Chapter Four: THE INDUSTRIAL COLLEGE AND THE EXPERIMENT STATION

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THE INDUSTRIAL COLLEGE AND THE EXPERIMENT STATION

The fifteen-year period from about 1875 to 1890 was marked by at least three important developments in the history of the College of Agriculture. One was the changing of the name of the Agricultural College to that of Industrial College and the consequent development of an engineering department within the Industrial College, as well as the reorganization of the work of the college. The second was the founding of the Agricultural Experiment Station with government funds supplied under the Hatch Act. The third important development was the erection of Nebraska Hall, a building to house the Industrial College, on the uptown campus of the University. At the beginning of this period the Agricultural College was in operation but certainly in none too prosperous a condition. Its biggest attraction still remained the free rooms in the “dormitory” and the labor supplied students on the farm. There were two buildings of consequence at the farm, one the little stone house that was on the property when it was purchased by the University and the other the large frame house, erected in 1875, which was torn down in the fall of 1923.

“At the farm house he [a student] can find a pleasant home, far enough from the city to be out of the way of its temptations to idleness and worse, and yet near enough to enjoy all its literary and public advantages,” reads the catalog printed in 1875. “With all of the advantages of quiet and retirement for study, the student has yet the opportunity to be part of a young and growing university.”

The catalog states that “students in this college will be required to work at least two hours each day for five days in the week, unless excused for good reasons. This labor
will be paid for at the rate of from ten to fifteen cents an hour, according to the individual's skill and fidelity. Under this arrangement a faithful student may earn fully half his necessary expenses. . . . This labor is designed to be educational in its character, and is planned with reference to illustrating and enforcing the lessons given in the class-room."

For a while the students at the farm paid $3 a week for board, which included the use of rooms, partially furnished. Later this seems to have been reduced to around $2 a week. The rooms at the farm house were furnished with a "stove, bedstead, table, two chairs, and a coal bucket." The occupants of the room had to furnish everything else. The rooms in the dormitory at the farm were listed as being "free" but there was no provision for "self-boarding" at the farm.

The downtown campus of the University was still the headquarters of the Agricultural College for many years. The early catalogs provided that "class recitations in purely agricultural studies will be either at the farm house or at the University building, as may be found most convenient. All other recitations will be made to the regular professors in the academical department." As more ambitious agricultural courses were established, they appear to have been housed in old University Hall, or in Nebraska Hall, erected later on.

An advantage offered to the students of agriculture for a while was the opportunity to teach school during the winter. For a brief period it was the custom in this department to hold school in the fall, spring, and summer. Students could then secure positions in the country schools of the state for the winter. Another purpose behind this plan was the idea that students should have some experience with the actual growing of crops and could be furnished more employment during the summer. This plan was announced in the catalogs published in 1875 and 1876, but Chancellor Benton in his report for 1876 con-
sidered it a questionable advantage, and it was apparently abandoned soon thereafter.

The recommendation of Chancellor Benton and the notation of the Board of Regents that the agricultural course should be of a more technical nature does not seem to have been followed out. In fact, the catalogs from 1875 to 1879 stated that "it will be seen that students taking the full course will study agricultural studies about one-third of the time; literary and scientific studies about two-thirds." Among the somewhat unusual subjects listed in the agricultural course of 1878 were fish culture, ornithology, history of agriculture, moral philosophy, and international law. The catalog published in 1877 announced a four-year course in agriculture, besides one year preparatory, and a shorter course of two years, besides one year preparatory.

The first graduate of the Agricultural College was Harvey Culbertson, who was afterward to become acting professor of agriculture and superintendent of the farm, and later professor of horticulture. In the catalog of 1874-75 Mr. Culbertson was listed as the only fourth-year student in the Agricultural College, also holding the position of "foreman of the garden." In his report for 1875 Chancellor Benton announced that "there will be no graduating exercises, although one student will complete the course prescribed for graduation in the Agricultural Department." The following year the chancellor recommended that Mr. Culbertson be given "the diploma of Bachelor of Agriculture at the approaching commencement." Mr. Culbertson had previously studied in Indiana, and came to Nebraska with advanced credit. Mr. Culbertson is reported to be living at El Cajon, Cal. The second graduate of the Agricultural College was Charles Brainard, who received his degree in June, 1877. Mr. Brainard took all of his work at the University of Nebraska. He now lives in Denver. Students listed in the catalogs from 1875 to 1880 as taking the course in agriculture numbered for the respective years 15, 13, 16, 9, 9, 12.
ESTABLISHMENT OF THE INDUSTRIAL COLLEGE

But a legislative enactment that was to change the complexion of the Agricultural College for many years to come was that passed by the legislature in 1877. It provided for "an industrial college, embracing agriculture, practical science, civil engineering, and the mechanic arts." It will be recalled that in 1869 the Legislature had provided for a College of Agriculture, and also a College of Practical Science, Civil Engineering and Mechanics. The latter had not yet been established, but the new law combined it with the Agricultural College. Thus things were to remain for more than thirty years.

The original land grant act passed by Congress had provided for "such branches of learning as are related to agriculture and the mechanic arts." Perhaps it was the idea that the provision for instruction in the mechanic arts must be complied with or perhaps it was the idea that since the Agricultural College was not succeeding particularly well, it might be strengthened by combining with it another line of activity.

The following excerpts from the report of the Board of Regents for the two years ending in 1878 throw some light on this point:

"It is true that a school of agriculture has for many years been established and in connection therewith a model farm. . . . Owing, however, to the seeming necessity of making the farm self-sustaining, so far as possible, very little has been done during the past two years not looking to immediate profit. It is submitted to your consideration if the agricultural interests of the state do not demand a different management of this particular institution. It has already cost the state a large amount of money, not less than $25,000. Its management should therefore benefit the whole state, not by raising grain for sale, but by experimenting in those directions most beneficial to the whole state. . . .

"While, as shown by the above, something has been done in the department of agriculture, nothing whatever has been attempted in the direction of teaching those branches of learning related to the
mechanical arts, and nothing can be done until a suitable building is provided therefor. . . . Such schools, under the act of congress before mentioned, are in successful operation in connection with the Illinois Industrial and Cornell Universities. They ought to become successful and valuable departments of the University of Nebraska. It is evident that the act before mentioned had in view in a very large degree the practical education of the industrial classes, not of course in exclusion of other branches of learning, but in addition thereto."

It was many years before much semblance of an engineering department began to appear, and ten years before the Industrial College had its own building. Lieut. E. S. Dudley, who was the first army officer detailed to look after the military department of the University under the land grant act, was chosen by the Board of Regents in April, 1877, to give instruction in civil engineering the following year at a salary of $400. At the end of that year, however, he was relieved of such duties, because of a retrenchment in expenditures, and that instruction was handed over to other members of the faculty without additional compensation.

Professor S. R. Thompson had resigned from the position of both professor and dean of the College of Agriculture in December, 1875. This professorship remained vacant until a meeting of the Board of Regents in June, 1878, when Harvey Culbertson, "who theretofore had given instruction in the agricultural department, was made acting professor of agriculture at a salary of $400. His duties as superintendent of the farm at a salary of $600 continuing." Professor Thompson returned to the service of the University and was both professor and dean of the Industrial College in 1882.

Members of the faculty who carried on instruction mainly in the academic college of the University found a place among the list of faculty members of the Agricultural and later the Industrial College. Among such, in 1877, were Hiram Collier, professor of chemistry and physics; H. E. Hitchcock, professor of mathematics; Samuel Aughey, professor of natural sciences; G. E. Bailey, first a tutor and
then professor of agricultural and analytical chemistry; and First Lieut. Edgar S. Dudley, professor of surveying and civil engineering.

Faculty Disension in the University

These were troublous days in the University, with many changes in the faculty. Chancellor Benton had been succeeded in 1876 by Chancellor Edmund Burke Fairfield. In January, 1882, the Board of Regents dismissed three of the professors in the academic college, and followed this up the following June by dismissing Chancellor Fairfield himself. Clement Chase in the Semi-Centennial Anniversary Book of the University of Nebraska tells something of this period:

"The administration of Chancellor Fairfield at Nebraska was a somewhat tempestuous period in the history of the University. It was characterized by a factional struggle in the faculty, accounts of which may be read in the Omaha and Lincoln papers of the day. On the one side were the head of the institution and his supporters, largely of denominational school training, and on the other side were the young and vigorous champions of non-sectarianism in the conduct of the institution and of new and liberal views in education. Those of the radical faction who were chiefly involved were three men of unusual brilliance, namely George E. Woodberry, of the department of English literature, later the noted poet and critic; Harrington Emerson of the department of foreign languages, to whom is chiefly due the nation-wide 'efficiency' movement and slogan of the last decade; and George E. Church of the chair of Latin. The upshot of the factional struggle was that all four men, the chancellor and the three brilliant young professors, left the service of the institution."

A new chancellor, Irving J. Manatt, was elected at a meeting of the regents December 18, 1883. Prof. H. H. Nicholson was elected to the chair of chemistry and physics in July, 1882. Mr. Nicholson was to play a large part in the Industrial College and Experiment Station later on. Prof. Samuel Aughey, who had been associated with the
academic and also the agricultural department as professor of natural sciences, tendered his resignation in 1883. On March 20, 1884 the resignations of both Prof. S. R. Thompson and Prof. Harvey Culbertson were received and accepted to take effect on September 1. At this meeting Col. E. P. Savage of Custer County (later acting governor of Nebraska) was appointed superintendent of the Industrial College farm.

A meeting of the regents on June 10, 1884, was eventful in that it marked the election of Professor C. E. Bessey, vice president of the Iowa Agricultural College, to the chair of botany and horticulture in the Industrial College. It is said that this election to the chair at Nebraska was without his knowledge. Professor Bessey was reluctant to leave Iowa, but a second offer in August, 1884, included the deanship of the Industrial College as well. His inaugural address was delivered at the University of Nebraska in September, 1884, and his active class work began in January, 1885. Professor Bessey was the outstanding figure in this period of the University’s development and for thirty years was to play an important part in the agricultural affairs of the state.

"Pending the selection of a professor of agriculture, Mr. Henry H. Wing, B. Agr., of Cornell University, and assistant to Dr. Sturtevant at the New York Experiment Station at Geneva, was secured as instructor and began his work at the opening of the year," reads the chancellor’s report of 1884. In March, 1885, Mr. Savage resigned as superintendent of the college farm and in June Mr. Wing was appointed instructor in agriculture and director of the farm. On June 15, 1888, the resignation of Mr. Wing as adjunct professor of agriculture and superintendent of the farm was accepted and John S. Kingsley was elected in December, 1888, to begin work July 1, 1889. “On July 19, 1888, the Board found it necessary to dispense with the services of Irving J. Manatt as Chancellor of the University,” according to a report of the Board of Regents.
Doctor Bessey was elected dean of the academic faculty for the year beginning September 1, 1888, and he also became acting chancellor of the University. Doctor Bessey was now the leading figure in the development of the Industrial College and the University. Lewis E. Hicks, professor of geology, was now dean of the Industrial College.

We are concerned primarily with the development of the agricultural side of the Industrial College, but probably it will be worth while to take a look at the roster of the members of the faculty connected with the Industrial College. Most of them, it must be remembered, served also in the academic department. The catalog issued in 1889 lists the following: Lewis E. Hicks, geology and applied sciences, dean; Henry E. Hitchcock, mathematics; George E. Howard, history; Hudson H. Nicholson, chemistry; Lucius A. Sherman, English literature; Charles E. Bessey, botany and horticulture; Thomas Griffith, U. S. A., military science and tactics; August H. Edgren, modern languages; DeWitt B. Brace, physics; John S. Kingsley, agriculture and biology; Charles N. Little, civil engineering; Robert W. Furnas, forestry; Howard W. Caldwell, history; Rachel Lloyd, analytical chemistry; Ebenezer W. Hunt, rhetoric and oratory; Joseph A. Fontaine, romance languages; Amos G. Warner, political and economic science; Harry K. Wolfe, philosophy; and Bohumil Shimek, zoology. By this time the Industrial College had absorbed the scientific work formerly given in the Academic College. This will be discussed a little later, along with other changes in the Industrial College.

**THE EXPERIMENT STATION**

The important development of this period was the founding of the Agricultural Experiment Station, the federal government again coming to the aid of the agricultural colleges as it had done in the very beginning. By an Act of Congress approved March 2, 1887, $15,000 a year was
given to the land grant college or state experiment station in each state—or divided between such institutions in the same state—to promote original scientific investigation in the field of agriculture. The purposes of this so-called "Hatch Act" are stated in Section 2:

“That it shall be the object and duty of said experiment stations to conduct original researches or verify experiments on the physiology of plants and animals; the diseases to which they are severally subject, with the remedies for the same; the chemical composition of useful plants at their different stages of growth; the comparative advantages of rotative cropping as pursued under a varying series of crops; the capacity of new plants or trees for acclimation; the analysis of soils and water; the chemical composition of manures, natural or artificial, with experiments designed to test their comparative effects on crops of different kinds; the adaptation and value of grasses and forage plants; the composition and digestibility of the different kinds of food for domestic animals; the scientific and economic questions involved in the production of butter and cheese; and such other researches or experiments bearing directly on the agricultural industry of the United States as may in each case be deemed advisable, having due regard to the varying conditions and needs of the respective states or territories.”

Each state was required to make yearly reports of the results of the work and to publish bulletins at least once in three months. The law was known as the “Hatch Act” because the bill had been introduced into the House of Representatives by William H. Hatch of Missouri. The Nebraska Legislature accepted the provisions of the act by an act approved March 31, 1887.

But before going further, it would be well perhaps to outline in a brief way some of the earlier experimental work on the college farm. As our readers recall, some work of an experimental character had been carried on at the college farm, dating back to the first years of the college, when Professor Thompson had distributed sugar beet seeds to farmers. There was constant discussion as to whether the farm should be simply a model farm or an experimental farm.
In 1874 Professor Thompson recommended the following agricultural experiments as being most desirable to be carried out: (1) Best method of cultivating our ordinary grains; (2) testing new varieties; (3) new kinds of fruits and vegetables suitable for our soil and climate; (4) cultivation of tame grasses; (5) breeding of stock, especially hogs and cattle. In 1875 twenty-three kinds of grass and clover were sown to test their adaptability to the climate. Thirty-eight varieties of potatoes were planted. There were six kinds of wheat, ten kinds of field and sweet corn, fourteen kinds of beans, and ten kinds of peas.

What was probably the first report, published by itself, of experimental work in the Industrial College, appeared about 1880. It was a pamphlet of thirty-one printed pages, containing a description of the farm and its equipment, a statement of the instruction offered in agriculture, and the results of experimental work. Among other things, the experiments included a comparison of dry and soaked corn for pig feeding, cost of raising an acre of sorghum and of manufacturing it into syrup, test of varieties of wheat, depth of sowing grain, test of varieties of potatoes, test of varieties of sugar beets for feeding purposes, and a record of rainfall and temperature.

The coming of Professor Bessey to the University had done much to put the experimental work on a more definite basis, and in 1884 we find him outlining a program of experiments:

"There are two classes of experiments and observations, viz.: 1st, those which are popular in their character, and which aim to reach immediate results; and 2d, those which are scientific in character, in which the aim is to discover some profound principle, or establish beyond dispute some fact in nature. The popular class of experiments includes those in which the relative productiveness of different varieties of plants is tested; those by which new varieties are brought into notice; those in which the relative values of different implements and tools are tested, etc., etc. Such experiments have a value, and when properly conducted a high value, but their value in any case is limited to narrow areas, and affected by many and constantly changing conditions. . . ."
“The experiments and observations of the other class require much more time and care for their consummation, but their results when obtained have an accuracy and a wideness of application which give them a high value for all times and in all places. It would be well to draw a sharp line of demarkation between these two classes of experiments and then to adopt a fixed policy with respect to each.”

The popular experiments suggested by the dean included:

1. Experiments with stock as to breeding and feeding.
2. Experiments with various kinds of grain crops.
3. Experiments with various kinds of grasses and other forage plants.
4. Experiments upon different modes of culture for various crops, etc., etc., etc.

The scientific experiments suggested by the dean were full meteorological observations, observations upon soil temperature, observations of the humidity of the soil, observations upon the percolation of water thru soils, chemical and physical analyses of soils, the fertility of soils as related to the texture and composition of the subjacent strata, the porosity or compactness of soils as affected by cultivation and by burrowing species of worms, insects, and rodents, the necessity and practicability of irrigation in various parts of Nebraska, the observation and study of the injurious insects of the state, the observation and study of the injurious fungi of the state, experiments upon fertilization and cross-fertilization of plants, and experiments upon proper temperatures for the germination of seeds.

Five Press Bulletins were issued by the Industrial College in 1885. They were entitled Apple Blight, Twig Blight, or Fire Blight, The Premature Dropping of the Plum, The Condition of the Industrial College, The Industrial College Herd, and The Smut of Indian Corn. Doctor Bessey prepared four of them. They were only short bulletins, about 200 to 400 words in length.

In 1886 Dean Bessey reported that in the popular series of experiments work had been undertaken with the breeding and feeding of stock, with the various kinds of grasses
and forage plants, and with the modes of culture for various crops. Along the line of scientific experiments, full meteorological observations and studies of the injurious fungi of the state were being made regularly. Steps had been taken toward making chemical and physical analyses of soils.

A feature of the experimental work about this time was the employment of Dr. F. S. Billings in 1886 to solve the question of the nature and remedies for "the disease of swine, commonly known as 'hog cholera'." Doctor Billings was the first scientist employed to give his full time to experimental work. Before this there had been a conference between officers of the University and the State Board of Agriculture relative to the establishment of a school of veterinary science. It is not apparent that such a school was placed in actual operation, altho veterinary instruction was given along with the regular agricultural courses. Regarding the appointment of Doctor Billings, the report of the Board of Regents states:

"At the June (1886) meeting, as a preliminary, the Board provided for the establishment of an experiment station for the investigation of the diseases of domestic animals, and authorized the committee to contract with Dr. Frank S. Billings, who had taken his degrees in Germany, and was highly recommended by some of the most distinguished masters in veterinary science in Europe, as its director, and appropriated $1,500 for salary and expenses up to April 1st, the term of his present engagement. Previous to his appointment, Dr. Billings had, at the invitation of the committee, availed himself of such accommodations as could be furnished him at the farm and the University building, aided by the valuable instruments, apparatus, and library, belonging to himself, to commence his investigations of the origin and nature of the swine plague or hog cholera."

Doctor Billings occupied three rooms in the main University building uptown for a laboratory, culture room and office. There was an animal house on the city campus of the University, and a small building devoted to animal work at the college farm. At this time it was estimated that the annual losses from swine plague in Nebraska
For thirty years a leader in Nebraska agriculture
amounted to upwards of a million dollars, and on single farms it was not uncommon to suffer a loss of a thousand dollars in the course of a few months. In 1888 Doctor Billings published a voluminous bulletin of 400 pages on *Swine Plague*. A large part of the bulletin, however, was taken up with an altercation with D. E. Salmon of the United States Department of Agriculture over the disease. Doctor Billings gave up his work with the University on June 30, 1889, but was reemployed in 1891.

The first appropriation under the Hatch Act did not become available until March, 1888, but the Board of Regents had appropriated $3,500 for experimental work for the year beginning July 1, 1887. There was a little grumbling here and there that the Hatch Act did not afford more than $15,000 a year, but certainly that was better than depending on the Legislature. The working staff of the station, as given in the first annual report presented to the Governor January 26, 1888, included Henry H. Wing, agriculturist; Hudson H. Nicholson, chemist; Frank S. Billings, investigator of animal diseases; DeWitt B. Brace, meteorologist; Lewis E. Hicks, geologist; Conway McMillan, entomologist; and Charles E. Bessey, botanist.

The third annual report of the experiment station for the year ending January 24, 1890, affords a good idea of what the Station was accomplishing at the close of this period. Dr. Lewis E. Hicks in 1889 had succeeded Dr. Charles E. Bessey as director of the station. J. Stuart Dales served as treasurer, along with his other financial duties in the University. The working staff of the station was made up of Jared G. Smith, assistant agriculturist; Hudson H. Nicholson, chemist; Rachel Lloyd, assistant chemist; DeWitt B. Brace, physicist; Harold N. Allen, assistant physicist; Lewis E. Hicks, geologist; Lawrence Bruner, entomologist; Charles E. Bessey, botanist; and S. W. Perin, superintendent of the farm. The Experiment Station had drawn largely on the University faculty for members of its staff, in most cases small amounts being
added to their usual salaries. In June, 1888, the following salaries to be paid from the Hatch fund were allowed for the year ending June 30, 1889: Director $350, treasurer $400, chemist $200, meteorologist $100, geologist $100, investigator of animals diseases $3,500 (Mr. Billings resigned on June 30, 1889), entomologist $1,500. The rest of the $15,000 was to be devoted to experimental work, publication, and miscellaneous.

Sugar beets were rapidly coming to the front and we find the department of chemistry making efforts in this direction. Within the next few years two sugar factories were to be established in Nebraska and the subject was to be one of the most important to Nebraska farmers for several years. In March, 1889, Professor Nicholson distributed a large amount of beet seed received from the United States Department of Agriculture among the farmers of the state. A committee of the State Board of Agriculture, appointed to visit the station, reported in 1889:

"The sugar beet industry, claiming and receiving as it now does so large a share of public attention at large, in the United States, is given careful and thorough investigation at this Station, showing unexpected and most gratifying results. The saccharine yield of Nebraska-grown beets is found equal with the best sugar-producing countries in the world. The yield in tons per acre, of beets, is also most gratifying. Sections of the State and soils heretofore thought not adapted, are found to be admirably so."

The chemistry department was also undertaking "an investigation of the soils and water of the state." The department of physics was paying special attention to climatological data. Doctor Hicks planned for his department soil surveys of the state and a study of irrigation. In economic entomology "the insects of economic relation to agriculture and horticulture were studied with a view to remedies for injurious species, and the increase and spread of beneficial ones." The botanical section of the station announced its work as consisting of a study of the
grasses and forage plants of the state, a study of the parasitic fungi of the plants of the farm and garden, a study and description of the woods of the state, a study of seed germination, and studies in plant physiology and pathology.

A list of the early bulletins affords some idea of the subjects with which the experiment station was concerning itself:

Bulletin No. 1—*Irrigation in Nebraska.* Lewis E. Hicks, 1888.

Bulletin No. 2—*Twenty-two Common Insects of Nebraska.* Conway McMillan. 1888.

Bulletin No. 3—*Southern Cattle Plague and Yellow Fever, from the Etiological and Prophylactic Standpoints.* Frank S. Billings. 1888.


Bulletin No. 5—*Some Injurious Insects of the Year 1888.* Lawrence Bruner. 1889.


Bulletins Nos. 7, 8, 9, 10—*Original Investigations of Cattle Diseases in Nebraska, 1886-89.* Frank S. Billings. 1889.


Contributors to Bulletin No. 11 were to achieve more than ordinary prominence in later life. Roscoe Pound was to become dean of the Harvard Law School, and Albert F. Woods was to become president of the University of Maryland. At this time Mr. Pound was assistant in the botanical laboratory and Mr. Woods was a senior student in botany. Arthur, Bessey, and Webber all became well-known names in the field of botany.
During the five years from 1885 to 1890 Doctor Bessey made over the Industrial College. All this time, it must be remembered, there was a constant struggle for both students and money in the Industrial College. In 1885, an attempt was made to separate the Industrial College from the University and move it to another place. In 1889 the attempt was repeated, but it again failed.

The report of the State Board of Agriculture for 1885 tells something of conditions at the college farm at this time, as well as being indicative of some of the criticism of that day:

"Your committee appointed at the regular meeting of the State Board in January, 1884, to visit the Agricultural College Farm and report its condition, and make such recommendations as would, in our opinion, be to the best interest of the institution, beg leave to report as follows:

"Your committee visited the farm in January, 1884, and found a large per cent of the cattle, grades, and many of the thoroughbreds, inferior in their respective classes, and with a very few exceptions were not of such a quality as should reasonably be expected, and with but few exceptions the same remarks would apply to the horses and swine.

"The buildings, fences, and machinery, in bad repair, the latter consisting in most part of old second-hand implements, wholly inadequate for the purposes of farming, nearly all of which were wholly without shelter—all had the general appearance of poverty—more theory than practice. No doubt this condition was due to a lack of funds.

"In March, 1884, at the request of Prof. Thompson and the Board of Regents, your committee met that Board at Lincoln and learned that a majority of the regents had never seen the College Farm, and knew but little concerning it except the information furnished them by the professors in the University."

From this report it appears that altho the Board of Regents had taken some steps looking to the improvement of the farm and raising the standard of the livestock, they were in debt $5,000 on $6,000 worth of livestock and in debt $1,000 on miscellaneous expenses. The report of the committee goes on to say:
"After mature consideration we are of the decided opinion that the Nebraska Agricultural College comes far short of the intention of the framers of the act of Congress creating it.

"The course of study in the Agricultural Department is not calculated to attract any great number of students, and is of little or no benefit except the small financial benefit afforded to a few of the students and professors. The present course of six or seven years does not meet the demands of our state.

"In our opinion a much shorter course is needed, and that practical agriculture, mechanics and useful trades should constitute a large portion of the course. And it is our opinion that this end cannot be accomplished while the College Farm and its funds are under the control of the Board of Regents, to be applied by them in accordance with the narrow and unjust construction placed by them upon the act of congress donating lands and funds for agricultural, mechanical, and industrial purposes.

"We would therefore recommend a separation of the Agricultural College from the University, and recommend the passage of the bill now before the legislature—House Roll No. 216—for that purpose."

As before stated, these attempts to divorce the college from the University failed, but they serve to show the feeling of the time. Doctor Bessey was setting about to reorganize things. His report for the year ending 1886 says:

"When I first became acquainted with the College Farm, and began to have a certain responsibility as to its condition and management, I was much pained and chagrined. It was a standing reproach to the Industrial College. A report was made by a committee of the State Agricultural Society in January, 1885, condemning its appearance and condition in the strongest terms. This has all been changed. The farm has been largely freed of weeds, its hedges have been neatly trimmed, buildings and fences have been repaired, the larger building has been repainted, walks have been laid and the cattle yards rebuilt."

There was much to be done in reorganizing the courses in the Industrial College. When Doctor Bessey took up his work with the University there were two main courses in the Industrial College, an agricultural course and a civil engineering course. The degrees of Bachelor of Agriculture and Bachelor of Civil Engineering were awarded at
the completion of the respective courses. In 1886 Doctor Bessey pointed out that there were fifteen students enrolled in the various classes of the Industrial College, of which eleven were taking engineering and four agriculture. "Looking back over the records of the last few years, the attendance in college classes (Industrial College) in the year 1882-3 is given at fourteen, from which time it declined to the year 1884-5, when it reached its lowest point, and since which it has been steadily improving," Dean Bessey stated. "This improvement has been most rapid in the Engineering course, but the indications now are for a healthy growth in the Agricultural course. In the latter course three of the students come from colleges in other states, viz., one from Chicago University, another from the Agricultural Department of the University of Illinois, and the third from the Iowa Agricultural College." Doctor Bessey declared that "I know of no case in which there is provided as much agriculture, horticulture, and veterinary instruction as we now offer in the agricultural course of this college."

In an article published in Agriculture in October, 1910, Dean Bessey told with characteristic frankness the effect of his reorganization upon the agricultural students, as well as some interesting sidelights regarding the farm:

"Accordingly I became Professor of Botany and Horticulture in the fall term of 1884, and this was my title for nearly eight years. What these eight years accomplished can not be told briefly. In the first place, at that time all teaching was done on the campus in the city, no beginning having yet been made for school work on the Farm. Then too the Farm was a very long way out into the country at that time, as the whole distance from the Antelope valley to the Farm was filled with cornfields, wheatfields, orchards and even wild and unbroken prairie land. In muddy weather one had great difficulty in traversing the soft dirt roads, and it was a bad hour's drive from the city to the old stone farm house, and the rather shabby barn and sheds. Yet at this time there were a few students at the Farm, attracted by the fact that they were able to obtain rooms here in the old 'Dormitory' at a merely nominal rental. For it seemed to be the old idea that boys would have to be enticed into agricultural
study, and so room rent was very low, and the cost of board was merely nominal also. And what a 'job lot' of ten or a dozen students were there. Not one was able to pass the somewhat stiffened requirements that were soon inaugurated and every one of them disappeared. They were the fellows who could not get along in any other course than the agricultural and horticultural, and even in this work they failed when the work was made a little harder. As a result the University for a time had not a student in agriculture and horticulture, but when they began to appear again they were boys of different stuff. Instead of being the weaklings and the sluffers they were now a lot of strong energetic workers, who 'got there' in their work every time and all the time. That was one thing accomplished."

But throughout this period there was a constant effort to emphasize the scientific character of the work in agriculture. In 1884 Doctor Bessey had already outlined his views on the general subject of industrial education:

"In order that the work of the Industrial College may be definitely laid out, the purpose of the school must, in the first place, be clearly and exactly defined. Ever since the passage of the law of Congress which gave existence to the Industrial Colleges of the states, there have been different interpretations of its purpose. On the one hand it has been held that the colleges founded under this law should instruct mainly in practices, and that on this account they should become manual labor schools in which every operation in the shop or on the farm and garden should be practiced by the pupil until he becomes a skilled workman. This was the earlier view, and many of the state colleges were started upon this plan. . . . .

"The intent of the congressional law, as indicated by its wording, and as now understood by the majority of the educators of the country, was doubtless to provide for colleges in which should be fostered the great sciences which underlie agriculture and mechanics, as literature and the classics are fostered in the ordinary colleges. According to this view, it should be the purpose of this college, first, to teach thoroughly those branches of learning which are related to agriculture and the mechanic arts, and in this manner to lay a firm foundation for the subsequent study of the application of these branches to the practical work of the farmer and gardener."

The catalogs of the later eighties tell something of the agricultural course then prevailing:
"As scientific agriculture rests upon and is an outgrowth from the natural sciences, the student in this course devotes much of his time in the earlier part of his college life to their mastery, and afterwards employs himself in a study of their applications. Thus chemistry, physics, zoology, botany and geology will occupy prominent places in the curriculum, each one contributing to that mass of knowledge and practice which constitutes modern scientific agriculture. With these the student takes up such language studies as will enable him to use his own language properly, and to consult with ease the works of the best foreign authorities. In addition, provision is made for the study of history and literature, in order that he may enrich and liberalize his mind by an acquaintance with the treasures of the past. To the foregoing are added in the Junior and Senior years the special studies of the course, viz.: Agricultural Chemistry, Horticulture, Entomology, Agriculture, and Veterinary Science, thus combining and directing into a special channel the knowledge given by the previous lines of work."

But the important feature of this reorganization of the Industrial College was the action of the Board of Regents on April 10, 1889, of transferring to the Industrial College scientific courses heretofore offered in the academic college. This action as stated in the report follows:

"Whereas, the Act of Congress, approved July 2, 1862, makes it the leading object of the Industrial College 'to teach those branches of learning which are related to agriculture and the mechanic arts,' and

"Whereas, the natural and physical sciences are all in some degree related to agriculture and the mechanic arts, so that the Industrial College is obliged by the terms of its organic law to maintain a course of scientific instruction as its 'leading object,' and,

"Whereas, the logical relations of a scientific course to the technical courses of the Industrial College (these technical courses being branches or special developments of the scientific course), also demand that the Industrial College should maintain a scientific course, and,

"Whereas, it is not expedient or economical to duplicate in any college of the University a course maintained in another college of the same University, therefore,

"Resolved, that the scientific course of study shall hereafter be a part of the Industrial College, and that the students pursuing such course shall be catalogued as students of the Industrial College."
The Industrial College now granted three degrees, Bachelor of Science, Bachelor of Agriculture, and Bachelor of Civil Engineering. A two-year course in agriculture was being offered, but the courses leading to degrees required four years. The two-year agricultural course was hardly more than of high school grade, requiring for admission a knowledge of English grammar, arithmetic, geography, and history of the United States.

The advantage in moving the scientific course over into the Industrial College was naturally the increase in number of students and the greater solidarity in the work. The catalog of 1886-87 showed fourteen students in the Industrial College. Nine were taking engineering, two agriculture, and three were classed as special, altho two of the latter were probably agricultural students since they made their residence at the college farm. The catalog for 1887-88 showed fourteen students in the college, eleven taking engineering, one agriculture, and two being classed as specials. But the catalog for 1888-89 showed the result of adding the scientific students to the roster of the Industrial College. There were now fifty-seven students in the college. Thirty-five were listed as taking the scientific course, eight the engineering course, two the agricultural course, and twelve were classified as specials.

NEW BUILDINGS AND FINANCE

The University had now outgrown its original building. For years there had been a constant agitation for new buildings to house the growing University. The first new building on the main campus of the University was the chemistry building for which the Legislature of 1885 appropriated $25,000 and which was erected in 1885 and 1886. This building now houses the College of Pharmacy. Then came Grant Memorial Hall, for which $20,000 was appropriated by the Legislature of 1887, and which was erected in 1887-88. It served, and still serves today, as a gymnasium, auditorium, and military drill hall. Then
finally, in 1888-89, came Nebraska Hall, the Industrial College's own building, for which the same Legislature had appropriated $50,000. This building housed the museum and the departments of botany, zoology, agriculture, horticulture and physics. These three buildings are still in use, altho the agricultural departments have long since been moved to the college farm. Up to the time under discussion in this chapter, there had been no buildings of consequence erected on the college farm, only small improvements being made from time to time.

The University was supported by a three-eighths mill tax, by the income from the University and Agricultural College lands, and by the fees paid by students. The latter, however, were insignificant. Now and then the Legislature would appropriate something from the general fund of the state, but appropriations of that kind were not to be had very often. For the two-year period ending November 30, 1888, the University received $110,179 from state taxes, $2,670 from interest on bonds, $6,392 from interest on University lands sold, $12,260 from rental of University lands, $14,231 from interest on Industrial lands sold, and $23,419 from rental of Industrial College lands leased. This made a total of about $169,000. Besides a paltry sum from tuition fees, the University that biennium had received an appropriation of $15,000 from the general fund of the state toward the erection of Grant Memorial Hall.

It was a matter of much discussion at this time as to the rights of the University to its own funds. The regents maintained that the statutes of the state placed in their hands the temporary University funds as they came into the treasury. But the Legislature and the Supreme Court thought otherwise. The regents' report of 1886 tells something of this:

"Since the adoption of the present Constitution, the Legislature has assumed that these funds were a part of the funds in the state treasury that cannot be drawn out except as specifically appropriated
by itself. Since 1875, therefore, it has been customary for the Legislature at each session, after a necessarily superficial examination of the facts and circumstances, to appropriate so much of the balance on hand and the probable income of these funds for the support of the University, as it deemed expedient, and permit the surplus to accumulate in the treasury."

The Legislature had appropriated the $25,000 for the Chemistry building from the University fund. For the Grant Memorial Hall it appropriated $5,000 from the temporary University fund and $15,000 from the general fund of the state. The $50,000 for the Industrial College building had been appropriated from the temporary University fund. There was constant difficulty in securing appropriations for the College Farm, however. In 1886, the regents bemoaned the fact that the Legislature had made no appropriation for the improvement or current expenses of the college farm, and what improvements were made had to be paid for from the sum appropriated for salaries and current expenses of the University.

How the funds accruing from the Industrial or Agricultural College lands were handled is explained by Mr. Dales in the regents' report for 1888. That year the regents had requested a statement of the items chargeable against those funds. Expenses belonging exclusively to the Industrial College were charged to it, and less than half of the general expense belonging to both colleges. Professors who devoted practically their entire time to the Industrial College had their salaries charged against its funds; in the case of some who served part time in that college, one-half or one-fourth of their salaries were charged to that college. Under this plan, the cost of the Industrial College exceeded by $5,308 the amount of money available for it under its Land Grant. However, it must be remembered that under this method of figuring the Industrial College was not sharing directly in the income from the three-eighths mill tax.
Farmers' institutes during this period again attained a measure of popularity. There is a record of the formation of the Nemaha County Farmers' Institute Association on February 7, 1882. Dean E. A. Burnett in a sketch of the development of farmers' institutes, published in 1906 in the University's first report on Nebraska farmers' institutes, says of this organization:

“A few enterprising farmers discussed the benefits to be derived, and Mr. W. F. Wright met Professor S. R. Thompson at Lincoln to talk over the movement, which resulted in the appointment of this meeting, attended by S. R. Thompson, Professor of Agriculture, and H. C. Culbertson, Professor of Horticulture. The Hon. R. W. Furnas, Secretary of the State Board of Agriculture, was present at this meeting, together with a large number of men and women who have since been prominent in Nemaha and Johnson County Institutes. This meeting was held twenty miles from the nearest railroad station. The organization formed in 1882 is still active.”

Another organization of the same kind was formed at Tecumseh, Johnson County, in October, 1882. Both of these organizations were active for many years, the latter becoming the Johnson County Farmers' Institute later. It is interesting to record that in 1905 it held a four-day institute, with a corn show and a good roads day. The tendency more and more was for the farmers themselves to take a definite part in promoting the institute movement and to form organizations to sponsor it each year. There is this record of a meeting of the Lancaster (County) Agricultural Society, held December 27, 1884:

“Prof. C. E. Bessey was present and addressed the society in relation to holding a county Farmers' Institute. Professor Bessey said that heretofore these institutes had been held under the auspices of the Agricultural College, but he thought that it would be better for the county agricultural society to hold them, or assume control of them. The professors would attend and give lectures and do whatever they could to make such institutes a success. At the close of Professor Bessey's talk Mr. Brinton moved that a committee of three be appointed to consult with Professor Bessey to fix the time of holding the first institute.”
Prof. H. H. Wing, reading a paper before the Nebraska Dairymen's Association in 1887, declared that "at least four such institutes were held in 1887, entirely by the efforts of farmers in their several localities." In 1889 a three-day institute was held at Broken Bow.

In Dean Burnett's article, Doctor Bessey is credited with stating:

"Somewhat later, perhaps in 1888, when I was acting Chancellor of the University, I took the matter up with Governor Furnas, and we planned a series of Farmers' Institutes to be held in different portions of the State. He volunteered to attend as many as he could; Mr. Bassett did the same. Mr. Stephens of Crete, Mr. Youngers of Geneva, Mr. Dinsmore and others volunteered, and we held a good many Institutes beginning with the winter of 1888-89. The plan was that the locality should pay the expense of those who attended. As far as possible, we all secured transportation and simply asked the people of the locality to see that we did not have to pay hotel bills. Where the people failed to cover our expenses we bore them ourselves. This work went on with increasing success for a number of years, up to the time when Professor F. W. Taylor was appointed to look after the matter."

There appear to be rather three periods of development in the history of the farmers' institute movement in Nebraska. The first institutes seem to have been held at the suggestion of the University or Agricultural College. Later, farmers' clubs and societies began to have a part in holding an institute in their communities each year, in many cases societies being organized primarily for the purpose of conducting the institute. Then, about 1896, came a period when the college assumed definite leadership in the movement, with a superintendent of farmers' institutes. The State Legislature began making appropriations for carrying on the work and the foundation was laid for the tremendous growth of the institute movement in the early 1900's.
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