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Chapter Five: AGRICULTURE COMES INTO ITS OWN

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AGRICULTURE COMES INTO ITS OWN

IT MAY be said that it took eighteen years to lay the foundation of agricultural instruction and research in Nebraska, and another eighteen years to build on this foundation. The eighteen years beginning about 1890 marked a period of great development for the Industrial College as well as the University itself. A School of Agriculture was early established and in a comparatively few years began to number its students in the hundreds. What the agricultural department of the Industrial College had heretofore lacked in numbers, this secondary school supplied. For the first time, the college farm began to be regarded as an educational center of its own. Then came its rapid development with the erection of several of the magnificent buildings of today. By 1909 agriculture had reached such importance in the Industrial College that a separate Agricultural College was once more established, with the farm campus for its headquarters.

The University itself prospered greatly in these years, and this prosperity was reflected in the increasing development of the Agricultural College. The total enrollment in the University passed the 2,000 mark in the academic year 1899-1900 and the 3,000 mark in the year 1906-1907, these figures including students in all the schools and colleges. In 1899 it was stated that the University had students from as far west as California and as far east as Japan. More money for the support of the University and its Industrial College became available. The tax for the support of the University, which had been cut to a quarter of a mill and raised to three-eighths of a mill, during the early days of the University, was again restored to the full mill in 1899. Agricultural instruction and experimentation were benefited by the “Second Morrill Act” of 1890, the Nelson
Amendment of 1907, and the Adams Act of 1906, all bringing more money to the agricultural side of the institution. Agricultural extension began to develop with scores of farmers' institutes and short courses being held in every section of the state. Here we also find the beginning of home economics instruction for women, culminating in the latter part of this period in the erection of the home economics building on the farm campus. All in all, this was a period of development such as would hardly have been conceived to be possible in the eighties.

James H. Canfield had been called from the Kansas State University to the chancellorship of the University of Nebraska in 1891. It was undoubtedly due to his leadership that the University received such a vigorous start during the early part of this period. With experience as a railway superintendent and legal as well as academic training, he was quite at ease in coping with the problems of the University. In four years the enrollment of the University nearly tripled. Even during panic times, he gave the optimistic advice, “If you cannot earn, you at least can learn.” In short, he was the University's ambassador to the people of Nebraska.

When Chancellor Canfield resigned in 1895 to become president of Ohio State University, and later librarian of Columbia University, he was succeeded by George E. MacLean, who had been serving as professor of English language and literature in the University of Minnesota. For four years Doctor MacLean was to guide the destinies of the institution. Chancellor MacLean displayed an especial interest in the work of the School of Agriculture, which was started during his administration. Chancellor MacLean resigned in August, 1899, and Chancellor E. Benjamin Andrews assumed the duties of the office in August, 1900, Dean Bessey acting as chancellor during the intervening year. During the eight years that he was associated with the institution, Chancellor Andrews saw the enrollment grow from 2,256 to 3,611. In 1900 there
SAMUEL AVERY, CHANCELLOR

He was associated with the early work in agricultural chemistry and has served as chancellor for over sixteen years.
were fifty-six persons with professorial rank connected with the University; eight years later there were 390. During his administration there was a great development of the college farm. Samuel Avery, who for a number of years had been associated with the department of chemistry, as well as the experiment station, was acting chancellor of the University in 1908-09, and became chancellor on May 20, 1909. During his administration the College of Agriculture and the college farm have attained their present proportions, but that will be left for our succeeding chapter.

THE SCHOOL OF AGRICULTURE

Most people, even today, do not understand that there are both a School of Agriculture and a College of Agriculture. The School of Agriculture is a high school, which emphasizes agricultural and home economics instruction in connection with a secondary school course. The College of Agriculture is a separate college within the University. It presupposes that those entering upon its course of study shall have had a high school education.

The School of Agriculture was undoubtedly the most important development from 1890 to 1908. Our readers no doubt recall the difficulty in securing any large number of students for the college courses in agriculture. Possibly one reason for this difficulty lay in the fact that those to whom a college course in agriculture would make a practical appeal generally did not have a high school education to begin with.

The report of the Board of Regents, for the two years ending in 1896, tells something of the reasons for the establishment of the school:

"The history of the University from the beginning shows similar attempts to satisfy the demands of the people of the state for practical Schools of Agriculture and the Mechanic Arts. Various so-called 'short courses in agriculture' were given. The regents believe that at last they have found why the earlier attempts did not
succeed, and that they have a plan that will succeed. The old schemes failed because either they had too high a standard, or practically no educational standard whatever. The College of Agriculture required extensive preparation and four years of continuous study. Its graduates were few, and were weaned from the farm. The high schools of the state prepared for every college but the technical college: hence rarely did anyone enter the latter. The short courses were on the other hand of such low educational standard that youths were not tempted to resort to them. They were excellent as somewhat extended Farmers' Institutes and fulfilled their mission for adult farmers. A missing link in the state system of education is the technological high school, or high school of applied science. The apparatus and instruction necessary in such a school make it too expensive at the present time for the high schools of the state to add the technological courses in agriculture and the mechanic arts. The regents propose to supply this missing link until the state attains to its full development, when it would be possible that these technical schools would be supplanted by the development of the high schools of the state with reference to this work, just as the high schools of the state have at length made the Preparatory Department or the state high school at the University unnecessary. The regents have raised the standard of the short courses in agriculture to that of genuine secondary schools."

As our readers recall, there had been heretofore abbreviated agricultural courses which required for completion one or two years of school. In the early nineties there was also a course for farmers given for a short time each winter. The rapid development of the beet sugar industry in Nebraska resulted in the establishment of a Sugar School, in the nineties. This will be discussed later. One also runs across mention of a dairy school in the early nineties, but its exact status is not apparent, the regents' report quoted above stating "in the School of Agriculture will be borne the Dairy School as a line of specialization of great value to the state of Nebraska." Later on a special dairy course appears to have been given in the winter months.

The establishment of the new type of agricultural school, which was a unit by itself rather than entirely a side line, marked a milestone in the progress of the Uni-
versity. How rapidly it was to grow is to be deduced from the fact that in 1908, E. A. Burnett, associate dean of the Industrial College in charge of agriculture, was to remark that "about 20 per cent of all the students in the University are now registered in the School of Agriculture." The success of this school was to make possible the rapid development of the agricultural campus, with the erection of many of the splendid buildings of today.

"In March, 1894, the regents announced that they proposed to open in September, 1895, a School of Agriculture and Mechanic Arts," reads their report for the two years ending with 1896. The first School of Agriculture did not open, however, until December, 1895. Fifteen students appeared for the course of instruction. It is interesting to note, perhaps, that it was fifteen students that entered upon the agricultural course of study in the University twenty-one years before. The School of Agriculture the first year held its sessions on the University campus downtown, because, as our readers know, the college farm had small facilities for regular classroom work.

The members of the faculty were drawn from the Industrial College and the Experiment Station. Those who were said to have actually given instruction the first year included Prof. T. L. Lyon, Professor Bessey, Professor Bruner, Doctor Peters, Professor Swezey (meteorology) and Professor Card. On April 16, 1896, the regents appointed Professor Lyon director of the school and made plans for its further development. On the same day the regents organized the School of Mechanic Arts. We are not concerned to such a great extent with the latter, except possibly to note that the following fall it opened with an enrollment of sixteen. Altho it existed for a number of years, the School of Mechanic Arts never attained the popularity of the School of Agriculture. It aimed to do for the mechanically inclined young man what the School of Agriculture did for the farmer boy. In the School of Agriculture emphasis for the most part was placed on practical agricultural subjects.
In 1896 a small dairy building was erected on the farm campus, the first building for purely instructional purposes. Today, veneered with brick, this represents about one-half of the building occupied by the departments of rural economics and poultry husbandry. A dairy laboratory was on the lower floor of the building and a lecture room on the second floor. The little old stone house now housed a chemical laboratory and a lecture room. Two rooms of the house were occupied by Professor Lyon’s office furniture and library. The school was now ready to begin operations on the farm campus. There were two new instructors the second year, A. E. Davisson, who was later to become principal of the school, and A. L. Haecker, who was later to become professor of dairy husbandry. Mr. Davisson gave instruction in English, history, and mathematics, while Mr. Haecker was assistant in dairying. Thirty-three students attended the school the second year.

The following summer an addition to the dairy building was erected and the entire structure veneered with brick. The faculty began to feel that agricultural education and the old college farm were coming into their own. Professor Davisson in his historical sketch of the School of Agriculture, published in *Agriculture* in January, 1909, tells something of the optimism prevailing at the beginning of the third year:

"The writer very well recalls with what feelings of exultation the faculty prepared to open school in December. It was felt by Professor Lyon, Director of the School, that great things in agricultural education were about to happen. Some of the members of the faculty thought there would be more than one hundred students; others were more conservative, while the opinion was freely expressed by some of the professors on the campus—who were then opposed to agricultural education but who are now wholly in sympathy with the idea—that no greater number of students could ever be expected. As in the previous year, the school opened in December and fifty-one students registered."

Only three women registered in the School of Agriculture during the first three years. This was owing to the
fact that there was "no provision for giving instruction in the various branches of domestic economy." However, this situation was to be shortly relieved by the establishment of a School of Domestic Science and several years later the School of Domestic Science, as far as the secondary school courses were concerned, was to be absorbed by the School of Agriculture, thus offering attractive courses of study to both men and women. But, because the work in home economics was related to both school and college, a brief sketch of its development is reserved for a later section. The average age of the students attending the School of Agriculture was twenty-one, indicating that most of the students had decided to secure further education several years after having been graduated from the district schools.

At the close of school in March, 1898, Chancellor MacLean entertained the students at his home. He proposed that an association of agricultural students be formed for the purpose of continuing the work begun in the school. Chancellor MacLean and Dean Bessey were invited by the students to come to the farm and organize such an association. E. Von Forell of the Board of Regents had taken a special interest in the school and hearing of the organization of the students became convinced of the desirability of extending the course of study. The regents that April established a three years' course of study in the School of Agriculture, and also provided that students completing the course should be admitted to the technical agricultural group of the University.

The organization of this Agricultural Students' Association in connection with the School of Agriculture was an interesting development. It aimed to tie up the boys with the school in more or less permanent fashion after they had left the institution and gone back to their homes. The object of the association, as stated in the constitution, was "the continuance of the habits of study and investigation formed while at the School and College of Agriculture; and
general co-operation with the Experiment Station and the publication of results." All persons who at any time had been connected with the School or College of Agriculture or the experiment station were eligible to regular membership, while anyone recommended by one of the regular members might become an associate member. Early officers of the association were President, C. Y. Thompson, West Point; vice president, Albert J. Wilson, Webster; secretary, J. H. Windhusen, Hooper; treasurer, Gerrard Montgomery, Firth; student member of the executive council, John B. Miller, Lincoln.

Reports of the work of this association are to be found among the experiment station bulletins. The idea behind this association was that its members could perform useful experiments on their own farms, as well as continue their study. Members of the faculty outlined various experiments and books, making up a course of study, which could be undertaken in the student's spare time.

Under the reorganization of the work of the School of Agriculture on a three-year basis, opening at the same time as the University in the fall, it was thought that the purely agricultural courses could be given only during the winter term at the middle of the year. Under this arrangement, those who came to the school for only the one term attended the same agricultural classes with those who were taking the full course, and consequently they were at a disadvantage. There was also criticism of the University on the ground that it was running a preparatory school and calling it a School of Agriculture. In 1901 the course of study was reorganized. There were still three years to the regular course, but school began in November and was out in April. There were two terms each year and agricultural subjects were given both terms. Such subjects as English, mathematics, botany, civics, and physics received attention along with the purely utilitarian subjects such as soils, crop production, breeding and feeding live stock, veterinary practice, orcharding, gardening, etc. There was doubt in
the minds of some as to whether there was enough English, history, and mathematics in the course, but it was stated that there was no way to remedy this, except by adding another year for graduation. The catalog issued in 1902 stated that students anticipating entering the technical agricultural group of the Industrial College would have to take an extra year of preparatory work, besides the three-year course. Later they seem to have been admitted upon completion of the school's three-year course. Several years afterward the three-year course of the school was to be extended and made a four-year course.

The short course for those who could attend the School of Agriculture for only a short time during the middle of the winter was not abandoned. The winter course was entirely of a practical nature, usually operating for not more than two months. A special dairy course is to be found described in some of the early catalogs of the school, and later short courses dealing with other special subjects were to be offered.

The School of Agriculture continued to grow. With its growth there was a corresponding growth of the college campus. The demand for larger quarters for both the Experiment Station and the School of Agriculture led to the erection of Experiment Station hall in 1899-1900. Agricultural Hall, a building which has been the headquarters of the School of Agriculture ever since, was erected in 1904-05.

Attendance was increasing rapidly. It passed the 100 mark in 1899-1900 when there were sixty-five students enrolled in the winter course and forty-nine enrolled in the three years' course. In 1902-03 there were 206 enrolled, in 1904-05 there were 332, in 1906-07 there were 429, while in the year 1908-09, not counting some summer session students, who were included in the enrollment for a few years about this time, the 600 mark was nearly reached. The first graduate of the school was David F. Stouffer of Schuyler, in fact, the only graduate in 1901. In 1903 there were ten graduates. In 1908 there were fifty graduates.
In 1907-08 the School of Agriculture had become a co-educational institution and women were invited to take a course in home economics, corresponding to the boys' work in agriculture. It was at this time that the home economics building was erected. For several years a School of Domestic Science had been maintained and both secondary and college instruction had been given in home economics. Summer school instruction for the benefit of teachers had also helped to swell the total attendance of the School of Agriculture.

A sketch of the School of Agriculture would not be complete without some mention of Prof. A. E. Davisson, who was connected with the school for about fifteen years, until his death in 1911. He was made headmaster of the school in 1897, its director in 1899, and in 1901 he became known as principal of the school. One of his early duties was to visit county institutes in an endeavor to interest teachers and superintendents in the work of the school. Forty-four counties were visited in 1899, and the same number in 1900. "The School of Agriculture, a wonderful power for good through all Nebraska, is, in a way, his monument."

DEVELOPMENT OF HOME ECONOMICS

In a catalog or an announcement published by the University in 1894, a "Course 13" is listed under chemistry—domestic chemistry, consisting of two lectures with four hours of laboratory practice each week. If one turns to the University catalog published in June, 1896, one will find under the general head of chemistry, "Course 13." It consisted of "technical chemistry as applied to household economy. Qualitative and quantitative study of food material in general, with analyses of typical foods, and methods of detecting food adulterations." "Course 14," the second semester, consisted of "the chemistry of cleaning, methods of softening water, analyses of soaps, washing powders, and polishing powder, etc. Disinfectants and antiseptics." The course was in charge of Miss Rosa
Bouton, herself a graduate of the University of Nebraska. There were four prerequisite courses to this line of work, including both qualitative and quantitative analysis.

In the original proposal for establishing "A School of Agriculture and Mechanic Arts," published in the regents' report of 1894, there was a provision that the courses should be open to women as well as men. The women were to take up domestic science while the men agricultural students were studying veterinary science, and while the men took up shop work, the women were to be studying industrial art. But as our readers recall, the School of Agriculture and the School of Mechanic Arts were separate, and only three women enrolled in the School of Agriculture the first three years, and there was "no provision for giving instruction in the various branches of domestic economy."

In September, 1898, a School of Domestic Science was organized. Ten students registered for this course. College students also began to enroll for the work in domestic science, and the school apparently was forced to cater to the needs of both secondary and college students. "As soon as the work was begun college students began to apply for permission to register for domestic science," Miss Bouton, the director of the school stated, in the regents' report for the two years ending with 1900. "The request was granted and college credit given for this work."

Further information is contained in Miss Bouton's report:

"This year there is an enrollment of forty-one unrepeated names in the domestic science classes. The kitchen laboratory, when filled to its utmost limit, will accommodate only sixteen students. The great need of more room is therefore very evident to all who visit our crowded quarters.

"The work is based on scientific principles, and is decidedly practical. Actual cooking is done. Careful attention is given to the economy of time, strength and materials. The rational division of income is considered and the many problems which have to do with the furnishing and care of the home are studied."
“In addition to the number of registered students referred to above, an extension class, which meets Saturday afternoons, has recently been organized.”

A two-year course in domestic science was first outlined in the catalog published in 1898, under the name of the School of Domestic Science. The school year in this course ran practically parallel with the regular University year, and was not abbreviated in fall and spring as was the School of Agriculture course, until it was actually absorbed in the School of Agriculture. The studies taken up in the School of Domestic Science included mathematics, English, physics, chemistry, political economy, free hand drawing, biology, domestic science, and physical training and hygiene. “The aim is to make the entire work in this course educational; to train the mind, and develop character in the kitchen as well as in the laboratory,” the catalog stated regarding the work in domestic science. It was estimated that the cost of a year’s schooling would be about $117.50, table board being obtainable at $2 a week, and rooms at $3.50 a month. About 1900 Miss Annette Philbrick from the Columbia College School of Domestic Science was added to the faculty. Miss Rosa Bouton, adjunct professor of chemistry, remained as director of the School of Domestic Science.

The catalog containing the announcements for the academic year 1899-1900 listed domestic science as a regular college course, as well as the School of Domestic Science. There was a course in food economics, which consisted of “study of food principles, comparison of nutritive and money values of food materials, marketing, values of fuels, general cookery of cereals, vegetables, meats, soups, breads, desserts, etc.” This was continued the second semester, with three hours credit each semester. There was another course in household economics, which included “location of house, plans for the construction of a house, application of chemical principles in cleaning and disinfection, study of light, heat, ventilation, water supply, plumbing, sewage,
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etc., in their relation to the home. Keeping of household accounts. Advanced course in cookery, including the preparation of salads, croquettes, pastry, cakes, etc., the preservation of food materials by canning, preserving, pickling, etc. Invalid cookery; serving of meals; preparation of dietaries.” This was also continued the second semester. There were still two more courses, “5” and “6,” which had not been arranged. Miss Bouton continued to give courses in the chemistry department dealing with analyses of food materials, and the chemistry of food and household sanitation.

The School of Domestic Science was housed on the University campus uptown. It never attained the great enrollment of the School of Agriculture, and there was apparently more demand for the work from college girls than from those registered in the School of Domestic Science. At least part of the work was given in the Mechanic Arts building, which had been erected in 1897-98. Miss Bouton tells something of the conditions in her report printed in the regents’ report in 1902:

“Our total enrollment this fall is one hundred and three with seventy-four unrepeated names in place of forty-one two years ago. . . . The large increase in the number of our students this fall has, however, filled our laboratories almost to the limit. . . . The end of the hall in mechanic arts building, which has been partitioned off for an office and a dining room is all too small for our present needs. . . . We have this fall started a noon lunch for which there seems to be a great demand. . . . Your attention is called to the fact that of the fifty-three students enrolled in the first year class thirty-five are college girls not enrolled in the School of Domestic Science. I speak of this because of rumors heard of the possibility of removing the School of Domestic Science to the farm. If you should see fit to remove the school to the farm the department of domestic science should, it seems to me, remain at the university.”

Apparently there was greater emphasis placed on the teaching of college women than school students. Miss Bouton’s report, incorporated in the regents’ report for the two years ending with 1904, stated:
“Considerable progress has been made in raising the standard of scholarship in our department. This has been possible, because of the increasing proportion of fully prepared college students who are registering for the courses in Domestic Science. Because persons who are not prepared to enter the University as college students may enter the School of Domestic Science, we have since the organization of the School had a considerable number of students who were not able to reach the standards of scholarship which we are striving to maintain in the department. The proportion of this class of students has been gradually growing less as our work is becoming better known among college women. The number of poorly prepared students entering the School of Domestic Science has happily decreased. Girls have found out that the School is not an easy stepping stone by which poorly prepared students may enter the University. One new line of work which has been introduced in this department during the last biennium is a training class for teachers.”

The School of Domestic Science had not been a particularly flourishing institution. The attendance for eight years since its establishment in 1898-99 had been for the respective years 11, 11, 16, 21, 32, 23, 23 and 22. Domestic science became home economics in the University catalog published in 1906. The courses offered by this time included domestic art (sewing and designing), domestic science general cookery, domestic science advanced cookery, domestic art (taking up draughting, cutting and making of garments, as well as harmony of color and house decoration), household economics (including study of house plans and equipment, and management of household affairs), a general course in domestic science for those who could not spend much time at the subject, methods of teaching domestic science, and courses in elementary domestic art and elementary domestic science (given in the school), and a general course in domestic art. Most of these courses were continued the second semester.

The report of the Board of Regents for the two years ending with 1906 tells of the organization of a four-year course in home economics:

“A four-year course in home economics has been adopted and work therein begun. Preparation is the same as for entrance to the Uni-
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versity, and the course leads to the degree of Bachelor of Science. Subjects relating to the home occupy the first two years instead of the mathematics and physics required in the general scientific course. . . . This course being for women what the agricultural, forestry and engineering courses are for men, includes instruction in those vocations which belong peculiarly to women. Domestic art is required the first and fourth years, domestic science the second and third years and home economics the fourth year. One year's work in physiology, hygiene and first aid to the injured is also required."

In 1907-08 the school course in domestic science was offered in connection with the School of Agriculture at the college farm. Some twenty-five girls were in attendance, altho the home economics building was not yet complete. The erection of the new building at the college farm made it possible to give all the home economics work there, college as well as school instruction.

There were some twenty-two college subjects in home economics listed in the catalog published in 1908. The course of study for women in the School of Agriculture embraced three years' work, the same as the agricultural course for men. From this course they could be admitted to the home economics group of the Industrial College without examination, the same as the men could be admitted to the agricultural group. Miss Bouton was still in charge of the work in home economics at the close of this period.

THE WORK OF THE COLLEGE

The School of Agriculture for many years quite overshadowed the agricultural courses of the Industrial College. In fact, in the 1900's there were often two-thirds as many students registered in the School of Agriculture as in all the collegiate courses of the Industrial College put together, scientific, engineering, and agriculture. No wonder the college farm began to be known as the home of the School of Agriculture. In fact, it is interesting to note that in 1895 there were just fifteen agricultural students in the University. In four or five years the number had grown to sixty-six.
Dean Bessey tells something of the development of the Industrial College in the report of the Board of Regents for the two years ending in 1898:

"Ten years ago the Industrial College was in the anomalous condition of being a college of applied science with no scientific course of study to serve as a center around which to group the technical courses. It had enrolled in college work but fourteen students, and in the preceding years the number had been still smaller. In the early part of the college year 1888-89, on recommendation of the faculty, the Regents quite radically changed the old scientific course hitherto found in the college of literature, science, and the arts and transferred it to the Industrial College. The changes made adapted it to its new environment, and fitted it to be the center of a group of industrial courses which at once began to grow up about it.

"Before this reorganization there were but two courses of study in the Industrial College, viz., the course in civil engineering and the course in agriculture. For some time there had been offered in addition a short agricultural course, which, however, never attracted any students. The only departments of instruction catalogued as belonging to this college were civil engineering, botany, horticulture, and agriculture. As a result of the reorganization there were at once offered a general scientific course, and several modifications of these, viz., in electricity, chemistry, agricultural chemistry, geology, zoology, and agricultural biology. Two years later these were crystallized into four of the present 'groups' in this college, viz., general scientific, agricultural, civil engineering, and electrical engineering. To these additions have been made from time to time so that now there are two general groups or courses, viz., general scientific and general agricultural; seven special groups, viz., agriculture and chemistry, botany and agriculture, botany and zoology, chemistry and physics, horticulture and botany, mathematics and physics, zoology and philosophy, and six technical groups, viz., technical agriculture, civil engineering, municipal engineering, electrical engineering, steam engineering, and mechanical engineering.

"In this period there have grown up in the congenial atmosphere of the college, the course Preparatory to Medicine, the Sugar School, the School of Mechanic Arts and the School of Agriculture and Dairying, all of which have attracted many students.

"The following numerical data regarding the students in college classes in the Industrial College will be of interest in this connection: "In 1888-9, there were 57 students; in 1891-2, 117 students; in 1895-6, 228 students; in 1897-8, 327 students."
"Counting all students in the Industrial College, its preparatory classes, sugar school, school of agriculture, and school of mechanic arts, the numbers for the years mentioned are as follows:

"In 1888-9, there were 95 students; in 1891-2, 225 students; in 1895-6, 416 students; in 1897-8, 481 students."

The enrollment in the Industrial College, including its allied schools, in 1898-9 was 483, in 1899-00 585, in 1900-01 595, in 1901-02 551, in 1902-03 673, in 1903-04 754, in 1904-5 852, in 1905-6 940, in 1906-7 1,086, in 1907-8 1,197, and in 1908-9 1,882. The number of students taking strictly agricultural studies toward the end of the period is not readily apparent. We may gain some idea perhaps by taking the records in the catalog published May 1, 1910. This was just after the College of Agriculture had been made a separate college, instead of a part of the Industrial College, in 1909. In this catalog there were 165 students listed in the newly formed College of Agriculture, 116 men and 49 women, the latter being mainly those who were taking home economics. These figures did not include the enrollment in the School of Agriculture. In June, 1910, nine students in the College of Agriculture received the degree of Bachelor of Science. These figures represent perhaps in a fair way the registration in agricultural and home economics subjects at the close of this period.

There were comparatively few students in the entire history of the University who graduated with the degree of Bachelor of Agriculture. Just seven such degrees had been conferred, one in 1875, one in 1877, one in 1882, three in 1883, and one in 1891. The report of the Board of Regents for 1892, after discussing the different lines of work offered in the Industrial College, announced: "For all this work, the degree of B.Sc. is granted." Apparently, this marked the end of the degree of Bachelor of Agriculture at Nebraska.

Undoubtedly, then, one must look in the list of graduates with the degree of Bachelor of Science for those who really were agricultural students during this period. The catalog
published in 1904 announced, apparently for the first time, that the Industrial College "offers courses leading to the degree of Bachelor of Science, Bachelor of Science in Civil Engineering, Bachelor of Science in Electrical Engineering, Bachelor of Science in Mechanical Engineering, Bachelor of Science in Agriculture, and Bachelor of Science in Forestry. Perhaps, even under this arrangement, there were students who graduated with the plain degree of Bachelor of Science, who, judged by the line of work they took up, should have had the degree of Bachelor of Science in Agriculture. The lists of graduates in the catalogs class all of these graduates simply as Bachelors of Science, without any subdivision into groups.

It will be interesting no doubt to take a look at one of the catalogs published in the nineties to ascertain just what instruction along agricultural lines of collegiate grade was then offered. Take the catalog published in June, 1896, for instance. Associate Professor T. L. Lyon, of whom we have already heard, Dr. A. T. Peters, and H. C. Heald were listed as the instructors in "agriculture." There were nine courses in that subject, "agriculture" then representing a diversity of interests, which today are represented by separate departments. The courses included soils, field crops, stock feeding, breeds and breeding of stock, anatomy and physiology of farm animals, diseases of farm animals, dairying, sugar beet culture, and technology of sugar manufacture. "Entomology, ornithology, and taxidermy" was listed by itself in the catalog, with Professor Bruner and W. D. Hunter in charge. There were fourteen courses dealing with those subjects. Horticulture, with Associate Professor Fred W. Card in charge, had its own place in the catalog. These were eleven courses here, including pomology, vegetable gardening, landscape gardening, forestry, greenhouse work, horticultural literature, plant breeding, and original investigations, as well as continuations of certain of these courses.
EDGAR ALBERT BURNETT
Dean of the College and associated with its work for a quarter of a century.
The general scientific departments of the University contributed to the agricultural course of the Industrial College. The agricultural course embraced for the first year entomology, chemistry, English, hygiene, mathematics, horticulture, and physics. The second year there were botany, chemistry, English, horticulture, modern language, and physics. The third and fourth years there were English literature, agriculture, geology, zoology, military science, required English themes, and drill. Electives filled in the gaps in the course. By this time the school year was made up of two instead of three semesters, both of about equal length.

The agricultural department of the Industrial College was notably advanced in 1901 when E. A. Burnett, who had come to the college in 1899 to take charge of the work in animal husbandry, was made associate dean in charge of agriculture. Dean Bessey was head of the Industrial College. By this time the college farm and its experimental work was well under way, with new departments being formed and developed.

In these years there was not a hard and fast line dividing the faculty of the School of Agriculture, the agricultural faculty of the Industrial College, and the staff of the experiment station. They were all connected with the "farm" and most of the faculty served in two or all three divisions of the work. This period, from about 1890 to 1908, was productive of most of the departments now on the farm campus.

A notable figure in the early nineties was Prof. C. L. Ingersoll. Professor Ingersoll had graduated from the Michigan Agricultural College and had held professorships at both Michigan and Purdue. For nine years he had been president of the Colorado Agricultural College, but in 1891 he was made professor of agriculture and dean of the Industrial College at Nebraska, succeeding John S. Kingsley as agriculturist. In 1892 he also became director of
the Experiment Station. Failing health, however, com­
pelled him to sever his connection with the college, and he
passed away at Grand Junction, Colorado, December 15,
1895. T. L. Lyon, who had been assistant chemist in the
Experiment Station, was elected associate professor of
agriculture to succeed Professor Ingersoll.

**E V O L U T I O N O F D E P A R T M E N T S**

*Agronomy.*—There had always been instruction in
“agriculture” in the college. But “agriculture” as a sub­
ject in the earliest years embraced all the courses of the
Agricultural College, generally speaking. Gradually it
sloughed off one course after another, as a division of the
subject became of sufficient importance to have a professor
of its own. The catalog published in 1905 was the last one
in which the general subject of “agriculture” appeared.
By that time so many other departments had been estab­
lished that “agriculture” now included mainly soils and
crops, with a little farm management and grain grading.
Prof. T. L. Lyon and E. G. Montgomery were then in charge
of the work. In the next catalog “agriculture” had dis­
appeared, but in its stead was “agronomy” with the same
courses listed. This marked the final breaking up of the
old general subject of “agriculture.” Alvin Keyser was now
connected with the department, in addition to Mr. Lyon
and Mr. Montgomery.

Professor Lyon resigned in September, 1906, and the
department of agronomy was divided. In the catalog of
1907 “agronomy” itself had disappeared, but in its stead
were the departments of field crops, presided over by Pro­
fessor Montgomery, and soils, presided over by Professor
Keyser. This was reorganized again in 1909 and a depart­
ment of agronomy and farm management created. There
was also a division called experimental agronomy. The
soils and field crops were again in the same department.
The work in soils was now in charge of Prof. Percy B.
Barker, the work in field crops in charge of Prof. Erwin
Hopt, the work in farm management in charge of Prof. C. W. Pugsley, and the work in experimental agronomy in charge of Prof. E. G. Montgomery. Professor Keyser had resigned to accept a position at the Colorado Agricultural College.

**Horticulture.**—Horticulture was one of the pioneer subjects in the college. Harvey Culbertson, the first graduate of the Agricultural College, served as professor of that subject at one time. When Doctor Bessey came to the University he was "professor of botany and horticulture." Dean Bessey's duties as professor of horticulture at first had consisted largely, with the assistance of John Green, the head janitor, in putting the grounds of the University uptown into presentable shape. Trees were set out and efforts were made to develop a small botanical garden.

"At last the time came (1892)," says Doctor Bessey, "when a separate professor of horticulture was elected, in the person of F. W. Taylor, who soon brought together several active and enthusiastic classes in horticulture." Professor Taylor resigned in 1893, but he was later to perform a valuable service as superintendent of farmers' institutes and in introducing the Kherson oat from Russia. Fred W. Card then became associate professor of horticulture. Mr. Card accomplished a great deal during the late nineties with the young but growing farm campus, just as Professor Bessey had done with the campus of the University downtown.

To the department of horticulture fell the responsibility of developing the farm campus. R. A. Emerson, who was appointed assistant horticulturist on September 15, 1895, tells something of this development in *Agriculture* for October, 1910:

"The first time I ever saw the University Farm campus (it was not a campus then) was one Saturday in the fall of 1892, when, together with a number of other University students, I cut and shocked corn there for Mr. Perin. The corn was growing in the west side of the orchard, northeast of the hog shed and yards, which
means that it was between the present horticultural building [this was succeeded by the Plant Industry building] and Home Economics Hall.

"West of Mr. Perin's house, extending from Holdrege street north along the west side of the orchard, was a grove of cottonwood, ash, and honey locust. Many of these trees are still standing. About the only bit of grass that was kept well trimmed, aside from that about the foreman's house, was the 'lawn' under the cottonwoods at the south end of the grove. Hand lawn mowers were not used here, and horse lawn mowers were unheard of, but the Jersey bull did excellent work within the limits of his lariat.

"To be sure, there was then as now—the this may have come later—a horticultural building. But the building that now houses horticulture [even this has now been superseded] is palatial in comparison with the building used in the early 90's. It stood north of the old implement room and contained a tool room where the hoe was kept, a harness room, general laboratory, and workshop, as well as office room for the foreman, hired man, orchardist, gardener, campus superintendent, Experiment Station assistant, teamster, etc. (All of these positions were filled by one man when I began working for the Department of Horticulture about 1895.)

"The first improvements of a horticultural sort begun on the farm campus after the time I first saw it were made by Professor Card during the late 90's, when a considerable number of trees were set near the horse barn and the dairy building [now poultry and rural economics building]. Professor Card also established an orchard of some ten or fifteen acres where the veterinary building and cattle barns now stand. Soon after he left the University and when the new animal husbandry department began growing, this young orchard was grubbed out to make room for barns and yards, and another orchard of some twenty acres was established near the east end of the farm.

"The ten-year period from the late 90's, when Professor Card left, to the time Mr. Dunman came to take charge of the campus a couple of years ago, was one of rapid development. Practically all the buildings we now have were erected during this time. One never knew, after a group of trees or shrubs was planted, how long before a driveway, walk or sewer ditch would be sent straight thru it or a building erected upon that very spot.

"It was toward the end of this period that the arboretum was established as a part of the campus. This move was characterized by a prominent Nebraska horticulturist as the most important step
ever taken by the University in a horticultural direction. A large number of varieties of trees and shrubs of certain families were planted and these now constitute what there is of the arboretum.

"To my notion, the most important thing that has ever happened for the good of the farm campus was the decision of the Board of Regents to adopt a permanent plan to be followed in the placing of future buildings. While this plan was adopted some years ago, it really belongs to the present period of campus improvement. It was the beginning of new things on the campus."

Professor Card left the University in 1898 to become professor of horticulture in the Rhode Island Agricultural College. Others who served for more or less time during these years, up to about 1910, included Val Keyser and F. E. Denny. The catalog published in 1909 listed three members of the department of horticulture. Professor Emerson was in charge, altho he was shortly to receive a call to Cornell University. The other two members of the faculty were V. V. Westgate and R. F. Howard, both adjunct professors. W. H. Dunman was landscape gardener.

Forestry.—Forestry in which lectures were given in the early years of the University was once regarded as merely a branch of horticulture. However, in later years of this period when the regular courses in forestry began to be given, the subject was not so closely related to agriculture. The regents' report, for the two years ending with 1904, announced that "the courses in Forestry, which have been in operation over a year, are proving popular, the likelihood being that demand for training in this interesting branch will increase in the near future, especially through the afforestation policy adopted by the National Government, which has already been put in operation within our State." This work was under the supervision of the dean of the Industrial College rather than the associate dean in charge of agriculture. Francis G. Miller was professor of forestry. In 1906 he was made a member of the Experiment Station staff. He was succeeded by Prof. F. J. Phillips, September 1, 1907. When the Industrial College
was separated into the College of Agriculture and the College of Engineering in 1909, forestry became a branch of work in the College of Agriculture.

Agricultural Chemistry.—Agricultural chemistry was one of the oldest departments in the University. True, it had not been known precisely as agricultural chemistry, but Prof. Samuel Aughey, the first professor of natural sciences in the University, and later Prof. H. H. Nicholson, had so closely allied themselves with the work of the farm and the experiment station that it may almost be said that they made chemistry an integral part of the agricultural course. Mr. Nicholson became chemist of the experiment station immediately upon its organization.

In the regents’ report is the notation that in 1891, “T. Lyttleton Lyon, B.Sc., 1891, Cornell, was appointed instructor in agricultural chemistry.” Mr. Lyon and Dr. Rachel Lloyd were listed as assistant chemists of the experiment station, while Mr. Nicholson served as chemist. The old stone house at the college farm was occupied by the chemistry division of the experiment station in 1896. When the new experiment station building was completed about 1900, the chemistry work of the station found quarters there.

The report of the experiment station for 1902 announced that the department of agricultural chemistry had been made an independent department, separate from the department downtown. Prof. Samuel Avery was placed in charge. A course in agricultural chemistry of collegiate grade was listed in the catalog published in 1903. It was given by Doctor Avery and consisted in the analysis of agricultural products. There were two more courses listed, but they apparently were given in the School of Agriculture. Of course before this time instruction in chemistry had been given in connection with both school and college courses.

In 1905 Doctor Avery was placed in charge of the department of chemistry of the University, retaining general direction of the work in the experiment station. He suc-
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ceeded Professor Nicholson who had given nearly a quarter of a century of service to the institution. F. J. Alway in 1906 became station chemist and also professor of agricultural chemistry. There were many who rendered splendid service to the college in the chemistry work of the station and college, among them being R. W. Thatcher, now director of the Cornell and Geneva experiment stations, associated with Cornell University.

Entomology.—The department of entomology likewise had a long period of development. It dates back to 1887 when Conway McMillan was elected to the position of entomologist. But even before that time, from 1871 to 1878, Samuel Aughey, professor of natural sciences, had given attention to some of the troublesome pests then found in the state. In April, 1888, Lawrence Bruner was called from the United States Department of Agriculture to succeed Mr. McMillan, who had resigned. It was some time before any regular courses were offered in entomology. In the fall of 1888, students in the botanical seminar asked Professor Bruner to outline a course, and aid them in obtaining some knowledge of insect fauna. In 1890 entomology was offered as a regular course in the Industrial College, and in 1895 the department of entomology and ornithology was established.

At first Professor Bruner made his headquarters in University Hall, then in Nebraska Hall, and later in Mechanic Arts Hall, on the downtown campus. From 1893 to July 1, 1895, H. G. Barber was his assistant in the experiment station, and, immediately following Mr. Barber's resignation, W. D. Hunter, now located at Dallas, Texas, in charge of the southern field crop investigations of the bureau of entomology, was appointed instructor in entomology and assistant entomologist in the experiment station, which position he held until 1901. J. C. Crawford, Jr., and W. Dwight Pierce acted as assistants to Professor Bruner between 1901 and 1904. In 1906 ornithology was transferred to the department of zoology and the name of what
remained became the department of systematic and economic entomology. The systematic part of the work was again moved to Nebraska Hall, while the economic part was moved to the farm, where it was housed in Experiment Station Hall. On July 1, 1907, Myron H. Swenk, who had been assistant in the department since 1904, was made assistant entomologist in the experiment station and was placed in charge of the instructional work in entomology given at the farm, he being located on the farm campus while Professor Bruner remained on the city campus. The department of entomology carried on important work in connection with the experiment station, and in the farmers' institute courses, and had from time to time subsequent to 1901 received appropriations from the state because of the fact that the professor of entomology was also state entomologist.

Animal Pathology.—The department of animal pathology is one of the oldest in connection with the college, dating back to the eighties, when Doctor Billings carried on his experiments with hog cholera. Doctor Billings returned to the college again in 1891 and carried on his work for about two years. He was succeeded in 1894 by Dr. Albert T. Peters. Much of this work was in connection with the experiment station, rather than the college, but some courses were also offered. For many years there was a small laboratory and animal house on the farm campus. Dr. J. H. Gain, who had graduated from the Chicago Veterinary College in 1894, and had practiced in Texas for three years, became a member of the department in 1901. Dr. L. B. Sturdevant began giving instruction along this line in the School of Agriculture in 1903, and for several years was associate professor of animal pathology. A new building for the department was erected in 1908 and was occupied beginning with the year 1909.

Dairy Husbandry.—The department of dairy husbandry had its beginning along with the School of Agriculture. Prof. A. L. Haecker in 1896 was made assistant in agri-
culture. The erection of the old dairy building in 1896 apparently marked the real beginning of dairy work. The department of dairy husbandry became an independent department about 1900. Professor Haecker remained with the department throughout the years mentioned in this chapter.

Animal Husbandry.—The department of animal husbandry was organized in 1897. C. H. Elmendorf, a retired Hereford breeder, gave his services without pay in order to get the department under way. In 1899, E. A. Burnett, then professor of animal husbandry in the Agricultural College of South Dakota, was called to Nebraska. Professor Burnett, later to become Dean Burnett, had graduated from the Michigan Agricultural College, and had served at that institution as an instructor. During the first two years Professor Burnett handled practically all of the instructional and experimental work of the department, and at the same time was superintendent of farmers' institutes.

His first appropriation for livestock was $1,500 which was spent for Hereford cattle. The fact that Professor Burnett about 1901 had become associate dean of the Industrial College and also director of the experiment station made it necessary to secure an assistant. At this time H. R. Smith joined the faculty. Professor Smith had been a student under Dean Burnett in the Michigan Agricultural College, and later did postgraduate work in the University of Wisconsin. The department of animal husbandry soon became one of the leading departments in the college. In two years Professor Smith became a full professor and was placed in charge, although Professor Burnett, now associate dean, retained supervision. There were men of more than ordinary ability who were connected with this department during the next several years, up to about 1910, including A. F. Magdanz, C. W. Pugsley, Robert C. Ashby, Ellis Rail, C. B. Lee and H. J. Gramlich. Mr. Pugsley was later to become head of the Agricultural Extension Service of the College, assistant secretary of the United States Department of Agriculture, and finally president of the South
Dakota Agricultural College. Mr. Gramlich, who graduated from both the School and the College of Agriculture, was later to become head of the department of animal husbandry. In 1908, the present judging pavilion was erected at a cost of $30,000, and has served as the headquarters of the department since.

Agricultural Engineering.—The department of agricultural engineering is one of the newer departments of the college. Prior to the fall of 1904 some work in the farm mechanics line had been given in the engineering shops at the University. In the summer of 1904 the Board of Regents set aside $15,000 for buildings and equipment at the college farm. This money was expended in the erection of a machinery hall and shops building, a red brick structure still standing on the campus, at a cost of $10,500, and in equipping the blacksmith shop. J. B. Davidson, a graduate of the University of Nebraska in mechanical engineering, was put in charge of the work, under the direction of the mechanical engineering department of the University. He gave instruction in forge work, farm machinery, and farm motors. The work was known as farm mechanics, rather than agricultural engineering, however. But after a year Professor Davidson resigned, and soon L. W. Chase, under whom the department grew rapidly, was placed in charge.

From 1904 to 1907 the department was under the mechanical engineering department of the University, but in 1907 it was made a special department under the direction of the associate dean of agriculture. In 1910 it became known as agricultural engineering, subject to both the Agricultural and Engineering Colleges. In 1907 A. A. Baer became instructor in carpentry. O. W. Sjogren, the present chairman of the department, became associated with it about this time.

Agricultural Botany.—Botany of course was an old subject but with the development of agricultural work the department of agricultural botany grew up at the farm.
The first botany to be taught at the farm was that in the School of Agriculture. The teacher of the first classes was Miss Cora Frances Smith, later Mrs. George O. Smith, Jr. This laboratory was located in the old dairy building. The teaching of botany in the school was carried on mainly by teachers sent out from the city campus.

In 1905 the work in agricultural botany was placed upon an independent basis with the appointment of Dr. F. D. Heald as professor of agricultural botany and station botanist, succeeding in the latter position Doctor Bessey. The headquarters of this department were in the new Agricultural Hall. Doctor Heald resigned and Dr. E. Mead Wilcox was elected to fill the vacancy beginning September 1, 1908. Among those associated with the department in the later years of this period were Prof. R. E. Stone and Prof. G. H. Coons. Plant pathology by this time was becoming almost a subject of its own, and in fact, constituted a great part of the work of this department, especially in an experimental way.

Agricultural Education and Agricultural Economics.—Instruction in agricultural education and in agricultural economics had its beginning in the School of Agriculture. In 1900 Prof. A. E. Davisson was given the title of director of the School of Agriculture and professor of agricultural education, the latter title apparently being awarded to give him University standing. In 1901 his title was changed to principal of the School of Agriculture and professor of economics therein.

With the establishment of the Teachers College in 1908, one branch of its work under Professor Davisson was given over to agricultural education. In the catalog published in 1909 one will find listed in the curriculum of the newly established College of Agriculture, a department of agricultural education. This work was under the direction of Professor Davisson and included one course in agricultural economics and one course in agricultural pedagogy. The course in agricultural economics dealt with such questions
as the factors of agricultural production, the organization and size of the farm, the forces and conditions which determine the prices of agricultural products, etc. The course in agricultural pedagogy was designed to afford instruction in methods of teaching agriculture to rural and high school students.

Other Departments.—There were many other departments that contributed to the agricultural courses of the Industrial College, as well as to the experiment station. Dr. E. H. Barbour and Dr. G. E. Condra contributed instruction in geology and geography, and Doctor Barbour was also a member of the experiment station staff. Prof. G. A. Loveland and Prof. G. D. Swezey offered instruction in meteorology and filled positions on the experiment station staff. In fact, there were always a number of courses that were on the border line of agriculture and of which full use was made.

The library at the farm had been growing gradually for a number of years. Miss Edna C. Noble, in charge at the present time, first became associated with the work at the farm in 1904. At that time the library occupied quarters in Experiment Station Hall and consisted of some 5,000 books, mainly reports. Today (1924) the library has between 16,000 and 17,000 books and subscribes to some 600 periodicals. The library is now housed in Agricultural Hall.

It perhaps would not be amiss to state that it was in this period, from 1891 to 1895, that General John J. Pershing was at the head of the military department of the University.

By the time the year 1908-09 came around there were two main agricultural courses being offered in the Industrial College. One was known as the general agricultural group and the other the technical agricultural group. The general agricultural group for the first year embraced animal husbandry, dairy husbandry, chemistry, French or German, botany, rhetoric, and military drill. The second
year the course embraced horticulture, animal husbandry and animal pathology, physics, rhetoric, mathematics, geology, and military drill. The third year there were soils, field crops, forestry, general meteorology, English literature, and elective courses. The fourth year embraced political economy and agricultural economics, and elective courses.

The technical agricultural group the first year embraced chemistry, agricultural subjects (in this classification were included agricultural botany, agricultural chemistry, animal husbandry, field crops, forestry, horticulture and soils), botany, rhetoric, French or German, and military drill. The second year the course included agricultural subjects, science, French or German, rhetoric, and military drill. The third year it embraced agricultural subjects, science, and language or literature. The fourth year it included agricultural subjects (including thesis), agricultural economics, and electives.

The course offered in home economics has already been described. In 1909 the Legislature reorganized the Industrial College, creating the College of Agriculture and the College of Engineering, but this will be left for our succeeding chapter.

The college farm had prospered greatly in these eighteen years and now handled a large part of its own instruction. The catalog for 1909 announced that instruction in agricultural botany, agricultural chemistry, agronomy, animal husbandry, dairy husbandry, entomology, home economics and horticulture was given at the college farm. The general cultural and academic courses were naturally given on the downtown campus. The University downtown and the college farm had been brought in close touch by the construction of a street car line to the latter in 1903. The farm was now well provided with buildings, as readers have no doubt judged from the mention from time to time of new structures erected. There were now the old dairy building, Experiment Station Hall, Agricultural Hall, the
small horticultural building, the home economics building, the judging pavilion, Machinery Hall, and the veterinary building, besides those serving as barns, sheds, etc.

THE EXPERIMENT STATION

Nebraska agriculture may be said to have come into its own in the eighteen years from about 1890 to 1908. The effect of drought became less severe, land prices rose, farmers began to get ahead financially, and the state became more prosperous. Naturally the Agricultural Experiment Station played a large part in such a development. It found the demands on its services no longer limited to a few isolated lines of activity, but, embracing the whole field of agriculture. These were years of new crops for Nebraska, such as alfalfa and winter wheat. Sugar factories were established. More attention was given to the raising of stock. With the establishment of the North Platte Substation in 1904, the station began to work out successful plans of operating the western Nebraska farm.

Financially the station was better off. The Adams Act of 1906 provided another $15,000 a year of federal money, in addition to the $15,000 provided by the Hatch Act of 1887. The Adams Act provided that $5,000 should become available on June 30, 1906, and that this should be increased $2,000 a year until in 1911 the full $15,000 would be available then and each year thereafter. The spending of the money provided for in the Adams Act was limited, however, to original research and could not be used for general administration, printing, or popular demonstration purposes. There was more liberality in the spending of the Hatch funds.

To gain a brief estimate of what the experiment station was accomplishing during this period, one should turn to the report of the experiment station for 1904, enumerating some of the outstanding achievements up to that time:

Before any beet sugar factories were erected, the station proved "the adaptability of our soil and climate to beet
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The results of these experiments were important factors in the establishment of three beet sugar factories."

The winter wheat area of the state was developed largely thru the work of the station. "In 1900, the seed of hardy strains of Turkish Red and Big Frame wheat was sent to four hundred farmers in northern Nebraska and in southwestern Nebraska west of the 100th meridian. . . . The increase in winter wheat production of 10,000,000 bushels per year in this state since these experiments were undertaken has, we believe, been largely due to the results secured from these experiments."

The Kherson oat developed by the station was imported from Russia in 1897. Prof. F. W. Taylor, who had been connected with both the department of horticulture and the farmers' institutes in Nebraska, brought the oat home from Odessa, Russia. It was found to yield several bushels per acre more than any other variety then grown in central or western Nebraska.

"Among the most progressive farmers the practice of the methods advocated by this station has resulted in increasing the yield (of corn) as much as ten bushels per acre. It is not too much to say that a continuation of this process of education will result in an average increase of five bushels per acre throughout the state. This will mean approximately 35,000,000 bushels of corn, worth $10,000,000 every year to the farmers of the state."

The station demonstrated that apple scab could be largely controlled by the use of two sprayings with Bordeaux mixture.

The station demonstrated that cover crops are of great value "in making more hardy such trees as peaches, Japan plums, etc., which have a tendency to grow too late in the fall," and also protect the ground from freezing in the winter.

"Experiments in mulching garden vegetables have shown that a straw mulch increases the yield of certain vegetable crops like cabbage, tomatoes, beans, cucumbers, and pota-
These fifty years tos over yields which would be secured only by the most intensive methods of tillage.”

“From a study of the forests and forest trees of the state the station many years ago began to urge the planting of trees on the sand hills, resulting in the establishment at the present time of two large Government Reserves on which trees are now being successfully planted.”

Early in this period the station advocated the introduction of clover and alfalfa, which became common forage crops.

The Nebraska station was the first in America to discover the cause of the killing of cattle by eating green sorghum, which contained prussic acid. This same sorghum was apparently harmless after being cut and dried for hay.

In 1894 an investigation showed an annual loss of 17 per cent of the cattle in the range country due to blackleg. The station became the distributing agent for the bureau of animal industry and advocated that stockmen vaccinate their cattle. Hundreds of thousands of doses of vaccine were sent out to the stockmen free of charge. By 1901 the loss from this disease had been reduced to about 1 per cent.

Six years after the establishment of a dairy department at the experiment station, Nebraska had advanced from twentieth place in the Union to tenth place as a dairy state. The number of dairy cows in the state had increased about 200,000.

The station was prominent in determining what methods would best maintain and increase the humus in the soil, rotation of crops, etc.

Feeding experiments with different rations showed the economic value of alfalfa and highly protein foods when fed with corn. Other valuable feeding experiments were conducted from year to year.

The idea of using alfalfa as a supplement to corn in cattle feeding, which was gradually developed during this period, it may now be said, was of untold value to the state. It helped Nebraska to achieve its present position as a beef
and pork producing state. Before the coming of alfalfa, the popular and common ration was corn and prairie hay. The replacement of the prairie hay by alfalfa resulted in a very substantial lowering of the cost of beef production. One reason Nebraska has never shown economy in feeding silage to fattening cattle is this wonderful combination of corn and alfalfa. Silage has never been produced in Nebraska at a cost comparable with alfalfa hay in beef cattle feeding operations. Alfalfa could also be had at a much lower cost per pound of gain than commercial protein feeds.

SUGAR BEETS AND BEET SUGAR

Two big things emphasized during the early years of this period were the experiments carried on with sugar beets and the investigations into animal diseases. “Perhaps more has been done in this Station in leading in a thorough investigation of the sugar beet problem and of animal diseases than in any other two lines of investigation,” states the University catalog published in 1899. “No state in the Union has made a more thorough research into the many questions relating to the growth of the sugar beet, and its manufacture into sugar than has Nebraska, and no small portion of the solution of these questions has been carried on under the provisions of the Experiment Station Act, and by means of the funds coming from the general government. Much the same is true of the careful and painstaking and necessarily expensive work that has been undertaken in the investigation regarding the causes and cures for the various diseases of domestic animals.”

It will be recalled that early in the history of the Agricultural College attention was being given to determining the possibility of growing sugar beets in Nebraska. But during this period of some eighteen years three sugar factories were to be established in Nebraska, and were to lay the foundations for the great development of beet growing in the North Platte Valley later on. Much of the credit for the development of the industry in the late eighties and
early nineties should go to Prof. H. H. Nicholson of the University, who was unsparing of time and effort in developing the industry in Nebraska.

In 1890 a factory for the manufacture of beet sugar was completed at Grand Island, the second oldest successful beet sugar factory in operation in the United States today. At the Grand Island factory in 1890, 1,400,000 pounds of sugar was manufactured. Enterprising citizens of Grand Island had contributed a subsidy for the sugar factory as well as guaranteeing a certain acreage of beets. A factory was completed at Norfolk in 1891, the citizens there contributing a subsidy toward the factory’s erection. In 1893, 1,671 acres were harvested near the Grand Island factory, producing 11,149 tons of beets and 1,835,900 pounds of sugar, and at the Norfolk factory, 2,807 acres, producing 22,625 tons of beets, and 4,107,300 pounds of sugar. Both the State of Nebraska and the Federal Government for a number of years provided a bounty on sugar. S. C. Bassett in his excellent article published in the report of the State Board of Agriculture for 1895 states that the total bounty received by Nebraska sugar producers thru 1894 was $310,791.50 from both state and federal sources.

One of the unique features of the work carried on by the University in behalf of the sugar industry was the Sugar School. It was one of two such schools in the United States. Apparently the first session of this school was held in the school year of 1891-92. The University catalog, published in 1896, conveyed the information that “the objects of the school are to give instruction in the best methods of sugar beet culture and in the details of factory methods of sugar making. Especial attention will be given to the chemical control of sugar factory operation.” The school was open to young men sixteen years of age or over, who had had the requisite training for carrying on the work. The catalog of 1896 announced that hereafter the school would open at the beginning of the University year “instead of in the middle of the year as heretofore. The school will
be in session during the manufacturing season and classes will have the opportunity of visiting the sugar factories while in operation, and the large beet farms during harvest time,” the catalog stated. The course included among other things instruction in elementary chemistry, the technology of sugar manufacture, sugar beet culture, steam and electrical machinery, and irrigation engineering. The enrollment of the school was never particularly large. The catalog published in June, 1896, gave the enrollment of the Sugar School as thirty-four. The enrollment in 1898-9 and 1899-1900 was only two each year. In April, 1900, the regents discontinued the school. It was stated that in order to develop the school properly a considerably enlarged equipment would have been necessary for which funds were lacking.

In 1899, the Standard Beet Sugar Company started a factory at Leavitt, near Ames, Nebraska. Sugar beet experiments were conducted on the farm of the Standard Cattle Company at Ames, Neb. by the University beginning about 1898. The company provided a well-equipped laboratory for carrying on the analytical work. The laboratory was in charge of C. L. Sovereign, a graduate of the Sugar School. “Summing up the season’s work at Ames (1898) shows a production of some five acres of beets as an aggregate of the various experimental plats, giving an average of about eighteen tons to the acre, at the general cost of about thirty-five dollars per acre,” Professor Nicholson stated. “In the course of the season between ten and eleven thousand analyses of beets have been made including ten thousand analyses of mother beets to be used in the future for seed production.”

To one who today understands the complicated nature of the beet sugar industry and the large staff of experts which the sugar companies themselves have developed, it seems quite a wonderful achievement that sugar factories could be operated successfully in those days. It was not an easy matter to grow beets and develop an industry. The college
itself was confronted with scores of problems which it en­
deavored to solve in co-operation with the Department of Agriculture at Washington, the sugar companies, and the farmers themselves. There were investigations as to fertil­izers and methods of cropping, experiments with varieties of beets, and chemical experiments in methods of estimating the amount of sugar in beets. Beet seed was distributed to farmers and they were asked to make reports on their work, as well as send in beets for analysis. Back in 1890 a score or more of substations to try out beet growing were established in various parts of the state, and three young men from the chemistry department were detailed to visit the farms. “Each year, with its unfailing change in cli­matic conditions, adds something to our knowledge of this important industry,” says the report of the station for 1896.

The beet sugar development of this period apparently reached its peak in the early 1900’s. The factory at Nor­folk was moved to Lamar, Colo., in 1905, and in 1910 the Leavitt factory was moved to Scottsbluff. In the next ten years the great development of sugar beet growing was to come in the North Platte valley.

MANY TYPES OF INVESTIGATION

Dr. Frank S. Billings, who had been associated with the experiment station in the late eighties, again took up his work with animal diseases in 1891, a committee from the live stock association of the state having urged early that year that the investigational work be renewed. Doctor Billings resigned in 1893, and on February 1, 1894, Dr. A. T. Peters took up the work. For several years the experiments looking to the eradication of hog cholera con­tinued, but the work in animal diseases also broadened out. Doctor Peters carried on his work at the college farm. In a little less than a year Doctor Peters was called upon to make 1,841 personal examinations of different animals, and 164 post mortems. Of the examinations 672 were hog
cholera. Three hundred cases were the cornstalk disease in cattle and 431 were scabies in sheep. Doctor Peters did considerable traveling over the state, besides teaching in the school and college. Many of the outbreaks of animal diseases were attributed to unsanitary conditions.

The wide extent of the work of Doctor Peters is shown by the fact that he published a report on the diseases of poultry and also a paper on caponizing. There were cases of anthrax, blackleg, cornstalk disease, keratitis, glanders, rabies, tuberculosis, ergotism, calf cholera, and many other diseases. In 1897 Dr. Charles M. Day was detailed to represent the United States Department of Agriculture in cooperative experiments looking to the eradication of hog cholera. C. H. Walker, a “practical” man, was also detailed to represent the State Swine Breeders’ Association in the experiments. Bulletins published by this department from 1890 to 1908 included one on the corn-fodder disease in cattle and one on Texas fever by Doctor Billings, one on serum therapy in hog cholera, published in 1897, one on cornstalk disease, one on blackleg, one on extermination of prairie dogs, one on malarial fever in horses, and one on ergot and ergotism. It will be recalled that Dr. J. H. Gain joined the department in 1901 and a building was erected for the department in 1908.

Another line of work in which a good beginning was made was irrigation. The name of O. V. P. Stout, as irrigation engineer, first appeared on the staff of the experiment station in 1896, although some work had been done before that time. In fact, Bulletin No. 1 of the experiment station was entitled, “Irrigation in Nebraska.” It had been written by Lewis E. Hicks and published in 1888. Mr. Stout in 1895 published a bulletin on the “Water Supply in Nebraska.” At this time there had already been considerable work done in irrigating along the North Platte River in Scotts Bluff County. People were beginning to think seriously about the matter. The editor of an irrigation magazine was quoted as saying “at this time Nebraska, in
the extent of visible public interest, leads the procession among the irrigation states of the Union."

The North Platte River was pointed out as being the most important stream in Nebraska for irrigating purposes. The area under the ditch tributary to that river was then believed to be in excess of 200,000 acres, while including that surveyed for irrigation, the total was at least 600,000 acres. The Loup, Republican, and South Platte Rivers were also mentioned, but it was pointed out that in the case of the Loup, there was less need for irrigating lands, while the Republican was not an ideal irrigation stream.

An interesting bulletin was one written by Prof. E. H. Barbour, and published about 1899. It was entitled, "The Homemade Windmills of Nebraska." One would hardly have believed that so many varied types of windmills, made at home, could have been found in Nebraska. This bulletin copiously illustrated with diagrams was one of the unique bulletins of the experiment station. At this time it was thought that the windmill would be quite serviceable for irrigation, and so it proved, for small patches of ground.

This period in the history of Nebraska farming and Nebraska experiment was not without its humorous side. For instance, there was sacaline, which dealers were trying to foist upon the farmers. Even when it was once proved that it was no good as a forage crop, the dealers in seeds and roots hit upon the plan of proclaiming that there were two kinds of sacaline, and the kind that the farmers found so discouraging was of course the kind that was "worse than worthless" and would the farmers please try some of their sacaline, which was the other kind. Doctor Bessey thus disposed of the matter in 1895: "No animal has ever shown the least inclination to eat it in any condition. When old it is very hard and harsh, and nothing but a starving animal would think of getting food from its wire-like twigs. Although our plants grew to but about three feet in height the main stems were nearly three-fourths of an
inch in diameter, and nearly as hard as gas pipes. Sacaline is a rank fraud.”

“It will be far better to have nothing to do with this humbug and to make every effort to secure good fields of that tried and reliable forage plant, alfalfa, which, in my judgment, is the coming forage plant for Nebraska,” Doctor Bessey remarked in another place. How accurate and far-sighted Dean Bessey was!

There was the boom in chicory, when people evidently thought it would be as popular as coffee. The college published a bulletin on that subject in 1897. “Having demonstrated that the chicory plant is capable of adapting itself to the Nebraska soil and climate,” the station was now making an investigation as to the best methods of cultivation. In fact, there was no limit to what might be tried. Nut culture was even “investigated” in 1893.

The years 1892 to 1896 were characterized by serious injury to the grain crops of Nebraska by chinch-bugs. In 1865 it had been discovered in Illinois that the chinch-bug was susceptible to epidemic diseases produced by certain parasitic fungi. In 1888 an effort was made in Minnesota to spread those diseases artificially, and the idea was taken up energetically in Kansas during the years 1889 to 1896. Professor Bruner secured infected bugs from Kansas in 1893 and the Nebraska station began sending out “inoculated” bugs to Nebraska farmers upon request. In order to do this, farmers sent in perfectly healthy bugs, which were given the disease and sent back to spread it among their neighbors in the field. “In order to carry out this plan,” said Professor Bruner, “the authorities of the University have found it necessary to have a large number of live, healthy bugs from time to time; and, as it is impossible to send representatives into the field whenever bugs are needed, they have found it necessary to require the farmers who want aid to send in these live bugs. These can be placed in a tight tin box along with sufficient green food to last them on the road. . . . There will be sent
in return as soon as possible a package containing 'sick' bugs that can be used in communicating the disease to the bugs in the field.”

Nearly 1,000 lots of infected bugs were sent out to 600 individuals in a campaign ending in 1894, and in spite of unfavorable weather for the development of disease among the bugs, the farmers receiving them in many cases noted the presence of diseased bugs in their fields and attributed this to a successful introduction of the disease thru the shipment of “inoculated” bugs. The next year some 400 lots of the bugs were sent out, and the results were reported as not being satisfactory in some cases, while in others it was indicated that with favorable weather conditions large numbers of the insects would have been killed off. This work was given up after some years, for investigations showed that the spores of the fungus producing the disease among the chinch-bugs were generally distributed thru the soil of the infested region, and, whenever the conditions were right, the disease would break out of itself without the introduction of “inoculated” bugs. In recent outbreaks of the chinch-bug in Nebraska and other states, misplaced faith in the efficiency of distributing “inoculated” bugs has been something of a handicap in securing the adoption of more laborious but more practical and dependable methods of control.

In recent years one has heard now and then about the possibility of farmers burning corn for fuel. Back in the nineties that was quite an important question. *Press Bulletin* No. 8, of the Agricultural Experiment Station, dealt with this question. An actual test was made at the University, yellow dent corn being burned in comparison with Rock Springs nut coal, careful records being taken. It was found that one and nine-tenths times as much heat was liberated in burning one pound of coal as in burning one pound of corn. With corn at 9 cents a bushel, coal was worth $4.87 a ton, and when corn was 15 cents, coal was worth $8.11.
An important feature of this period was the establishment of the first substation by the University. Altho there had occasionally been some work done by the experiment station at various points in the state, these stations and experimental plots had not been permanent. In most cases the property belonged to someone else and the work was usually of small magnitude. The Legislature of 1903 appropriated $15,000 for the establishment of a substation west of the 100th meridian "to determine the adaptability of the arid and semiarid portions of Nebraska to agriculture, horticulture, and forest tree growing, such as the production of grain, grasses, root crops and fruits of kinds commonly grown in the same latitude in other states; also the most economical methods of producing such crops without irrigation."

A committee of citizens at North Platte subscribed about $8,000 toward the purchase of a tract of land of 1,920 acres four miles south of the town. The farm comprised about 270 acres of bench land under an irrigation ditch, about 150 acres of level table-land, and 1,500 acres of rough pasture. W. P. Snyder, who had been associated with the station at Lincoln, became superintendent of the North Platte Substation. Experimental work was begun in 1904. Almost immediately after its acquisition feeding and crop experiments were undertaken on the farm. During the next couple of years $10,000 was expended for a superintendent's house, horse barn, moving and enlarging the foreman's house, the construction of sheds for cattle and hogs, and the construction of about five miles of fence on the farm. The work at this substation consisted especially in developing better methods of stock raising and farming for the western country. In 1908, W. W. Burr, later to become agronomist and assistant director of the Agricultural Experiment Station, was made assistant in soils and crops at North Platte.
EXPANDING WORK

It would not be possible within the brief limits of this history to describe every line of work in which the experiment station was engaged. Many of them were enumerated briefly at the beginning of this section. The experiment station found itself becoming responsible for more and more special work. By an act of the Legislature in 1893 the professor of botany was made the acting state botanist, the professor of chemistry the acting state chemist, the professor of geology the acting state geologist, and the professor of entomology the acting state entomologist. In 1911 the regents of the University were empowered to appoint a member of the teaching staff as state entomologist and another member as state geologist. Their duties were to furnish information requested by any official and to arrange and exhibit collections in their departments to show the varied resources of the state. Another line of work which was taken up by the University was that of seed testing. The laboratory in the department of agricultural botany for the testing of seeds was established about 1908 in co-operation with the United States Department of Agriculture. Some work along this line had occasionally been done before. For the most part the seed testing consisted in determining the percentage of weed seeds or adulterants. Later this work was carried on at the state capitol.

By the latter part of this period the station had achieved a permanent and lasting place in Nebraska agriculture. The extent of the inquiry and bulletin work is evident from the fact that in 1907 25,285 first-class letters and 14,868 postals were sent out as well as nine tons of bulletins.

The fourth annual report of the experiment station giving a statement of the work accomplished in 1890 listed just nine members of its working staff, besides the director and treasurer. The report for 1909 listed twenty-seven members of the staff besides the director and executive clerk. Out of those who were listed on the staff of the
AGRICULTURE COMES INTO ITS OWN

experiment station in 1890 but three today (1924) retain a connection with the University, J. S. Dales, Lawrence Bruner, and S. W. Perin. J. S. Dales, who was listed as treasurer of the station, is corporation secretary of the Board of Regents, having given approximately a half century to the service of the University. We have already heard of Mr. Bruner. S. W. Perin, superintendent of the farm, and W. W. Marshall, who became executive clerk in 1895, are two figures familiar to all students who have ever attended the Agricultural College.

It would hardly be possible to enumerate the names of all those who have been connected with the station from time to time. Those who served as its directors in this period include the names of Hudson H. Nicholson, C. L. Ingersoll, Chancellor George E. MacLean, Chancellor E. Benjamin Andrews, and E. A. Burnett, the latter since 1901.

A prominent figure in the work of the experiment station in this period was Samuel Avery, now chancellor of the University. When the question of bleaching flour was much discussed, he conducted experiments and announced that "the minute traces of yellow color present in flour can be bleached with such minute amounts of nitrogen peroxide that it is difficult to detect any effect on the flour other than the bleaching and the presence of nitrites." Doctor Avery also did a great deal of work in the study of the poisoning of cattle by sorghum and kafir corn, previously alluded to.

All branches of agriculture had now begun to receive attention and the station found itself answering questions on all sorts of subjects. Corn and wheat, the two big crops, became more and more prominent. Regarding the development of winter wheat in Nebraska, a copy of Agriculture for April, 1906, stated:

"The introduction of winter wheat into Nebraska has been very largely influenced by the experiments undertaken by the station to demonstrate what varieties were hardy and over what range of country hardy varieties could be grown with profit. In this experi-
ment more than 100 varieties of winter wheat were sown. Most of them were unprofitable, many of them entirely valueless; but a few varieties, notably the Turkish Red wheat, were proven to be hardy over a large area of the country which had previously grown nothing but spring wheat, and as a result of this experiment it is safe to say that the winter wheat production in the state has been increased more than 10,000,000 bushels per year, making wheat production profitable where spring wheat had been unprofitable, and substituting winter for spring varieties in many sections of the state.

The report of the experiment station for 1907 stated:

"The work which this Station has done in the extension of the winter wheat area of the state has resulted in very greatly increased areas of wheat, carrying this extension first to the southwest, then to the northeastern section of the state, where production has increased more than 9,000,000 bushels in the last seven years, and more recently extending winter wheat production into the northwest area of the state thru the work of the Substation at North Platte, where the yields of winter wheat upon summer tilled land have exceeded the average yields of wheat in the eastern counties of the state under the methods of production in common use."

"The work of the Experiment Station in promoting the corn industry of the state has been large and efficient," the same report declared. "Within the last five years, under the stimulus and advice of the Experiment Station, more accurate and exact study of the improvement of corn has been made than in all the years which preceded."

**Farmers’ Institutes**

During these eighteen years the University and college greatly enlarged their sphere of state activity. It was not alone in experimental work that the institution was active, but in the sometimes more difficult task of getting the people of the state to adopt its progressive methods of farming and stock raising.

Back in 1894 the University regents advocated the development of the county high school to bridge the gap that existed between the rural ungraded school and the University. A department of university extension was
organized in 1895 which had for its object the holding of lecture courses in the small towns of the state. Farmers' organizations began holding their meetings at the University. These meetings were finally grouped together in one big week and that became the "Organized Agriculture" of today, when practically all the agricultural societies of the state come together at the Agricultural College for a week of meetings and instruction. In the summers of 1899 and 1900 there were excursions from a number of points to Lincoln in order that farmers might visit the Agricultural College. "Professors of agriculture and related branches have by their publications and their conduct of classes exerted much valuable influence in launching agricultural and nature study teaching in the common schools," the regents' report for 1904 stated.

The farmers' institute was, however, the big development in carrying the message of better farming to the people of the state. Where there had been heretofore one institute, there were now a score of institutes. The foundation was being rapidly laid for the department of agricultural extension which during the succeeding years was to work out such a great program.

The great drawback to the development of farmers' institutes in years past had been the lack of funds for taking care of the overhead expenses and lack of a centralized management of the entire program of institutes. In April, 1896, the University of Nebraska took the matter in hand and appointed Prof. F. W. Taylor, superintendent of farmers' institutes. In an article published in the report of the State Board of Agriculture for 1896, Professor Taylor told something of the organization and means of carrying out the institutes:

"The state legislature makes no provision for Farmers' Institutes. There is, however, a volunteer state association originated for this work, composed of the Regents of the University of Nebraska, State Board of Agriculture, State Horticultural Society, State Dairymen's Association, State Poultry Association, Improved Live Stock
Breeders' Association and State Bee Keepers' Association. Small contributions from each of these organizations constitute a fund for incidental expenses. Each association furnishes four speakers for the season's work. The railroads in the state provide free transportation for speakers who are required to travel to fill appointments.

"The program for each Institute will cover two days, of three sessions each, commencing at 9 a.m., 1:30 p.m., and 7:30 p.m., respectively. The four speakers sent by the central office will use about half a session, each, on an average, and the other two sessions, as well as the time unprovided for in the sessions in which the speakers from abroad come, are to be covered by home talent."

The central organization arranged for speakers and paid their traveling expenses, while the local organization paid their hotel expenses, arranged for advertising the meeting, and provided a hall. It was usually suggested that before holding the institute, a local organization should be formed to sponsor it. Professor Taylor announced that as far as possible four institutes were to be held each week so that the speakers could travel on a circuit.

The first legislative appropriation was made in 1897 when $3,000 was placed in the hands of the University to help defray institute expenses during the next two years. This was increased in 1901 to $8,000 for the biennium, in 1903 to $12,000, and in 1907 to $20,000.

During the season of 1899-1900, fifty-one institutes were held in thirty-three counties. During the season of 1900-1901, sixty institutes were held, twenty-one of them being one-day meetings, and thirty-nine two-day meetings. The next season, with the increased appropriation, eighty-six institutes were held. In 1903-1904, forty-three one-day institutes were held and forty-nine two-day institutes. In 1904-1905, 150 institutes were held. The next season there were 160 institutes, and the season after that, 1906-1907, 136. In 1907-1908 there were 189 institutes with a total attendance of nearly 100,000. In 1908-1909 there were 177 institutes. The figures for the last two seasons included the boys' and girls' institutes, a number of which began to be held about this time. Most of the farmers' institutes
were held during the winter months. A few were held in the summer, but they were not a great success.

There was quite a development of the educational side of the farmers' institute in its later years. "At the early Farmers' Institutes the speakers merely gave their lectures, while the institute speaker of today is expected to illustrate his lecture, then score exhibits of corn and other grains and conduct a livestock judging demonstration," says the fourth report of farmers' institutes, distributed by the University in 1909. "Ten years ago it is safe to say two-thirds of the institute audiences were present to be amused or entertained but now the halls are filled with men and women anxious to receive new ideas that will help in working out the problem of the farm and of the home."

But the farmers' institute was more than simply a school. It was a one or two-day holiday, in which everybody joined. There was often a corn show, a crop exhibit, or a display of women's domestic products. There was sometimes a stock judging contest. Some features were put on the program for the pure entertainment.

The first farmers' institute school or short course was held at Pawnee City February 10 to 15, 1908. The short course was a farmers' institute usually lasting for a week. There was a definite program of instruction outlined. At this particular short course there was one week's instruction in stock feeding and stock judging and soils and soil problems for the men, and a week's instruction in domestic science for the women. The work in stock feeding and stock judging was in charge of C. W. Pugsley, then of Woodbine, Iowa, the work in soils in charge of Prof. F. J. Alway and Prof. Alvin Keyser, and the work in domestic science in charge of Miss Myrtle Kauffman. Sixty men and an equal number of women and girls registered for the course. "The Farmers' Institute Schools are intended to aid those who are unable to attend the Short Course at the School of Agriculture, the plan being to take the school to the people," a circular stated. The next season a short
course was held at Broken Bow and a short course at Hebron.

Another development was the boys' and girls' institutes. E. C. Bishop, state superintendent of public instruction, had taken an active part in introducing agriculture into the Nebraska schools and in promoting the work of boys' and girls' clubs. Miss Lulu S. Wolford was also one of the pioneers in this work. These boys' and girls' institutes aimed to do for the boys and girls what the regular institutes did for the grown-ups. There were usually contests in various lines of agriculture. Fourteen boys' and girls' institutes were held in 1907-1908. In 1908-1909 there were thirty-three such institutes. This marked the early beginning of boys' and girls' club work in Nebraska.

"The state department of public instruction has assisted the movement by furnishing literature, suggesting plans for organization, also by the personal efforts of members of the department," says the report for 1909. "The University has contributed publications for the promotion of the work, and sent out speakers and judges at the time of the contest. . . . The movement has, by its natural growth, developed in four years' time from a little state contest with 700 boys and girls in attendance, to 33 county contests, with a total attendance of 9,266. The work is naturally developing into a more permanent form; it obtains the interest of every boy and girl because they realize that in the preparation of exhibits for the contest, the growing of the corn and potatoes, the cooking and sewing, they receive personal benefit."

Speakers for a farmers' institute program were usually drawn from three sources, home talent, outside speakers, and speakers from the Agricultural College. Certainly there was always plenty of discussion on the part of the home talent. The department of farmers' institutes built up quite a list of special speakers who from time to time were sent out on the circuit. Among those whose names are to be found on programs of the later years of this period
were Andrew E. Elliott of Galt, Ontario; Prof. C. W. Pugsley, later to become assistant secretary of agriculture; Dr. Samuel Avery, soon to become chancellor of the University; Ex-Governor W. A. Poynter; S. R. McKelvie, later Governor McKelvie; Prof. H. R. Smith; Prof. Lawrence Bruner and M. H. Swenk; H. D. Lute of Paxton, Neb., later secretary of the Nebraska Farm Bureau Federation; Arnold Martin, who became famous as the twenty-acre farmer of Pawnee County; F. W. Chase of Pawnee County; Leonard S. Herron; W. W. Burr, then of the North Platte Substation; Prof. F. J. Alway; E. P. Brown of Davey; Prof. E. G. Montgomery; Prof. Alvin Keyser; Dr. G. E. Condra; Prof. L. W. Chase; Prof. A. E. Davisson; R. N. Conklin of Hooper; Dr. J. H. Gain; Prof. A. L. Haecker; Erwin Hopt; Obadiah Hull of Alma; E. W. Hunt of Syracuse; B. F. Kingsley of Hastings; C. G. Marshall; Dr. A. T. Peters; R. A. Miller of Ashland; W. P. Snyder of the North Platte Station; and many others. The women were not forgotten either for Miss Myrtle Kauffman, Miss Lulu S. Wolford of Pawnee County, Miss Gertrude Rowan of Lincoln, and Mrs. O. J. Wortman of Ashland found a place on the various programs.

Dean E. A. Burnett, throughout these years of great development, held a prominent place in the institute work. After the resignation of Mr. Taylor in 1899, Professor Burnett became superintendent of farmers' institutes. W. P. Snyder was assistant superintendent from 1903 to 1906. Val Keyser became assistant superintendent September 1, 1906, and a few years later, superintendent.

FINANCES

During this period the resources of the institution greatly improved. There were increased appropriations from both the state and the Federal Government. The outstanding feature probably was the action of the Legislature in 1899 in restoring the original one-mill tax for the support of the University. In the very earliest days of the University
there had been a one-mill levy, but it had shortly been cut to a quarter of a mill, and a little later raised to three-eighths of a mill. The one-mill levy enabled the University to erect the much needed buildings and to take care of the rapidly increasing numbers of students.

The five funds of the University were designated by the Legislature in 1899 as the permanent endowment fund, representing the money from the sale of lands; the temporary University fund, consisting of the proceeds of the investment of the permanent fund, rental of lands leased, and the one-mill tax; the University cash fund, made up of fees, income from the farm, etc.; the U. S. Morrill fund, consisting of moneys obtained under the Act of 1890; and the U. S. Experiment Station fund, consisting of moneys obtained under the Hatch Act. All money accruing to the temporary University fund was to be spent for the maintenance of the University, including buildings and permanent improvements.

The Legislature allowed the University more freedom in the expenditure of its own funds. This is discussed in the report of the Board of Regents for the two years ending in 1908:

"Statutory enactments and adjudications by the Supreme Court have wrought some important changes in the methods and policies of conducting university finance. The act of 1907 authorizing the regents to draw upon the proceeds of the one mill levy and the statute of 1899 authorizing the regents to disburse funds of the university, other than those arising from taxation, without detailed legislative appropriation have recently been subjects of judicial review. In state ex rel. Ledwith vs. Searle, 112 N. W. Rep. 380, the Supreme Court held, in substance, that the 'proceeds' of the one mill tax was not limited to such cash as might be received by the treasurer from said tax from time to time, but that it meant the fund, a total definite amount, to eventually accrue from the tax levy, and that this fund was subject to disbursement by the regents, in the manner provided by law, without further appropriation. In state ex rel. Spencer Lens Co. vs. Searle, 109 N. W. Rep. 770, the court also held, in effect, that the statute of 1899 sufficiently authorized the regents to disburse moneys for the university, not derived from taxation,
without detailed legislative appropriation. The board is fully aware of the increased responsibilities involved in these changes of policy."

From time to time the general fund of the state was appropriated for specific purposes, such as the upkeep of the substation at North Platte and the farmers' institute work. The school lands of the state, including the endowment lands of the University, were withdrawn from sale in 1897, altho most of the University's lands had been disposed of by that time. A. E. Sheldon, then a member of the Legislature, was instrumental in putting a stop to the wanton sale of the school lands.

The Federal Government came to the assistance of the University, and especially the agricultural side of the work, with three important appropriations.

The Second Morrill Act of 1890 provided the institution with $25,000 of government money to be used in "instruction in agriculture, the mechanic arts, the English language, and the various branches of mathematical, physical, natural and economic science, with special reference to their applications in the industries of life and to the facilities for such instruction." The Second Morrill Act provided $15,000 for the year ending June 30, 1890, and an annual increase of $1,000 in the amount, until the total of $25,000 was reached.

The Nelson Amendment of 1907 provided that the money paid the University under the Second Morrill Act should be increased to $50,000. For the year ending June 30, 1908, $5,000 was to be added to the original $25,000 and this was to be increased at the rate of $5,000 a year until the grand total of $50,000 was reached. The Nelson Amendment provided that "colleges may use a portion of this money for providing courses for the special preparation of instructors for teaching the elements of agriculture and the mechanic arts."

The Adams Act of 1906, previously referred to, added $15,000 a year to the original appropriation under the Hatch Act of 1887 for the benefit of experiment stations.
For the year ending June 30, 1906, $5,000 of the additional $15,000 was to be available, and this was increased by $2,000 a year until the total of $30,000, under the Hatch and Adams Acts, was available.

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