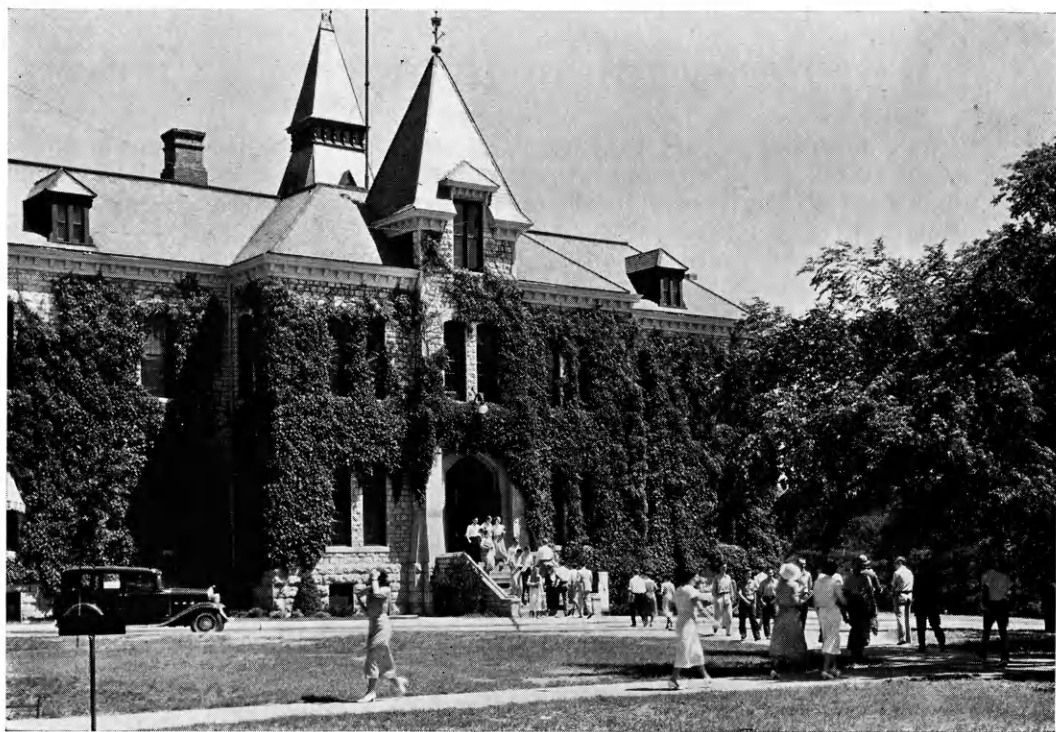
Likewise the department has continually carried on other experimental work in milling, baking, and cereal chemistry. Tests ordinarily made on a sample of wheat include test weight, moisture content, wheat meal fermentation time, protein and milling yield. Tests which are made on the resulting flour include percentage of moisture, ash, and protein as well as diastatic value, gas production and gas retention, and the baking test. Probably the most important single test on flour is the actual baking of that flour because if a flour will produce a satisfactory loaf of bread then that flour has fulfilled its destiny. Baking tests are being constantly carried out in the laboratory under the latest approved methods of experimental baking. After baking, the bread is critically checked on the points of flavor, crust color, taste, grain, texture, symmetry of form, break and shred, volume, and acidity.

The baking test, while without a doubt the most important one which a flour must pass, is still almost an art rather than science. Different types of flour require entirely different treatment in order to produce satisfactory bread, and consequently a flour might be condemned as a poor baking flour when in reality all the flour needed was a change in treatment.

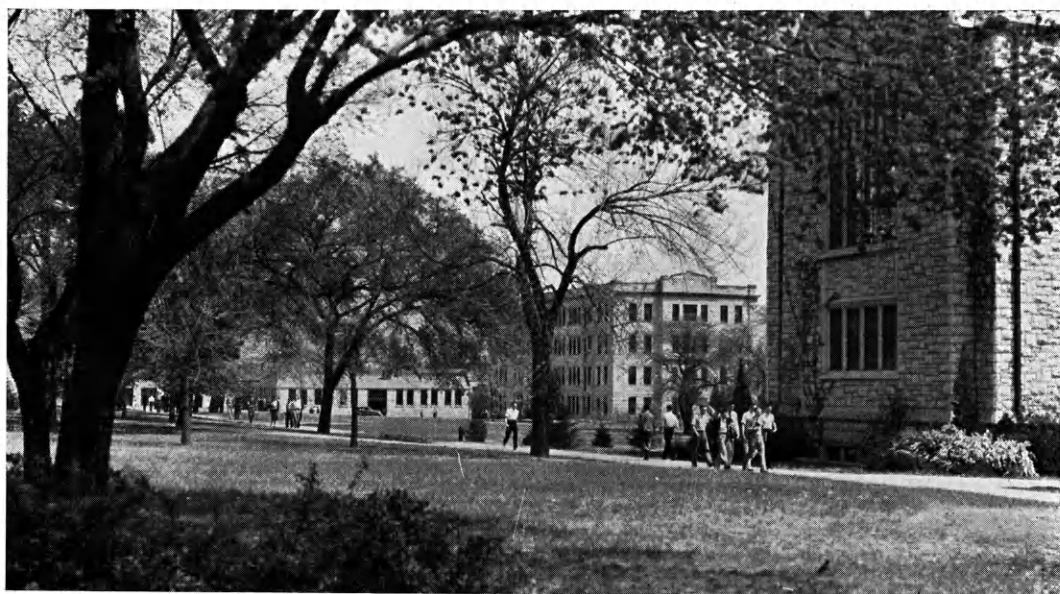
As a result of that situation the work of the department has been devoted very largely to working out methods of testing which will accurately measure not only the ash, moisture, and protein content of the flour but also tell something of the inherent characteristics of the flour which must be known if that flour is to get a fair trial in the baking test. Probably the most promising test of this kind worked out as yet is the recording dough mixer which was designed by Doctor Swanson and Doctor Working of the department and built in the Kansas State College machine shop. In this machine a dough is mixed and as it is mixed a pen traces a graph on paper, mechanically recording the condition of the dough constantly while it is being mixed. The machine has merited much interest from the industry and at the present time there are a number of the machines in commercial laboratories over the country.

Another machine, designed and built in the department, is the gas-production and gas-retention measuring machine. As everyone knows, bread is light because of gas which is liberated in fermentation and then entrapped in the dough structure of the loaf. But if the dough structure is such that the gas is not trapped inside the loaf then the loaf will not be light. This machine, then, is one which will mechanically measure the ability of a flour to produce gas and also its ability to hold that gas after it has been produced.

(Continued on page 140)



SOUTH ENTRANCE OF ANDERSON HALL



#### COLLEGE BUILDINGS

From left to right: Judging Pavilion, East Waters Hall, and corner of Library.

# Farm Management Association Work in Kansas

FARM management work, which is carried on in cooperation with the various county farm bureaus, is developing rapidly in Kansas at the present time.

A plan similar to the one in Kansas originated in Illinois as an outgrowth of extension work in farm management. In 1916 the farm management specialist for the College of Agriculture in Illinois, in company with M. L. Mosher, the farm adviser for Woodford county, assisted 60 farmers to start records of their farm business. During the year the farmers were visited and assisted with any problems they had in connection with keeping their records. At the end of the year 48 men who had completed their records throughout the year were assisted in closing their accounts. All work was individual and each man's record was carefully analyzed to determine where the business could be improved. This type of service was rendered until 1925 when the increased demand for it made it impossible to continue on that basis. The farmers who were securing the service decided it would be possible for them to pay toward the support of the work. Thus in 1925 the first Farm Bureau Farm Management Service was developed in Illinois.

By 1930 the demand for this type of service in Kansas was evident. Many farmers were wanting assistance with management problems on their farms. They expressed a desire of being willing to pay for such service if they could secure it. This was responsible for the development of two Farm Management Associations in 1931.

These associations are actually organized as Cooperative Farm Management Associations. Farmer members in the associations elect officers and operate the associations on a cooperative basis, similar to the plan used by the Farm Bureaus. The membership fee ranges from \$16 to \$50 per year depending on the size of the farm. Each

association hires a field man who is to visit the farm from four to six times each year. The purpose of the fieldman is to assist the farmer in the efficient production and marketing of livestock and crops.

The agencies cooperating with the associations in the work are the Extension Service and the Department of Economics and Sociology of Kansas State College, the County Farm Bureaus, and the Kansas Bankers Association. These agencies assist in the organization of the associations, analysis of the records, and in helping the members with their management and marketing problems.

The following figures indicate the growth of the associations and their memberships during the years indicated:

| Year | Number of Associations | Aggregate Membership |
|------|------------------------|----------------------|
| 1931 | 2                      | 339                  |
| 1932 | 2                      | 279                  |
| 1933 | 2                      | 247                  |
| 1934 | 2                      | 255                  |
| 1935 | 2                      | 284                  |
| 1936 | 2                      | 276                  |
| 1937 | 3                      | 369                  |
| 1938 | 4                      | 613                  |

The membership suffered during the depth of the depression. However, after the business cycle turned up the membership and development of associations again began to increase rapidly. The Kansas Bankers Association is interested in this work and has cooperated with the associations. It has been influential in the development and membership work.

The counties included in each association change from year to year as new associations are developed. However, each association has been in the same general area each year. Associations No. 1, now including Cloud, Ottawa, Washington, Clay, Dickinson, Marshall, Riley, Pottawatomie, Geary, Morris, and No. 2, now including Rice, Reno, Kingman, Harper, McPherson, Harvey, Sedgwick, Sumner, Butler, Cowley, were organized in 1931; asso-

## REITZ WINS ANOTHER HONOR

ciation No. 3, Clark, Rush, Pawnee, Edwards, Kiowa, Comanche, Barton, Stafford, Pratt, Barber in 1937; and association No. 4, Wabaunsee, Lyon, Nemaha, Jackson, Shawnee, Osage, Brown, Atchison, Jefferson, Douglas, Franklin, Doniphan, Leavenworth, Wyandotte, Johnson in 1938. This year 613 farmers belong to the associations with many of them having been members for the entire eight years. With a continuation of the rapid development witnessed the past few years it will not require many years until all sections of Kansas will have this type of service available.—R. J. Doll, '35.

### NEW WORK ASSIGNED TO THE DEPARTMENT OF MILLING INDUSTRY

(Continued from page 137)

Then there is also the setup of apparatus which measures the amount of CO<sub>2</sub> gas given off by flour in storage. Maybe you didn't realize that flour is continually breathing. The process isn't exactly the same though as breathing because flour doesn't take in oxygen for metabolism but it is constantly oxidizing and giving off CO<sub>2</sub> as a combustion product. When that rate of oxidation becomes excessive the flour goes into a "sweat" which is essentially the same as the familiar "sweating" of wheat, either in the bin or in the stack. Along somewhat the same line is the study being made of the phenomenon of "binburning" which is very detrimental to milling quality.

Mention should also be made of the Buhler self-contained laboratory mill which was installed in the department only last summer. This mill, manufactured in Switzerland, is the very latest idea in laboratory milling and has been the subject of much research this past winter.—Paul Hodler, '38.

Jesse C. Wingfield, '23, is teaching in a territorial school, Kodiak, Alaska.

Carl M. Carlson, '27, is doing farm loan and farm management work for the John Hancock Farm Loan Agency, Sioux City, Iowa.

## Wins Another Honor

Herman J. Reitz, junior in horticulture, has been selected by the faculty of the Division of Agriculture to receive the summer Danforth fellowship award. The award offers Reitz an opportunity to study, through actual experience, problems of manufacturing, sales promotion, personnel, leadership, and advertising.

This fellowship provides funds for the student's expenses for two weeks



HERMAN J. REITZ

in St. Louis and vicinity, and two weeks of training in leadership at the American Youth Foundation Camp on Lake Michigan.

This is a continuation of the honors Reitz has won since he graduated from the Belle Plaine Rural High School in the spring of 1934. As a freshman in agriculture in 1935-'36 he won the Alpha Zeta medal, which signifies the highest scholarship in his class, and he has a uniform record on that plane.

Edward Watson, '24, is dairy farming near Independence, Mo., and Frank S. Turner, '17, at Belton.



## Animal Husbandry Portrait Gallery

Located in the hallway of the Department of Animal Husbandry in East Waters Hall is a portrait gallery of men who have been outstanding in the production of livestock. The Block and Bridle Club, student organization of the department, is sponsor of the gallery which had its beginning in 1935. At that time the portraits of the following men were selected: Thomas K. Tomson, Dover, represented the Shorthorn breeder; Robert H. Hazlett, El Dorado, the Hereford breeder; and George A. Grant, Victoria, the Angus breeder. From that time on the size of the gallery has gradually increased, until at present there are nine portraits that comprise the gallery.

In 1936, the portraits of William A. McHenry, Denison, Iowa, and T. W. Harvey, Turlington, Nebr., outstanding in the production of Angus cattle, were placed in the gallery. In the spring of 1937, the portraits of W. J. Tod, Maplehill, and Col. W. A. Harris, Linwood, were added. Mr. Tod was a breeder and feeder of Hereford cattle and was a former member of the State Board of Regents. Colonel Harris was one of the leading breeders of Shorthorn cattle in the world. His statue now stands in front of Fairchild Hall on the college campus.

This year, the portraits of Dan Casement and Wilbur A. Cochel will be added to the gallery. Last year Dan Casement, Manhattan, prominent breeder and feeder of Hereford cattle, was made the first honorary member of the Block and Bridle Club. W. A. Cochel, breeder of Shorthorn cattle, was from 1912 to 1918 head of the Department of Animal Husbandry at Kansas State College. His cattle ranch is near Manhattan.

During the past two years the Block and Bridle Club has made as one of its main events the unveiling of a portrait at the annual club banquet held the latter part of the spring semester. Last

year the portrait of Mr. Tod was unveiled and honored at that time. The portrait of Mr. Cochel is to be unveiled at this year's annual banquet.

These portraits have attracted a great deal of attention from students as well as visitors who pass through the hallway of the department. They are very interesting and educational in themselves, because of the fact they represent men who have been highly successful in the production of high quality livestock.

—Dorman C. Becker, '38.

### WORLD'S POULTRY CONGRESS

(Continued from page 134)

poultry and eleven allied state-wide organizations. The job of adequately representing the poultry enterprise in Kansas at this congress has been divided into many major and minor committees all of which have been named, and most of which are now at work.

This exposition will afford the best opportunity which has ever come to Kansas to organize every unit of the poultry and closely allied industries to develop new leadership, establish new goals, and place the industry in this state on a higher level than it has ever reached before. The benefits and influence to be derived from a united effort in this cause cannot be measured in dollars and it is believed they will be far greater than anyone can realize.

—Loyal F. Payne.

### Good Luck

As this issue goes to press the young men in the State Vocational Agriculture High School Contests are busy working on the campus, May 2 and 3. About the usual number of young men are engaged in these contests and that always brings the keenest competition from a class of boys in which college students are deeply interested.

We are sorry the results cannot be announced in this issue of the Kansas Agricultural Student but—May the BEST Men Win.



# Dealers OF THE NEXT Decade

## DAWN OF A NEW DAY IN DISTRIBUTION



Agriculture does not end at the line fence. Part and parcel of it are the county agents, extension engineers, and other specialists who serve it. So are the dealers who supply and service the modern machinery which, more than anything else, makes the difference between peasantry and prosperity.

A new day is dawning in the distribution of farm equipment. It is getting new blood . . . young men, college trained . . . boys with farm background, fortified by "book learning" . . . broadly familiar with all agriculture, specialists in power and machinery. They bring to the business new dignity, new ideals of intelligent service, new worthiness for worth-while income.

Among the dealers who come from the colleges, an increasing number choose to cast their lot with Case. In the Case line of 77 modern farm machines they find the forward look that launched the steel plow industry a hundred years ago . . . that created the world's most widely used thresher . . . that advanced the combine from regional to national acceptance . . . that built the first authenticated gas tractor in 1892 . . . that today brings the farmer fuel freedom and the lowest upkeep in tractor history.

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