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Animal Husbandry through the Years at the University of Nebraska

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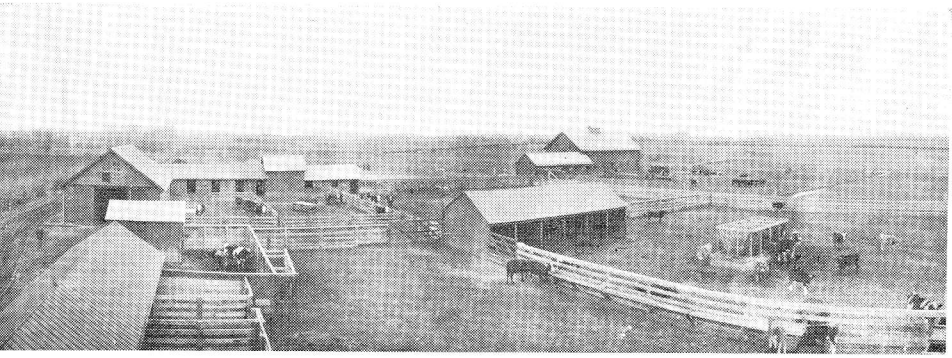

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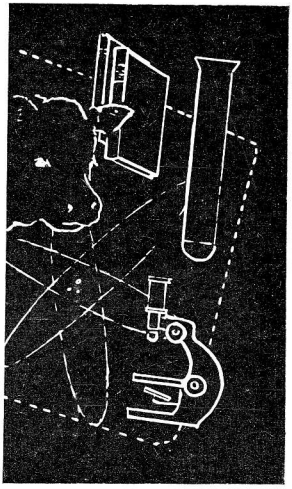
ANIMAL HUSBANDRY

through the years at the

University of Nebraska



UNIVERSITY OF NEBRASKA COLLEGE OF AGRICULTURE
THE AGRICULTURAL EXPERIMENT STATION
E. F. FROLIK, DEAN; H. H. KRAMER, DIRECTOR

CONTENTS

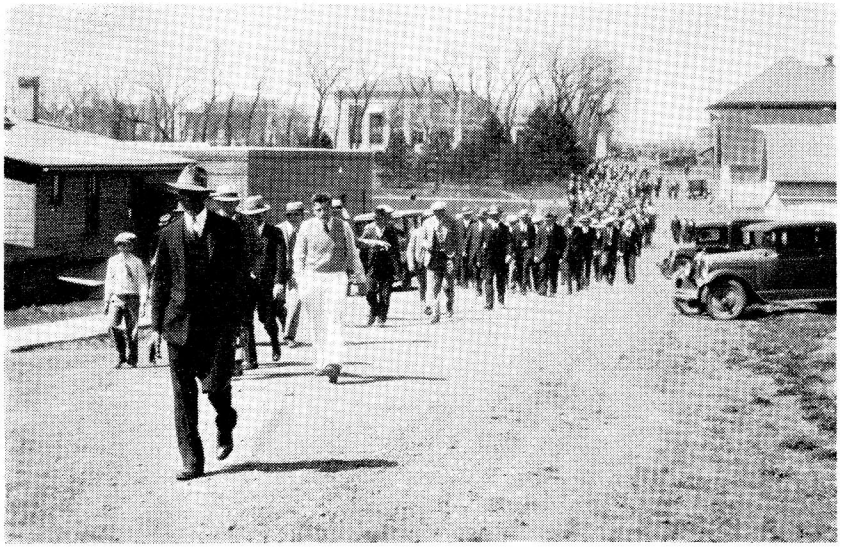
Issued April, 1962, 5,000

FOREWORD

This review is limited primarily to the Animal Husbandry Department. However, in an organization as closely knit as the College of Agriculture, it is impossible not to make occasional reference to other departments and activities. The narrative is confined largely to the organization at Lincoln, although some reference is made of work and workers at outlying stations.

Many references are made to *These Fifty Years* by R. P. Crawford. Through the courtesy of the Comptroller, Dr. Joseph Soshnik, and Miss Viola Hasskarl, many official documents have been reviewed.

Grateful acknowledgment is made by the writer to his colleagues and former students for their suggestions and contributions in preparing this publication.



En route to the feed lots at an early Feeders Day Program.

Animal Husbandry Through the Years At the University of Nebraska

By Wm. J. Loeffel[1]

INTRODUCTION

American agricultural colleges trace back to the Land Grant Act sponsored by Justin S. Morrill, Congressman and later Senator from Vermont. The Morrill Act was signed by President Lincoln on July 2, 1862. Thirty thousand acres of public land were allocated for each Congressional representative. The funds from the sale of this land were to be invested and the income used by each state to support at least one college where agriculture and mechanic arts were taught.

The endowment of the University of Nebraska (which included the Agricultural College) came from two sources.

(1) The Enabling Act of 1864 which provided for Nebraska's entry into the Union and which set aside 72 sections of land.

(2) The Land Grant Act of 1862 which allocated 90,000 acres.

On June 14, 1867, the Legislature selected Lincoln as the capital of

[1] WM. J. LOEFFEL is Professor of Animal Husbandry, Department of Animal Husbandry.

Nebraska and set aside 640 acres as the site of the capital city. Four blocks in the north part of Lincoln were reserved for the University.

The University Building, or "U Hall' as it was later known, was completed January 6, 1871. The College of Ancient and Modern Languages, Mathematics and Natural Sciences was officially opened September 7, 1871. For many years, University Hall housed the entire university, including the Agricultural College.

THE AGRICULTURAL COLLEGE

The Agricultural College was established to meet the requirements of the Morrill Act rather than to meet the demands for "book farming" which was unpopular at that time.

The College of Agriculture was established in June, 1872, with the formal opening in 1872-73.

The first "model farm" consisted of several parcels of "saline land" in the vicinity of the present state fair grounds. This land proved unsuitable and a search was started for a better site. In 1874 the committee reported:

"A purchase of a well-improved farm at a moderate distance from the University was effected. The farm contains 320 acres, for which $55 an acre was paid. The farm is well adapted to the purpose of the College and is in a high stage of cultivation, having over four miles of osage orange hedge, four to five years old; 25 acres of young timber trees, three and four years old; 300 apple trees and 50 peach trees; a good stone house of ten rooms; a good frame barn, granary. . . ."

Three important developments took place between 1875 and 1890:

(1) The name of the Agricultural College was changed to the Industrial College.

Agriculture Farm about 1890. Building on the left "Daddy" Perrins home. Perrin was farm manager. Center building was office, classroom and residence. Building at right is barn.

(2) The Agricultural Experiment Station was founded under the Federal Hatch Act.

(3) Construction of Nebraska Hall was begun on the City Campus to house the Industrial College. Before the building of Nebraska Hall, class sessions in agricultural subjects were held either at the farm house or at the University Hall.

Founding the Experiment Station

The Hatch Act establishing the experiment stations was passed by Congress March 2, 1887. This act provided $15,000 per year to each Land Grant College or to the state experiment station or divided between such institutions in the same state to promote original scientific investigation in the field of agriculture.

The first report reviewing experimental work done in the Industrial College was published about 1880. It reported a comparison of dry and soaked corn for pigs.

In the third annual report (1890) Dean Bessey recommended: "we suggest the feeding of livestock. Both stock and feed can be produced on the farm. Very much is still to be learned. The farmer of small means is not prepared, nor can he afford, the work of experiments. Let the state farm do this and the farmers have the benefit."

The livestock inventory included:

22 "thoroughbred" and 6 grade Shorthorns
Some Galloways, Herefords, Holsteins and Jerseys
A herd of "thoroughbred" Poland Chinas
A herd of mixed hogs for cholera studies
Two White Victoria sows

There was a one-and-a-half story stone house on the farm with ten small rooms; two barns with stalls for 14 horses and 30 cattle, grain bins, tool room, hay mow with power carriers and a root cellar; a wagon house, 24′ x 52′ and a commodious enclosed corn crib.

First mention of silos and silage studies was made in the Fifth Annual Report issued in 1891. In the seventh annual report a discussion was presented on alfalfa including its utilization.

The School of Agriculture

The School of Agriculture opened in December, 1895. Enrollment grew rapidly. The School of Agriculture was undoubtedly the most important development between 1890 and 1908. This high school course which emphasized agriculture and home economics met with great favor in Nebraska. For a number of years, the School of Agriculture was the dominant activity on the Agricultural Campus.

Experiment Station Hall was built in 1899-1900 and Agricultural Hall in 1904-1905. Attendance passed the 100 mark in 1899-1900. In 1902-1903, 206 students enrolled; in 1904-1905 there were 332; in 1906-

1907, there were 429; while in 1908-1909 enrollment neared the 600 mark.

In numbers, students of the Agricultural College were outnumbered by those in the School of Agriculture in the early years. In 1895, there were 15 students enrolled in the College of Agriculture. Within five years the number had grown to 66. The College Farm began to be regarded as an educational center in its own right. Several excellent buildings were erected. By 1909, agriculture had attained such importance that it was made a separate entity with its headquarters on the Farm Campus.

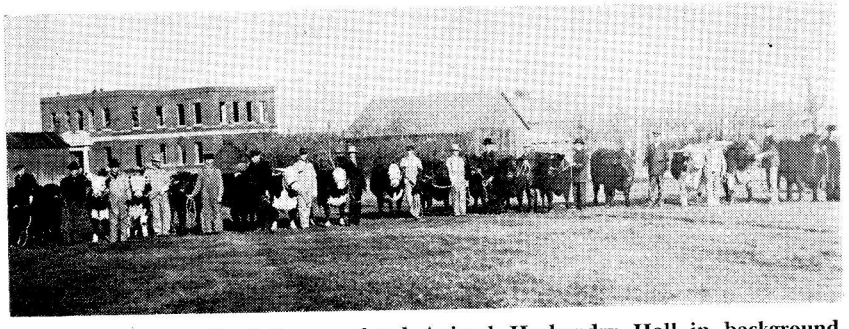
With the development of more four-year high school curricula, and especially with the advent of the Smith-Hughes Agricultural program, the need for an agricultural high school program declined. As a result the School of Agriculture was discontinued in 1929. There still existed a need for educational facilities for those unable to meet the entrance requirements for the college. To meet this need short courses were developed, the most successful of which was the Farm Operators Course.

Department of Animal Husbandry

The Board of Regents established the Department of Animal Husbandry in 1898. Mr. C. H. Elmendorf was placed in charge of the new department. He maintained his office in the Mechanic Arts Building on the City Campus.

In 1899, E. A. Burnett came to head up the Department of Animal Husbandry. His first appropriation for livestock ($1500) was spent for Hereford cattle. Sheds were erected on the farm to house the steers used in feeding experiments and the horses used to produce serum in the hog cholera experiments.

During the year, the Animal Husbandry Department distributed 33,000 doses of blackleg vaccine which had been furnished by the Federal government.



Judging contest. Partially completed Animal Husbandry Hall in background. Picture taken in 1908.

Experiment Station Hall, finished in 1899-1900. Other buildings furnished housing for Veterinary Science livestock.

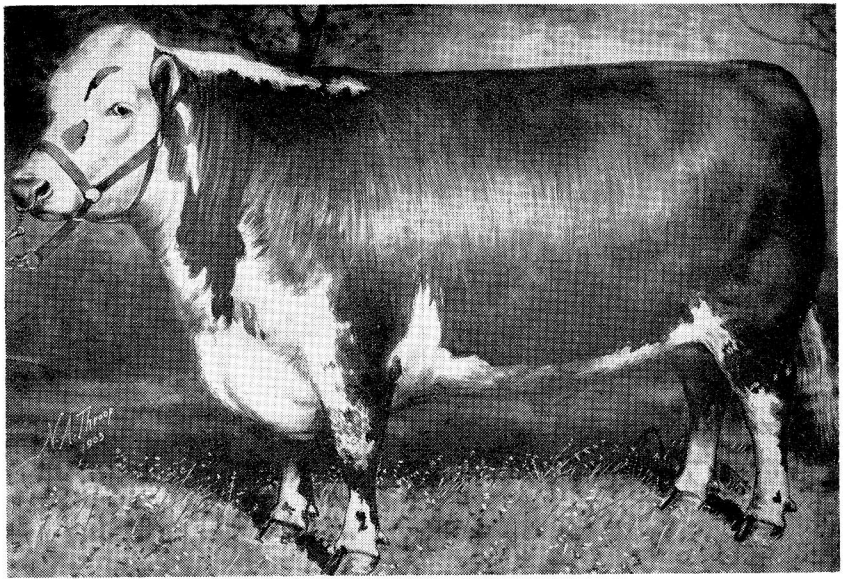
Experiment Station Hall, completed about 1899-1900, furnished housing for the Animal Husbandry Department. Other improvements were new cattle feeding yards, and a barn for preparing rations.

In his first year at Nebraska, Burnett reported: "The Division of Animal Husbandry is practically without equipment except as it is provided with open and closed sheds for the feeding of 25 head of cattle. During the present year, the old piggery has been equipped for the feeding of eight lots of experimental sheep. A hundred lambs were purchased at the Omaha Stock Yards and were divided into eight lots which are being fed different rations to determine the relative value of different grain rations with prairie hay.

"We are also feeding 18 Colorado yearling steers upon different grain rations using alfalfa hay as roughage. We are attempting to determine the relative value of different grain rations fed in connection with alfalfa hay and also to determine the relative effect of open yards and closed stalls upon the gains made in feeding steers on the same rations. We are also carrying on an experiment in connection with the Dairy Department to test the value of calves which have been raised on skim milk, and those which have been allowed to suckle their dams until weaning time."

Challenger — International Grand Champion

Perhaps nothing did as much to give a young department standing as showing the steer, Challenger, to the grand championship at the



Challenger—the grand champion steer at the International Livestock Show, Chicago, 1903. Cost 5¢ a pound, sold for 26¢ a pound.

International Livestock Show in 1903. Professor H. R. Smith was making a study of the feeding practices followed by Nebraska feeders. In the feedlot of Mr. Murphy at Vesta, he noticed a blue roan steer with an especially broad back and deep full quarter. Although he had no authority to buy he could not resist purchasing the steer for 5 cents per pound (April, 1903).

Challenger's dam was a mixed bred cow—mostly Shorthorn with enough Holstein blood to give him a blue-gray color. He was sired by a Hereford bull. At the University, Challenger made excellent gains and improved in type so that the possibility of showing him at Chicago was discussed. However, there were no funds to pay expenses.

Professor Smith asked Mr. George Holdrege, Superintendent of the Burlington Railroad, to furnish transportation to Chicago for Challenger and two stall mates as an advertisement of Nebraska agriculture. Challenger became the Grand Champion steer of the 1903 International. His stall mate, Defender, won the open class and the other steer won the carcass class.

Following the International, Challenger was sold at auction for 26 cents per pound. He weighed 1,700 pounds. The Nebraska Commission charged with the responsibility of preparing a suitable exhibit for the Louisiana Purchase Exposition in St. Louis in 1904 had the steer mounted. After serving prominently in that exhibit for the duration

of the Fair, Challenger was returned to Animal Husbandry Hall where he was used as a classroom model until destroyed in the fire of 1931.

Feeders Day

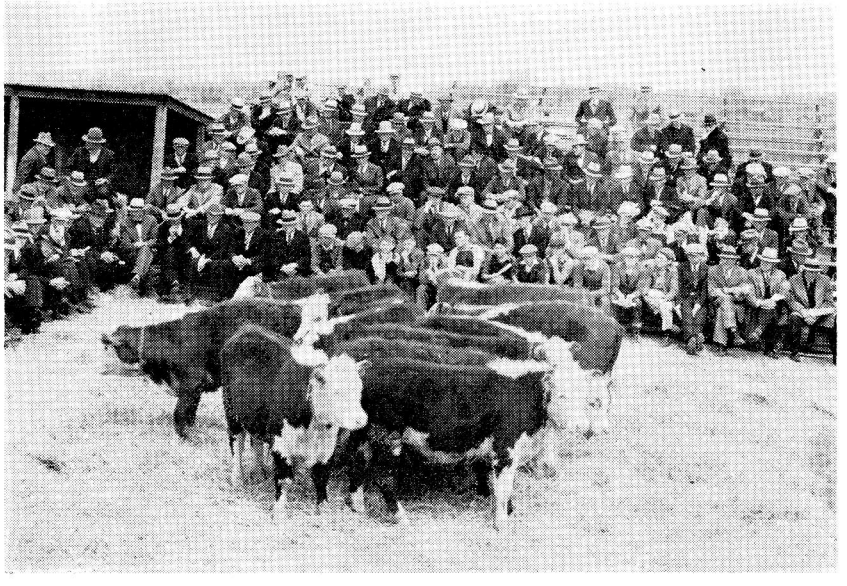
H. R. Smith is credited with starting Feeders Day. In 1911 a number of experimental cattle were ready for market. He thought farmers and feeders might be interested in seeing the results. The invitation was extended and results far exceeded expectations.

Feeders Days grew in popularity. The record attendance was 4,500.

Many women attended Feeders Day and in 1926 it was decided to present a women's program in cooperation with the Home Economics Department and the Extension Service. The central theme was the use of meat and meat food products.

Feeders Day was held every year except during World War II when gasoline was rationed. Even then, through the cooperation of radio station KFAB, Feeders Day was carried to livestock producers. The Feeders Day idea "caught on" and today practically every experiment station holds one.

Feeders Day was always held in the spring. In 1935 it was decided to hold a similar event in the fall to show results of summer swine feeding experiments. Thus Rooters Day was developed. Beginning in the fall of 1961 a policy was initiated of moving Rooters Day from place to place in the more important swine producing sections of the state.



Looking them over at an early Feeders Day.

The Physical Plant

The first building on the Agricultural Campus was a stone residence which also housed a chemical laboratory and an office.

The first house built on the Agricultural Campus was used for boarding students and as a residence by "Daddy" and Mrs. Perrin. The first building constructed primarily for teaching was the Dairy Building (1896). At various times it has housed the Poultry and Agricultural Economics Departments and more recently became the Agricultural Administration Annex.

The next building constructed was Experiment Station Hall (1899). It has housed Chemistry, Soils, Vocational Education and Animal Husbandry. In 1959-1960 the building was remodeled for the Department of Information. Two small brick buildings were constructed in the quadrangle immediately in front of Experiment Station Hall. Both were used by the Veterinary Department, one to house experimental animals and the other for an office and laboratory.

A red brick machinery building was constructed at a cost of $11,000 for the study of carpentry, blacksmithing and farm machinery. This building was subsequently used for a meat laboratory, a service building and for the Chemurgy Department.

In 1904, plans were completed for the construction of the School of Agriculture Building (Agricultural Hall). This building was completed in 1906. Two rooms in the south end of the basement were set aside for the use of the Animal Husbandry Department. Home Economics Hall was built in 1907. A Veterinary Laboratory was completed in 1908. This building was remodeled and stuccoed and today comprises the south building of the Veterinary Science quadrangle.

No adequate space was available for livestock judging. The red brick judging pavilion now designated as Animal Husbandry Hall was built in 1908 at a cost of $30,000. Until 1917, the offices of the Animal Husbandry Department were located in the west end of the basement of Agricultural Hall. There were two judging arenas on the first floor of the Judging Pavilion, separated by a rolling steel curtain.

One evening in the spring of 1931, Animal Husbandry Hall was destroyed by fire. The building was stripped down to its walls and reconstructed as a "fire proof" building.

During 1910, a stucco, brick and tile steer feeding barn was built. It was used for a time for beef breeding cattle and at present is the south unit of the dairy barn.

The Horse Barn was completed in 1915-16. The judging arena and the second floor were used as a gymnasium and basketball court by the School of Agriculture. During the First World War, the hay mows were used as barracks for soldiers. The large second floor room for a time was used as a classroom. In 1959, it was divided, one-half being used for poultry nutrition studies and the east half as a rat laboratory.

Judging contests were popular with state high school students.

According to the 1916 report, Dairy Hall to cost $175,00 and a $30,-000 horse barn were under construction. A new heating plant, boilers and tunnels were installed and plans were being drawn for a $150,000 Agricultural Egineering Building.

The Meat Laboratory

One of the conditions imposed by W. J. Loeffel in 1919 contingent to his accepting a position on the animal husbandry staff was that a meat laboratory be provided.

About this same time, the new Agricultural Engineering Building was completed. This left the old shop building vacant. Dean Burnett made the old blacksmith shop available, plus $2,000 for the necessary remodeling and purchase of needed equipment. His parting injunction was to spend no more money than absolutely necessary for there would be a new meat lab within 18 months. In 1955 the new meat lab, which was supposed to be forthcoming in 18 months, but which actually took 36 years to materialize, was dedicated.

THE CROWNING YEARS

According to Crawford, the years from 1909 to 1923 were the crowning years of the Agricultural College. Nine fine buildings were completed, including Agricultural Engineering, Dairy Husbandry and Animal Pathology. There was an attractive campus with stately trees, trim flower beds and paved roadways. Almost 1,000 students were en-

rolled, including both men and women. Half of these were registered in the School of Agriculture and the balance in the regular college courses. There was a faculty of 70 members with nearly as many more connected with the branches of college activity including a statewide Extension service. There were three substations in western Nebraska, a school of agriculture at Curtis and a fruit farm at Union.

Additional Land Needed

Dean Burnett pointed out in the 1920 annual report the pressing need for additional land for livestock and pasture experiments. "There has been a steady encroachment on Animal Husbandry land for other activities. There are only 100 acres of land available for 100 head of beef cattle, 100 head of dairy cattle, 200 head of sheep, and 100 head of hogs. In addition, approximately 400 head of cattle, hogs and sheep are being fed experimentally."

Havelock Experimental Farm

The Legislature (31st Annual Report, 1918) appropriated $32,000 to buy 160 acres for experimental purposes at Havelock and $10,000 to purchase an 80-acre Fruit Farm at Union. South of the Havelock Unit was a 30-acre tract which, with the purchase of other parcels of land, became the Swine Research Center.

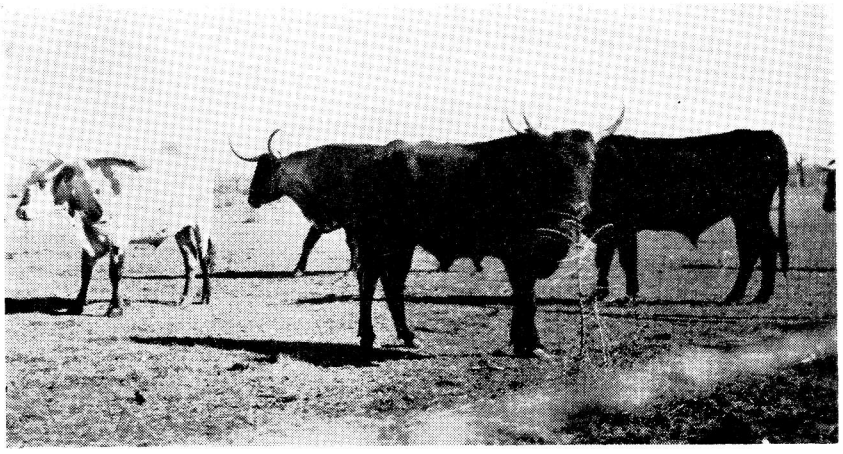
The land at the Havelock Research Center proved too rolling to produce row crops without excessive erosion. Consequently, 1,200 acres of farm land were purchased east of Havelock. Much of this tract is used for agronomic research and the land formerly used for this purpose has been seeded down and used for pasture research by the Animal Husbandry Department.

Burlington Farm

The droughts of the 30's demonstrated the desirability of "not carrying all one's eggs in the same basket." Frequently, a timely rain would produce a good feed crop in one area while a few miles away, crops would be a total loss. In 1938, an opportunity arose to rent a 480-acre tract from the Burlington Railroad about 9 miles southwest of the campus. The farm had been badly overgrazed and was infested with bind weed and other noxious weeds. Pastures and fences were renovated and the unit was then used for the beef cattle breeding herd. The University relinquished this tract in 1960.

The Rogers Memorial Farm

The Rogers Memorial Farm was willed to the University by Mrs. Cora Rogers to be used for the benefit of agriculture and Agricultural College students. It consisted of a half-section which had been farmed



Between the buffalo and the modern breeds came the longhorns from Texas.

long and hard. The farm was to be kept in a good state of cultivation and certain scholarships had to be paid out of the income. With the aid of the Soil Conservation Service, a detailed erosion control program was developed, including terraces, grassed waterways, and dams. It was decided to use the farm as a beef cattle experimental farm.

The Dalbey-Halleck Farm

Mr. Dwight Dalbey of Beatrice, Nebraska, former Nebraska Secretary of Agriculture and former Nebraska Legislator, gave a section of virgin prairie land to the University as a memorial to his wife, Hannah Virginia Lewis Dalbey, and her father, Ford Lewis, with the understanding that it was never to be broken up. Grazing and hay production were undertaken here as well as more technical ecological studies. Additional land was needed for beef cattle breeding experimental work so 480 acres of additional land was purchased and the farm designated the Dalbey-Halleck Farm, a unit of 1,120 acres.

Herds and Flocks

There were livestock on the College Farm as early as 1875. According to Professor Thompson, "The thoroughbred cattle owned by the college included a Shorthorn bull named 'Excalibar,' a Shorthorn heifer, 'Hasty,' a Devon bull, 'Oxus,' a Devon heifer, 'Dianthus,' an Ayrshire bull, 'Haylord,' and an Ayrshire heifer, 'Nettie,' a Galloway bull, 'McNeil,' and a Galloway heifer, 'Snowflake.' "

Hogs were represented by the Essex, Poland China and Berkshire breeds.

There was considerable turnover in the cattle herds from time to time. In the depression of 1929, Professor Gramlich found a herd of

purebred Herefords being liquidated on the Denver market. He purchased the entire herd for the University and upon his return to Lincoln sent the University herd to the Omaha market.

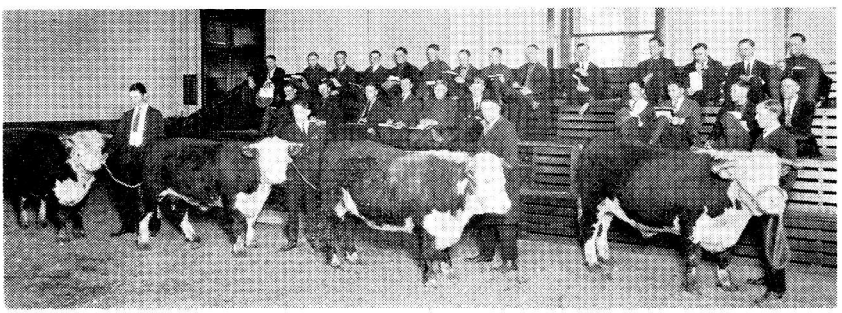
Herefords

Marvel L. Baker
Professor of Animal Husbandry

The University of Nebraska has maintained a herd of Herefords since 1900. The herd in more recent years rested on two foundation groups of females. The first of these groups was based on purchases made in the early twenties by H. J. Gramlich and the second to a few excellent females obtained from S. R. McKelvie by Ray Thalman in 1939 and 1940. By 1952 the herd traced to four of the females included in the early purchase and to five from the McKelvie group.

Thirty-seven of the 59 females bred at Lincoln in 1952 were descendants of two of the cows included in the Gramlich purchases. One of these was Ruth Domino 7th 1478105, bred by Kimberling Brothers, and a full sister to Ruth Domino, grand champion female at the Royal, the International and Denver. This cow was sired by Onward Domino 812380. The second cow was Bright Lass 25th 1113490, bred by P. J. Sullivan and sired by Major Domino 665033 by Domino 264259. The other two cows of this group now represented by descendants in the herd were daughters of Wilton Domino 677064, and Anxiety Mischief 722104. These cows were largely of Prince Domino and Beau Aster breeding. Bulls contributing to this line of breeding at the University also were largely of this breeding. These are listed in the order of their use in the herd:

Prince Domino 132nd, 1211646, by Prince Domino bred by Fulscher and Kepler. Onward Domino 29th, 158325, by Onward Domino bred by C. C. Kimberling. Selection, 931445, by Wilton Domino, bred by David Firm and Sons, LaVeta, Colorado. Selection was used for five years in the University herd and sired many good females as well as several winning steers. These three bulls were probably purchased by



Judging demonstration in the old J. P.

H. J. Gramlich. I happened to be with Gramlich when he selected the next herd sire, Dandy Domino 113th, 1934499, by Dandy Domino 2nd, from a carload of calves bred by Banning-Lewis at the Denver Show in 1931. He was then an 8-month-old calf. He was used in the University herd for five calf crops and then sold to the U. S. Range Station at Miles City where he was used for several years. He sired cattle with good heads and short legs.

The next several bulls which contributed to the development of the herd were selected by Ray Thalman. Real Prince Domino 8th, 2259748, by Real Prince Domino was bred by H. J. Krause. He was 4th in the junior bull calf class at Denver, a class won by a half-brother. The two calves were first prize group of two bulls. Real Prince Domino 8th sired the dam of the bull Aster Real used successfully in the herds of the University and S. R. McKelvie.

Beauty's Bocaldo 3rd, 2271565, by Celebration was a Deberard bred bull bought by Mr. McKelvie and loaned to the University for a time. He left three very good heifers in the herd.

The next two bulls used were full brothers, Mischief Aster 60th, 2421747, and Mischief Aster 101st, 2570638, sired by Jealous Aster, an inbred son of Beau Aster. These were obtained from their breeder and owner, the late Albert Hill, Alexandria, South Dakota, for use in the University herd. For many years Mr. Hill was very interested in the University herd. Both the 60th and 101st left good calves, the 101st siring Aster Real out of a dam by Real Prince Domino 8th.

The last bull bought by Thalman for the University herd was Real Prince D 21st, 2466838, by Real Prince Domino 33rd. Real Prince D 21st was followed by the University bred bull, Aster Real, 2906874, by Mischief Aster 101st and out of the great breeding cow, Magneta Domino by Real Prince Domino 8th with the second dam by Dandy Domino 113th and the next dam by Selection and out of Ruth Domino 7th. Aster Real proved to be an excellent breeding bull. He sired numerous sons that went into good herds in Nebraska and adjoining states. Upon his untimely death he was followed by a son and he in turn by sons and later descendants.

The second group within the University herd traces to the five females obtained from Mr. McKelvie in 1939 and 1940. These were daughters of Mary's Bocaldo, 1985982 by Beauty's Bocaldo and of Mary Tone by Hazford Tone, and Beauty's Bocaldo 3rd by Celebration 3rd who was by Beauty's Bocaldo. Bulls used in this group were Mary's Bocaldo, Via Bocaldo 171st by Hazford Tone 167th and out of a dam by Mary's Bocaldo, Via Bocaldo 118th by Mary's Bocaldo out of a daughter of Bocaldo Tone 3rd, Via Lassitone 13th, another son of Hazford Tone 167th, Via Bozato 15th by Via Bocaldo 118th, and L. H. Bozato 18th, a son and out of a daughter of Via Bozato 9th who also was a son of Via Bocaldo 118th. Since the latter two bulls, sons and later descendants of them have been used.

While Ray Thalman was in charge of the University herd, it had a creditable show record, especially when the number of breeding cows maintained is considered. Aster Real was 9th in the 1939 International as a junior calf and not highly fitted. In 1940, Real Aster, whose breeding was almost identical with that of Aster Real, was 5th at the International and in the following Denver Show was 9th with 110 calves in the class. During this period females and steers also made creditable showings and bulls from the herd sold at Denver and Nebraska State Sales. Showing was interrupted by World War II and has not been resumed. The emphasis on the use of the herd was shifted to breeding research.

Angus

Marvel L. Baker

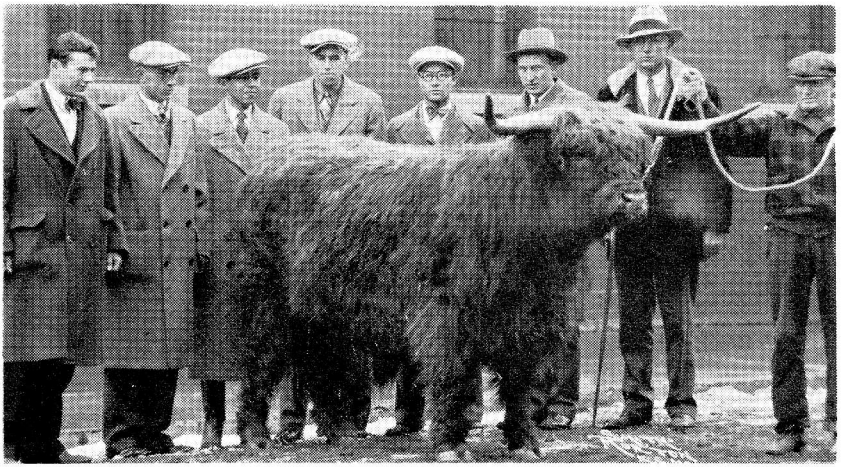
Aberdeen-Angus cattle were bred by the University of Nebraska as early as the turn of the century. Angus steers were shown by the University at least as early as 1910 when it showed the first prize Angus calf and the champion Angus steer at the International. In 1911, a University steer was first prize yearling, Angus champion and reserve grand champion at the same show.

The herd was started soon after World War I by the purchase of cows and a bull from J. W. McClung of Indianola, Nebraska. Nothing except herd bulls were purchased between 1924 and 1960 when the herd traced to six cows by the McClung-bred Kenyon 3rd, 304473. His sire was Kenyon, bred by Charles Escher and a son of the great Kanimura of Ballindalloch imported by Mr. Escher.

Kenyon 3rd proved to be a great breeding bull and was used for several years in the University herd. He left a number of excellent daughters and also sired many good steers. One of these, Kenyon 1st, was champion Angus and reserve champion calf at the 1924 International. In 1925, a group of three steers sired by Kenyon 3rd won first at the International in the get-of-sire class with all breeds competing. One of this group, College Kenyon, was grand champion steer and produced the grand champion carcass at the National Western Livestock Show in 1926.

Following Kenyon 3rd, a Hollinger-bred bull, Pride Irenmere of Wheatland was used for a short time. This bull had been reserve champion bull at Denver and later was a consistent state fair winner in Mr. Hollinger's hands. His successor in the University herd was a half-brother, Irenmeres Gay Lad 2nd. Both bulls were sired by Irenmere 6th by Prizemere 9th. For five consecutive years, Irenmere's Gay Lad 2nd sired the champion groups of three steers at the National Western Show at Denver.

Epponian of Rosemere 6th by Prizemere 32nd was purchased from Otto Battles and proved to be a sire of excellent calves. A son of this



University judging team of 1928 with "Highland Bill" a Scotch Highland steer.

bull, Lincolnmere, from a cow by Irenmere's Gay Lad, was sold to Schmidt Brothers, of Delmar, Iowa, and made a creditable record in their well-known herd. A full brother of Lincolnmere, N. U. Lincolnmere 3rd, owned by F. W. Rice of Palisade, Nebraska, sired first place winners in Angus steer classes in the junior show at Denver for four years. In 1945, one of these calves won the reserve championship in the junior Angus show and placed second in class in the open show. Another year one of the calves was reserve champion Angus steer. After completing his service in the University herd, Epponian of Rosemere 6th was repurchased by Mr. Battles. Epponian remained in the Battles' herd until his death.

Pride Irenmere of Wheatland also was brought back from the Hollinger herd for use in the University herd. A son of Pride Irenmere of Wheatland, N. U. Clovermere and out of a daughter by Irenmere's Gay Lad 2nd was retained in the herd. He and his sons have been used extensively in the University herd. One exception was Revemere of Wheatland 48th sired by Revemere of Wheatland 17th and used for one season. He left a number of good daughters and an excellent son out of an Epponian 6th cow.

Shorthorns

Vincent H. Arthaud

Shorthorn cattle have been bred by the University since the turn of the century. The females purchased initially came from the herds of John Bath, Auburn, Nebr.; George Bothwell, Nettleton, Mo.; B. O. Cowan, New Point, Mo.; Charles Leonard and Son, Bellair, Mo.; and

other pioneer breeders. The bulls used in the early 1900's were Nonpareil Victor 2nd, bred by George Bothwell; Nonsuch, bred by John Miller, Jr., Ontario; and Diamond Eminent, bred by Bellows Bros. None of the animals in the herd at the present time trace to the above foundation animals. The females whose descendants make up the present herd were added from time to time in more recent years.

In 1909 Blushing Beauty, 36887, was purchased from A. C. Shallenberger. Several of her descendants are in the present herd. Blushing Beauty was sired by Bapton Diamond out of Cambridge Beauty, a Campbell Mina, bred by Thomas Andrews.

Another female which exerted good influence on the present herd was Frosty Queen, 1709990, purchased in 1932. Her sire was Scarlet Crown and out of a dranddaughter of L. E. Crew's Silvercoat. Frosty Queen was a good producer. One of her sons was used in the herd and one was sold to Oklahoma State University. A daughter was the dam of a bull used in the herd and some good female descendants are still in the herd.

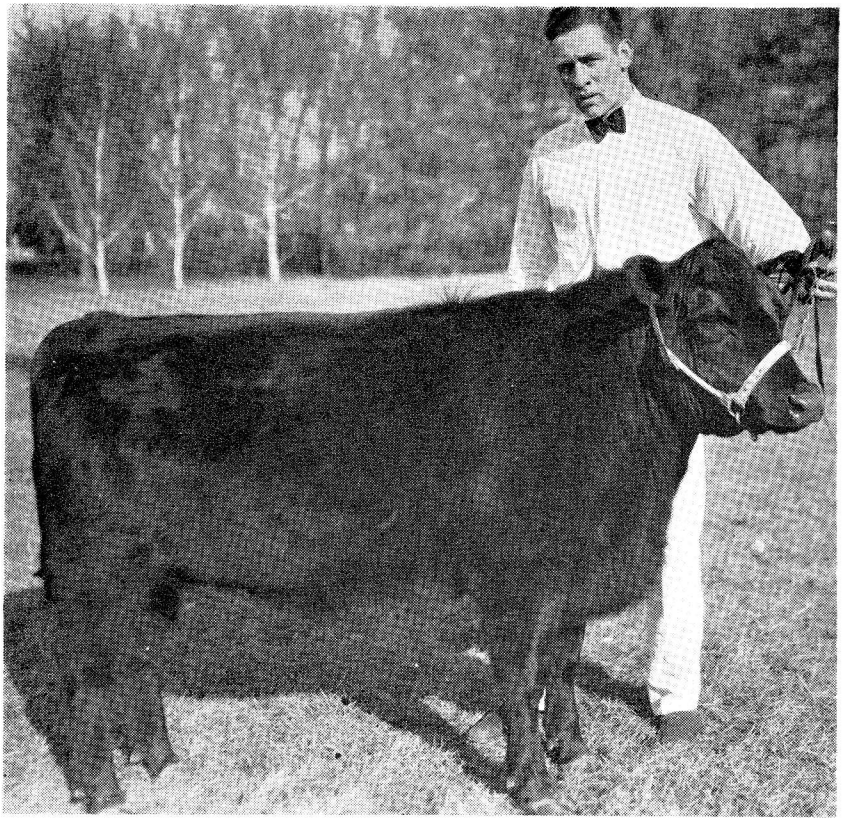
Nonpareil 40th, 1721596, by King of Hearts by Edellyn Premier was purchased in 1937 from A. C. Shallenberger. Members of this family are very good individuals.

A purchase was made in 1937 from R. J. Egger of Roca, Nebraska. The heifers, three of which have offspring in the herd were daughters of Divide Nugget by Browndale Archer. Golden Chain 4th, one of the original heifers, produced two good bulls by Ashbourne Standard that did well when shown and were sold into good purebred herds. A daughter, Golden Chain 5th, by Ashbourne Standard played an important role in the development of the herd. Three of her sons were used as herd bulls in the college herd and one was sold to Robert Skinner of Herman, Nebraska.

In 1950, a group of heifers were brought to Lincoln from the Nebraska School of Agriculture at Curtis where a herd of Shorthorns had been maintained for many years. The heifers were granddaughters of N. U. Gold Nugget and their dams were of Shallenberger and Andrew's breeding. Two sons of these heifers were used as herd bulls and a number of the present females are descended from these heifers.

No additional females were added to the herd until 1956, when nine heifers were purchased from Chenault Todd of Fayette, Missouri. The heifers in this purchase were daughters of Cluny Merry Monarch by Ballechin Rodney and of Ransom's Banker 24th by Scotsdale Armour. Their dams were sired by Scotsdale Armour and Klaymore Fancier.

During the 1920's two sons and three grandsons of Double Dale were used. They sired good steers that were shown with success. The Tomson-bred Scarlet Crown by Marshal's Crown followed as herd sires. In 1933, Nugget's Archer by Divide Nugget was purchased from R. J. Egger and used for two years. He left some good daughters in the herd. Matchless King by Matchless Marshall bred by Thomas Andrews was



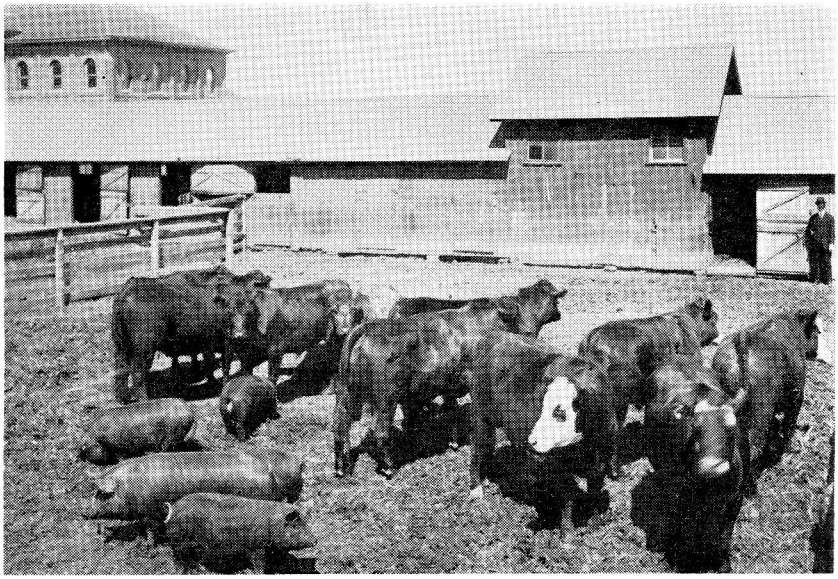
Howard Pitzer, Nebraska alumnus and now purebred Angus cattle and quarter-horse breeder from Erickson. In 1934 he was the champion beef cattle showman at the Junior Ak-Sar-Ben show.

used for a short period after having served in the Curtis herd for a number of years.

Ashbourne Standard, who proved to be one of the best breeding bulls used, was purchased from A. C. Shallenberger in 1934 after winning the Grand Championship at the Nebraska State Fair and standing second in class at Denver. Standard was sired by Royal Seal by Edellyn Premier and his dam was Collynie Bannerbearer.

The offspring of Ashbourne Standard were shown successfully in both breeding and steer classes. A son, College Premier out of Golden Chain 4th, was first at Nebraska and fourth at the American Royal. College Goldminer, another son out of the same cow, stood second at Denver and first at Nebraska. Several of his daughters placed well in their classes at Kansas City, Denver and Lincoln.

The most noted steer sired by Standard was Ashbourne Orange out of a college-bred cow, Orange Edna by Matchless King. He was shown



Prof. H. R. Smith makes plans for an early Feeders Day in 1911.

by the University of Nebraska at Denver and Fort Worth where he was sold to the Oklahoma State University who showed him to the Grand Championship at the International in 1937.

Ashbourne Standard left some good-producing daughters in the herd. A son, N. U. Monarch 3rd, out of a daughter of Frosty Queen by Nugget's Archer, followed his sire in the herd. Monarch was used for a number of years both at Lincoln and Curtis.

The next herd sire was the white N. U. Gold Nugget out of Golden Chain 5th by Standard and sired by Brawith Nugget owned by Carl Retzlaff. Nugget was named Grand Champion Bull at Denver in 1941. Half interest in this bull was sold to John Greig of Estherville, Iowa. Several of his sons were shown at Nebraska State shows and sales where they showed up well in their classes and were sold into good purebred and commercial herds. Several of his sons were used in the college herd at Lincoln and at Curtis. Some of his daughters developed into good-producing cows. Another son of Golden Chain 5th that served as a herd bull for a period of years was N. U. Golden Sultan by Brawith Sultan Victor owned by Ernest Retzlaff of Walton, Nebraska.

Perfection 2d, a double bred Browndale Jr. and Browndale King 3rd was purchased from Otto Thiede in 1950. Two of his sons were retained and used as herd bulls.

The present herd sires, Merry Ransom 41st and Ransom Banker 37th, were purchased from Chenault Todd in 1956. Merry Ransom 41st was sired by Cluny Merry Monarch by Ballechin Rodney out of a daughter of Scotsdale Armour by Pittodrie Banker. Ransom Banker

37th was sired by Ransom Banker 24th, a son of Scotsdale Armour. The dam of the 37th is a daughter of Cluny Merry Monarch.

The Shorthorn herd has been a part of the Beef Cattle Breeding Project since 1949. This project is carried on in cooperation with the U.S.D.A. and 12 North Central States and Oklahoma in which production traits and methods of selection are studied.

The Shorthorn herd like the other beef herds was under the supervision of H. J. Gramlich for many years. He was succeeded by R. R. Thalman who worked much improvement in the herd. Next in order was Dr. M. L. Baker who in turn was succeeded by Dr. R. M. Koch. The writer, V. H. Arthaud, has been actively engaged in the beef cattle work since 1945.

Mr. Charles Johnson was beef cattle herdsman from 1917 until his retirement in 1949. He was a tireless worker and did a very capable job of feeding, fitting, and showing the college cattle. Ray Bohy is carrying forward in the best tradition as Mr. Johnson's successor.

Other Livestock

In recent years the purebreds were used for beef cattle breeding research. To use them most effectively, the Herefords were all moved to Fort Robinson in 1957 to incorporate with the Hereford herd there. The Angus cattle at Fort Robinson were exchanged for the Hereford cattle at Lincoln and the consolidated Angus herd moved to the Dalbey Halleck Farm at Virginia, Nebraska.

Practically all of the recognized breeds of hogs have been used in the University herds at one time or another. In recent years the predominant breeds have been Duroc Jerseys, Yorkshires and Hampshires. The emphasis has been towards meat type hogs.

The medium wool breeds of sheep have been used most extensively at the University. Hampshires, Shropshires, Southdowns, and Corriedales have been maintained. Formerly, a flock of Rambouillets was kept, but these were disposed of. Recently the Shropshires were sold.

Before farm mechanization, draft horses made up an important segment of animal husbandry. Not only were they important from the standpoint of providing motive power, but they also furnished material for fundamental judging in anatomy, soundness and animal mechanics. A number of draft horses, primarily Percherons, were used on the campus. An opportunity presented itself whereby a number of registered Belgians could be purchased from Harry Hopley of Iowa for a nominal price, which was done.

In the spring of 1947 four grade Morgan mares were purchased from R. N. Swiggart of Whitman. At the same time two registered Morgan mares were loaned to the University by Clyde Card of Lincoln. Robert Tynan of Stella, Nebraska, gave the University a choice Morgan stallion, White Cap Allen, 9835; and two Morgan mares, Donbelle Allan, 05243, and Ruby De Roin, 07494.

About this time, the Thoroughbred herd at Fort Robinson was closed out. The Cooper Foundation purchased an excellent stallion, Sweeper's Son, 455379 and four aged thoroughbred mares, Queen of Spain, Cherry Moment, Easter Shadow and Hot Wick and gave them to the University. In the fall of 1952 the decision was reached to dispose of all the University horses except several feed teams.

In the early days, the college and school of agriculture were in a fortunate situation for horse judging since there was a large horse importing firm (Woods Bros., Watson and Kelly) south of the campus. Their barns and paddocks extended from Holdrege Street to the Missouri Pacific tracks and from 33rd Street to Idylwild Drive. This firm was very cooperative in placing their horses at the disposal of the University for judging purposes. Ice and coal companies and dairies were helpful in loaning their wagon horses for class work.

The First World War ended the horse importing business.

THE RESEARCH PROGRAM

The research program of the Animal Husbandry Department has covered a wide range of subjects through the years. Since much of this work has been reported in bulletins, circulars and Experiment Station Annual Reports, only a brief review of some of the more important projects will be given here.

Disease Threatens

The pioneer Nebraskan had to contend with many serious livestock diseases and insect pests. The first full time staff person to do research work was Dr. F. S. Billings, a highly-recommended German-trained veterinarian, who studied hog cholera. Other troublesome diseases were cornstalk disease and black leg.

Livestock Rations

In 1903, H. R. Smith made a survey of livestock rations commonly used in the state. The ration almost universally used, except for pigs, was corn and prairie hay. Few protein supplements were available other than old process linseed meal, milk and the milling byproducts.

As new high-protein byproduct feeds were developed, they were tested by the experiment station. The better ones gradually came into extensive use. Such feeds as tankage, soybean meal, fish meal and the dairy byproducts are examples.

One of the great contributions of the experiment station has been in the searching out and evaluating new high protein feeds. These feeds increased the appetites, the rate of gain, and the economy of gain, thereby accelerating production and increasing profits.

Probably the most extensive work done in this country in wintering range calves on prairie hay was done at the Valentine Experiment Station. Ranchmen formerly anticipated a loss in weight during the win-

Meat cutting classes were popular. This picture was taken in 1928. Prof. Loeffel is second from left.

tering period. The Valentine work demonstrated that a pound of protein supplement per day prevented this loss and frequently resulted in some gain. Cottonseed meal was generally used, but as more ranchmen began to use it the supply proved inadequate. Work at the experiment station showed that when a phosphorus supplement was fed with soybean oil meal, it was equal in feeding value to cottonseed meal.

Dean E. A. Burnett, in a classic experiment, demonstrated that protein supplements, like wheat shorts, tankage and steamed bone meal, in addition to providing protein, furnished valuable minerals. Among other things, these supplements when fed with corn, produced bones with thicker bone walls and greater breaking strength.

The demand for protein feeds has exceeded the supply. Research workers have been searching not only for new protein feeds, but also for protein substitutes. One of these substitutes is urea, a synthetic compound which can be made in unlimited amounts from the nitrogen and carbon dioxide in the air. Ruminants have bacteria in their first two stomachs which enable them to synthesize or build up protein from urea (non-protein). Nebraska research workers have done much of the pioneer work on urea showing that under proper conditions urea can be fed to ruminants, thereby making other protein feeds available for other species which cannot use urea.

Corn Substitutes

Weather-wise, Nebraska has had its ups and downs. There have been years when staple feed crops failed. Many experiments have been carried on to find substitutes for these crops. Some of those investigated include barley, wheat, rye, oats, dried potatoes, hominy feed, sorghum grain and beef tallow.

One of the outstanding illustrations of meeting an emergency situation occurred during the drought of the early thirties. Many feeding tests were carried on with "grain-less" silage and even with silage com-

posed primarily of smart weeds and kochia. As a result of the satisfactory results obtained with drought-damaged silage, thousands of trench silos were constructed in the state.

Alfalfa Introduced

According to historical records, alfalfa was introduced into Nebraska about 1875 from Utah (Nebraska Research Bulletin 36). The crop grew well in its new surroundings, but then the problem arose as to what use should be made of the new crop. Once again the experiment station came to the rescue. Numerous experiments demonstrated that alfalfa was high in the protein and calcium in which so many Nebraska feeds were deficient. Alfalfa was fed as hay and as pasture and in more recent years as ensilge.

Recognition should be given W. P. Snyder of North Platte for the extensive volume of work with alfalfa for hogs, both as pasture and as hay. Nowhere in this country has there been such a tremendous amount of work done on this subject.

A comparatively recent development has been dehydrated alfalfa meal. In addition to being rich in protein and calcium, "dehy" has been shown to be an excellent source of carotene. Recent work has also shown certain dehydrated meal to contain quantities of hormone-like material. Some feeders and feed manufacturers blend alfalfa meal with molasses, making alfalfa-molasses meal which has proven to be a palatable and nutritious feed.

Grain Sorghum for Cattle

Several varieties of grain sorghum were compared with corn in cattle rations. Where ground grain sorghum was fed at the rate of 4 to 5 pounds per head daily with alfalfa hay to wintering calves the grain sorghum proved 93 per cent as valuable as corn per unit of weight. In similar trials where corn silage replaced alfalfa hay and where an oilseed meal and mineral were fed, similar results were secured, the sorghum grain proving to be worth 95 per cent as much as corn.

Fattening yearling steers fed cracked corn gained more rapidly than steers fed cracked sorghum grain. The grain sorghum proved to be 90 per cent as valuable as corn. In another comparison among fattening heifers grain sorghums proved 93 per cent as efficient as shelled corn. The corn-fed cattle usually dressed slightly higher and had higher grading carcasses.

Maturity of Prairie Hay

The relative value of prairie hay at three stages of maturity was studied (cut in July, August, and September). When fed to calves it was found that with increasing maturity of the hay, (1) the calves ate less hay; (2) the percentage of hay refused increased; (3) the average daily gain decreased; and (4) the economy of gain as measured by the feed required per unit of gain decreased.

Safflower Oil Meal

Safflower, an oil-bearing seed, has been highly recommended as a crop to replace wheat in the western part of Nebraska. The meal, a by-product remaining after the oil was expressed, was found to compare favorably with soybean oil meal on a protein equivalent basis when fed to fattening steers. However, feeding an excess of safflower meal beyond a protein supplement level equivalent to one pound of 40 per cent soybean oil meal did not appear desirable.

Dried Corn

Locally produced corn containing 20.4 per cent moisture was dried at 130°F., 160°F., and 190°F. and compared with naturally dried corn when fed to yearling steers throughout a growing and a fattening phase.

No significant differences in digestibility between rations were observed in either the growing or fattening phases. There is no apparent loss in corn due to artificial drying at the temperatures used although palatability may be a factor if the corn is scorched in drying.

Vitamin A, Carotene, Fish Oil, Alfalfa

Heifer calves were fed a fattening ration consisting of cracked Early Kalo, corn, corn silage and cottonseed meal. During the first 112 days the addition of a blended fish oil consisting of shark and sardine oils significantly increased the gains. However, in the latter part of the feeding period, the value of the fish oil was questionable. The addition of one and one-half pounds of alfalfa hay per head daily increased the gain and reduced the cost of gain.

The feeding of a Vitamin supplement or good quality alfalfa or prairie hay, rich in green color to wintering calves, increased their gains 9 to 22 per cent.

Antibiotics

Work done at Lincoln and North Platte have shown that calf scours can be controlled by administering antibiotics to young calves. The same treatment has proven efficacious in preventing abscessed livers in cattle.

Fertilizing Brome Grass Pasture

In averaging three years work, steers on fertilized brome grass pasture gained 1.24 pounds a day while similar steers grazed on unfertilized pasture gained only 1.04 pounds. However, the gains made by the steers on the fertilized brome grass did not equal the 1.37 pounds per head made on bromegrass-alfalfa pasture.

The fertilized bromegrass provided about the same average number of steer grazing days per acre as did the bromegrass-alfalfa, which was about 60 more days of grazing per acre than was supplied by the non-fertilized bromegrass.

Tallow, Grease as Feeds

Pellets containing 5.53 per cent beef tallow did not become rancid during the 150-day feeding period. Beef tallow proved superior to refined corn oil in the cattle fattening ration. No digestive upsets were noted. As the level of beef tallow was increased in the daily ration from .44 to 1.2 pounds, there was a decrease in the average daily gain. No differences were noted in the carcass quality of the steers fed different levels of fat.

The addition of beef tallow to a fattening cattle ration was satisfactory so long as the amount of tallow did not exceed one pound per head daily. It is not economical to pay more than 2.5 times the cost per pound of ground shelled corn for each pound of animal fat.

Stilbestrol

For yearling fattening steers there was little difference in their performance whether they were fed stilbestrol during the first 56 days of the feeding period, the last 56 days, or during the entire feeding period. The steers that received stilbestrol gained an average of 13.5% more and made more efficient gains than the controls. There was no advantage in gains to feeding the stilbestrol over implanting. The carcasses from the control lot graded slightly higher than the carcasses of the stilbestrol fed lots. There was no advantage to a dual administration by feeding and implanting.

Ratio of Concentrates to Roughage

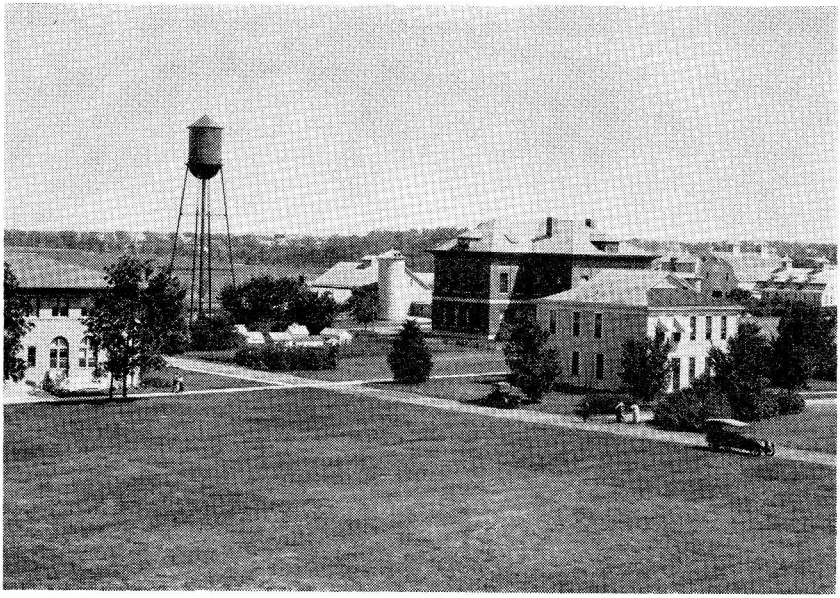
Over a series of feeding trials the ration which consisted of 2 parts concentrate and 1 part roughage resulted in the most rapid daily gains. Total feed consumption decreased as concentrates in the rations were increased from 1:1 to 5:1 ratios. A moving ratio beginning at 2:1 and ending at 5:1 produced steers with the highest dressing percentage while steers fed the 1:1 ration had the lowest.

Based on these experimental results, the minimum daily roughage allowance for fattening steers should be 0.5 pound and the maximum 1.0 pound for each 100 pounds of live weight.

Sex and Age Work

Large families and cheap meat created a demand for heavy cuts of beef. Fat cuts were in demand because of the energy required to do physical labor. Another factor was the abundance and cheapness of feed. As a result most cattle were not fattened until they were from three to five years old. The first mention of "baby beef" in a Nebraska bulletin was in Bulletin 143 entitled "Feeding Baby Beef" by W. P. Snyder. This bulletin was issued in 1914, although the research covered in it began in 1910.

Beginning in 1920, Gramlich (Nebraska Experiment Station Bulletin 229) undertook a series of cattle experiments studying the effect of



View of the Animal Husbandry area in the 1920's.

age upon the rate and economy of gain. This experiment, which was carried on for four years, did much to popularize "baby beef." It also gave much impetus to 4-H beef club work since it fitted in with the growing demand for lighter cuts of beef.

In 1920-21, 2-year-olds, yearling and calves, all from the same ranch, were used. In 1921-1922 and in the two succeeding years three-year-old steers were included. Shelled corn and alfalfa hay were fed to all the cattle for a 200-day feeding period. The results were quite consistent.

Over the entire feeding period, the calves made the most economical gains during the first hundred days. The 3-year-olds and the 2-year-olds gained more rapidly than the yearlings and the calves during the first 100 days. During the second 100 days, the calves gained more rapidly than during the first, and much more rapidly than the older cattle. Calves made more efficient gains during the second 100 days than did the 3- and the 2-year-olds during the first 100 days and gained as economically as did the yearlings during their first 100-day period.

Calves made as much gain from 61.2 pounds of feed as did yearlings from 82.2 pounds, 2-year-olds from 94.2 pounds and 3-year-olds from 100 pounds. Calves made 10.6 pounds from one bushel of corn and 19.6 pounds of alfalfa hay; yearlings made 8 pounds of gain from one bushel of corn and 22 pounds of alfalfa hay; two-year-olds made 6.9 pounds of gain from one bushel of corn and 22 pounds of alfalfa hay; and 3-year-olds made 6.7 pounds of gain from the same quantity of corn and 23.3 pounds of alfalfa hay. One hundred pounds of gain were

produced on calves by 529 pounds of corn, while 702 pounds were required for 100 pounds of gain on yearlings, 798 pounds on 2-year-olds, and 836 pounds on 3-year-olds. The requirements of alfalfa hay to produce gain increased in like proportion.

The younger the cattle, the less spread necessary betweeen cost and selling price to break even. Three-year-old steers finish quite rapidly and can be sold after 75 to 100 days of full feeding. Younger cattle must be fed longer to acquire acceptable finish. The calves in these three trials were worth more as feeders after 100 days of feeding than they were as killers.

When Nebraska was opened to settlement, practically all heifers were reserved as replacements to build up the herds. As a result steer beef was practically the only beef available. This built up some prejudice against heifer beef.

As Nebraska ranges became stocked more or less to capacity it became desirable to study the beef-producing qualities of heifers. In 1924 a project was undertaken to compare 2-year-old, yearlings and steer calves with comparable spayed and open heifers. Two year's work was done feeding corn and alfalfa hay for a 175-day period. This work is reviewed in Nebraska Experiment Station Bulletin 252.

In all ages steers made larger and more economical gains than spayed heifers. Likewise, steer calves made slightly larger and more economical gains than open heifer calves. Yearling open heifers made slightly larger and more economical gains than yearling steers. In all cases open heifers made larger gains at materially less cost than spayed heifers of similar ages. There was no advantage from spaying. Both spayed and open heifers fatten faster than steers.

In most cases the price discrimination against feeder heifers was greater than that against fat heifers, making a wider margin with heifers than with steers. The feeding period should ordinarily be from 50 to 70 days shorter for heifers than for steers of 2-year-old and yearling ages, and from 25 to 50 days shorter for heifer calves than for steer calves. In these trials, yearling and 2-year-old heifers became sufficiently finished to sell to good advantage after 75 to 100 days feeding.

There was little variation in the dressing percentage of yearling steers and heifers, but both open and spayed calves dressed higher than steers of comparable ages. Steers and spayed 2-year-old heifers were too fat for the Omaha retail trade, but produced fancy ribs and loins for the hotel and restaurant trade. The 2-year-old spayed heifers were especially wastey. Steers and heifers of all ages, except steer calves, produced choice carcasses. The steer calves graded only medium to good because of the lack of finish. Steers of all ages produced a smaller percentage of hindquarter than heifers of comparable ages. The percentage of forequarters in the steers was larger in the 2-year-olds than in the calves.

Beef Breeding Research

Beef cattle breeding research was initiated at Nebraska in 1946 under the direction of M. L. Baker. Herds were located at Lincoln and North Platte. In 1947 the North Central Regional Beef Cattle Breeding Project NC-1 was formulated. Nebraska became one of the original contributors to this effort. In 1948 further stimulus came to beef cattle breeding research by the transfer of Fort Robinson from the Department of the Army to the U. S. Department of Agriculture.

Because Fort Robinson was so well suited for beef cattle research, the U.S.D.A. entered into a cooperative agreement with the University of Nebraska and a beef cattle breeding research program has been under way since then. Nebraska's program involved: (1) Studies on heredity of beef cattle to aid in the development of the most effective breeding practices for improving productive efficiency and carcass quality, (2) Research on reproductive problems to find ways of increasing calf crops.

Since there was no storehouse of facts, emphasis was immediately placed on accumulating data on how, and when it is best to measure the various phases of growth, efficiency of feed conversion, conformation, or factors affecting fertility.

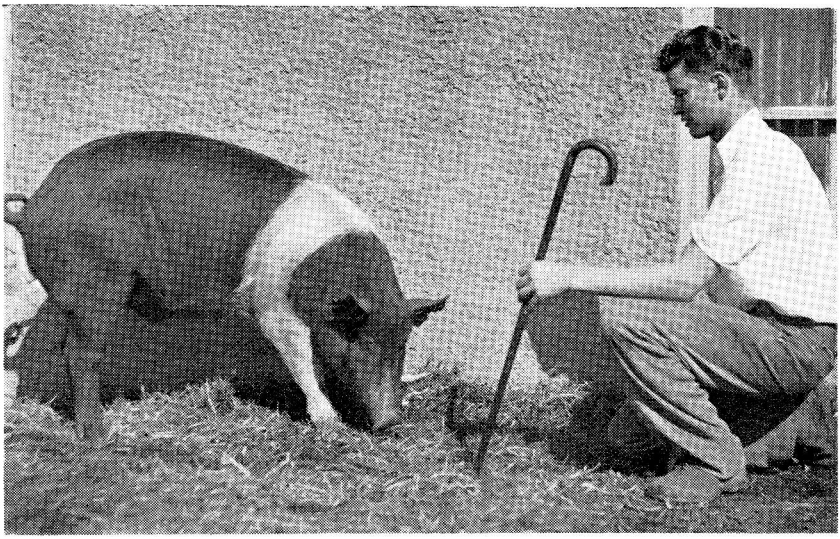
This was too great a job for one state, but through cooperative work with other agricultural experiment stations and the U. S. Department of Agriculture, answers were obtained on such problems as length of feeding period, level of feeding, the relative accuracy of single weights at birth, weaning, and a year of age, the influence of cow, season of birth and sex of calf on the weaning weights of calves.

During the early 1950s the problem of hereditary dwarfism became acute. Nebraska, again through cooperation with other states, contributed information to (1) establish the hereditary nature of dwarfism, and (2) the evaluation of the x-ray technique and the profilometer technique for detecting animals carrying the dwarf gene. By working closely with livestock associations and breeders this problem was brought under control.

Breeding programs incorporating the systematic use of records of performance for all important traits for improved production and carcass quality are now being used by an increasing number of breeders in Nebraska and other important beef producing states.

Swine Nutrition Research

Early workers at the Nebraska Experiment Station were quick to realize that swine are important to the economy of the State and Nation. Within a dozen years after Nebraska was granted Statehood, research was initiated in the area of swine nutrition. The contributions of the Nebraska Experiment Station in this field have been many and occupy an important place in modern swine nutrition.



Burr Ross was champion hog showman at the 1934 Block and Bridle Club show. He is now Dr. O. Burr Ross, chairman of the Animal Science Department, University of Illinois.

Because grain and protein make up approximately 90-95% of a swine ration, the major portion of nutrition research at the Nebraska Station has been on factors affecting the utilization of these two ingredients by swine. Considerable research has been conducted also on kinds of grains and sources of protein for swine.

Wheat

Although wheat is used principally for human food, there have been years when the feeding of wheat has been economical and desirable. Nebraska research indicates that wheat is more palatable than corn, pigs gain faster when fed wheat and it can be fed either whole or coarsely ground. Pork from wheat-fed pigs is equal in quality to that from corn-fed pigs.

Grain Sorghums

In the early 1930's, because of conditions unfavorable to the production of corn, grain sorghums came into prominence as a feed grain for livestock. Extensive studies were made on the value of grain sorghum for swine. Grain sorghums proved to be about 90% as valuable as corn.

In the late 1950's, grain sorghums once again became an important feed grain in Nebraska as grain sorghum production increased almost twenty-fold. The Lincoln Station extended nutrition research on grain sorghums in view of newly developed hybrid sorghums and advances in swine nutrition. On the basis of this research, grain sorghum is

now considered to have a feeding value of 97% that of corn. The Nebraska work also indicates that there is no difference in carcass quality between grain sorghum or corn-fed pigs.

Protein

Early work clearly showed the importance of adding protein to swine rations on rate and economy of production. Later studies pointed out the value of tankage and mixtures of tankage and plant proteins for swine fed in dry lot or on pasture. Recent work indicates that plant and animal proteins are comparable for swine if plant proteins are supplemented with vitamin B_{12} and amino acids. Thus, it is now possible to formulate more economical swine rations with the less costly plant proteins.

Feed Additives

Research on the value of antibiotics probably contributed as much as any single factor to the economy of Nebraska swine production during the last ten years. Levels and kinds of antibiotics to feed were studied. The results show that, overall, swine fed antibiotics gain approximately 10% faster on 7% less feed than those not fed antibiotics.

Recently, studies have been conducted on the effects of the hormone, thyroxine, on swine production. Sows fed thyroprotein, a crude source of hormone, weaned more and heavier pigs than sows not fed the hormone. Pigs fed thyroprotein in an all-plant-type pig starter ration grew faster than the controls.

Specific-pathogen-free Swine

A program designed to eliminate two insidious swine diseases, atrophic rhinitis and virus pig pneumonia, was initiated six years ago at the Nebraska Experiment Station by the Department of Veterinary Science and the Department of Animal Husbandry cooperating. The success of the program is well-known now. At present the only recommended feeding program for SPF swine is the one developed at the Nebraska Station.

Management

Except for research on the value of pasture, methods of pasture management and anemia prevention in young swine, little research has been conducted at Nebraska in this area. Recently the concept of a round farrowing stall was introduced and evaluated.

The round farrowing stall allows a sow to obey her natural nesting instincts at farrowing time which she is unable to do in a rectangular-shaped stall. The results of the performance of sows farrowed in round stalls indicate that when sows can obey their natural nesting instincts at farrowing, problems are reduced.

Home Economics students participated in meat judging contest in 1930.

It is the research of today on which our feeding recommendations will be based tomorrow. Swine nutrition research at Nebraska is dedicated to the solution of problems which will result in more progressive and economical swine production.

Swine Breeding Research

Nebraska was one of the original cooperating experiment stations when the U.S.D.A. started the Regional Swine Breeding Laboratory in 1936. Swine breeding research has grown from a relatively small project at the North Platte Station to a more comprehensive program at Lincoln, North Platte and Scottsbluff.

The regional approach has made it possible for research workers at a number of state universities to attack more of the critical problems on a cooperative basis. This has benefitted the swine industry by providing answers to more of the problems in the genetic improvement of swine.

The work at Nebraska has been valuable in appraising the importance of heredity in the expression of fertility, growth rate and carcass characteristics. Contributions are being made to an understanding of the effects of inbreeding, crossbreeding and selection on economic traits.

The research information has provided the essential evidence needed to make recommendations to breeders for improving the efficiency of lean body growth in the breeds used for commercial systematic crossbreeding. These recommendations were followed to increase signifi-

cantly the percentage of Nebraska hogs that reach market weight by five months on less than 3 pounds of feed per pound of gain, producing carcasses with more than 52 percent of their weight in the four lean cuts.

Nebraska's swine breeding research will continue to serve the swine industry by placing special emphasis on methods of increasing reproductive efficiency, our next most pressing problem.

Sheep Management

From the beginning of the Nebraska Experiment Station activities, sheep research has been included in the program. To a certain extent the sheep work has paralleled that with cattle feeding, the use of protein supplements, corn substitutes, pastures, silage, etc.

FARMERS INSTITUTES

The Department of University Extension was organized in 1895 to provide lecture courses in the small towns in the state. Professor F. W. Taylor was appointed Superintendent of Farmers' Institutes in 1896. However, there was no provision for financing them.

A voluntary state organization was set up composed of the University, State Board of Agriculture, State Horticultural Society, State Dairyman's Association, State Poultry Association, Improved Livestock Breeders Association and the State Beekeepers Association. Each of these organizations made small contributions to pay incidental expenses of speakers and in addition agreed to furnish four speakers for the season.

Railroads provided free transportation for the speakers. Each institute consisted of two days of three sessions each (morning, afternoon and evening). The central organization arranged for the speakers and paid their traveling expenses, while the local organization paid for meals and lodging, advertising and provided a suitable hall. So far as possible four institutes were held at the same time so that speakers could travel on a circuit.

In 1897 the Legislature made the first appropriation of $3,000 for the biennium for Farmers Institutes. This was increased to $20,000 in 1907. Fifty-one institutes were held in 1899-1900. This increased to 160 institutes in the peak year of 1905-06.

Speakers were recruited from the college staff and also from successful farmers. Later, less emphasis was placed on outside speakers and more reliance placed upon extension specialists. Much work was done by the demonstration method, comparing good and undesirable practices. There was also considerable emphasis upon demonstration tours.

Thus, the Farmers Institutes bridged the gap between the college and the man on the farm. The Institutes were the forerunner of Extension work.

EXTENSION ACTIVITIES

In early Extension work, emphasis was placed on integrated programs, such as Farmer's Institutes, Short Courses, or Junior Institutes. Speakers were sent out in groups. Since the advent of the county agent there has been a greater tendency to use subject matter specialists for specific jobs. The early Extension animal husbandman relied upon livestock judging, feeding balanced rations, the use of alfalfa and similar topics.

Hog slaughtering, pork cutting and curing were always popular projects. In Seward, 16 precinct chairmen were brought to Seward where a new garage had just been completed. Each man brought a pig. A pig killing bee was held and the carcasses chilled out. The next day, the carcasses were cut up, sausage made and the meat placed in cure. It was planned that each precinct chairman was to give similar demonstrations in his home community.

In recent years the emphasis has been on the efficient use of freezer cabinets, wrappings, meat type hogs and cut out values.

For years county fair judging made heavy demands upon staff members during the fall season. Staff people were in demand to judge various state fairs. With the establishment of the Ak-Sar-Ben Stock Show in 1927, the Extension and Animal Husbandry staffs have assisted in its administration. Assistance has also been given a number of other shows such as the Midwest Market Hog Show, the Omaha Market Hog Show, the Sioux City Interstate 4-H Show, the St. Joseph 4-H Show and National Western Stock Show at Denver, not to mention various purebred combination shows and sales.

A Nebraska zoologist, H. B. Ransom, employed by the U.S.D.A., developed a "Clean Ground System of Management" for hogs which proved revolutionary in controlling roundworm infestation and certain filth-born diseases. The plan is sometimes called the McClean County system since it was developed in that county in Illinois. It consisted of four steps:

1. The farrowing pen scrubbed with boiling lye water.
2. The sow scrubbed with soap and water and confined in a clean farrowing pen.
3. The sow and litter hauled to a clean lot which has not been used for hogs for 3-4 years.
4. The pigs kept in this lot until they weighed at least 125 pounds each.

Animal Husbandry Extension, 1918

(1) Nebraska farmers ordered 9,000 western ewes to establish farm flocks. There were more orders than ewes.

(2) There was a growing demand for purebred sires.

(3) Butchering, lamb docking, shearing, and judging demonstrations were held.

Panorama of early day Agricultural Campus.

(4) A cooperative wool sale was sponsored. Proper fleece tying, sacking and grading were demonstrated.

(5) A field demonstration in lambing out 600 western ewes was held on the George Berry farm at Norfolk.

In 1920, Extension Animal Husbandry and Agricultural Engineering workers assisted in planning and constructing many community sale barns. Butchering, meat curing and canning continued as popular winter projects. Two hundred thousand pounds of wool were pooled. Thirty-two county livestock organizations were formed.

In 1922 nearly 1,000 farmers pledged to use only purebred sires. More than 3,500 purebred sires were secured through the assistance of the county agents. Progress was made in tuberculin testing; 31,915 head of cattle were tested. There was much interest in sheep management.

Fifty-three meat demonstrations were given to 2,120 persons. Forty county livestock breeders associations were organized. Twelve half-day feeders schools were held in 11 counties. Boys and girls livestock clubs and general livestock improvement were emphasized.

Pasture Forage Livestock

The droughts of the thirties raised havoc with Nebraska pastures. It was recognized that pastures and feed reserves had to be rebuilt before Nebraska's all-important livestock industry could be rehabilitated.

The Omaha Chamber of Commerce, together with many associated groups, organized the Pasture-Forage-Livestock project. This was climaxed every year by a meeting and dinner held at the Livestock Exchange Building. There were talks on how to rehabilitate pastures, how feed reserves could be rebuilt, and how feed could be used most efficiently.

Big Team Hitches

In an effort to meet the acute manpower shortage during World War I, big team hitches were emphasized. In the past, horses and mules had frequently been hitched abreast. This caused considerable side draft and sometimes caused overheating of the "inside" horses.

The Horse and Mule Association proposed a new method of hitching whereby the teams were "strung out" and "tied in and bucked back." This eliminated side draft and overheating and made it possible to hitch a green team. With a good lead team, a green team was powerless to cause trouble.

Big team hitches were very popular for a time, but the trend towards power farming was too great and within a relatively short time draft horses had all but disappeared from the picture.

Meat Type Hogs

American pork has been criticized on the grounds that it is too fat. American producers are anxious to regain the lost market by developing a "meat type" hog. It has been found that hogs may be "probed" along the back to measure the thickness of backfat.

By this means breeding stock may be selected which will produce leaner carcasses. "On the farm" testing has been undertaken by many breeders to obtain growth rate and feed conversion and these data together with back fat probes are used in selecting breeding stock. Many ranchmen have become interested in "production testing" of range cattle herds.

Farm Sheep Flocks

Like many corn belt states, some Nebraska counties developed a farm flock program, including county lamb and wool shows in the spring when native lambs sell to best advantage. The top lambs and fleeces were exhibited at the Omaha Lamb and Wool Congress which was sponsored by the Stock Yards Company, the Livestock Exchange, the Omaha packers, the Midwest Wool Marketing Co-op and the Extension Service.

Through the cooperation of the Midwest Wool Marketing Cooperative, the Extension Service has held a statewide series of meetings on sheep production and wool marketing. The same cooperators plus the

Sunbeam Corporation held shearing schools every spring. One was held in Lincoln, one in the central part of the state and the third in western Nebraska. They served a useful purpose since itinerant shearers were scarce and unwilling to shear small flocks.

4-H Club Work

Since its inception, 4-H Club work has been one of the most popular phases of animal husbandry Extension work, embracing all species of farm animals. In point of numbers, baby beef club work has been most popular.

Nebraska 4-H baby beeves are sold at auction at the Nebraska State Fair, the Ak-Sar-Ben Stock Show, or one of the other 4-H shows in the area. Usually, local civic organizations or businessmen subsidize these shows and sales so that the exhibitors secure a premium over the market. The first baby beef sale was held at the Nebraska State Fair in 1925.

Organized Agriculture

During the 90's there were a number of agricultural organizations, such as the Horticultural Society, the Dairyman's Association, the Poultry Association, the Improved Livestock Breeders Association (now known as the Nebraska Livestock Breeders and Feeders Association), the Crop Growers Association and the Beekeepers Association.

Many of the annual meetings were held soon after the first of the year. It was a perfectly natural development for a number of these meetings to be held concurrently on the Agricultural College campus. These meetings were designated Organized Agriculture. They were a tremendously important factor in the agricultural development of this state. Many farm families came to Lincoln for the week to attend the meetings of their choice. Hotels were jammed and Lincoln home-owners opened their homes to the visitors.

Usually the meetings were held during the worst week of the year from the weather standpoint. The attendance changed to an automobile crowd. They came in the morning and insisted on getting home for chores the same day. The last official Organized Agriculture program was held in 1949.

A similar series of meetings called Western Nebraska Organized Agriculture was held in western Nebraska. These meetings were rotated among the various towns. These meetings continue at the present time.

EMERGENCY PROGRAMS

World War I

World War I greatly disrupted the University program. Many students entered the Armed Forces.

Chancellor Avery was appointed a major in Chemical Warfare and Professor Chase, a major in Ordinance. Dean E. A. Burnett was sent

to France in early 1919 for service in the Army Overseas Educational Commission.

The University was called upon to train hundreds of men in vocational courses such as truck and tractor operation and maintenance and wheelwrighting. Temporary barracks and buildings were constructed at the north edge of the Agricultural College Campus to house the army trainees.

In the fall of 1918 the influenza epidemic was severe. The campus was placed under military guard and no one was permitted to visit any building without a pass from the medical officer. Animal Husbandry Hall, or the Judging Pavilion as it was then known, was used as a hospital.

At the beginning of World War I, the slogan "Food Will Win the War" was heard on every side. There was an acute shortage of meat and fats. Nebraska producers were asked to expand hog production 20 per cent. A number of community leaders were invited to the Agricultural College to plan a campaign. While there was no specific guarantee as to the price to be paid for hogs, the Food Administration implied that with their large purchasing power they would try to maintain a ratio of 13 to 1, that is 100 pounds of live hogs would sell for approximately the price of 13 bushels of No. 2 corn. This ratio was never attained and much bitterness resulted.

The war gave tremendous impetus to the Extension Service. Great emphasis was placed on food production and conservation. According to a governmental directive every agricultural county was to have an agricultural agent. Some counties were not ready for such a radical move and resisted it.

The Drought

The 30's in Nebraska were hot and dry, reaching a climax in 1934. The drought situation first developed in South Dakota and northeastern Nebraska. Civic organizations collected funds to purchase feed to ship to distressed farmers. Railroads gave reduced freight rates on feed to distressed areas. By 1934 the distressed area had spread over most of the land except the south. "Dust bowl" conditions prevailed and many great plains farmers gave up and travelled to what looked like "greener pastures."

By July 1, the government had to step in with relief projects like WPA (Works Progress Administration), CCC (Civilian Conservation Corps), etc. At the same time the government started to buy cattle.

Farmers were permitted to bring in cattle based upon the severity of their feed situation, that is, those whose situation was most critical were given preference. The buying was done by Federal veterinarians. Prices varied from $4.00 to $20.00 per head.

The natural tendency was to dispose of very young and very old animals. Blemished animals with cancer eyes or lump jaws were usually

sold first. Animals too weak or too emaciated to stand long shipment were destroyed and buried by work details. The price on a slaughter animal was higher than for a condemned one which caused the seller to be vitally interested.

The federal cattle buying program was in charge of Harold Morgan in St. Paul, Minnesota. Professor H. J. Gramlich was in charge of the buying program in Nebraska. He was assisted by W. W. Derrick. Every day Morgan would advise Gramlich by phone how many cattle he could buy the following day. This was determined by the slaughtering capacity available. Gramlich would decide where the feed situation was most acute and notify the county agent there how many he could order in.

One evening W. J. Loeffel received a phone call asking whether he could be ready to leave for Amarillo, Texas, within an hour. He was advised that he had been "borrowed" from the University and had been appointed supervisor of the Bureau of Meat Processing of the Nebraska Emergency Relief Administration.

At Amarillo, a conference of state and federal workers was held. The drought had struck Texas a year or two earlier and the state had been purchasing drought cattle which were slaughtered on contract. The cattle were boned and the meat canned as a work-relief project and the meat given to relief clients. Since there were few canneries in most states, it was strongly suggested that work-relief canneries be set-up.

Calves were one of the chief problems in the drought cattle program. Many calves were perfectly fit for food, but because they were weak and could not stand shipment to slaughter points, they were destroyed at the buying point. People who saw this meat denied to them were resentful. Persons who brought in calves which were condemned received only four dollars per head while calves fit for food brought five dollars.

Washington approved entering into contracts with local retailers who had adequate facilities to slaughter, chill and cut up carcasses for relief clients. Two hundred such contracts were drawn up with retailers in all parts of the state.

There were a number of freezer locker plants and other facilities where meat could be frozen. Contracts were entered with these facilitis to chill, cut, wrap and freeze the veal. Much of this frozen meat was issued long after the killing programs had terminated. When the disastrous Republican Valley flood occurred on Memorial Day in 1935, the last carload of frozen veal was shipped from the Omaha Cold Storage warehouse in Omaha to the relief camps in the stricken areas.

An interesting side light on the canning program was the experience with silage. The Otoe Food Products Company had made contracts with many farmers to produce sweet corn for canning. It was apparent that no merchantable corn would be produced, so Mr. Oliver Stevenson, Vice President of the company, suggested that a contract be made with the producers to bring in the corn for silage. Some feed

would be needed to feed the cattle from the time of arrival until slaughter. The fodder was accordingly delivered at $5 a ton. As many as seven ensilage cutters were used at one time to cut the fodder and blow it up on an immense pile.

It was freely predicted that the silage pile would become a manure pile. However, when the drought cattle came in they ate the silage without waste. In April, 1935, a severe blizzard struck the southern part of the state. Trains of coal cars were obtained from the Burlington Railroad along with two clamshell shovels. Trainload after trainload of silage was rushed to the stricken cattle. On many farms, this silage was the only feed available and without it the death losses would have been severe.

EXTRA CURRICULAR ACTIVITIES

Ag Club

In the early days of the Agricultural College, students felt the need of banding together. As an outgrowth of this need, the Ag Club developed. For many years, it was the leading student organization on the campus. In recent years it has been replaced by more specialized departmental organizations.

One of the activities of the Ag Club was the publication of the "Cornhusker Countryman," a monthly published during the school year. Publication began with Volume XI in November 1921 and terminated with Volume XXIV in May, 1952.

Farmer's Fair

Another of the activities of the Ag Club was Farmer's Fair. The object of Farmer's Fair was to present the work and facilities of the College to the public along with a parade and certain amusement features which would promote public relations.

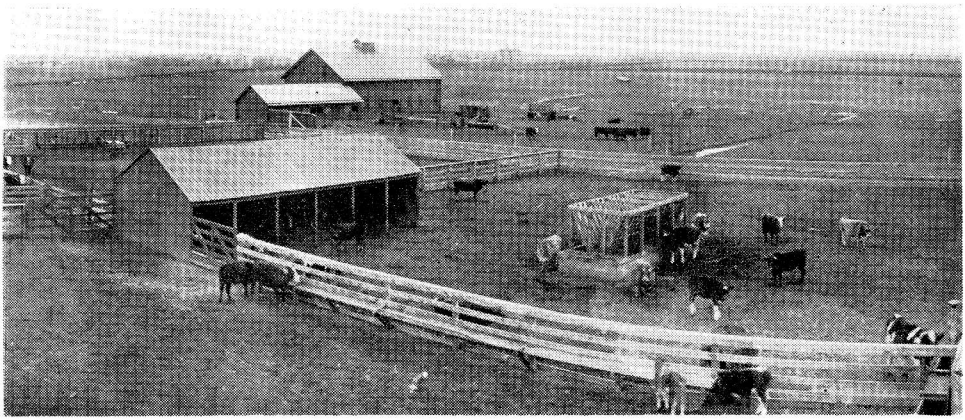
The Farmer's Fair was patterned after a similar event initiated at the Missouri Agricultural College in 1905. The first fair at Nebraska was held in 1916, and the moving spirit was Professor C. A. Helm of the Agronomy Department, a Missouri alumnus.

The Farmer's Fair was always held in the spring and as a result was often beset with weather problems. These cut down the receipts to the point where the continuance of the project was deemed impractical.

Rodeo

In conjunction with the Farmer's Fair, a rodeo was frequently held. Since the Fair has been discontinued, the rodeo has been staged by the Rodeo Club, a student organization.

The rodeo suffered some of the same problems as the Farmer's Fair from the weather standpoint. In 1959, the Rodeo was invited to participate in the Lincoln Centennial Celebration. An afternoon and an



Animal Husbandry equipment and facilities were sketchy about 1900.

evening performance were given in the new state fair coliseum which solved the weather problem. Since 1959, similar arrangements have been made.

Livestock Judging Teams

Livestock judging has always had an unusual fascination for Nebraskans. Students look forward to "making" the judging team. The "court of last appeal" so far as judging contests go is the International Livestock Exposition at Chicago.

The University of Nebraska entered competition in 1908. There were eight teams in competition at that time and Nebraska placed second. H. J. Gramlich, who was later to become chairman of the Animal Husbandry Department at Nebraska, placed third individually and a teammate, J. F. Coupe, placed fourth.

The University of Nebraska won the Chicago contests in 1917 and in 1924. Two Nebraskans have won the coveted "high man" award at Chicago. W. F. Roberts in 1917 and Dorsey Barnes in 1924.

Subsequently, other livestock judging contests were established in the middle west, usually in conjunction with some livestock show. There was a contest at Kansas City in conjunction with the American Royal. The National Western Stock Show at Denver, the National Swine Show, which moved about from place to place, the Southwestern Fat Stock Show at Fort Worth, the National Belgian Show at Waterloo, Iowa, and the National Barrow Show at Austin, Minnesota, are the chief contests in this area.

The following table shows the ranking of Nebraska livestock judging teams from 1908 to present. The coach each year is indicated. Livestock judging contests have changed through the years. For example, in 1918 there were only three teams in competition at Chicago. The

largest number of teams in an International Contest was 44 in 1955. The average number of teams in recent years varied from 36 to 40. Each team is composed of five members.

Standing of University of Nebraska Judging Teams
1908 to 1961

Year	Inter-natl. (Chicago)	Am. Royal (K.C.)	Natl. Western (Denver)	Natl. Swine Show	Natl. Barrow Show	S.W. F.S. Show (Ft. Worth)	Belg. H.S. Waterloo	Coach
1908	2							Rail
1909	5							Gramlich
1910	2							Gramlich
1911	10							Gramlich
1912	5							Gramlich
1913	12							Gramlich
1916	9	4	4					Gramlich
1917	1			1				Gramlich
1918	3		1					Gramlich
1919	2		1	4				Gramlich
1920	2		2	3				Gramlich
1921	6			1				Savin
1922	4		3	4				Savin
1923	8	5	3					Derrick
1924	1	2	1	2				Derrick
1925	9	10	4	1				Derrick
1926	3	3	1	1				Derrick
1927	4	10	1	1				Derrick
1928	7	6	1	2				Derrick
1929	8	5						Derrick
1930	5	4	2					Derrick
1931	10	3	1					Thalman
1932	6	5	2					Alexander
1933	12	4						Thalman
1934	7	10						Alexander
1935	3	3				2		Thalman
1936	6	5				2		Alexander
1937	12	10				4		Thalman
1938	3	1				3	2	Alexander
1939	9	6				4	4	Thalman
1940	4	2						Alexander
1941	11	8						Alexander
1942			1			5		Alexander
1946	2	2						Alexander
1947	4	5	4					Alexander
1948	24	3	6			5		Dunlap
1949	2	9	1			7		Alexander
1950	13	7	10			7		Alexander
1951	20	5	2			11		Alexander
1952	14	7	7					Warner
1953	15	10	2		1			Alexander
1954	14	7	3		1			Warner
1955	25	20	8		2			Alexander
1956	7	14	9		2			Arthaud
1957	3	15	2		2			Alexander
1958	2	2	7		1	3		Warren
1959	21	23	11		6	13		Warren
1960	15	15	11		4	8		Arthaud
1961	2	5	3		3	15		Warren

Some years ago the Midwest Wool Marketing Cooperative of Kansas City instituted a wool judging contest, the object being to give agricultural college students a better appreciation of wool classes and grades and methods of marketing this commodity most efficiently. Nebraska students under the tutelage of Professor M. A. Alexander and other staff members have won this contest on numerous occasions.

Meat Judging Contests

The National Livestock and Meat Board organized in February, 1923, to do promotional and educational work for meat, was composed of representatives from all branches of the livestock and meat industry. At the annual meeting held in June, 1924, a resolution approving a project under the recently-passed Purnell Act entitled "Factors Which Affect the Quality and Palatability of Meat" was approved.

The natural outgrowth of the "Quality in Meat" project was an interest in grades and grading. Professor Loeffel thought the best way to accomplish this and to standardize meat grades was through a meat judging contest.

R. C. Pollock of the Meat Board, Thomas E. Wilson of Wilson and Company and President J. H. Shepperd of the North Dakota Agricultural College gave their enthusiastic support and called a meeting in Chicago to formulate plans.

The first meat judging contest was held in Chicago in 1926. The standing of the Nebraska teams from 1926 to date are as follows:

Year	Nebraska Standing	Coach	Year	Nebraska Standing	Coach
1926	1	Loeffel	1941	2	Fidler
1927	9	Loeffel	1942	1	Fidler (Ft. Worth)
1928	1	Loeffel	1948	17	Adams
1929	2	Loeffel	1949	4	Adams
1930	2	Loeffel	1950	13	Adams
1931	4	Loeffel	1951	10	Adams
1932	2	Loeffel	1952	11	Adams
1933	3	Loeffel	1953	17	Adams
1934	2	Loeffel	1954	15	Adams
1935	1	Loeffel	1955	14	Adams
1936	4	Loeffel	1956	15	Adams
1937	1	Miller	1957	21	Rupnow
1938	1	Miller	1958	15	Adams
1939	8	Miller	1959	17	Adams
1940	1	Miller	1960	18	Adams

The University of Nebraska won the meat judging contest at the International in 1926, 1928, 1935, 1937, 1938 and 1940. In eight contests, the coveted high individual award was won by Nebraska contestants. In 1926, Don Ray was high individual; in 1928, two Nebraska girls (Louise Genung and Marjorie Thompson tied;) in 1930, Eva Buel; in 1935, Vincent Arthaud; in 1937, Carl Swanson; in 1938, Ed Zahm; in 1940, Don Baird; and in 1941, Vern Kerchberger.

While the contest was originally designed for men, the University of Nebraska was represented on three occasions by teams composed of home economics students. These teams placed first, second and ninth in their respective contests.

Omaha Livestock Marketing School

Since the founding of the College of Agriculture, close liaison has been established with the Omaha Livestock Market.

In 1940, Professor Loeffel approached the market interests and the Omaha packers concerning the possibility of a four-day marketing school in which the students would actually "experience" the market by making the rounds with the buyers and commission men. The Omaha market interests readily agreed to provide housing and meals for 20 upper classmen students. The program met with favor with the students and the market folks seemed to enjoy their experience in teaching.

A request came from county agents for a similar school. An arrangement was developed whereby ten agents from Nebraska and a similar number from Iowa were handled on the same basis as the student groups.

Sheep Show and Sale

Professor M. A. Alexander initiated a sheep show and sale in 1936. For years there had been a feeling that Nebraska should develop a farm flock program. One of the chief obstacles had been to secure adequate breeding stock. While there had been some purebred sheep breeders in the state, there had been some resistance on the part of flock owners to pay a price for rams commensurate with their quality.

Sheep day and sale is always the first Friday in August at the State Fair Grounds in Lincoln. Talks and demonstrations on sheep management are given, the rams are judged, then sold. This event serves a dual function—supplying improved breeding stock, and secondly, furnishing an outlet for improved breeding stock.

Science in Agriculture

Due to mechanization, Nebraska farms are getting larger in size and smaller in number. As a result there will be fewer opportunities in the future for Nebraska boys and girls on Nebraska farms.

The increasing application of science to agriculture, however, stresses the growing need for young men and women well-trained in the fundamental sciences. It was deemed important to call these opportunities to the attention of the better high school graduates in the state.

In the spring of 1958 the first Science in Agriculture Day was held. The superior seniors in the state's high schools were invited in for a day's program. Tours and demonstrations were organized stressing the extensive use made of science in modern agriculture. There was a

talk on job opportunities. Prospective students were given opportunities for conferences with Agricultural College staff members. A lunch concluded the day's activities.

The Block and Bridle Club

In the March 20, 1917, issue of *Agriculture,* we find the following: "A few advanced Animal Husbandry students met at the home of Elliott Davis and formed the "Saddle and Sirloin Club." They chose their motto "The Advancement of the Livestock Industry." The officers selected for the current semester were:

President—M. B. Posson
Vice-President—Chas. Kellogg
Secretary—Elliott Davis
Treasurer—T. Wilson

Charter members were: Balster, Blotz, Davis, Hays, Hepperly, Kellogg, Morgan, Neuswanger, Novotny, Posson, Proctor, Prussia, Rhoades, Spohn, Walrath, and Wilson. Honorary members: Dean Burnett, H. J. Gramlich, H. B. Pier, K. F. Warner, and E. L. Jenkins.

At the International Livestock Show of 1919, representatives of the Animal Husbandry Department clubs of Nebraska, Iowa, Kansas and Missouri met to form a permanent national organization. The name of the Missouri organization, the "Block and Bridle Club" was adopted. This organization has grown to embrace many additional chapters and sponsors many worthwhile activities. Reference here will be made only to the activities of the Nebraska Chapter.

The first Nebraska Baby International was held in the Judging Pavilion by the Saddle and Sirloin Club, November 21, 1917. This was a fitting contest in which the students groomed and prepared animals for show. The first "Baby International" was given as a benefit to the Red Cross.

When the Knights of Ak-Sar-Ben started their livestock shows in Omaha, the name of the fitting contest was changed to "Junior Ak-Sar-Ben" as a courtesy to the Nebraska show. The name of the show was changed again to the "Block and Bridle Show" which name persists today. The first shows were held in the Judging Pavilion. Those held the last few years were held at the Horse Barn.

Judging Contests

In April, 1915, the first interscholastic high school livestock judging contest was held at University Farm.

The contests were sponsored by the Block and Bridle Club. Usually the first day was given over to a training period and the second day devoted to the contest and giving oral reasons. When the Smith-Hughes program developed, many more contests were introduced. Today, the livestock judging contest is most popular.

Since 1916, the college spring judging contests have climaxed the year's judging work. The contests are divided according to the experience of the competitors. There is also provision for teams representing various campus organizations. The names of the individual winners are engraved on permanent plaques provided by the Block and Bridle Club and other awards are given the individual winners. A spring meat judging contest is also held every year.

Hall of Fame

Wm. J. Loeffel had been an officer of the American Society of Animal Production which honors its outstanding members by hanging their portraits in the Saddle and Sirloin Club Gallery in Chicago. It occurred to him that a similar program might be undertaken by the Nebraska Block and Bridle Club.

The project was approved providing that the honor guests be limited to Nebraskans who had made substantial contributions to the livestock industry. Persons to be honored were to be selected by the Club in close cooperation with the Department Chairman. The dinners were scheduled for the evening of Feeders Day with the expectation that many of the guests would stay over. Honor dinners have been held regularly since 1938 except during the War years. The following persons have been honored:

1938—Samuel McKelvie—livestock breeder and exhibitor over 50 years.

1939—Bruce McCulloch—50 years editor of the Omaha Journal-Stockman.

1940—Sam Hudson—producer of feeder cattle since 1882.

1941—E. A. Burnett—educator, investigator, administrator.

1942—Elmer Youngs—farmer, feeder, Hereford cattle breeder.

1947—Arthur W. Thompson—nationally recognized livestock auctioneer. Friend and admirer of young people.

1948—L. Van Es, V.S., M.D., Sc.D.;—scientist, teacher, author.

1949—Delmer S. Anderson—master farmer, feeder, pioneer soil conservationist, community builder.

1950—S. R. McKelvie—statesman, publisher, Sandhills Hereford producer.

1951—W. Marshall Ross—pioneer, teacher, civic leader, master farmer, feeder, breeder, market specialist.

1952—Robert D. and Henry L. Mousel—noted breeders and improvers of Hereford cattle.

1953—E. Z. Russell—swine research administrator, U.S.D.A. writer, improver of Duroc swine, swine judge.

1954—Albert Hultine—noted breeder and improver of Polled Shorthorn cattle.

1955—Chas. J. Warner—statesman, agriculturalist, Hereford cattle breeder.

1956—Ed Belsky—constructive Hereford breeder, dedicated to the improvement of purebred and commercial cattle and the encouragement of youth.

1957—A. D. Majors—leader in livestock marketing, dedicated to education, community betterment and civic progress.

1958—Wm. J. Loeffel—teacher, swine and meats authority. Animal Husbandry staff since 1919.

1959—James S. Kreycik—producer of top quality Angus feeder cattle.

1960—Marvel L. Baker—teacher, scientist and administrator.

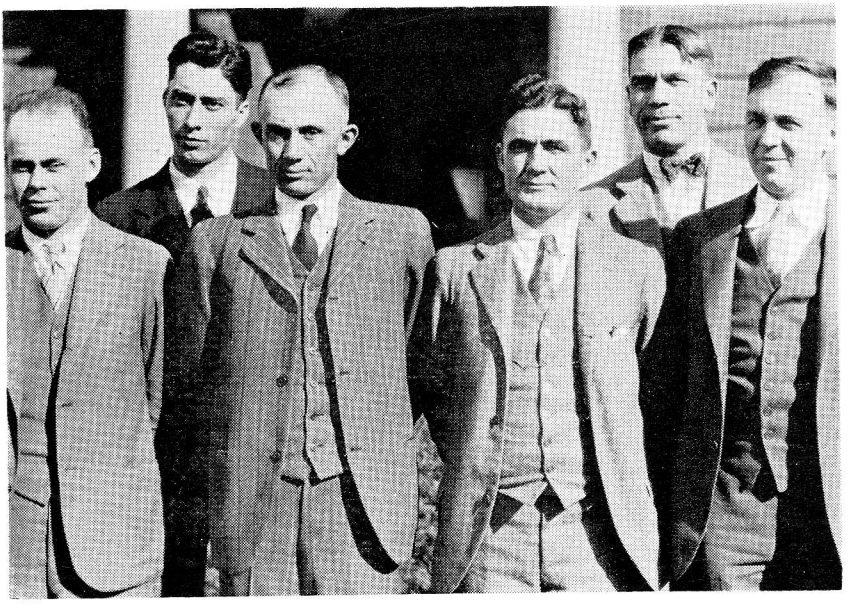
1961—Harry M. Knabe—Hampshire swine breeder.

In addition to the above, three men have been honored posthumously:

Everett Buckingham—for many years president of the Omaha Union Stock Yards Company.

Ashton Shallenberger—Governor and Congressman, owner of Ashbourne Farms for over 40 years.

Byron P. Demorest—student, writer, speaker, exponent of better livestock production and marketing.



Animal Husbandry staff in 1929. From left, C. S. Maddox (deceased), R. R. Thalman, A. D. (Dad) Weber, W. W. Derrick, H. J. Gramlich, W. J. Loeffel.

PERSONNEL, DEPARTMENT OF ANIMAL HUSBANDRY

The following is a list of the men who have composed the Animal Husbandry staff through the years. This list is probably not complete.

	Came
1. C. H. Elmendorf*	1898
2. E. A. Burnett*	1899
3. H. R. Smith*	1901
4. A. F. Magdanz	1904
5. C. W. Pugsley	1908
6. Ellis Rail	1908
7. R. C. Ashby	1909
8. Sam McKelvie	1909
9. C. B. Lee	1910
10. H. J. Gramlich*	1911
11. R. K. Bliss	1912
12. E. R. Davis	1912
13. S. W. Alford	1913
14. H. B. Carpenter	1913
15. H. B. Pier	1914
16. K. F. Warner	1915
17. E. L. Jenkins	1916
18. K. C. Fouts	1919
19. W. J. Loeffel*	1919
20. M. B. Posson	1919
21. W. H. Savin	1919
22. H. H. Smith	1920
23. W. W. Derrick	1920
24. S. S. Ivins	1921
25. H. D. Fox	1923
26. M. L. Baker	1924
27. A. K. Hepperly	1924
28. R. H. Miller	1924
29. A. D. Weber	1926
30. Walt Tolman	1926
31. O. O. Waggener	1926
32. R. R. Thalman	1926
33. C. S. Maddox	1928
34. M. A. Alexander	1931
35. E. W. Janike	1933
36. J. C. Farrand	1935
37. L. E. Hanson	1940
38. P. F. Fidler	1941
39. C. T. Blunn	1945
40. V. H. Arthaud	1945
41. Oscar Tegtmeier	1946
42. C. H. Adams	1947
43. J. V. Dunlap	1947
44. Lyle Roberts	1947
45. T. W. Dowe	1948
46. J. K. Matsushima	1949
47. L. E. Johnson	1949
48. D. R. Warner	1949
49. R. M. Koch*	1950
50. M. J. Brinegar	1950
51. E. W. Schleicher	1950
52. R. J. Meade	1952
53. P. Q. Guyer	1954
54. R. A. Arthaud	1954
55. J. H. Hopper	1955
56. T. H. Doane	1955
57. K. E. Gregory	1955
58. E. R. Peo, Jr.	1956
59. D. B. Hudman	1956
60. R. B. Warren	1956
61. L. J. Sumption	1957
62. E. H. Rupnow	1957
63. M. L. Hemstrom	1957
64. D. F. Engel	1957
65. K. O. Zoellner	1957
66. D. C. Clanton	1958
67. Leo Lucas	1959
68. D. R. Zimmerman	1959
69. L. A. Swiger	1959
70. Dave Williams	1960
71. W. R. Woods	1962

* Served as department chairman.

PUBLICATIONS

The following represents a list of the major publications of the Animal Husbandry Department. It includes most of the projects carried on by the department as well as those with which the department was an active cooperator.

It should be pointed out that many of these publications are out-of-print. Such bulletins may be available at local libraries or secured on a loan basis through them. Publications which are available for distribution may be secured from county Extension agents or by writing to the Department of Information, College of Agriculture, Lincoln 3, Nebraska.

Beef Cattle

Bulletin 62. Thatcher, R. W. The feeding value of sorghum as shown by chemical analysis (1900).
Bulletin 63. Hiltner, R. S. The fatal effect of green sorghum (1900).
Press Bulletin 11. Elmendorf, C. H. Raising calves for profitable beef production (1899).
Bulletin 75. Burnett, E. A. and H. R. Smith. Feeding experiments with cattle and pigs (1902).
Bulletin 85. Burnett, E. A. and H. R. Smith. Feeding experiments with cattle (1904).
Bulletin 90. Smith, H. R. Cattle feeding experiment (1905).
Bulletin 93. Smith, H. R. Cattle feeding experiments (1906).
Bulletin 100. Smith, H. R. Economical rations in beef production (1907).
Bulletin 105. Snyder, W. P. Growing cattle in western Nebraska (1908).
Bulletin 116. Smith, H. R. Economical beef production (1910).
Bulletin 117. Snyder, W. P. Growing feeder steers in western Nebraska (1911).
Bulletin 132. Smith, H. R. Beef production (1912).
Bulletin 143. Snyder, W. P. Feeding baby beef (1914).
Bulletin 151. Bliss, R. K. and C. B. Lee. Corn silage and alfalfa hay for beef production (1915).
Bulletin 174. Gramlich, H. J. Beef production (1919).
Bulletin 215. Hedges, Harold. A survey of the cattle industry in the Nebraska sandhills (1926).
Bulletin 229. Gramlich, H. J. Fattening steers of various ages (1938).
Bulletin 239. Snyder, W. P. The use of alfalfa pasture for fattening cattle (1930).
Bulletin 252. Gramlich, H. J. and R. R. Thalman. Sex and age as factors in cattle feeding (1930).
Bulletin 263. Baker, Marvel. Corn, wheat and rye for fattening calves (1931).
Bulletin 274. Thalman, R. R. The contract feeding of livestock (1932).
Bulletin 281. Baker, Marvel. Fattening yearling heifers on alfalfa pasture (1933).
Bulletin 295. Baker, Marvel. The use of wheat and rye for fattening calves (1935).
Bulletin 315. Baker, Marvel. The use of alfalfa and native grass pasture in producing finished cattle (1938).
Bulletin 343. Thalman, R. R. Wintering rations for cattle (1942).
Bulletin 345. Thalman, R. R. Protein supplements for fattening cattle (1943).
Bulletin 347. Thalman, R. R. The grain sorghums for fattening cattle (1943).
Bulletin 350. Baker, Marvel. Wintering steer calves (1943).
Bulletin 354. Thalman, R. R. Pasture vs. dry lot for fattening cattle (1944).
Bulletin 355. Thalman, R. R. Corn and alfalfa substitutes for fattening cattle (1944).
Bulletin 357. Brouse, E. M. Wintering calves in the Nebraska sandhills (1944).
Bulletin 359. Baker, M. L., Cletus F. Reinmiller and Guy N. Baker. Dried beet pulp for fattening steers (1944).
Bulletin 374. Baker, Marvel. Feeding distillers dried grains to growing and fattening cattle (1945).
Bulletin 396. Baker, Marvel and Vincent H. Arthaud. Feeding ground corn cobs to fattening yearling steers (1949).
Bulletin 402. Baker, Marvel, Guy N. Baker, Carl Ervin, Lionel Harris and M. A. Alexander. Feeding safflower meal (1951).
Bulletin 418. Rumery, Myron G. A. and Guy N. Baker. Growing and feeding Holstein steers for beef (1953).
Bulletin 431. Dowe, Thomas W., V. H. Arthaud and John Matsushima. Ratio of concentrates to alfalfa hay in fattening rations for beef cattle (1955).
Bulletin 435. Baker, G. N., M. L. Baker, and J. Jackson. Concentrates for yearling steers on alfalfa pasture and in dry lot (1956).
Bulletin 438. Rumery, Myron G. A. and Charles H. Adams. Feeding Brown Swiss and Holstein steers for beef (1956).
Bulletin 439. Loeffel, Wm. J. Grain sorghums as feeds for beef cattle and hogs (1957).

Bulletin 440. Dowe, T. W., J. Matsushima and V. H. Arthaud. Full feeding vs. limited feeding for beef production in dry lot and on pasture (1957).
Bulletin 447. Baker, M. L., G. N. Baker and J. K. Matsushima. Safflower meal as a protein supplement for cattle (1959).
Bulletin 448. Jackson, J. A., G. N. Baker and M. L. Baker. Soybean oil meal and dehydrated alfalfa for fattening steers (1958).
Bulletin 451. Baker, G. N., M. L. Baker and T. Goksu. Methods of feeding sorghum grain to fattening steers (1958).
Bulletin 454. Baker, G. N. and M. L. Baker. Wheat for fattening yearling steers (1960.)
Bulletin 458. Baker, G. N., T. Goksu and M. L. Baker. Undecorticated safflower meal as a protein supplement for wintering calves (1960).
Bulletin 461. Clanton, D. C. and J. K. Matsushima. Sorghum and alfalfa silages for wintering beef cattle (1960).
Research Bulletin 185. Matsushima, J., T. W. Dowe and V. H. Arthaud. Evaluation of ground corn cobs and corn cob components as nutritive materials in rations for beef cattle (1957).
Research Bulletin 196. Gregory, K. E. Improvement of beef cattle through breeding methods (1961).
Circular 58. Thalman, R. R. The feeding and care of calves (1938).
Circular 91. Baker, Marvel, V. H. Arthaud and C. H. Adams. Feeding Milking Shorthorn steers (1951).
Circular 106. Gregory, K. E., R. M. Koch, L. N. Hazel, and Doyle Chambers. Principles of record of performance in beef cattle (1961).
Circular 108. Rowden, W. W., J. E. Ingalls, K. E. Gregory and R. M. Koch. Protein supplements for beef calves on winter range (1961).

Hogs

Bulletin 75. Burnett, E. A. and H. R. Smith. Feeding experiments with cattle and pigs (1902).
Bulletin 94. Burnett, E. A. Fattening pigs on corn and tankage (1906).
Bulletin 99. Snyder, W. P. Growing hogs in western Nebraska (1907).
Bulletin 107. Burnett, E. A. Foods supplementary to corn in fattening pigs (1908).
Bulletin 121. Snyder, W. P. Growing hogs in Nebraska (1911).
Bulletin 123. Snyder, W. P. Fattening hogs in Nebraska (1912).
Bulletin 124 (limited edition). Snyder, W. P. Fattening hogs in Nebraska (1912).
Bulletin 144. Bliss, R. K. and C. B. Lee. Ground wheat vs. whole wheat for fattening pigs (1914).
Bulletin 147 (popular edition). Snyder, W. P. Pork production (1915).
Bulletin 159. Holden, James A. Pork production on irrigated lands in western Nebraska (1917).
Bulletin 162. Snyder, W. P. Wintering mature brood sows (1917).
Bulletin 165. Snyder, W. P. Growing pigs in summer (1918).
Bulletin 175. Gramlich, H. J. and E. L. Jenkins. Experimental hog feeding (1920).
Bulletin 176. Gramlich, H. J. Summer hog feeding (1920).
Bulletin 214. Snyder, W. P. Pork production at the North Platte Substation (1926).
Bulletin 243. Snyder, W. P. Pork production at the North Platte Substation (1930).
Bulletin 251. Loeffel, Wm. J. Barley as hog feed (1930).
Bulletin 261. Loeffel, Wm. J. Wheat for fattening hogs (1931).
Bulletin 323. Baker, Marvel and Cletus F. Reinmiller. Feeding sorghum grain to growing and fattening pigs (1939).
Bulletin 351. Loeffel, Wm. J., W. W. Derrick and Matilda Peters. Weight of pigs as it affects gains and carcass qualities (1943).
Bulletin 415. Hanson, L. E., Marvel L. Baker, Guy N. Baker, and Myron G. A. Rumery. Distillers solubles in market pig rations (1952).
Bulletin 439. Loeffel, Wm. J. Grain sorghums as feeds for beef cattle and hogs (1957).

Research Bulletin 58. Loeffel, Wm. J., R. R. Thalman, F. C. Olson and F. A. Olson. Studies of rickets in swine (1931).
Circular 4. Burnett, E. A. Pork production in Nebraska (1917).
Circular 40. Loeffel, Wm. J. A manual for hog raisers (1930).

Sheep and Lambs

Bulletin 66. Burnett, E. A. Sheep feeding experiments in Nebraska (1900).
Bulletin 71. Burnett, E. A. Sheep feeding experiments. Second experiment (1901).
Bulletin 153. Gramlich, Howard J. Lamb feeding experiments (1915).
Bulletin 167. Gramlich, H. J. Feeding lambs in the fall (1918).
Bulletin 170. Gramlich, H. J. Fall lamb feeding (1918).
Bulletin 173. Gramlich, H. J. Supplementary feeds in fattening lambs (1919).
Bulletin 194. Holden, James A. Lamb feeding in western Nebraska (1923).
Bulletin 197. Savin, W. H. Winter lamb feeding (1923).
Bulletin 204. Fox, H. D. Fattening western lambs (1924).
Bulletin 211. Fox, H. D. Corn supplements and substitutes for fattening lambs (1926).
Bulletin 216. Holden, James A. Lamb feeding experiments in the sugar beet growing districts (1926).
Bulletin 250. Weber, A. D. Raising early lambs from aged western ewes (1930).
Bulletin 256. Baker, Marvel L. Corn, wheat and rye for fattening lambs (1931).
Bulletin 257. Weber, A. D. and Wm. J. Loeffel. Wheat for fattening lambs (1931).
Bulletin 262. Weber, A. D., Wm. J. Loeffel and Matilda Peters. Length of feeding period and plane of nutrition as factors in lamb feeding (1931).
Bulletin 268. Holden, James A. Lamb feeding experiments with grains and dried beet pulp (1932).
Bulletin 276. Weber, A. D. and Wm. J. Loeffel. Feeding tests and carcass studies with early spring lambs and aged western ewes (1932).
Bulletin 471. Clanton, D. C., L. Harris and M. A. Alexander. Pelleted rations for lamb fattening (1962).
Ext. Circular 255. Alexander, M. A., W. W. Derrick and K. C. Fouts. Farm sheep facts (1952).
Ext. Circular 61-205. Doane, Ted H. Feeding and management of ewes (1961).
Ext. Circular 61-206. Doane, Ted H. Feeding and care of young lambs (1961).
Ext. Circular 61-207. Doane Ted H. Ram management (1961).

Miscellaneous

Bulletin 130. Snyder, W. P. Forage rations for growing horses (1912).
Research Bulletin 184. Conard, Elverne C. and Vincent H. Arthaud. Effect of time of cutting on yield and botanical composition of prairie hay in southeastern Nebraska (1957).
Ext. Bulletin 28. Gramlich, H. J. Feeding alfalfa to horses (1914).
Ext. Bulletin 52. Warner, K. F. Pork and beef (1918).
Ext. Circular 228. Loeffel, Wm. J. Farm slaughter of hogs (1933).
Ext. Circular 236. Know your feedlot costs (1933).
Ext. Circular 238. Baker, M. L., Wm. J. Loeffel and W. W. Derrick. Feeding small grains to livestock (1935).
Ext. Circular 247. Loeffel, Wm. J. Hog slaughtering and pork cutting (1943).
Ext. Circular 248. Loeffel, Wm. J. Beef on the farm (1944).
Ext. Circular 936. Atwood, Florence and Wm. J. Loeffel. Home preservation of meat (1933).

Experiment Station Quarterly

Fall 1953. W. J. Loeffel. Heifers make good beef.
Fall 1953. John Matsushima. A study of hay crop silages as feed for cattle.

Fall 1953. Thomas W. Dowe. Cattle can market your low quality roughages.
Winter 1953. John Matsushima. Good silage from the small grains.
Fall 1954. Robert M. Koch and Vincent H. Arthaud. Can research defeat dwarfism?
Winter 1954. Robert M. Koch. A new corral plan for big herds.
Winter 1954. Thomas W. Dowe. Carotene—source of vitamin A for your cattle.
Summer 1955. Vincent H. Arthaud. Use both warm- and cool-season grasses for longer grazing periods.
Winter 1956. John Matsushima and F. E. Mussehl. New oat variety good feed for lambs.
Fall 1958. John Matsushima. Stilbestrol—Oral vs. Implants.
Fall 1958. Marvel L. Baker. Grain Sorghums Gain Favor.
Spring 1959. John Matsushima. Dehydrated Alfalfa can increase pounds of beef.
Summer 1959. D. C. Clanton and M. L. Hemstrom. Heat Dried Corn—Good Cattle Feed.
Fall 1959. D. C. Clanton. Sorghum silage + supplement = good winter ration.
Fall 1959. J. Matsushima and L. C. Harris. Hormone implants can increase cattle gains.
Winter 1959. J. N. Wiltbank, F. E. Rilling. Tranquilizer results doubtful.
Spring 1960. M. L. Baker and V. H. Arthaud. Use ground ear corn.
Spring 1960. R. M. Koch. Fort Robinson.
Summer 1960. Lavon J. Sumption. Genes for future swine breeding.
Summer 1960. E. R. Peo, Jr. Round Stall for Farrowing.
Fall 1960. Marvel L. Baker, Loyal C. Payne and Guy N. Baker. Hydrocephalus is inherited.
Summer 1961. Lavon J. Sumption. To give consumer leaner pork, research team studies carcasses.

In addition to the above formal publications, other reports are available, such as mimeographed circulars, progress reports, and journal articles.