A HISTORY OF THE SCHOOL OF AGRICULTURE OF THE OKLAHOMA AGRICULTURAL AND MECHANICAL COLLEGE 1891-1914

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PREFACE

A newly settled Territory, where agriculture had never been pursued extensively presented seemingly insurmountable problems to the pioneers of Oklahoma. With the agressiveness and fortitude which have characterized the American people for generations, these problems were faced one by one and overcome through trial, perserverance, and knowledge.

Helping to spearhead this steady and still active climb toward agriculture's highest attainments is the Oklahoma Agricultural and Mechanical College, Stillwater, Oklahoma. It is about the Agricultural School of this notable institution that this thesis is written. The thesis covers only a little more than the first two decades of its existence--decades when triumph and disappointment both were prevalent, but when the foundations and roots of today's Oklahoma Agricultural and Mechanical College were established.

Every effort to be accurate, complete, and fair has been expended by the author in order to make the presentation one of value to others interested in growth of Oklahoma's agricultural background.

Indebtedness is acknowledged to Miss Elsie Shoemaker, Mr. Clement E. Trout, Dr. Randall J. Jones, and to my parents for their valuable guidance in writing this thesis; and to the many Oklahoma Agricultural and Mechanical College Library employees who generously gave of their efforts to assist in locating suitable reference material.

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CHAPTER I

A COLLEGE IS BORN (1891-1895)

First, the Territory

It was a fifteen million dollar transaction known as the Louisiana Purchase that made Oklahoma (with the exception of the western most portion called the Panhandle today) a part of the United States. In 1803, the United States Government purchased this vast acreage from Napoleon Bonaparte, adding to the growing country lands stretching from the Gulf of Mexico to what has since become Canada, and from the Mississippi River west to the Rocky Mountains.[1]

A few years after this historic purchase, great numbers of Indians, forced from their lands in the East and South by westward moving white settlers, began making their way toward the Southwest.[2] As the westward surge of white men continued, many Indian tribes were moved again and again until the Federal Government finally deeded them large tracts of settlement land in the present Oklahoma area.

Then came the Civil War. The Indians in Oklahoma split their allegiance between the North and the South, the majority siding with the Confederates.[3] Following the war, the North, using the power it gained

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[1] James S. Buchanan and Edward E. Dale, A History of Oklahoma (Evanston, Illinois, New York, San Francisco, 1939), pp. 35-55.

[2] Ibid., pp. 73-82.

[3] Ibid., p. 126.

through victory, absolved the rights given the Indians in the earlier land settlement treaties, and demanded that the Indian tribes turn some of their lands back to the Government.[4]

During the fifteen years after the Civil War, additional Indian tribes still living in scattered areas of the United States, were forced to move from their home lands to this "new" land which the Government had taken back from the early Indian settlers in Oklahoma. Even as the Indians moved into the country they believed would always be theirs, the first of the white men were coming in, bringing with them the beginnings of Oklahoma's cattle industry.[5]

Cattle herds grew in number and size as cattlemen brought in Spanish-type breeds from the South and northern European breeds from the North and East to graze the grasslands rented from the Indians. Shipping points sprang up nearer and nearer Oklahoma. Buyers began coming to the area from Wyoming, Montana, and the Dakotas to buy cattle to fatten on their home pastures.[6]

Oklahoma's potential as an agricultural region soon became evident. Located between the breeding grounds of Texas and the feeding grounds of the North, the area attracted cattlemen who wanted the grazing country for their own. Farmers, too, wished to settle and raise crops in Oklahoma. Coveting the land, the white men soon infiltrated the Indian Territory.

In spite of the law prohibiting it, cattlemen moved into the forbidden country to obtain pasture. Farmers, known as "Boomers" because

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[4]Ibid., p. 145.

[5]Ibid., p. 145.

[6]Ibid., pp. 166-176.

they boomed the opening of Indian lands in Oklahoma to white settlement, followed the cattlemen.[7]

The post Civil War treaties between the United States Government and the Indians had left open for future Indian settlement, among other areas, a two million acre, heart-shaped tract of land in the center of present Oklahoma. In relocating the Indian tribes from all over the country, the Government had placed them in other parts of the region, but had not assigned any Indians to this particular area. White farmers were anxious to settle legally in the area known then as Oklahoma Lands[8] or the Unassigned Lands, which included parts of present-day Logan, Oklahoma, Cleveland, Canadian, Kingfisher, and Payne Counties.[9]

Then, the Settlers

Pressure from the anxious settlers resulted in the official opening of this region to white settlement on April 22, 1889. Hundreds of homesteaders flocked to the border and at the designated time, began the famous "rush" to claim the Oklahoma Lands. Tent towns sprang up in a single day.[10] Homesteaders immediately began to improve their claims by building homes and starting farm operations.

It was only a matter of time before the Indians lost more and more of their deeded lands to white settlers and Oklahoma began to assume its present size and form.

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[7] Ibid., pp. 166-188.

[8] Ibid., p. 199.

[9] Muriel H. Wright, The Story of Oklahoma (Oklahoma City, 1929), p. 246.

[10] Buchanan and Dale, p. 209.

On May 22, 1890, Congress passed the Organic Act to organize the Territory of Oklahoma, including the Panhandle, and to open the latter to official settlement. The Panhandle, called Beaver County then, now includes three counties, Texas, Beaver, and Cimarron.[11]

Stockmen and farmers were the ones mainly interested in settling Oklahoma but with them came the merchants and tradesmen necessary for a complete society. While they set up their shops and industries, the wheels of agriculture began turning, and by 1890, Oklahoma Territory found itself with 8826 farms averaging 182 acres in size, of which more than half were unimproved.[12]

That same year, there were 25,554 horses, 4923 mules and asses, 1627 working oxen, 16,756 milch cows, 108,572 other cattle, 21,962 swine, and 16,565 sheep (not including spring lambs) in Oklahoma.[13] Hay crops were yielding a little better than a ton to the acre, with 30,733 acres mown and 40,473 tons harvested.[14] So new was the farming venture, that the plum was the only orchard tree yielding, and that with a total yield of only forty-nine bushels for the Territory. Apple, apricot, cherry, peach, and pear trees had been set out but were not yet bearing.[15]

Farm valuations in 1890 found Oklahoma land, fences, and buildings with a value of $8,581,170. Livestock on hand June first of that year

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[11] Wright, p. 252.

[12] U. S. Department of Interior, Census Division, Abstract of the Eleventh Census: 1890 (2d ed., Washington, 1896), p. 96.

[13] Ibid., p. 106.

[14] Ibid., p. 133.

[15] Ibid., p. 136.

was valued at $3,206,270, while implements and machinery carried a valuation of $433,580. Farm products were valued at $440,375.[16]

This was the general agricultural status of Oklahoma when Oklahoma Agricultural and Mechanical College came into being. And from this beginning, when no one was familiar with the farm picture in the area, Oklahoma agriculture and Oklahoma Agricultural and Mechanical College have developed hand in hand.

A College for Payne County

Oklahoma A. and M. did not officially open its doors to students until December 14, 1891.[17] It might be said to have had its origin as early as 1862, for on July second of that year, the United States Congress passed an act providing for the establishment of colleges designed to promote and teach the agricultural and mechanical arts.[18]

In 1862, however, Oklahoma was in its Indian-hunter-trapper-fur trader-missionary stage of existence.[19] It was twenty-eight years later, on October 27, 1890, that the Legislature of Oklahoma Territory, during its first session, accepted the provisions of the U. S. Congressional act establishing A. and M. colleges.[20] Oklahoma A. and M.'s history had officially begun.

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[16] Ibid., p. 102.

[17] Fourth Annual Catalogue of the Oklahoma Agricultural and Mechanical College (Session of 1894-95), p. 10.

[18] Agricultural and Mechanical College of Oklahoma Territory Prospectus, 1891 (Gazette Print, 1891), no page.

[19] Buchanan and Dale, p. 71.

[20] Agricultural and Mechanical College of Oklahoma Territory Prospectus, 1891, no page.

White settlement of Oklahoma in 1890 was concentrated in the two million acre tract in the middle of present-day Oklahoma and the more than three and one half million acres known now as the Panhandle but called No Man's Land then. There were 53,822 people in this two million acre area, and 2674 in the Panhandle.[21] In the year before the College opened, however, three quarters of a million acres more formerly belonging to the Iowa, Sac and Fox, and Pottawatomie, and Shawnee Reservations, were added to Oklahoma.[22]

Among the numerous tasks facing Oklahoma's first Territorial Legislature, was selecting locations for the Territorial institutions including the university, penitentiary, insane asylum, normal school, and agricultural and mechanical college.[23]

The Territory's county seats were vying for the various institutions. There are conflicting stories about how Stillwater won the A. and M. College. Some say Stillwater was given a choice of the institutions and chose A. and M. because of the Federal money to be received for part of its maintenance, because of its permanency, and because it provided a good source of revenue.[24]

Others say the idea of having the College in Stillwater ". . . occured one night in the post office, just after the election of the first legislature."[25] Five men, feeling quite certain none of the competing county

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[21] Abstract of the Eleventh Census: 1890, p. 27.

[22] Wright, p. 261.

[23] Pagentry Class of 1932, "Historical Pagent--Oklahoma Agricultural and Mechanical College" (Okla. Agri. and Mech. College Library, Rare Book's Room, Stillwater), Manuscript, 1932, p. 20.

[24] Ibid.

[25] "Selections from the Record Book of Oklahoma Agricultural and Mechanical College" (Okla. Agri. and Mech. College Library, Rare Book's Room, Stillwater, 1941, p. 98.

seats had mentioned wanting the A. and M. College, and having come from backgrounds which made them familiar with this type of school, decided to ask members of the Legislature for their backing.

It sounded like a rather nervy proposition for a town 25 miles from a railroad to make but we had the best body of land, the northeastern-most county and the best rainfall, and most of the politicians down at Guthrie [then Oklahoma's capital] knew nothing about a state college.[26]

Regardless of the history, Stillwater was successful in its attempts to have the College within its boundaries. In December, 1890, the act locating and establishing the A. and M. College in Payne County was passed.[27]

The act stated that the institution should be located

. . . upon not less than eighty acres of land suitable and fit for use as an agricultural and experimental station, which land shall be conveyed to such institution for the use and benefit thereof by good and sufficient title thereto.[28]

Payne County citizens went to the polls in February, 1891, to vote on the $10,000 bond issue which was necessary before the College could be established. But the bond issue failed to pass, 776 to 375,[29] even though the law threatened that the College could be relocated if such occurred.[30]

Stillwater citizens, however, "took up the matter, and initiated through the local Board of Trade the steps necessary to comply with the

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[26]Ibid.

[27]Agricultural and Mechanical College of Oklahoma Territory Prospectus, 1891, no page.

[28]Annual Catalogue and Prospectus of the Oklahoma Agricultural and Mechanical College, 1893-4 (Guthrie, 1893), p. 13.

[29]Fourth Annual Catalogue of the Oklahoma Agricultural and Mechanical College, 1894-95, p. 9.

[30]Annual Catalogue and Prospectus of the Oklahoma Agricultural and Mechanical College, 1893-4, p. 14.

conditions imposed by the Legislature."[31] The first step was to incorporate the Town under the laws of the Territory. Then arrangements with homesteaders had to be made to procure land, and the bond issue had to be voted on and passed.

Stillwater was incorporated April 9, 1891, and less than a month later, the voters passed the necessary bond issue with 132 favoring it and four opposing it.[32]

Prof. J. C. Neal, a member of the College's first faculty and first Director of the Experiment Station, later (1895) described the spirit with which the citizens of Stillwater undertook this major project of locating the College in their town. He said:

> . . . the law placed the college within the grasp of Stillwater, and this plucky little town, with a grit and go ahead that is unsurpassed in the records of the territory, assumed the task of providing place and habitation for an institution that now and in all the future, will give opportunity for a thorough education to all the youth of this grand territory.[33]

The Site and First Classes

On July 11, 1891, a three-man board, consisting of Hon. W. H. Merton and Hon. W. H. Campbell, both from Logan County, and Hon. J. M. Stovall from Cleveland County,[34] which had been designated to locate the College site,[35] reported its decision to the Governor. It had selected two hundred acres of land adjoining the northwest portion of the corporate

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[32] Ibid.

[33] The Oklahoma A. and M. College Mirror, May 15, 1895, pp. 1-2.

[34] Fourth Annual Catalogue of the Oklahoma Agricultural and Mechanical College, 1894-95, p. 9.

[35] Agricultural and Mechanical College of Oklahoma Territory Prospectus, 1891, no page.

limits of Stillwater.[36] The report concluded with:

> We are of the opinion, that the tract for the site should embrace upland and bottom land, and selected a body of land containing two hundred acres, that contained the various qualities of soil as we thought would be most suitable for the purposes for which the college is to be established, and asked the citizens of the town of Stillwater and vicinity to make a formal tender of deeds conveying the same to the Territory.[37]

The two hundred acres included land claimed by homesteaders Alfred Newton Jarrell, Charles A. Vreeland, Oscar M. Morse, and Frank Elsworth Duck.[38] The deeds were conveyed to the Board of Regents November 25, 1891.[39]

The first College prospectus describes the College's location as

> . . . at the City of Stillwater, in Payne County, in the center of a fertile valley, well watered by the Stillwater, Brushy, and Boomer Creeks. The soil is rich chocolate brown, three to six feet in depth, and produces abundantly.[40]

The College's originating act provided for more than the bond issue and locating procedure. It set up the groundwork for the entire school including its name "The Agricultural and Mechanical College of the Territory of Oklahoma."[41] With statehood impending, the 1890 act was ammended in March, 1893, changing the name to its present "Oklahoma Agricultural and Mechanical College."[42]

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[36] Fourth Annual Catalogue of the Oklahoma Agricultural and Mechanical College, 1894-95, p. 9.

[37] J. C. Neal, "General Information, Organization and History," Oklahoma Agricultural Experiment Station Bulletin No. 1 (1892), p. 7.

[38] Berlin B. Chapman, The Founding of Stillwater (Oklahoma City, 1948), p. 145.

[39] Ibid., p. 147.

[40] Agricultural and Mechanical College of Oklahoma Territory Prospectus, 1891, no page.

[41] Ibid.

[42] Annual Catalogue and Prospectus of the Oklahoma Agricultural and Mechanical College, 1893-94, p. 12.

The government and management of the College were vested by the originating act in a Board of Regents, consisting of five members and the Governor who served ex-officio.[43]

Section thirteen of the act reads:

> The design of the institution is to afford practical instruction in agriculture and the natural sciences connected therewith, and also the sciences which bear directly upon all industrial arts and pursuits. The course of instruction shall embrace the English language and literature, mathematics, civil engineering, agricultural chemistry, animal and vegetable anatomy and physiology, the veterinary art, entomology, geology, and such other natural sciences as may be prescribed, practical rural and household economy, horticulture, moral philosophy, history, bookkeeping and especially the application of science and the mechanic arts to practical agriculture in the field.[44]

Carrying out the provisions of the originating act, Gov. George W. Steele appointed the first Board of Regents which met in June, August, and November of 1891 to arrange the details of starting the College.[45]

On December 14, 1891,[46] with doors opened to citizens of Oklahoma Territory between the ages of twelve and thirty years, the College formally began in the Congregational Church at the intersection of Duncan Street and Sixth Avenue in Stillwater.[47]

Five faculty members, R. J. Barker, President and Professor of Moral and Mental Science; J. C. Neal, Professor of Natural Science and Director of the Experiment Station;[48] E. F. Clark, Professor of English

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[43] Agricultural and Mechanical College of Oklahoma Territory Prospectus, 1891, no page.

[44] Ibid.

[45] Ibid.

[46] Fourth Annual Catalogue of the Oklahoma Agricultural and Mechanical College, 1894-95, p. 10.

[47] Oklahoma Agricultural and Mechanical College, "Minutes of the First Faculty" (Okla. Agri. and Mech. College Library, Rare Book's Room, Stillwater), March 7, 1892-June 2, 1899, no page.

[48] Neal, Oklahoma Agricultural Experiment Station Bulletin No. 1, p. 8.

Literature and Mathematics; A. C. Magruder, Professor of Agriculture and Horticulture; and L. J. Darnell, Tactician and Commandant; greeted the forty-five students who enrolled the first year. But A. and M. was a College without college students as such, for the "22 gentlemen and 23 ladies" were all enrolled in the Preparatory Department--part of the six-year curriculum offered the first few years of the College's existence.[49]

Not only did the College have no college students as such, it had no school building of its own.[50] The first Legislature had made no appropriations for building construction.[51] By 1892, with meager amounts of money coming from the Federal Government,[52] the College had been able to build a centrally located barn, fifty by thirty feet, containing four stalls, a harness room, a tool room, two bins, a mow and a wagon room; a thirty by twenty-four foot laboratory with a work room, a weighing room, two offices, and a dark room; a cottage for the Farm Superintendent; and the office and residence of the Director of the Experiment Station.[53] No buildings, however, were provided for instructional purposes and classes were still being held in local churches.

Faculty, townspeople, and Regents alike worked to convince the Legislature of the need for a school building.[54] Their attempts were

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[49] Agricultural and Mechanical College of Oklahoma Territory Prospectus, 1891, no page.

[50] "Selections from the Record Book of Oklahoma Agricultural and Mechanical College," p. 61.

[51] Fourth Annual Catalogue of the Oklahoma Agricultural and Mechanical College, 1894-95, p. 14.

[52] Ibid., p. 13.

[53] Oklahoma Agricultural Experiment Station Bulletin No. 2 (Guthrie, Oklahoma, 1892), pp. 18-19.

[54] "Minutes of the First Faculty," pp. 150-151.

successful, and the Regents were allowed to let the contract for the first building on June 20, 1893. Old Central, as it is called today, but known then as "the College Building,"[55] was formally dedicated for use June 15, 1894.[56]

The College and Territory

As the College grew in size, so did the area it served. On April 19, 1892, with the opening of the Cheyenne and Arapaho areas, 4,300,000 acres were added to the Territory, making six new counties and enlarging two others.[57] By 1893, six more counties, encompassing over five and one half million acres and lending considerable variation to the character of the region,[58] were joined to the Territory when the Cherokee "Strip," and the Tonkawa and Pawnee areas were opened. Two years later, the Kickapoo Indians gave up their land, and Oklahoma Territory benefited by more than 85,000 additional acres. In 1896, one and a half million acres more, comprising Greer County, were added to Oklahoma.[59]

Income for the College came from a variety of sources. Through the Morrill Fund, money was received from the Federal Government to be spent for instruction only and not for buildings. In 1894-95, the College

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[55]"Selections from the Record Book of Oklahoma Agricultural and Mechanical College," pp. 60-61.

[56]Fourth Annual Catalogue of the Oklahoma Agricultural and Mechanical College, 1894-95, p. 14.

[57]Miss Angie Debo, Oklahoma Historian, Marshall, Oklahoma, Fall, 1955, (Interview).

[58]E. E. Bogue, "Native Oklahoma Plants," Oklahoma Agricultural Experiment Station Bulletin No. 45 (Stillwater, Oklahoma, 1900), p. 3.

[59]Wright, p. 262.

received $20,000 from this Fund,[60] named for Justin S. Morrill, Congressman from Vermont, who introduced in the United States House of Representatives the Land Grant Bill which established agricultural and mechanical colleges in this country.[61]

With the extinction of the Indian title and the opening of the Cherokee Strip and the Tonkawa and Pawnee reservations, President Cleveland had been authorized by Congress to reserve from settlement, certain public lands for use of the A. and M. College and the two other educational institutions of the Territory. So authorized, he reserved section thirteen in each congressional township in Oklahoma thus providing A. and M. with one-third of the income from the leasing of the 175,000 acres until the Territory became a State.[62] After statehood, the State Legislature was free to dispose of the acreage in whatever manner it saw fit.[63]

The 1893 estimates of the contingent funds of the College plus those positively known, totaled between $45,000 and $50,000.[64]

Faculty salaries were low in comparison to College salaries elsewhere and A. and M. often found itself losing men to higher paying positions. In a letter to the President, one faculty member said:

I have been asked to apply for the professorship of Agriculture in the North Carolina Ag'l College at a salary of $2000.00 a year. That

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[60] Fourth Annual Catalogue of the Oklahoma Agricultural and Mechanical College 1894-95, p. 23.

[61] John H. Brown, ed., Lamb's Biographical Dictionary of the United States (Boston, 1903), V, p. 565.

[62] Fourth Annual Catalogue of the Oklahoma Agricultural and Mechanical College, 1894-95, p. 28.

[63] Ibid., p. 15.

[64] Ibid., p. 29.

beats $1500.00 but I have not yet decided what I will do.[65]

(He did not leave A. and M. until three years later.)

Among the many problems facing the new College during its early years was the rapid turn-over of Presidents. Robert J. Barker served in the multiple capacities of first President-Secretary of the Board of Regents, first President of the College, and Professor of Moral and Mental Science.[66] He was succeeded in 1893[67] by Henry E. Alvord, from the Department of Agriculture in Washington, D. C., who later became associated with the Agricultural College at Durham, N. H.[68] Mr. Alvord remained only a few months and was succeeded by Edmond D. Murdaugh, originally from Baltimore, Md., whose tenure was also short.[69]

In July, 1895, A. and M. installed its fourth President, George Espy Morrow.[70] The originating act had provided that the President of the Board of Regents automatically became the President of the College. After President Barker, however, this no longer held true.

The Presidents, nevertheless, did continue to have multiple responsibilities. President Morrow served as College President, Oklahoma Agricultural Experiment Station Director, and Agriculturist. He was well

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[65] A. G. Magruder, letter to R. J. Barker, Crescent City, Oklahoma Territory, August 28, 1892, "Letters" (Manuscript Copies), June 1, 1892 - January 22, 1895 (Okla. Agri. and Mech. College Library, Rare Book's Room, Stillwater), I, p. 102.

[66] Agricultural and Mechanical College of Oklahoma Territory Prospectus, 1891, no page.

[67] Fourth Annual Catalogue of the Oklahoma Agricultural and Mechanical College, 1894-95, pp. 15-16.

[68] The Oklahoma A. and M. College Mirror, May 15, 1895, p. 11.

[69] "Selections from the Record Book of Oklahoma Agricultural and Mechanical College," pp. 60-61.

[70] Fourth Annual Catalogue of the Oklahoma Agricultural and Mechanical College, 1894-95, p. 3.

prepared to serve in each of these capacities. Before coming to Oklahoma, he had been Professor of Agriculture at Iowa Agricultural College and Professor of Agriculture and Dean of the College of Agriculture at the University of Illinois. He had devoted a major portion of his life to the advancement of agriculture. A constant contributor to agricultural publications[71] he also was co-author with Thomas F. Hunt, of a standard agricultural text titled, "Soil and Crops of the Farm."[72]

Work and Study

An early catalog of the College said:

> The object of the Agricultural and Mechanical College is not to afford a University education, but a thorough teaching and training in the literature, arts, and sciences, supplemented by experimental labor, necessary to a first-class education in the various fields of business, and manual pursuits.[73]

To this end, citizens of the Territory from twelve to thirty years old who could prove they had passed the eighth grade examination established by the Territorial Board of Education, or who could pass an examination prepared by the faculty, and who had a good moral character, were admitted.[74] The following year, the minimum age requirement was raised to fourteen years.[75]

Dormitories were non-existent during those early years. Students

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[71] The College Paper, April 1, 1900, no page.

[72] A Catalog of Books Represented by Library of Congress Printed Cards (Ann Arbor, 1944), Vol. 103, p. 381.

[73] Annual Catalogue and Prospectus of the Agricultural and Mechanical College of the Territory of Oklahoma, 1892-93 (Guthrie, Oklahoma), p. 11.

[74] Ibid., p. 12.

[75] Annual Catalogue and Prospectus of the Oklahoma Agricultural and Mechanical College, 1893-4, p. 30.

lived in private homes in town paying from $1.50 to $5 a month for furnished rooms and from $2 to $2.50 a week for board.[76]

The students' days were busily occupied in attending classes and doing the required practical labor. An early catalog said students were afforded the

> . . . benefits of daily manual labor, most of which will be paid for, thus lessening their expenses. It will be in part instructive, varied for the illustration of the principles of science. The preservation of health, and the cultivation of a taste for agricultural and horticultural pursuits are other important objects. Four years study, wholly removed from sympathy with the laboring world, during the period of life, when habits and tastes are rapidly formed, will almost invariably produce a disinclination, if not inability to perform the work and duties of the farm. To accomplish the objectives of the institution, it is evident that the student must not, in acquiring a scientific education, lose either the ability or the disposition to labor on a farm. If the farmers, then, are to be educated, they must be educated on the farm itself; and it is due to this large class of our population, that facilitates [sic] for improvement, second to none in the Territory, be afforded them.
>
> It is believed that two hours labor per day on the farm or in the garden, besides serving to render him familiar with use of implements and the principles of agriculture, is sufficient, also to preserve habits of manual labor, and to foster a taste for agricultural pursuits.
>
> Every student in the agricultural course, not exempt on account of physical disability, is therefore required to labor two hours each week day, except Saturday, in those seasons of the year when labor can be furnished. At other seasons, an equal amount of time is required in laboratory or shop work, which being instructive is not paid for. Students will be paid at the end of each month for their uninstructive work, at a rate depending upon their ability and fidelity, the maximum being 15 cents per hour. The work will be planned with reference to illustrating the instruction received in the classroom.[77]

One of the first professors of Agriculture, A. C. Magruder, expressed a strong conviction concerning student labor. In a report to the Board of Regents, he said:

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[76] Fourth Annual Catalogue of the Oklahoma Agricultural and Mechanical College, 1894-95, p. 34.

[77] Ibid., pp. 31-32.

> The one great and important truth taught by the system and soon learned by the student, is that honest labor of any character is dignified, honorable, and respectful. This feature of work can know no distinction of classes. It recognizes no rich, no poor; but all male students are required to perform a certain amount of labor each month, when it can be supplied. . . . This practical manual work I regard as co-ordinate with, if not superior to class-room work; but I recognize that to accomplish the best end the two must be combined.[78]

In 1893-4, in each of the preparatory classes, the students (men and women took the same courses the first few years of the College's existence) were enrolled in one general agricultural survey-type course. As Freshmen, they studied among other subjects, soils, plants, manures, crop rotation, value of farm crops and machinery care.[79] Sophomores spent six weeks studying dairy husbandry and six weeks studying farm drainage, hillside ditching, terracing, irrigation and the duty of water. The second term of their Sophomore year, the agricultural studies included actual construction of drains and the use of the level, leveling-rod, and drainage tools.[80] No agricultural classes as such were scheduled for the Juniors, but they were resumed in the Senior year when students took farm economy, natural and artificial manures, composting, treatment of alkali soils, a study of the work of the United States Department of Agriculture and State Experiment Stations, and a study of foreign farm practices and conveniences.[81]

Supplementing the classroom study and farm work, the students visited many of the best farms in the Territory where crops, location of

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[78]Magruder, Report to Board of Regents, "Letters," (Manuscript Copies), June 1, 1892 - January 22, 1895, p. 157.

[79]Annual Catalogue and Prospectus of the Oklahoma Agricultural and Mechanical College, 1893-94, p. 34.

[80]Ibid., p. 35.

[81]Ibid.

dwellings, barns, sheds, pastures, fields, and water supplies were studied.[82] The students also attended meetings of various Territorial agricultural associations.[83]

In 1893 and 1894, the first student agricultural awards were offered. They were gold medals, named Magruder Medals for their donor Professor Magruder, given to the best orators in the Freshman class speaking on agricultural or scientific subjects. In 1895, the last year the award was made, the stipulations were changed and the medal was awarded to the Junior who wrote and delivered the best address on some agricultural scientific subject.[84]

It was not until September, 1895, that the faculty decided that women should not be compelled to take Agriculture but be allowed to substitute other courses for some of those in the Department of Agriculture.[85]

From the original forty-five students enrolled, the totals increased gradually until by 1895, there were 156 students at A. and M.[86]

Not until 1896, however, were any of them graduated. That year, six students received the first degrees given by Oklahoma Agricultural and Mechanical College. Five received Bachelor of Science Degrees in Agriculture and one a B.S. in General Science.[87]

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[82] Ibid.

[83] "Minutes of the First Faculty," p. 184.

[84] Fourth Annual Catalogue of the Oklahoma Agricultural and Mechanical College, 1894-95, p. 34.

[85] "Minutes of the First Faculty," p. 214.

[86] A. C. Scott, Letter to Hon. L. W. Baxter, Guthrie, Oklahoma, July 23, 1903, "Letters" (Manuscript Copies), December 26, 1902 - August 22, 1903 (Okla. Agri. and Mech. College Library, Rare Book's Room, Stillwater), XVI, p. 380.

[87] Pageantry Class of 1932, p. 20.

Members of this first graduating class were J. W. Adams, J. H. Adams, Frank E. Duck, A. E. Jarrell, E. G. Lewis, and O. M. Morris.[88]

Though 1896 was the first year to produce A. and M. graduates, it was not the first year commencement was held. Commencement exercises had been planned and held in previous years with addresses, parades, contests, receptions, and even commencement sermons comprising the programs.[89] But following the 1896 exercises, Oklahoma A. and M. proudly claimed its first alumni.

There were those among the College faculty who were not satisfied with teaching the small number of Oklahomans who could afford a full four years of College. They began considering ways to help farmers who were unable to remain away from the farm long enough to attend College even for a full academic year. Professor Magruder wrote the Board of Regents in 1895:

> I believe that the efficiency of this institution including the Experiment station, can be materially increased by the introduction of a short winter course in Agriculture for the farmers, which should last three months, and include work in agriculture, horticulture, dairying, botany, entomology, and elementary chemistry and physics. This work could be carried on by the faculty without any material extra expense to the college especially if the assistants, asked by the departments, are provided by the board.[90]

Not long after this first mention of short courses, they became a part of A. and M.'s annual activities.

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[88] The College Paper, February 1, 1901, p. 131.

[89] "Minutes of the First Faculty," p. 141.

[90] A. G. Magruder, Letter to Board of Regents, May 30, 1895, "Letters" (Manuscript Copies), March 17, 1895 - December 18, 1900 (Okla. Agri. and Mech. College Library, Rare Book's Room, Stillwater), p. 46.

CHAPTER II

AGRICULTURAL EXPERIMENTS BEGIN (1891-1895)

Preliminary Tests

While the College was making rapid strides forward in its early years, it companion, the Oklahoma Agricultural Experiment Station was making equally rapid growth.

Imagine the problems facing Oklahoma's Experiment Station in the first years of its existence--a new agricultural area with recently settled farmers and ranchers; no records of temperature, rainfall, sunshine, soil analyses, or previous experiments with fruits, crops, and vegetables to turn to;[1] and no "old-timers" with sage advice concerning their farming experiences and practices. No possible way was available to give authoritative answers to the hundreds of questions farmers were asking themselves and others during those first years in the "new" region.

Work on the Experiment Station Farm might be considered the first "campus" activity. It began in the fall of 1891 when the townspeople turned out en masse to help burn off the grass so that the corner land markers could be located. In early December of that year, the first furrow on the College grounds was turned.[2] They were described as being

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[1]Neal, Oklahoma Agricultural Experiment Station Bulletin No. 1, p. 8.

[2]The Oklahoma A. and M. College Mirror, May 15, 1895, p. 2.

covered with "Bluestem grass, some scores of Buffalo 'wallows,' and several demolished prairie dog towns."[3]

The Experiment Station has 160 of the original two hundred acres to use for agricultural experiments. Around 120 acres of this was still in the sod in '91 while about forty acres was "one and one-half years from sod."[4] The Station plan was not to grow crops on an extensive scale, but to limit the average plot to one-tenth of an acre for tests of vegetables, field crops, trees, vines, and small fruits.[5]

Those early years were busy ones. Among the major projects accomplished, roads were laid out,[6] plots were plowed, seed was sown,[7] systems of record keeping based on those kept by established experiment stations were set up,[8] fences were built, and trees were planted.[9]

The first bulletin published by the Station was issued early in 1892 and was titled simply, "General Information, Organization and History." It contained material about the Experiment Station and carried this word of caution to the expectant ranchers and farmers:

> . . . one drouth, an insect raid, an unexpected frost or rainfall may vitiate the results of an experiment--so that, in many cases, it may take some years to make any deductions of value.[10]

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[3] Oklahoma Agricultural Experiment Station Bulletin No. 2, p. 4.

[4] Neal, Oklahoma Experiment Station Bulletin No. 1, p. 12.

[5] Ibid., p. 10.

[6] Oklahoma Experiment Station Bulletin No. 2, pp. 3-4.

[7] Ibid., pp. 8-9.

[8] Magruder, Letter to W. H. Caldwell, Pennsylvania State College, Pennsylvania, "Letters" (Manuscript Copies), June 1, 1892 - January 22, 1895, pp. 43-44.

[9] Fourth Annual Catalogue of the Oklahoma Agricultural and Mechanical College, 1894-95, p. 18.

[10] Neal, Oklahoma Experiment Station Bulletin No. 1, p. 10.

By October, 1892, the livestock inventory at the Station read as follows:

1 pair 3 year old mare mules
1 pair 6 and 7 year old horses (College team)
2 driving animals for Director and Supt. of farm
A herd of purebred Durhams (1 bull, 2 cows)
A herd of purebred Holsteins (1 bull, 2 cows)
39 head of hogs[11]

The 1894-95 catalog gives a good review of the work accomplished on the Experiment Station farm during those first few years:

The entire farm has been put under fence and well supplied with cross fences. One hundred and fifty five acres have been broken from sod and reduced to cultivation. Over 1800 fruit trees of all the leading varieties have been planted, together with 400 shade trees and 840 grape vines. Several hundred forest trees have been planted in nursery form; many varieties of berries and other small fruits are in cultivation. There are at present on the farm more than 60 distinct experiments in progress testing in as many different ways the variety, time of planting, manner and frequency of cultivation, etc., of the different crops and plants common in this climate.

More than 60 varieties of grasses and clover are being tested to determine the best forage and pasture grasses for this region of country. The experiment for 1893 included a test of 254 varieties of wheat, 70 varieties of corn, and 38 varieties of oats.[12]

Outline of Purposes

The act which gave rise to this vast program of experimentation was the Experiment Station Bill passed by Congress and approved by President Cleveland in March, 1887. Experiment Stations were set up

. . . in order to aid in acquiring and diffusing among the people of the United States useful and practical information on subjects connected with agriculture, and to promote scientific investigation and experiment respecting the principles and applications of agricultural science.[13]

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[11]Magruder, Report to Board of Regents, October 14, 1892, "Letters" (Manuscript Copies), June 1, 1892 - January 22, 1895, p. 175.

[12]Fourth Annual Catalogue of the Oklahoma Agricultural and Mechanical College, 1894-95, p. 18.

[13]Annual Catalogue and Prospectus of the Oklahoma Agricultural and Mechanical College, 1893-94, p. 22.

James C. Neal, first Director of the Oklahoma Station,[14] said in an early College catalog:

> The work of the Station is to conduct investigations of problems in agriculture, horticulture, and related sciences--especially those directly connected with those pursuits in Oklahoma--and subject to the peculiar conditions of soil, climate, and environment of this section, and to distribute free the information thus obtained.
>
> It is not the object of the Station to furnish a model farm or to indulge in fancy farming on a plane far above the reach of the average citizen.
>
> The only aim being to obtain a crop of information reliable, suggestive and practical, this information is distributed at no cost to the farmers. . . In many cases, the experiments are failures, but valuable in the information gained in the saving of time, of labor, and of money for others.[15]

The major portion of the money used to operate the Experiment Station came from the Federal Government under the Hatch Act which provided $15,000 annually. One-fifth of the first appropriation could be spent for buildings, but thereafter, only five per cent of the annual appropriation could be used for that purpose.[16]

The Hatch Act provided that any money not used during the year in which it was appropriated would be deducted from the following year's appropriation, "in order that the amount of money appropriated to any station shall not exceed the amount actually and necessarily required for its maintenance and support."[17]

Professor Neal, the first Director, had been at the Florida Experiment

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[14] Fourth Annual Catalogue of the Oklahoma Agricultural and Mechanical College, 1894-95, p. 17.

[15] Ibid., p. 103.

[16] Annual Catalogue and Prospectus of the Oklahoma Agricultural and Mechanical College, 1893-94, p. 25.

[17] Ibid.

Station before coming to Oklahoma.[18] He remained Director for four years, until 1895 when he was transferred to the Chair of Natural Science. Henry E. Glazier, a former member of the A. and M. Board of Regents, was named Director of the Station and Professor of Horticulture at that time.[19] Mr. Neal died six months after his transfer shortly after writing his last Station bulletin titled, "Oklahoma Weeds."

Mr. Glazier was succeeded by Mr. Morrow who was also President of the College. This rather unusual situation of having one person simultaneously serve as President of the College and Director of the Station was unknown at A. and M. before President Morrow and has not recurred since his time.

A. V. McDowell was employed as first Farm Superintendent in January, 1892. He was succeeded by B. J. Conley, in April, 1894.[20] Mr. Conley resigned a little more than a year later[21] and was not immediately replaced.

The Problem of Grasses

One of the pressing needs of the Territory in the early 1890's was that of converting prairie sod into tame grass pasture. Professor Magruder expressed the importance of the Station's promoting pasture experiments in a letter in which he said, "the success of the tame

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[18] Fourth Annual Catalogue of the Oklahoma Agricultural and Mechanical College, 1894-95, p. 10.

[19] Ibid., p. 17.

[20] Ibid.

[21] Oklahoma A. and M. College Mirror, September 16, 1895, p. 13.

grasses here means the success of Oklahoma while the reverse is also true."[22]

Some of the early experiments in this respect involved disking the prairie sod and sowing various clovers and grasses to determine their vitality in the struggle with the prairie grasses and weeds. Fifty-one varieties of grasses native to Australia, Africa, and Asia, obtained from Prof. S. M. Tracy of the Mississippi Agricultural Experiment Station, were used in this experiment. Twelve varieties of Danish grasses brought from abroad by Professor Magruder were planted[23] along with several additional varieties obtained elsewhere.

By May, 1893, seventy-three varieties of grasses had been tested by the College agriculturist not to mention those tested by the Experiment Station Director. In a bulletin printed that month, is the following general report:

> Of the seventy-three varieties of grass in the test, 41 have died completely, or, being annuals, have failed to re-seed. Twenty-three varieties have passed through a trying summer and a very hard winter and have barely come out alive, while nine others have stood the heat and drought of the summer of 1892 and the freezing and thawing of the winter of 1892 and 1893.[24]

Of the nine most successful varieties, six were from seed brought from Denmark.

That grasses from such a moist and cold climate should do well here in a dry and hot climate is strange; yet the growth of the Danish grasses on the farm indicates that we are correct in our statements. Two of the

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[22]Magruder, Letter to Hon. A. W. Harris, Washington, D. C., June 8, 1892, "Letters" (Manuscript Copies), June 1, 1892 - January 22, 1895, p. 6.

[23]Oklahoma Experiment Station Bulletin No. 2, pp. 6-7.

[24]"Notes of Progress--Analyses," Oklahoma Agricultural Experiment Station Bulletin No. 6 (Edmond, Oklahoma, 1893), p. 27.

nine came from seed obtained from the Mississippi Experiment Station and one is the well-known Bermuda which constitutes the principal pasture grass of nearly all the southern states.[25]

With the results from only one year's tests, the Experiment Station staff could not, of course, make recommendations or suggestions,[26] although it was indicated that cowpeas and soybeans might be worthwhile substitutes for grasses until conclusive grass tests could be made.[27]

The cowpea "furnishes more good points than can be found in any other one plant."[28] That it was better than the prairie grasses was indicated by yield comparisons in which prairie grass yielded one ton of hay (of poor feeding value) to the acre,[29] as compared with two to four tons per acre of cowpeas.[30]

In 1893, farmers in the Territory were solicited to assist with testing cowpeas. The Board of Regents gave Professor Magruder permission to distribute free of charge, five hundred one-quart packages of cowpeas to farmers in the various counties. Names of farmers who would cooperate were requested from members of the Board of Regents and from County Superintendents.[31] Special franking privileges were given for mailing

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[25]Ibid., p. 30.

[26]Ibid., p. 28.

[27]Ibid., p. 32.

[28]Magruder, Letter to Hon. A. A. Ewing, Watonga, Oklahoma, July 25, 1892, "Letters" (Manuscript Copies), June 1, 1892 - January 22, 1895, p. 80.

[29]Ibid., p. 56.

[30]Ibid., p. 63.

[31]Ibid., no page.

out the cowpeas,[32] and distribution was completed by June of that year.[33]

By fall, Professor Magruder was receiving "very gratifying reports of the cowpea test" from farmers throughout the Territory. "Reports show a yield of three and four tons of vines and from ten to thirty bushels of peas to the acre of sod, as well as on land one, two, and three years from the sod."[34]

The southern markets were quoting cowpea hay at ten dollars a ton that fall, the same price quoted for timothy and red clover.[35]

In 1894, the experiment was again undertaken with 500 more packages of cowpea seed sent to farmers who had settled in the Cherokee Strip in the northwestern part of present day Oklahoma.[36]

Field Crops

The wheat crop was a complete failure the first year because of the June attack of the destructive cinch bug.[37] In the fall of 1892, tests on 254 varieties of wheat were begun. Seed was obtained from Kansas, Texas, Missouri, and Canadian Experiment Stations and from various

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[32]Oklahoma Experiment Station, Press Bulletin No. 1 (March 28, 1893), no page.

[33]Oklahoma Experiment Station, Press Bulletin No. 3 (June, 1893), no page.

[34]Oklahoma Experiment Station, Press Bulletin No. 8 (November, 1893), no page.

[35]Oklahoma Experiment Station, Press Bulletin No. 6 (September, 1893), no page.

[36]Oklahoma Experiment Station, Press Bulletin No. 14 (May, 1894), no page.

[37]"Tests of Varieties, Oats, Corn, Spring Wheat, Irish and Sweet Potatoes," Oklahoma Agricultural Experiment Station Bulletin No. 4 (Norman, Oklahoma, 1893), p. 127.

seedsmen.[38] Economy caused the Station to reduce to fifty the number of varieties tested during 1893-94. Recommendations resulting from these tests included such practices as using stable manure, sowing as early after September first as possible even if it meant sowing in the dust, and using bearded wheats in preference to smooth wheats.[39]

A wheat experiment which should be given particular notice was begun in the fall of 1892 by Professor Magruder. At that time, he set aside an acre of land which was to be planted continuously to wheat year after year. Little could he predict the interesting future and widespread fame this acre of land would enjoy in later years.[40]

His plan originally called for continuous wheat culture without manure and this it had through 1897. Yields those first five years were 10.6 bushels per acre, 20.9, total wheat crop failure, 6.9, and 17.8 bushels respectively.[41]

The first oat experiments (using ten varieties) gave yields of twenty-one to thirty-seven bushels per acre. Low yields were blamed on the poor soil, the treatment the earth had been given prior to the time it was taken over by the Station,[42] and smut.[43] Data kept on the varieties included appearance of the stand, number of stalks per square foot, smutty heads per square foot, percent smutty heads per square foot,

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[38] A. C. Magruder, "Test Varieties of Wheat," Oklahoma Agricultural Experiment Station Bulletin No. 8 (Stillwater, Oklahoma, 1893), p. 4.

[39] A. C. Magruder, "Wheat," Oklahoma Agricultural Experiment Station Bulletin No. 12 (Stillwater, Oklahoma, 1894), p. 72.

[40] "Selections From the Record Book of Oklahoma Agricultural and Mechanical College," p. 61.

[41] G. E. Morrow and J. Hayes Bone, "Experiments With Wheat, 1896-7," Oklahoma Agricultural Experiment Station Bulletin No. 28 (June, 1897), p. 8.

[42] Oklahoma Agricultural Experiment Station Bulletin No. 4, p. 1.

[43] Ibid., p. 5.

height of stalk, date headed, date ripened, and yield per acre. Also, information was noted concerning pounds of straw per acre, pounds of grain per bushel, loss per acre from smut, test per cent, color, and character of grain.[44]

Forty-four kinds of corn were planted for a variety test in 1892. One-fifth acre plots were used. As with the oats, circumstances caused a poor crop. Planting was late and few varieties matured fully. The "boll worm" also took its toll.[45]

By March, 1895, enough oat tests had been determined for the Station to venture some fairly definite recommendations. Lincoln oats, planted at the rate of two bushels to the acre was suggested. The hot water treatment for preventing smut was recommended as was early planting, press drilling, and deep fall plowing.[46]

The home garden was not forgotten by the early experimenters. A test with fifteen varieties of sweet potatoes proved unsuccessful in the clay soil of the Station. Irish potato tests indicated only that best results were had when whole potatoes were planted as opposed to half potatoes and "eye" potatoes.[47]

An idea of the extent of the garden vegetable tests is best noted in the number of varieties planted. In 1893, seven varieties of peas, twenty-seven of beans, thirty of musk melons, thirty-six of watermelons, twenty-nine of cucumbers, twelve of beets, five of radishes, eleven of

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[44]Ibid., p. 2.

[45]Ibid., p. 6.

[46]A. C. Magruder, "Oats," Oklahoma Agricultural Experiment Station Bulletin No. 16 (Stillwater, Oklahoma, 1895), p. 40.

[47]Oklahoma Agricultural Experiment Station Bulletin No. 4, p. 8.

potatoes, and eleven of turnips were planted.[48] The following year, fifteen varieties of peas, twenty-six of musk melons, twenty-five of watermelons, thirty-four of cucumbers, thirty of lettuce, eleven of potatoes, fourteen of tomatoes, ten of onions, and four of Okra or gumbo were tested.[49]

Other trials were run with corn,[50] flax, sorghum, and cotton during those early years.[51]

Fruit Investigations

With the realization that Oklahoma's soil and climate might be well adapted to fruit growing, trees were set out early in 1892. As with the vegetables, a large number of varieties were planted. Three trees of each variety were set out. One hundred and eighty-nine varieties of apples were planted, thirteen varieties of apricots, thirty-two of cherries, twenty-two of crabs, two of nectarines, one hundred and two of peaches, seventy-one of plums, one of quinces, six of figs, three of mulberrys, two of almonds, two of walnuts, one variety of pecans, and three of chestnuts.[52]

In addition, two dozen plants of the following vines and bushes were planted: fourteen varieties of blackberries, three of currants, two of gooseberries, thirteen of raspberries, and twelve of strawberries.

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[48]Frank A. Waugh, "Test Varieties of Vegetables - 1893," Oklahoma Agricultural Experiment Station Bulletin No. 9, (January, 1894), pp. 5-33.

[49]Frank A. Waugh, "Garden Vegetables - 1895," Oklahoma Agricultural Experiment Station Bulletin No. 15 (February, 1895), pp. 17-32.

[50]A. C. Magruder, "Corn," Oklahoma Agricultural Experiment Station Bulletin No. 10 (April, 1894), pp. 45-46.

[51]Oklahoma Agricultural Experiment Station Bulletin No. 2, p. 10.

[52]Ibid., pp. 11-16.

One hundred and twenty-six varieties of early, medium, and late ripening white, red, and black grapes were also set out.[53]

Nurserymen, Experiment Stations, the United States Department of Agriculture, and even a Georgia lawyer and a Florida judge donated the young plants for the fruit experiments.[54] Seeking still further contributions, a March, 1892, bulletin said, "As the station will test and report on any fruits, vegetables, trees or plants, and guarantee the right of the introducer, we solicit contributions from nurserymen and seedsmen. . ."[55]

The First of the Insect Battles

The insect problem has long been a serious one with Oklahoma farmers. In the Entomology section of the Fourth College Catalog, 1894-95, it is noted that the Experiment Station furnishes "ample opportunity to study these competitors for our daily bread."[56]

The third bulletin issued by the Experiment Station, came out in June, 1892, and dealt with plant and animal insects and how best to combat them. Insects had shown the Experiment Station crops no mercy and statistics showed the situation was widespread.[57]

> It is astonishing that we get anything from orchard or garden, when we think how beset both are with curculios, gougers, borers, scale insects, leaf miners, tent caterpillars, plant lice, leaf rollers, flea beetles, slubs, cut worms, bugs and other insect foes, . . .

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[53] Ibid., pp. 16-18.

[54] Ibid., p. 20.

[55] Ibid., p. 19.

[56] Fourth Annual Catalogue of the Oklahoma Agricultural and Mechanical College, 1894-95, p. 45.

[57] Oklahoma Agricultural Experiment Station Bulletin No. 3 (Guthrie, Oklahoma, 1892), pp. 1-2.

wrote Dr. Neal in the bulletin.[58] Line drawings, descriptions, and general information concerning the insects were included[59] in the publication as well as formulae recommended for destroying them.[60]

An early insect experiment tried in the Territory was the elimination of healthy chinch bugs by scattering among them chinch bugs poisoned or infected with a certain growth.[61] The experiment was begun in 1892. The next year, the Station expressed hope that it could

> . . . send poisoned bugs to all who desire them, with this understanding, that with each request, at least a tablespoonful of living bugs be sent the station. Our experiments last year [1892] with the poisoned bugs were very successful, and encourage the hope that a concerted effort by the farmers will nearly exterminate this pest.[62]

In addition to the many experiments already mentioned, investigations were made on the subjects of alkali soil,[63] fertilization of soil,[64] drinking water,[65] irrigation,[66] prairie dog towns,[67] soil,[68]

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[58] Ibid., p. 4.

[59] Ibid., pp. 5-13.

[60] Ibid., pp. 17-20.

[61] The Oklahoma A. and M. College Mirror, June 15, 1895, p. 12.

[62] Press Bulletin No. 1, no page.

[63] Magruder, Letter to S. M. Tracy, Agricultural College, Mississippi, June 1, 1892 "Letters" (Manuscript Copies), June 1, 1892 - January 22, 1895, pp. 1-2.

[64] Press Bulletin No. 3, no page.

[65] George L. Holter, "Water Analysis," Oklahoma Agricultural Experiment Station Bulletin No. 7 (Stillwater, 1893), p. 39.

[66] Oklahoma Agricultural Experiment Station Bulletin No. 2, p. 18.

[67] Oklahoma Experiment Station, Press Bulletin No. 10, no page.

[68] George L. Holter and James C. Neal, "Some Soil Analyses," Oklahoma Agricultural Experiment Station Bulletin No. 5 (Stillwater, Oklahoma, 1893), p. 3.

weeds and their eradication,[69] and weather observations.[70] Work on silos and silage was promised for the future.[71]

Even with all of these experiments under way, the Station staff found time to exhibit at some of the County Fairs.[72]

Livestock Experiments

It is interesting to note, that not until 1895 were experiments with livestock begun. Stock was on the farm previous to this time, but no scientific research had been undertaken with them.

In 1894, the wheat crop throughout the nation had been large, and consequently prices were unsatisfactory. A bulletin was issued by the Station containing excerpts from other Station publications on the profitable use of surplus wheat as a feed for livestock. On January 1, 1895, experiments on this same subject were started at Oklahoma A. and M.[73]

Experiment Station Bulletins

In section four of the Federal Experiment Station Bill, provision was made for the publishing of bulletins and progress reports by the Experiment Stations.

> One copy of each shall be sent to each newspaper in the States or Territories in which they are respectively located, and to such individuals actually engaged in farming as may request the same, and as far as the means of the station will permit.

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[69] James C. Neal, "Oklahoma Weeds," Oklahoma Agricultural Experiment Station Bulletin No. 17 (Guthrie, 1895), pp. 3-5.

[70] Oklahoma Experiment Station, Press Bulletin No. 4, no page.

[71] Oklahoma Agricultural Experiment Station Bulletin No. 1, p. 13.

[72] Oklahoma Experiment Station, Press Bulletin No. 19 (October, 1894), no page.

[73] J. C. Neal, "Wheat Feeding," Oklahoma Agricultural Experiment Station Bulletin No. 13 (Stillwater, 1894), p. 76.

Franking privileges allowed free mailing for the bulletins, progress reports, and annual reports of the station.[74]

By 1893, the Station was issuing two types of bulletins. One kind was published in pamphlet form every three months and concerned the details of progress and results of the Station research. Copies were sent free to all farmers of Oklahoma who requested them.[75]

Early bulletins dealt with such varied topics as "Test Varieties of Oats, Corn, Spring Wheat, Irish and Sweet Potatoes," 1892;[76] "Some Soil Analyses," 1893;[77] "Water Analyses," 1893;[78] "Wheat Feeding," 1894;[79] "Grapes," 1895;[80] "Oklahoma Weeds," 1895;[81] "Irrigation for Oklahoma," 1896;[82] and many more subjects of interest to farmers in the Territory.

The second type of bulletin put out by the Station was the Press Bulletin which was prepared monthly and sent to all newspapers of the Territory.[83] They were one- or two-page printed sheets that included brief notes of matters of current interest which did not justify extensive

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[74] Annual Catalogue and Prospectus of the Oklahoma Agricultural and Mechanical College, 1893-94, p. 24.

[75] Fourth Annual Catalogue of the Oklahoma Agricultural and Mechanical College, 1894-95, p. 104.

[76] Oklahoma Agricultural Experiment Station Bulletin No. 4, cover page.

[77] Oklahoma Agricultural Experiment Station Bulletin No. 5, cover page.

[78] Oklahoma Agricultural Experiment Station Bulletin No. 1, cover page.

[79] Neal, Oklahoma Experiment Station Bulletin No. 13, cover page.

[80] Frank A. Waugh, "Grapes - 1894," Oklahoma Agricultural Experiment Station Bulletin No. 14 (January, 1895), cover page.

[81] Neal, Oklahoma Agricultural Experiment Station Bulletin No. 17, cover page.

[82] G. E. Morrow, "Irrigation for Oklahoma," Oklahoma Agricultural Experiment Station Bulletin No. 18 (Guthrie, 1896), cover page.

[83] Fourth Annual Catalogue of the Oklahoma Agricultural and Mechanical College, 1894-95, p. 104.

coverage, as well as excerpts from the quarterly bulletins. Editors were invited to reprint these materials in their newspapers.[84]

The first Press Bulletin, published March 28, 1893, carried a personally signed note to the editors from Station Director Neal saying:

To the Editors of Oklahoma: The Oklahoma Experiment Station sends out this bulletin, hoping that you will use it freely as copy. These are seasonable items, and we desire that we may at once reach the farmers of the Territory through your courtesy. J. C. Neal, Director[85]

By the fall of 1895, sixteen quarterly bulletins, averaging twenty pages each, in editions of seven thousand copies had been issued and distributed free to farmers of the Territory. Twenty-six special bulletins, averaging two pages each, in editions of four hundred copies, had been printed and sent to newspapers of the Territory.[86]

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[84]Frank A Waugh, ed., "All Departments--Press Bulletin Excerpts," Oklahoma Agricultural Experiment Station Bulletin No. 11 (Stillwater, Oklahoma, July, 1894), p. 47.

[85]Press Bulletin No. 1, no page.

[86]Fourth Annual Catalogue of the Oklahoma Agricultural and Mechanical College, 1894-95, p. 18.

CHAPTER III

EXPANSION IS THE KEYNOTE (1896-1900)

Enrollment Increases

By 1896, five years after Oklahoma A. and M.'s founding, both the College and the Experiment Station were showing noticeable progress as a result of the untiring efforts of the school's pioneers. During its second five years even greater strides forward gave the College a truly firm foundation of reality.

When classes began meeting on campus instead of in one of Stillwater's several churches,[1] the esteem for the College rose sharply. The small enrollments of the early years improved, and increased registrations indicated a growing respect for the College by the people of the Territory.[2] There were 156 enrollments in 1895-96. This number slipped slightly the following year to 149[3] but reached an "unprecedented" high of 219 students during 1898-99.[4]

Ranked nationally according to the number of students in 1898, there were seven agricultural colleges with smaller enrollments than Oklahoma A. and M.[5]

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[1] Oklahoma A. and M. College Mirror, April 15, 1896, p. 1.

[2] Oklahoma A. and M. College Mirror, June 15, 1896, p. 8.

[3] The College Paper, December 1, 1899, p. 82.

[4] The College Paper, May 30, 1899, p. 17.

[5] Ibid., p. 21.

By the fall of 1900, enrollment had leaped to 304 students, of whom 116 were in the Preparatory Department. Freshmen outnumbered other College classes with seventy-three students, sophomores were second with forty-six, juniors third with twenty-four, and seniors last with six. In addition, there were thirty-eight special students and one post-graduate.[6]

The 1896 commencement exercises inaugurated a succession of graduations which each year have added more and more alumni to the school's roster. Over the years, many of these alumni have entered the field of agriculture, some becoming key figures in the national farming picture.

The fall of 1900 found seven of the thirty A. and M. alumni working in agriculture or closely allied fields. Two had returned to the farm, one was an Assistant Entomologist for the United States Department of Agriculture, another was an Assistant in the Forestry Division in Washington, and three were Assistants on the Oklahoma A. and M. College staff, working in the Departments of Horticulture, Chemistry, and Zoology and Veterinary Science.[7]

This proportion of graduates working in agriculture does not, however, reflect the proportion of students who came to College from farming backgrounds. In 1900, the College President reported to the Governor, "The sons and daughters of farmers materially exceed in numbers those of all other occupations combined."[8]

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[6]Biennial Reports of the Territorial A. and M. College and Experiment Station of the Territory of Oklahoma, 1899-1900 (Bound in Volume titled "Official Reports," Guthrie, Oklahoma Territory, 1900), p. 18.

[7]Ibid., pp. 17-18.

[8]Ibid., p. 16.

Curricula Changes

As the College grew, the whole scope of the student curricula broadened. The appearance of electives in 1896-97 gave the students a degree of choice they had not before experienced.[9]

The 1897 College and Station Annual Report states:

> The course of study is designed, during the first two years, to give thorough training in the art of using the English language so as to clearly and correctly express thought; to secure a thorough foundation in mathematics and in the elements of the most important sciences. Beginning with the Junior year the study of agriculture, including horticulture, is taken up, based on the sciences underlying it and on the results of good practice. A good degree of choice is allowed students as to whether they will give extended study to some one science or gain a fair knowledge of several; continue English and mathematical studies or more closely confine themselves to science and its application.[10]

This was a definite change from the earlier years when students had no choice and were required to take the one course known as the Agricultural Course, but perhaps better described as a general scientific course.[11]

By 1900, more curricula changes had been instituted. Courses in Mechanical and Electrical Engineering had been added. German, Latin, Stenography, Typewriting, and Bookkeeping were being taught. Arrangements had been made to establish a full Course in Domestic Science.[12]

During 1898-99, the Department of Printing was established. Its primary purpose was to give instruction in printing but it also handled

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[9] Oklahoma Agricultural and Mechanical College and Agricultural Experiment Station, Annual Announcement of the College, 1897-98, and Report of the Director of the Station for Fiscal Year Ending June 30, 1897, p. 7.

[10] Ibid., p. 6.

[11] Fourth Annual Catalogue of the Oklahoma Agricultural and Mechanical College, 1894-95, p. 30.

[12] The College Paper, January 1, 1900, p. 97.

publication of The College Paper and general job work of the College,[13] including considerable printing for the Agricultural Department.[14]

These additions to the general College curricula did not check expansion within the Agricultural Department itself. An important addition in this Department was made in 1896 when the Board of Regents established a Chair of Veterinary Surgery.[15] L. L. Lewis, D.V.M., formerly of the Iowa Agricultural College staff, was named to fill the position. In addition to the work of giving instruction in the College, the Chair was expected

> . . . to render valuable and efficient aid in the matter of enforcing the quarantine laws of the territory and preserving that quarantine line intact as established by the authorities of the United States.[16]

As new departments opened, further four year programs were developed and offered by the College.[17] In 1898, a revised curricula divided the courses of study into a General Science and Literature Course, an Agricultural Course, a Mechanic Arts Course, a Specialized Course in Biology, and a Specialized Course in Chemistry.[18] Each student took the same general course during his Freshman and Sophomore years, but branched out to take specialized work in his chosen field during his Junior and Senior years.

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[13] Oklahoma Agricultural and Mechanical College, Annual Catalogue, 1898-99, With Announcements for 1899-1900 (Stillwater, Oklahoma, 1899), p. 10.

[14] The College Paper, January 1, 1900, p. 103.

[15] Oklahoma A. and M. College Mirror, June 15, 1896, p. 7.

[16] Oklahoma A. and M. College Mirror, March 16, 1896, p. 5.

[17] Oklahoma Agricultural and Mechanical College, College Announcement, 1898-9, and Annual Report of the Experiment Station, 1897-8 (Stillwater, Oklahoma), p. 1.

[18] Oklahoma Agricultural and Mechanical College, Agricultural Experiment Station Report, 1898-1899 (Stillwater, Oklahoma), pp. 4-5.

In the spring of 1899, the faculty revised the courses of study again. The General Science and Literature Course, the Agricultural Course, and the Mechanic Arts Course comprised the main curricula. Specialized courses in Chemistry, Botany, Zoology, etc., were designated as sub courses.[19]

The educational philosophy of A. and M. in the waning years of the 1800's, was well expressed in the 1898-99 catalog. It said: "It is our purpose to equip our students for efficiency in the activities of life; but in this practical purpose we do not desire to lose sight of the inspiration of the higher learning."[20]

The Preparatory Department continued to be operated through the turn of the century for those students whose training was not sufficient to admit them to College.[21]

Faculty Growth

Paralleling the enrollment expansion was the growth of the College faculty and Station staff. Most of those persons associated directly or indirectly with the field of agriculture worked in dual capacities serving both the College and the Station. This was felt to be a decided advantage because it helped "in obtaining a larger number of men especially trained for the difficult and peculiar work than would be possible under any other arrangement."[22]

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[19]Oklahoma A. and M. College, "Minutes of the First Faculty, 1892-1899," II, p. 357.

[20]Oklahoma Agricultural and Mechanical College, Annual Catalogue, 1898-1899, With Announcements for 1899-1900, p. 7.

[21]Biennial Reports of the Territorial A. and M. College and Experiment Station of the Territory of Oklahoma, 1899-1900, p. 15.

[22]Oklahoma Agricultural and Mechanical College, Annual Announcement of the College, 1897-98 and Report of the Director of the Station for Fiscal Year Ending June 30, 1897, p. 18.

Unlike the more specialized duties of instructors today, many faculty members were responsible for teaching a variety of subjects. One notable example was Dr. Neal, who in addition to his duties as Experiment Station Director, taught geometrical drawing, physical geography, physiology and hygiene, botany, entomology, zoology, meteorology, biology, and geology.[23]

In spite of the tremendous faculty work loads, salaries continued in the not-too-high bracket. Three new faculty members were hired in the early spring of 1896 at salaries ranging from $720 to $900 annually.[24]

College presidents came and went with considerable frequency during the early A. and M. days until President Morrow was named to the position in 1895. The Oklahoma A. and M. College Mirror, a paper published by the College, noted in the fall of 1897, "President Morrow has made arrangements to build him a home here and become a citizen among us. He will be the first of the college presidents to set such a worthy example."[25]

Because of poor health, however, President Morrow resigned from his position as College President, Experiment Station Director, and Agriculture Professor at the end of the 1899 school year.[26] He passed on March 21, 1900 in Paxton, Illinois.[27]

Following President Morrow's resignation, the Board of Regents selected two men to handle the duties of College President and Station

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[23] Oklahoma A. and M. College Mirror, January 15, 1896, p. 6.

[24] Oklahoma A. and M. College Mirror, March 16, 1896, p. 5.

[25] Oklahoma A. and M. College Mirror, September 15, 1897, p. 13.

[26] George L. Holter and John Fields, "Analysis of Waters for Irrigation," Oklahoma Agricultural Experiment Station Bulletin No. 38 (Stillwater, Oklahoma, April, 1899), p. 3.

[27] The College Paper, April 1, 1900, p. 2.

Director. Mr. Morrow was the first and only president to hold the two positions simultaneously. He undoubtedly had been given the dual responsibility because of his national recognition in the field of agriculture and his unusual record of accomplishment.

Succeeding Mr. Morrow as President was A. C. Scott,[28] who had been professor of English and Literature at A. and M. since February 1, 1898.[29] Prof. John Fields, former Associate Chemist in the College and Station, assumed the position of Experiment Station Director.[30]

About the time of President Morrow's resignation, a number of changes were made in the Experiment Station personnel. The eleven-man staff shrank to eight people when four men who had been with the Station for a comparatively long time left and only one replacement was hired.[31] Frequent changes such as these in the College and Station staffs had proved somewhat hampering throughout A. and M.'s first decade. It was noted, for example, in the 1897 Station Director's report:

> The work of the year has been somewhat modified by the fact that one member of the staff began his work at its opening; three others only three months before and that, except the chemist, no member had been connected with it for more than one year. Considerable time and thought were necessarily given to reorganization and to planning for systematic work during a series of years.[32]

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[28] The College Paper, May 30, 1899, p. 27.

[29] Oklahoma A. and M. College Mirror, January, 1898, p. 6.

[30] The College Paper, May 30, 1899, p. 27.

[31] J. H. Bone, "Oklahoma Soil Studies," Oklahoma Agricultural Experiment Station Bulletin No. 42 (Stillwater, Oklahoma, June 1899), p. 2. Also, O. M. Morris, "Fruits for Oklahoma," Oklahoma Agricultural Experiment Station Bulletin No 43 (Stillwater, Oklahoma, November, 1899), p. 2.

[32] Oklahoma Agricultural and Mechanical College, Annual Announcement of the College, 1897-98 and Report of the Director of the Station for Fiscal Year Ending June 30, 1897, p. 16.

The desirability of having persons serve on both the College faculty and Station staff was reemphasized time and again. In the 1898-99 Station report, Director Morrow commented:

> This tends to bring the two classes of work more closely together and to increase the interest taken in the station by the more advanced students of the college. In some cases, one person has been able to discharge certain duties both of college and station when a reasonable use of available funds would not have justified the employment of two persons for the work if divided.[33]

With the expansion of the College into fields other than Agriculture, the size of the faculty naturally began to increase more rapidly than the Station staff. In 1898-99, the College had a faculty of fifteen persons[34] which increased to twenty-two when school opened in the fall of 1900.[35]

The Station staff, during that same time, increased from eight[36] to nine people.[37] With but two exceptions, they were engaged in instruction in the College also.[38]

Not only did the College and Station staff members serve in numerous capacities, but the Territorial Legislature, in 1897, gave the Oklahoma A. and M. Board of Regents the added responsibility of serving as the Live Stock Sanitary Commission of the Territory.[39]

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[33] Agricultural Experiment Station Report, 1898-1899, p. 9.

[34] Ibid., p. 4.

[35] Biennial Reports of the Territorial A. and M. College and Experiment Station of the Territory of Oklahoma, 1899-1900, pp. 18-19.

[36] Press Bulletin No. 50, July, 1899, no page.

[37] Biennial Reports of the Territorial A. and M. College and Experiment Station of the Territory of Oklahoma, 1899-1900, p. 4.

[38] Annual Catalogue, 1898-1899, With Announcements for 1899-1900, p. 11.

[39] Annual Announcement of the College, 1897-98 and Report of the Director of the Station for Fiscal Year Ending June 30, 1897, p. 4.

The College Income

The chief source of income for the College during the second five years of its history continued to be the Federal Government under the provisions of the Morrill Fund. In the neighborhood of $22,000 was received annually from this Fund for salaries of instructors and facilities for teaching.[40] The Land Grant Act of 1862, which antedated the Morrill Act, allowed Federal funds for Land Grant Colleges but A. and M. was not elegible to receive these Land grant monies. They were given only to colleges in states, and Oklahoma was still a Territory.[41]

Appropriations for the Experiment Station continued under the provisions of the Hatch Fund and amounted to $15,000 annually. No money was received by the Experiment Station from the Territory.[42]

Like the Morrill Fund, there were specific purposes for which Hatch Fund money could be spent. It could be used only for "making experiments, and for the supplies, salaries, apparatus, appliances, printing of bulletins, and other things necessary for that purpose." None of the Hatch Fund money could be used for teaching nor could more than $750 of it be spent each year for buildings and permanent repairs.[43]

In 1896-97, around $8000 of the $15,000 Hatch Fund was used for salaries and labor,[44] about $3200 of which was paid out for student labor at a rate of ten to fifteen cents an hour.[45]

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[40] Oklahoma A. and M. College Mirror, June 15, 1896, p. 7.

[41] Announcements for 1896-7 of the Oklahoma Agricultural and Mechanical College (Guthrie, Oklahoma, 1896), p. 3.

[42] Oklahoma Agricultural Experiment Station Report, 1898-1899, p. 7.

[43] Oklahoma A. and M. College Mirror, June 15, 1896, p. 7.

[44] Annual Announcement of the College, 1897-98 and Report of the Director of the Station for the Fiscal Year Ending June 30, 1897, p. 4.

[45] Oklahoma A. and M. College Mirror, September 15, 1897, p. 9.

A financial statement for 1897-98, shows that a Station Sale fund was set up grossing over $1100 from the sale of Station products that year. The money was expended for salaries, labor, furniture and fixtures, and buildings and repairs.[46]

The College continued to receive one-third of the rental of Section thirteen in each township of the former Cherokee Strip. It amounted to about $3000 in 1896-97[47] and was expected to reach $6000 in 1898. That year, however, the College experienced a financial set-back when the Board of School Land Commissioners did not apportion the money on the basis of thirds, but allocated only $900 to OAMC.[48]

An article in the January, 1898, College Mirror, accuses the Land Commission of discriminating against the A. and M. College and says further:

> There is much misunderstanding even among many intelligent people as to the financial condition of the College. It has abundant funds for the payment of salaries of teachers and for securing reasonable equipments in apparatus, library, etc., for the work it now undertakes. But not one dollar of the money received from the United States Government can be used for buildings, repairs, furniture, or any incidental expenses. The Territory accepted this grant of money from the general government and assumed a direct obligation to make such provisions as would make it possible to wisely use it. It has been impossible to establish a Mechanical Art department greatly needed as this is and which the U. S. law places on a level in importance with the teaching of agriculture, because of lack of room. [One was established shortly thereafter.] The College is doing excellent work. It cannot widen its field of work unless the Territory more generously supports it. It will do this and all will come out right.[49]

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[46] College Announcement, 1898-9 and Annual Report of the Experiment Station, 1897-8, p. 4.

[47] Oklahoma Agricultural and Mechanical College and Agricultural Experiment Station, Annual Announcement of College, 1896-97 and Report of Director of the Station for Fiscal Year Ending June 30, 1897, p. 3.

[48] Oklahoma A. and M. College Mirror, January, 1898, p. 5.

[49] Ibid.

Eighteen ninety-nine was a year of considerable financial activity involving the College. By an act of the Territorial Legislature, and subsequent ratification by the United States Congress, A. and M. had to divert $15,000 of its funds to the University at Langston, Oklahoma. The money had been accumulated from the Morrill Fund[50] with the hope of spending it to equip desperately needed buildings if and when they were forthcoming.[51]

The College agreed to divert the $15,000 with the understanding that Langston University, which was entitled to an annual appropriation from the Morrill Fund, would not ask for more than $2500 annually from this source. Little as the A. and M. College could afford to give up the $15,000, it was felt it would be better to relinquish it then, than to have Langston cut deeper into the Morrill Fund appropriation by asking for reapportionment in the future.[52]

The same Legislature which passed this act, turned around and appropriated $20,000 for buildings for the A. and M. campus. Thus while giving up money which could not be used for buildings, the College received other funds earmarked for that specific purpose--an important switch at a time when buildings were greatly needed.[53]

The 1899 Legislature passed another important financial bill, the

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[50] Biennial Reports of the Territorial A. and M. College and Experiment Station of the Territory of Oklahoma, 1899-1900, p. 7.

[51] J. B. Thoburn, Sec'y., First Biennial Report of the Oklahoma Territorial Board of Agriculture, 1903-1904 (Guthrie, Oklahoma, 1905), p. 188.

[52] A. C. Scott, Letter to Board of Regents, Oklahoma A. and M. College, Stillwater, Oklahoma, "Letters," (Manuscript Copies) July 11, 1899 - April 12, 1900 (Okla. Agri. and Mech. College Library, Rare Book's Room, Stillwater) VI, p. 420.

[53] First Biennial Report of the Oklahoma Territorial Board of Agriculture, 1903-1904, p. 189.

Territorial Tax Levy Bill. It provided for an annual levy of one-tenth of a mill on the taxable property of the Territory to be used for the running expenses of A. and M. Income from this source was approximately $4500 for the '99-'00 school year.[54]

Construction Needs

Buildings, buildings, buildings--the inevitable cry of any rapidly expanding college. An article titled, "What the College Needs" printed in the College Mirror in 1897, prior to the Legislative building appropriations mentioned above, tells in no uncertain terms the sentiments of many of those associated with the College. It states:

> Many departments of the college and station have outgrown their present quarters. New buildings are imperatively demanded for the proper care of their apparatus and facilities already accumulated, and the efficient prosecution of their work. The United States has done its share with liberality, but the Territory, practicing a false economy, has failed to provide the plans for the proper use of the funds appropriated. Both the spirit and intent of the acts under which the funds are provided require suitable buildings to be furnished by the Territory for their complete and efficient expenditure. As yet Oklahoma has not met these reasonable demands. The last legislature was too parsimonous to appropriate $5,000 for this institution, but has plenty of money with which to pay political debts.

The same bitter article continues:

> For the efficient prosecution of the work here, the following things are needed, as gleaned from the statements of the several professors, the president's recommendations and annual reports, and common observation: A department of domestic economy, with suitable quarters; a department of mechanic arts, complete, with a suitable new building for its equipment and work; a botanical and entomological laboratory for the college; a chemical laboratory for the station; more chemical and physical laboratory room for the college; a separate reading room for the college, adjacent to the library; a suitable green-house for the station; a horticultural laboratory for the college; a dairy building, laboratory, and experiment room for the college and station; an agricultural laboratory for the college and station; additional recitation rooms; a museum for the gradual collection of the interesting and strange; a printing

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[54] Annual Catalogue, 1898-99, With Announcements for 1899-1900, p. 8.

plant, fixtures, and suitable rooms. And the college library has almost outgrown its present quarters. In two years a special building or special rooms in a new building will be demanded for its quarters.

These are only some of the present needs. Each year will bring new ones and we hope that the public will keep awake to the fact that this institution must grow in buildings, if its work is to be most effective.[55]

The pressure of these needs was obviously felt--the 1899 legislative action proved it was.

By mid-1900, with the $20,000 appropriated for buildings in 1899 and the revenue from the leasing of public lands, the College had constructed a library building, built a chemistry building, and installed heating plants in the library, chemistry, and mechanical buildings. To accomplish this required close economy and the pledging of certain revenues as far in the future as July 15, 1902. This left the College with absolutely no funds for additions and improvements for a number of years. "The wisdom of this course, however, it is believed will be unquestioned, since it has placed the college for the first time upon a broad working basis from which it can start to grow," said Regent's President Frank J. Wikoff in his biennial report issued in 1900.[56]

Almost before these new buildings were in use, urgent requests for money for still more buildings were presented. Mr. Wikoff's 1900 biennial report also pointed out that the value of buildings should be in direct ratio to the number of students in attendance. When compared with eighteen other states, all west of the Mississippi, the report stated that Oklahoma had:

. . . by far the smallest amount of money per student in attendance invested in buildings. If the average of all the states and territories west of the Mississippi be taken, this college should have buildings

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[55] Oklahoma A. and M. College Mirror, September 15, 1897, p. 5.

[56] Biennial Reports of the Territorial A. and M. College and Experiment Station of the Territory of Oklahoma, 1899-1900, p. 7.

worth $161,000. If the average of New Mexico and Arizona, both territories and poorer than Oklahoma, be taken, our buildings should be worth $157,500. Instead, Oklahoma has appropriated but $35,000 to be used for buildings.[57]

Regent's President Wikoff also put particular emphasis on the need for additional buildings for the Department of Mechanical and Electrical Engineering which was turning students away each year because of lack of space. A barn to house livestock and provide laboratories was needed. The College assembly hall was incapable of seating all of the students in attendance, he said. The Departments of Botany and Entomology had insufficient room. Requests for appropriations to satisfy the building needs at the turn of the century totaled $50,000.[58]

The College President, in his 1900 Biennial Report, also emphasized the physical plant deficiency. He pointed out that the average building equipment was 3.4 times the teaching equipment in value in states outside Oklahoma, while in Oklahoma, building equipment was only a little over half (.6) the value of the teaching equipment.[59]

Students, too brought pressure to bear. In their College paper, they wrote:

> The growth of the college in number of students has been so rapid that, notwithstanding the completion of the Chemistry and Library buildings, more room is needed and must be had. We have no place to comfortably seat the students for chapel exercises--and when our friends come we are swamped. The department of botany and entomology has grown until the small frame building is crowded almost to bursting. The mechanical boys overflow onto the campus with their shop exercises. The pure-bred stock must shiver in the open because there is no suitable place to house them. When the students have practice in stock judging, they must put on their rubber boots and wade in the mud. They do it

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[57] Ibid., p. 8.

[58] Ibid., p. 10.

[59] Ibid., p. 14.

cheerfully, but they would get a whole lot more out of it if a stock judging room were available.[60]

In spite of the concentrated pressure for more new buildings, the campus enjoyed only minor improvements in the summer of 1900. Two ranges of propagating pits--each forty-eight feet long--with connected work rooms were put in for budding and propagating plants. An implement shed, with rooms for storing fodder for feeding experiments, was built. A piggery was constructed and new fences around the feed yards were installed.[61]

Plans were made during that summer for an independent water system for the farm and by fall, a windmill and a hundred barrel galvanized tank had been purchased to carry out the plans.[62]

Short Courses

The influence of this continual growth of the College was of course immediately felt in the area around Stillwater. It took a little longer for it to spread throughout the State. Nevertheless, it was a matter of only a few years before the influence of the College faculty, particularly in Territorial agricultural matters, was making itself impressively felt. One of the major means of spreading this influence was through the development of the Short Course. The idea had been promoted by Professor Magruder in a letter to the Board of Regents as early as May, 1895.[63]

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[60] The College Paper, December 1, 1900, p. 104.

[61] The College Paper, October 1, 1900, p. 68.

[62] Ibid.

[63] Magruder, Letter to the Board of Regents, Oklahoma A. and M. College, Stillwater, May 30, 1895, "Letters" (Manuscript Copies), March 17, 1895 - approximately December 18, 1895, p. 47.

Two years later, the following resolution was adopted:

> The faculty approves of the recommendations of the President that the College offer a free lecture course on agricultural and kindred topics during the first two weeks of the winter term, and special courses in agriculture, animal industry, veterinary science, and horticulture during the winter term; also that the College offer College Extension Lecture Courses under the auspices of the high schools in the cities of the territory, so far as these can be arranged without detriment to the work of the College and Station.[64]

Oklahoma's agricultural short courses soon became popular and by 1900 were in full swing. Beginning January 3 of that year, and continuing for ten weeks, the course included studies in diseases of livestock, farm water supply, budding and grafting, breeds of livestock, crops for Oklahoma, farm machinery and equipment, farm dairying, troublesome insects, farm accounts, laws affecting farmers, stock feeding, carpentry, blacksmithing, the running of steam engines, veterinary surgery, and horticulture.[65]

All persons over sixteen years of age were permitted to attend the 180 one-hour lectures and participate in the sixty afternoons of practical work. Lectures and practice were given every week day. Saturday afternoons were devoted to discussing and summarizing the week's work. Saturday meetings were somewhat of the nature of Farmers Institutes and questions not satisfactorily answered elsewhere were brought up and considered. These meetings were open to all farmers, whether or not they took the course.[66]

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[64] "Minutes of the First Faculty," 1892-1899, p. 229.

[65] Press Bulletin No. 55, October, 1899, no page.

[66] Press Bulletin No. 54, November, 1899, no page.

In 1900, a supplementary Short Course was offered. On February twelfth, a four weeks' course in practical horticulture and allied subjects was begun. The sessions included a study of varieties of fruit, methods of culture best suited to Oklahoma, and insects and spraying.[67]

The subject matter of the short courses varied slightly from year to year. In 1901, an Eight Weeks' Course[68] included studies in breeds and breeding of livestock, diseases of livestock, stock feeding, farm dairying, crops for Oklahoma, farm machinery and equipment, steam engines and boilers, soil fertility maintenance, orchard and small fruits, troublesome insects, elementary botany, farm hygiene and water supply, laws affecting farmers, farm accounts, carpentry, blacksmithing, veterinary practice, and practical horticulture.[69]

Lectures were again supplemented by practical work designed to stress and illustrate the methods and practices advised.[70]

In 1901, John Fields, Director of the Experiment Station, was named Dean of Short Courses.[71] Only the title was new to Fields as he had directed the courses during several previous years.

Promotion of Farmers' Institutes

At the time the short courses were getting their start in Oklahoma, the Station was also advocating Farmers' Institutes. They had been

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[67] Press Bulletin No. 56, January, 1900, no page.

[68] Press Bulletin No. 64, September, 1900, no page.

[69] Press Bulletin No. 65, October, 1900, no page.

[70] Biennial Reports of the Territorial A. and M. College and Experiment Station of the Territory of Oklahoma, 1899-1900, p. 9.

[71] Oklahoma Agricultural and Mechanical College, Annual Catalogue, 1900-01 With Announcements for 1901-02 (Stillwater, Oklahoma, 1901), p. 5.

effective in other states. Led by Director Morrow, who had had considerable experience with Farmers' Institutes elsewhere, the Station urged farmers to organize them.[72]

The services of the faculty of A. and M. and of members of the staff of the Experiment Station were offered to the Institutes[73] free of charge as such services were felt to be legitimate and important parts of the work of the Station.[74]

Farmers were urged to meet together to exchange experiences and opinions. They were told that the Institutes

> . . . should have no party political bearings and the discussions should cover all leading lines of agricultural interests of the county, as a rule, rather than be confined to one line, as grain growing, fruit culture, or stock rearing.[75]

The customary procedure for the Institutes was to begin with a session in the afternoon on one day and close in the evening of the following day. The day time sessions were devoted to matters of special interest, such as the discussion of affairs relating to farming. Evening sessions usually included literary programs with lectures on agricultural topics by speakers from other localities. December, January, and February were favored months for Institutes.[76]

A number of Institutes were organized in 1897 and early in 1898,[77] but the biennial report of the Experiment Station issued in 1900, stated

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[72] Press Bulletin No. 31, November 1, 1896, no page.

[73] Ibid.

[74] Press Bulletin No. 37, January, 1898, no page.

[75] Press Bulletin No. 31, November 1, 1896, no page.

[76] Press Bulletin No. 50, July, 1899, no page.

[77] Oklahoma A. and M. College Mirror, December 15, 1897, p. 6.

that persistent efforts to organize Farmers' Institutes during the year had failed. It suggested that perhaps emphasis should be placed on encouraging attendance at the various agricultural and livestock association meetings held in the Territory,[78] as a partial substitute for the Institutes.

The Agricultural faculty played an active role in the functions of these associations[79] and as a result the influence of the College on Territorial agricultural practices was materially broadened through the representatives who were regularly sent to the meetings.[80] In 1898, Prof. E. E. Bogue, College Botanist and Entomologist, was elected President of the Territorial Agricultural, Horticultural and Irrigation Society.[81]

In keeping with the policy of encouraging farmers to visit the College and Station, the agricultural associations were urged to hold their meetings in Stillwater.[82]

Station Publications

Still other means of reaching large numbers of farmers in the Territory were the Station publications. In 1894, the Experiment Station mailing list included six thousand names.[83] By July, 1900, the Station was mailing some fifteen thousand bulletins to farmers of the Territory,

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[78] Biennial Reports of the Territorial A. and M. College and Experiment Station of the Territory of Oklahoma, 1899-1900, p. 18.

[79] Oklahoma A. and M. College Mirror, November 15, 1895, p. 8.

[80] "Minutes of the First Faculty," March 7, 1892 to June 2, 1899, p. 188.

[81] Oklahoma A. and M. College Mirror, February, 1898, p. 8.

[82] Press Bulletin No. 64, September, 1900, no page.

[83] Annual Report of the Director of the Oklahoma Experiment Station, 1894 (Stillwater, Oklahoma), p. 4.

all free of charge.[84] Anywhere from four to eight bulletins were being issued annually.

By the turn of the century, Oklahomans had accumulated considerable information about the unknown and untested country they had settled. Much of what they learned came from publications of the College which by then were able to report some rather definite experimental results.

Most of Oklahoma's forty thousand square miles was settled by people engaged in some form of agriculture.[85]

One hundred and sixty acre farms could be purchased during this period for anywhere from one to eight thousand dollars.[86] Generally, farmers were working fine compact soil containing little decayed vegetable matter through which water penetrated slowly, but once penetrated, remained for some time.[87]

Temperatures in the Territory ranged from as low as zero in winter at higher elevations to a hundred degrees or more in other areas in summer.[88] Rainfall varied considerably, with western Oklahomans receiving less than the average precipitation of the Territory.[89]

As climatic and other influencing patterns became apparent in the

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[84]The College Paper, July 25, 1900, p. 58.

[85]G. E. Morrow, "Oklahoma Weather and Crops," Oklahoma Agricultural Experiment Station Bulletin No. 30 (Stillwater, Oklahoma, 1898), p. 3.

[86]John Fields, Article for Burnham's List Company, Kansas City, Missouri, October 30, 1900, "Letters" (Manuscript Copies), October 4, 1900 - February 23, 1901 (Okla. Agri. and Mech. Library, Rare Book's Room, Stillwater), VIII, p. 116.

[87]Morrow, Oklahoma Agricultural Experiment Station Bulletin No. 30, p. 4.

[88]Ibid., p. 5.

[89]Ibid., p. 4-5.

Territory, farmers began to narrow their crop concentrations. Opposing this trend toward specialization, Fields, speaking before the Oklahoma Agricultural, Horticultural and Irrigation Association in 1899, said he felt that the productive future of Oklahoma farming lay in the term "diversified farming." He said:

> . . . I hope to see the day when every farm in Oklahoma will have its little herd of pure-bred beef cattle, its bunch of hogs and its flock of sheep; when every farmer will raise, feed and fatten his bunch of steers and realize the top of the market because they were bred in new Oklahoma and are of the best; when every farm is made to grow a small acreage of each of the many crops that may be grown and is self-supporting. The tendency to exclusive farming in some localities is not a hopeful sign. While at present remunerative, experience teaches that it will not continue to be so.[90]

The wide scope of the Station experiments indicated a support of this philosophy and showed the variety of enterprises which might be pursued on farms in the Territory.

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[90] Biennial Reports of the Territorial A. and M. College and Experiment Station of the Territory of Oklahoma, 1899-1900, p. 21.

CHAPTER IV

FEED AND SEED TESTS ARE EMPHASIZED (1896-1900)

Before discussing the 1895-1900 station experiments, it might be well to note the commendation that the Oklahoma Station received in 1897 in a report made by Dr. A. C. True, Director of the Office of Experiment Stations in Washington, after reviewing the work of stations throughout the country. He severely criticized the policy and management of a number of stations, but about Oklahoma, he said:

> The Oklahoma Station has made definite progress in organizing its work on useful lines and within proper limits. The addition to its staff of well trained officers has enabled the Station to perform more efficient service and the reelection of the same staff gives promise of making the Station more stable and successful. The field work of the Station has been greatly improved. . . The station funds have been economically expended in accordance with the terms of the law.[1]

Livestock Trials

After a comparatively late start, the Station livestock experiments began growing rapidly in importance. Emphasis for the most part was placed on feeding experiments, though important work was also being done with animal diseases and other phases of stock production.

Livestock trials from 1896 to 1899 involved steer feeding experiments, the effects of dehorning, feeding cotton seed, gains on pasture, variation in gain, pigs on pasture, weight and gain of young pigs, gain of pigs

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[1] Oklahoma A. and M. College Mirror, March, 1898, p. 5.

following cattle, comparisons of corn and kafir, fattening pigs on forage crops, sheep feeding and farm team work, food, drink, and costs.[2]

For several years, the feeding values of Kafir corn and Indian corn were compared. Conclusions indicated that more Kafir corn than Indian corn was required to produce a pound of live weight because of the slightly lower digestibility of those parts of the Kafir corn usually fed, as compared with the corresponding parts of the Indian corn that were fed.[3]

It was also learned that horses, cows, sheep, and hogs could all be kept in good health and would all make fair gains when the only grain fed was Kafir.[4] Since Kafir corn in any form was found to be healthful and palatable for any class of farm animals, it was considered a very valuable grain crop for Oklahoma--perhaps the most valuable for some parts of the Territory.[5]

Tests were made with cotton seed cake and meal.[6] Cotton seed was abundant, low-priced, and had considerable feed value, but farmers were hesitant to use it because of the many cases of injury or death to young animals fed the seed freely.[7] The best results from the use of cotton seed seemed to come when it was given as a supplement to other feeds. It was noted that:

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[2]Oklahoma Agricultural Experiment Station Report, 1898-1899, pp. 18-32.

[3]George L. Holter and John Fields, "Digestion Experiments and Fodder Analyses," Oklahoma Agricultural Experiment Station Bulletin No. 37 (Stillwater, Oklahoma, April, 1899), p. 2.

[4]"Summary of Digestion Experiments with Kafir," Oklahoma Agricultural Experiment Station Bulletin No. 35 (Stillwater, Oklahoma, November, 1898), p. 3.

[5]Press Bulletin No. 40, March, 1898, no page.

[6]Press Bulletin No. 31, November 1, 1896, no page.

[7]Press Bulletin No. 36, November, 1897, no page.

. . . at the average prices of cotton seed and cotton seed meal there will be a great saving in the cost of beef production if they are used in connection with corn and Kafir corn, especially when the farmer has not the alfalfa to feed; and more especially for the last 30 or 60 days of the fattening period.[8]

Every grower of cotton should also be something of a stockman since he is producing one of the very best of stock foods and should utilize it at home so as to keep up the fertility of the soil. If the stockmen and dairy men of the northern and eastern states can afford to pay high freight and still use cottonseed meal as feed for their cattle, it would certainly be profitable for Oklahoma farmers to make use of all that is grown here and keep our fertility at home.[9]

"Pie melons" were also being used by many farmers of the day. These melons were adaptable to the climate, would produce large crops even in unfavorable years, were palatable to stock, and had fair feeding value.[10] Because of the high water content and comparatively low feeding value (a ton of melons was equal to 670 pounds of corn silage)[11] the Station did not recommend extensive use of these cousins to the watermelon.[12]

Stock Disease Studies

During the late 1800's, Oklahoma cattle were plagued by what was called Texas Fever. In December of 1897, the Board of Regents gave the Experiment Station authorization to undertake an extensive and important line of experimentation in relation to the prevention of this dreaded disease.[13]

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[8] Press Bulletin No. 61, June, 1900, no page.

[9] Press Bulletin No. 65, October, 1900, no page.

[10] Press Bulletin No. 32, January, 1897, no page.

[11] George L. Holter and John Fields, "Loss by Exposure of Corn Stover and Teosinte," "Composition of Pie Mellon," "Fertilizer Analyses of Castor Bean Plant," Oklahoma Agricultural Experiment Station Bulletin No. 25 (June, 1897), p. 6.

[12] Oklahoma Agricultural Experiment Station Report, 1898-1899, p. 57.

[13] Oklahoma A. and M. College Mirror, December 15, 1897, p. 6.

The Oklahoma Live Stock Association, at its annual meeting in March, 1898, expressed interest and hope in the findings when it passed resolutions asserting gratification for the proposed experiments on the efficiency of dipping cattle to prevent the fever.[14]

Early theories that Texas Fever was communicated by sore, or feverish feet, or by the saliva, had been displaced by evidence that the tick was the transmitting factor.[15] Accordingly, the Experiment Station, acting in cooperation with the Live Stock Sanitary Commission (which was also the Board of Regents of A. and M.), made extensive tests on destroying the ticks by tank dipping. The Station also inoculated northern cattle with blood of southern cattle to test if this would bring immunity from Texas Fever to the former.[16]

Results of the dipping trials were found to be favorable when certain precautions were taken. The solution destroyed the tick, but under some conditions was found irritable to the skin of the cattle. Caution had to be exercised when using it. The inoculation trials were unsatisfactory since most of the animals which were inoculated contracted the disease and some even died as a result.[17]

Work with another stock disease was begun when, in the fall of 1899, the Station received 1000 doses of blackleg vaccine from the Bureau of Animal Industry of the United States Department of Agriculture for free distribution to Oklahoma stockmen. Until that time, the

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[14] Oklahoma A. and M. College Mirror, March, 1898, p. 8.

[15] L. L. Lewis, "Texas Fever," Oklahoma Agricultural Experiment Station Bulletin No. 39 (Stillwater, Oklahoma, May, 1899), p. 2.

[16] Press Bulletin No. 37, January, 1898, no page.

[17] Press Bulletin No. 43, November, 1898, no page.

Station had had no organized system for giving material assistance to help control blackleg.

As a result of this one year's program, the demand for vaccine grew, making it necessary for the Station to outfit a laboratory to prepare more of the preventative. The first vaccine manufactured in the Veterinary Laboratory of the Station was sent out March 1, 1900.[18]

While these comprised the main cattle disease experiments of the Station, results of investigations by other stations as well as the latest information available from outside reliable sources were published now and then in Oklahoma bulletins. Hog cholera,[19] glanders, and Symptomatic Anthrax were among the diseases reported in this manner.[20]

On occasion, the Station investigated special situations which cropped up in the Territory. In 1898, it received numerous inquiries concerning a fatal disease among horses in Kingfisher, Garfield, and Grant counties. The disease had reached epidemic proportions and was spreading into nearby counties. Emergency investigations were made by Station personnel and the conclusion was drawn that it was caused by smutty Grama grass (Bouteloua oligostachya) since no occurence of the disease was found in those pastures which had been closely grazed and where the grass did not mature seed on which the smut was found.[21]

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[18] L. L. Lewis, "Directions for Using Vaccine For the Prevention of Blackleg in Cattle," Oklahoma Agricultural Experiment Station Bulletin No. 57 (Stillwater, Oklahoma, March, 1903), p. 2.

[19] Press Bulletin No. 38, February, 1898, no page.

[20] L. L. Lewis, "Glanders, Texas Fever, Symptomatic Anthrax," Oklahoma Agricultural Experiment Station Bulletin No. 27 (Stillwater, Oklahoma, June, 1897), p. 3.

[21] Oklahoma Agricultural Experiment Station Report, 1898-1899, p. 39.

Dairying Experiments

Paralleling the growing dairy interests in the Territory, the Station undertook experiments in the bacteriology of milk. Bulletin Number 40, issued in 1899 contained general information on milk, bacteria found in milk, composition of milk, pasteurizing milk, sampling milk, and the number of bacteria in milk.[22]

A point which was emphasized time and again in several early bulletins of the Station was the importance of manure for soil improvement. The Station condemned the farmers for not using barnyard and stable manure on their fields. Farmers were urged not only to use manure available from their own places, but to use livery stable manure which could be had gratis if they would haul it away.[23]

College Flocks and Herds

Experiments with livestock and livestock products naturally meant the Experiment Station animal tally had to increase. Registered stock was gradually added to the herds. In 1897, a Jersey bull calf, Silver Laddie 46,589, A.J.C.C.H.R., from the herd of B. F. Woodworth, Downs, Oklahoma was purchased.[24] A few months later in that same year, the Station bought a well-bred Polland China boar from C. M. Irwin, Wichita, Kansas, and a fine Berkshire sow and boar pig from Halstead & Mears, Parkland, Oklahoma.[25]

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[22] L. L. Lewis, "Bacteriology of Milk," Oklahoma Agricultural Experiment Station Bulletin No. 48 (Stillwater, Oklahoma, May, 1899), pp. 3-16.

[23] Press Bulletin No. 59, April, 1900, no page.

[24] Press Bulletin No. 33, March, 1897, no page.

[25] Press Bulletin No. 34, July, 1897, no page.

In January of '98, the Station obtained a flock of sheep and lambs for feeding and breeding experiments. It was the contention of Director Morrow that sheep raising could ". . . profitably receive attention in many parts of the territory, both in the line of producing lambs for the early spring market and lambs for fattening when nearly a year old."[26] After satisfactory results were evidenced from the early sheep experiments, a pedigreed Shropshire ram and two ewes were purchased by the Station.[27]

In October, 1899, the College paid $1800 for six head of purebred cattle, a bull and two heifers each, of the Hereford and Shorthorn breeds. The Shorthorns came from the herd of T. J. Wallace & Son, Bunceton, Missouri, and the Herefords from the herd of J. M. Curtice, Kansas City, Missouri, who had a farm near Independence, Missouri.[28]

By this time, the Station also had purebred red Polls, and Angus cattle; purebred Cotswold, Merino, and Southdown sheep; and purebred Chester White and Duroc-Jersey hogs.[29]

In January, 1898, plans were made to institute experiments in the breeding and feeding of poultry. Not many other experiment stations in the country were giving special attention to poultry but members of the Oklahoma staff felt it was important since poultry and eggs made up a large part of the diets of Oklahomans and their sale was adding considerably to the income of many families in the Territory.[30]

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[26]Press Bulletin No. 37, January, 1898, no page.

[27]Press Bulletin No. 43, November, 1898, no page.

[28]The College Paper, October 1, 1899, pp. 56-57.

[29]Biennial Reports of the Territorial A. and M. College and Experiment Station of the Territory of Oklahoma, 1899-1900, p. 9.

[30]Press Bulletin No. 37, January, 1898, no page.

In May, 1900, the results of feeding experiments with chickens were published in Bulletin Number 46.[31] Essentially, the experiments were made to test the amount of digestible matter in Kafir corn and cowpeas when fed separately to chickens. Both were found to be suitable feeds for chickens, though Kafir corn was somewhat better than cowpeas.[32]

In order to answer inquiries regarding bee keeping in Oklahoma, the Experiment Station purchased three colonies of Italian bees[33] in March, 1899.[34] Up to July 1, 1900, the tests indicated that on the whole, the small amount of honey produced would not warrant all the care and experience necessary for a successful bee enterprise.

Oklahoma Crops

Important in the overall farming pattern of the Territory were the experiments with crops which the Station was carrying on. Many were relevant to the livestock feeding experiments. Others concerned crop varieties. Still others involved culture practices.

In 1898, the Station issued a bulletin titled, "Oklahoma Weather and Crops for 1897" which gave a good resumé of the types of crops harvested annually in the Territory. The statement, "Oklahoma can produce most of the great field and orchard crops grown in the states north and south, and is well adapted to rearing and fattening each of the great classes of farm animals,"[35] was well proven by the bulletin.

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[31]John Fields and A. G. Ford, "Digestion Trials," Oklahoma Agricultural Experiment Station Bulletin No. 46 (Stillwater, Oklahoma, May, 1900), p. 3.

[32]Press Bulletin No. 60, May, 1900, no page.

[33]Press Bulletin No. 46, April, 1899, no page.

[34]Press Bulletin No. 63, August, 1900, no page.

[35]Morrow, Oklahoma Agricultural Experiment Station Bulletin No. 30, p. 6.

Briefly, the bulletin reported that the largest acreage in the Territory was planted in wheat that year. Corn was affected by hot weather and no rain, resulting in a less than fair crop. Kafir did well over a large part of the Territory. Oat acreage was small but the yields good. Cotton yields compared very favorably with yields in other states. Castor beans were grown in considerable quantity on poorer land. Potatoes were doing moderately well. Sweet potatoes and peanuts were doing remarkably well. Quite a few turnips were being grown. It had been found that sugar beets could be grown profitably for feed but not for sugar. Melons were doing very well.

Native grasses were giving better results than any tame or cultivated grasses or clovers. Farmers were generally satisfied with alfalfa. Most people agreed that cowpeas were a profitable crop both for green manure and for feed.

As for fruit, it was still a little early to determine its success throughout the Territory.

The year had been fair for livestock in spite of Texas Fever (the danger of which had been reduced by quarantine laws) and of hog cholera. Cattle grazing was mostly confined to the western part of the Territory. Dairy interests were developing. Large numbers of hogs had been brought from Texas in the early part of the year and fattened in eastern Oklahoma. Not much was being done in the way of sheep breeding or fattening. Poultry interests were gaining importance and numbers.[36]

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[36]Ibid., pp. 7-9.

Station Crop Experiments

Experiments with every one of these crops and stock interests plus many allied phases of agriculture were continually being conducted by the Experiment Station. One experiment which covered a considerable period of time was the question of the relative values of Kafir corn and Indian corn. Bulletins were issued on suggested growing practices for both.[37] That Kafir corn was of value in the Territory was rather widely accepted.[38] Generally, Station findings indicated that corn was a good spring-planted crop for rich soils, especially bottom soils in the eastern and southern portions of the Territory. For thin uplands and in localities where the rainfall was not as great as in other parts of the Territory, Kafir corn was preferred.[39]

It was found that Kafir could be planted farther west than corn; it withstood drouth surprisingly well; and it could be planted much later than was safe for corn. Good crops were reported where seed was planted in wheat stubble after the wheat crop was off.[40] Director Morrow believed that Kafir corn was ". . . the most promising grain yet introduced for regions with warm summers and a light rainfall."[41]

Wheat trials also attracted a great deal of attention during these early years of experimentation. After testing 254 varieties in 1893, and

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[37]G. E. Morrow and J. H. Bone, "Experiments with Field Crops, 1897," Oklahoma Agricultural Experiment Station Bulletin No. 33 (Stillwater, Oklahoma, March, 1898), pp. 3-18.

[38]Press Bulletin No. 43, November, 1898, no page.

[39]Press Bulletin No. 28, February, 1896, no page.

[40]Press Bulletin No. 41, May, 1898, no page.

[41]Press Bulletin No. 28, February, 1896, no page.

fifty varieties in 1894, the 1895 wheat crop was an uncontrollable failure. In 1896, seventy-one varieties were tested, the following year sixty-four were planted and in 1898, fifty varieties were tested.[42] For several years, Red Russian, Fultz, and Fulcaster were consistently among the highest yielding varieties.[43]

Spring wheat yields were poor and its use was not recommended by the Station.[44] Hard wheats were thought to do better in the western half of the Territory, and soft wheats better in the eastern half.[45]

Results of the Station's wheat experiments concurred with the generally accepted practices of wheat farmers in the Territory. They agreed that it was important to plow early and deep and to work the soil well before seeding. They were in accord that seeding should be completed before October fifteenth and that rotation was preferred to continuous culture of wheat. The majority of wheat raisers found it profitable to pasture the wheat when conditions were suitable.[46]

Wheat culture on the one-acre plot, originally planted to this grain by Professor Magruder in 1892, was maintained. It had been planted continuously, without manure, for five years. But in 1898, the plot was split, and one half, plot I, was given a generous coat of manure while

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[42] Oklahoma Agricultural Experiment Station Report, 1898-1899, p. 47.

[43] "Summary of Experiments with Corn and Wheat, 1898," Oklahoma Agricultural Experiment Station Bulletin No. 36 (Stillwater, Oklahoma, November, 1898), p. 1.

[44] Press Bulletin No. 36, November, 1897, no page.

[45] Press Bulletin No. 62, July, 1900, no page.

[46] John Fields, "Reports of Wheat Raisers," and F. C. Burtis and J. G. Kerr, "Experiments with Wheat," Oklahoma Agricultural Experiment Station Bulletin No. 47 (Stillwater, Oklahoma, September, 1900), p. 3.

the other half, plot II, had none. With the exception of the manure application, the cropping practices were the same for both plots.

In 1899, the manured plot yielded an equivalant of 36.8 bushels of grain per acre to 18.1 bushels per acre from the plot with no manure. The next year, plot I was again manured and yielded 30.6 bushels as compared to 12.0 bushels from plot II which still had no manure.

Not only was a tremendous difference in yield found, but in 1900, wheat from plot I tested 60 1/2 pounds per bushel as it came from the thrasher while plot II tested 57 1/2 pounds per bushel. The former was also found to be fine plump grain while the latter was more or less shriveled.[47]

From 1897 through 1900,[48] the Experiment Station carried on cooperative sugar beet experiments with the United States Department of Agriculture.[49] Farmers in the Territory who were willing to comply with the instructions for growing the sugar beets were given seed supplied by the Federal agency.[50]

The test results were strikingly uniform. The average of all results showed eight per cent sugar in the juice with 69.7 as the co-efficient of purity. Since the lowest standard for successful sugar manufacture was twelve per cent sugar with a co-efficient of purity of eighty, establishment of the industry in the Territory was discouraged. With an average

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[47] Press Bulletin No. 62, July, 1900, no page.

[48] Press Bulletin No. 66, November, 1900, no page.

[49] Annual Announcement of College, 1896-97 and Report of Director of the Station for Fiscal Year Ending June 30, 1897, p. 18.

[50] Press Bulletin No. 40, March, 1898, no page.

yield per acre of eleven tons, however, the experimenters at least had some excellent cow feed for their efforts.[51]

Extensive trials with cotton were not being conducted on the Station farm during the late 1800's. Nevertheless, the Station, received requests for information from farmers interested in this crop and the staff issued cotton bulletins and press bulletins for the sake of these farmers.

The first cotton bulletin, "Cotton Culture in Oklahoma," was issued in February, 1897[52] and was based on the experiences of a number of growers in different parts of the Territory and on facts collected and published originally by the United States Department of Agriculture.[53]

It was generally agreed that cotton would do best in the southern and southeastern portions of the Territory. Creek and river bottoms were thought to offer the choice locations for fields. Planting from April first to May first was advocated and Texas Storm Proof variety was the one preferred.[54]

In a survey of parts of Noble, Lincoln, Logan, and Payne Counties, eighty farmers were interviewed to learn their experiences with and observations of cotton culture. The findings were published in February, 1900.

Ten per cent of those surveyed regarded cotton as unprofitable. From the remainder, it was found and reported that:

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[51] Press Bulletin No. 66, November, 1900, no page.

[52] G. E. Morrow, "Cotton Culture in Oklahoma," Oklahoma Agricultural Experiment Station Bulletin No. 23 (Norman, Oklahoma, February, 1897), title page.

[53] Press Bulletin No. 33, March, 1897, no page.

[54] Morrow, Oklahoma Agricultural Experiment Station Bulletin No. 23, p. 3.

The average area devoted to cotton was 15 acres and the yields during the fall of 1899 varied from 500 to 800 pounds of seed cotton per acre. This cotton was sold for $1.90 to $2.20 per hundred pounds with an estimated profit of from $5 to $10 per acre. The yields this year [1899] were about two thirds of what were secured in 1898, but the difference in price made the profit per acre about the same. Many farmers regard the crop as one which is desirable to provide work that the children can do, but deplore the fact that cotton picking frequently keeps the children out of school.

It is the general opinion that the growing of a limited amount of cotton will prove continuously profitable. This crop has its place in the great diversification of crops possible here and there seems to be no tendency toward making the great mistake of going into exclusive cotton culture.[55]

Considered a staple crop of Oklahoma, and one important in the overall plan of farm diversification advocated by the Station was the Castor Oil plant.[56] While no part of the plant could be used for animal food due to its lethal quality,[57] the pod was found to contain an amount of plant food more valuable than that present in an equal weight of average wood ashes. The value as manure, based upon what the plant food value in the Castor Oil plant would cost if purchased in the form of fertilizers, was over ten dollars per ton.[58]

Forage Crop Studies

Frequent inquiries concerning forage crops came to the Station. A press bulletin issued February, 1899, states:

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[55]Press Bulletin No. 57, February, 1900, no page.

[56]G. L. Holter and John Fields, "A Study of the Castor Oil Plant," and "Practical Chemistry of Soils and Crops," Oklahoma Agricultural Experiment Station Bulletin No. 32 (Stillwater, Oklahoma, March, 1898), p. 3.

[57]Oklahoma Agricultural Experiment Station Report, 1898-1899, p. 53.

[58]Holter and Fields, Oklahoma Agricultural Experiment Station Bulletin No. 32, p. 10.

The Experiment Station receives more inquiries from Oklahoma farmers concerning grasses or clovers than on any other one subject. Aside from our native grasses there is no true grass well adapted for pasture or hay or both which with our present knowledge and experience we can recommend with confidence for cultivation over the Territory generally, and the same is true of the clovers proper.

At the Experiment Station in Stillwater, fair success has been obtained in some trials with timothy and with blue grass, but other trials have proved failures. Orchard grass has done well in growth, but a full stand has not yet been secured in any trial. . . Bermuda grass grows readily and spreads rapidly in many parts of Oklahoma, and, with some marked objectionable qualities, it is coming into favor both as lawn and pasture grass. Johnson grass makes a vigorous growth. It is a coarse grass, and the difficulty of eradicating it is such that many farmers are strongly opposed to its use.[59]

Suitable varieties, soils, and the most desirable methods of cultivation were the principal grass factors under investigation by the station. Grass tests were begun in what were called grass gardens consisting of small ten by twenty foot plots. Those grasses showing desirable characteristics on this small scale were then tested further on a larger scale in the fields.[60] From these larger tests, final conclusions were subsequently drawn.

In the summer of 1900, two native grasses were noted to have established themselves widely in Oklahoma. One was the Texas blue grass and the other the smooth Texas blue grass. They were similar to and closely related botanically to Kentucky blue grass, and seemed to be relished by all grass eating animals. The grasses, which were spreading in Oklahoma without special attention, gave promise of being some of the best pasture grasses for the Territory. Though the Station had not run tests on them, it expressed high hopes for these grasses.[61]

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[59] Press Bulletin No. 44, February, 1899, no page.

[60] F. C. Burtis, "Crop and Forage Notes, 1900," Oklahoma Agricultural Experiment Station Bulletin No. 48 (Stillwater, Oklahoma, December, 1900), pp. 3-4.

[61] Press Bulletin No. 61, June, 1900, no page.

For hay, alfalfa was considered the most promising yet found.[62] The difficulty in securing a good stand was the most serious objection to it.[63] It had proved reasonably adaptable, however, and was giving yields up to three tons or more per acre which was more than could be expected from the clovers and grasses.[64]

Another legume receiving considerable attention from the Station was the cowpea. Cowpea hay was difficult to cure and therefore was not highly recommended for this purpose. Its value lay in the fact that it was an excellent green manure crop which could be pastured before turning under.[65]

Trials at Oklahoma and other southern Experiment Stations were made to check the proposal of allowing pigs to harvest the cowpea crop. Along with crops of peanuts, sweet potatoes, and soy beans, it was found that pigs could harvest cowpeas more cheaply than man. This practice was especially profitable when some grain was fed along with any of these self-harvested crops.[66]

The Fruit Struggle

Fruit was struggling for a foothold in the Territory, too. In 1896, Henry E. Glazier, Vice Director of the Station and Horticulturist of A. and M., estimated that over a million and a half fruit trees had

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[62] Press Bulletin No. 42, August, 1898, no page.

[63] Morrow and Bone, Oklahoma Agricultural Experiment Station Bulletin No. 33, p. 16.

[64] Oklahoma Agricultural Experiment Station Report, 1898-1899, p. 54.

[65] Press Bulletin No. 58, March, 1900, no page.

[66] Press Bulletin No. 46, April, 1899, no page.

been planted in Oklahoma Territory during the previous seven years. He also estimated that a fourth of them had already died. He said:

> It is estimated that two-thirds of the fruit trees planted were of the pitted fruits, including peach, plum, apricot, and cherry; and one-third of apple, pear, quince, etc. Many millions of small fruits, blackberry, raspberry, and strawberry [were] planted and many . . . also died.[67]

These fruit tree failures were blamed mostly on improper or complete lack of soil preparation before planting, the round headed and flat headed apple tree borers, late frosts, and the fact that trunks on young trees were not kept shaded.[68]

One practice recommended by the Station in 1896 included dry mulching (continued cultivation to secure a layer of dust) instead of straw or compost mulching. It was felt that straw or compost mulching induced shallow rooting which was detrimental in this latitude. Other practices recommended were planting on a hillside, planting only thrifty, low headed trees, and planting two-year old trees in the fall.[69]

Unlike many other crops for which the station was recommending specific varieties, no advice could yet be given concerning fruit. Several years of fruit experiments had been carried on, but the long life-span of fruit trees made definite variety recommendations impossible until more time had elapsed.[70]

A press bulletin, "Fruits for Oklahoma" issued in December, 1899, summarizes reports received by the Station from fruit growers throughout

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[67] H. E. Glazier, "Fruit Growing in Oklahoma," Oklahoma Agricultural Experiment Station Bulletin No. 20 (Guthrie, Oklahoma, June, 1896), p. 15.

[68] Ibid., pp. 15-17.

[69] Ibid., pp. 16-20.

[70] Oklahoma Agricultural Experiment Station Report, 1898-1899, p. 58.

the Territory. They placed plums nearly, if not quite, at the head of the list of fruits best suited to Oklahoma. Apples, they found, had done well, and pears were doing well in almost every case where good cultivation was provided. Marked success was being shown with peaches in many cases. Sweet cherries were not profitable in the western counties, but sour cherry trees were reported to have borne good crops in almost every kind of soil and locality.

Grapes were getting a great deal of attention throughout the Territory, and the vineyards were becoming one of its chief objects of pride. On the other hand, blackberries were more or less of a tossup, with some growers reporting them the most paying fruit and others reporting them a complete failure. Currants were meeting with only a fair degree of success. Raspberries were not regarded as desirable unless irrigation was possible.[71]

Forest Culture

Fruit trees were not the only trees receiving attention from the Experiment Station at the end of the nineteenth century. Under Secretary of Agriculture Wilson had established a Sylviculture (forest culture) plan in Texas, Oklahoma, Kansas, Nebraska, and the Dakotas. Under the plan, four acres of the Oklahoma Station farm were planted to trees and tree seeds. Included in the area were mulberry, catalpa, hickory, burr oak, black cherry, bitternut or pignut, black walnut, red maple, pecan, white ash, white elm, silver maple, white and red oak, and black locust trees.[72]

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[71] Press Bulletin No. 55, December, 1899, no page.

[72] Oklahoma A. and M. College Mirror, February, 1898, p. 4.

About the time these trees were being planted, the Station was urging farmers to plant small groves for wind breaks, to protect growing orchards, to prevent wind erosion,[73] and to use profitably land which could not be cultivated.[74]

In 1900, additional catalpas, red and silver maples, white elms, white ashes, black cherries, birches, and locusts were planted at the Station. It was estimated that year, that including the trees in the experimental orchard, there were more than fifty thousand trees and shrubs on the College grounds.[75]

The Persistent Insect

Closely allied to the work being carried on by the Station in the fields of Agronomy and Horticulture, were those concerning insects.

The chinch bug infection campaign begun in 1892, which proposed the elimination of healthy chinch bugs by scattering among them poisoned chinch bugs, was declared generally unsuccessful in 1896. The plan had been found effective only under certain uncontrollable conditions.[76] With a major crop of chinch bugs expected in 1896,[77] the Station was recommending the use of the barrier and trap method, whereby furrows with smooth dusty edges were used to trap bugs trying to pass over them.[78]

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[73]Ibid.

[74]Press Bulletin No. 67, December, 1900, no page.

[75]The College Paper, April 1, 1900, p. 1.

[76]Press Bulletin No. 28, February, 1896, no page.

[77]G. E. Morrow, "Methods of Destroying Cinch Bugs," Oklahoma Agricultural Experiment Station Bulletin No. 19 (Guthrie, Oklahoma, April, 1896), p. 3.

[78]Ibid., p. 5.

The 1897 chinch bug infestation was slight,[79] but the following year, the bugs were present in such numbers that they caused considerable anxiety in some sections of the Territory. The Station was still receiving requests for infected bugs in spite of the attempt to encourage farmers to use the barrier and trap method for control, or the more recently devised method of planting millet around the wheat field. It had been discovered that millet attracted the bugs from the wheat as the wheat ripened and when this occurred, many bugs could be destroyed by plowing the millet under and rolling the ground.[80]

Searching for a fool-proof method of chinch bug distruction, in 1899, the Station tried a plan, which though somewhat complicated, apparently proved rather successful. The test was described in a press bulletin as follows:

> A drive extended along the west side of the wheat field; next to this drive was a narrow strip of castor beans and then a few rods of cotton and next to the cotton four rows of cane. The wheat ground was plowed as soon as the wheat was cut which destroyed some bugs. Many escaped and went across the drive, the castor beans, and cotton to the cane. When they had well collected on this four rows planted as a 'trap crop' it was plowed under very deep and rolled down hard. Beyond this strip were a few rows of cotton and then four more rows of cane also planted as a 'trap crop.' The bugs that escaped from the first trap passed on to the second and when they had collected in this second strip it was plowed as the first and thereby nearly all the bugs were completely destroyed. A few more rows of cotton were planted beyond to the west of the second strip that was plowed and then Kafir, which was saved from the bugs.[81]

Chinch bugs were only one of the many pests under study by the Station. Other insects and plant and tree diseases receiving attention

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[79] Press Bulletin No. 35, September, 1897, no page.

[80] Press Bulletin No. 41, May, 1898, no page.

[81] Press Bulletin No. 50, July, 1899, no page.

from the Station included San Jose scale,[82] peach rosette,[83] melon louse,[84] Hessian fly,[85] apple leaf-crumpler, codling moth, apple tree tent caterpillar, bag-worm, flat-headed apple tree borer, round-headed apple tree borer, twig girdler, apple twig borer, fruit bark beetle or shot-hole borer, plum curculio, peach tree borer, blumble flower beetle, spotted vine-chafers, rose-chafer, and the grape vine leaf-roller.[86]

Insects and rodents in stored grain were becoming increasingly troublesome in Oklahoma. To eliminate them, the Station recommended the use of Carbon-bisulphide, a colorless liquid that evaporates readily at ordinary temperatures to form a poisonous gas.[87]

Soil and Water Investigations

Also associated with the Station's agronomic studies were its soil and water experiments. Repeated statements to farmers warned them against burning straw and corn stalks which could be used to add needed organic material to the soil.[88]

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[82] E. E. Bogue, "The San Jose Scale in Oklahoma," Oklahoma Agricultural Experiment Station Bulletin No. 34 (Stillwater, Oklahoma, May, 1898), p. 3.

[83] E. E. Bogue, "Peach Rosette," Oklahoma Agricultural Experiment Station Bulletin No. 20 (Guthrie, Oklahoma, June, 1896), title page.

[84] E. E. Bogue, "Melon Louse," Oklahoma Agricultural Experiment Station Bulletin No. 20 (Guthrie, Oklahoma, June, 1896), title page.

[85] Press Bulletin No. 35, September, 1897, no page.

[86] E. E. Bogue, "Some Injurious Orchard Insects," Oklahoma Agricultural Experiment Station Bulletin No. 26 (Stillwater, Oklahoma, June, 1897), pp. 5-23.

[87] Press Bulletin No. 65, October, 1900, no page.

[88] Press Bulletin No. 39, February 22, 1898, no page.

A loose soil mulch was earnestly advocated. It was thought that there was less evaporation from the surface when the soil was loose on top than when it was hard and compact all the way down. The reasoning behind this was that the loose soil would act as a mulch through which the moisture from below would not pass and evaporate.[89] It was also felt that water would permeate best into freshly plowed or cultivated soil.[90]

Money for extensive irrigation experiments by the Station was limited because the Washington office had instructed the Station that it could not provide irrigation plants (ponds, wells, windmills, or other pumping apparatus)

> . . . except from a fund of $750 per annum, out of which all buildings, or other permanent improvements, or the repairs of such of any kind for any Station use must be provided for--unless funds are supplied by the Territory.[91]

The Station did, however, analyze water from a number of rivers and streams in the Territory to determine their fitness for use as sources of irrigation water. Many samples were found to contain high concentrations of salts and where this occured, the water was reported as unfit for irrigation.[92]

It was soon learned that most of Oklahoma's irrigation would have to come from wells and ponds in which storm water had been stored. The Station recommended that every farmer build farm ponds to catch the

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[89] Press Bulletin No. 59, April, 1900, no page.

[90] J. H. Bone, "Oklahoma Soil Studies," Oklahoma Agricultural Experiment Station Bulletin No. 24 (Stillwater, Oklahoma, May, 1897), p. 3.

[91] Morrow, Oklahoma Agricultural Experiment Station Bulletin No. 18, p. 3.

[92] G. L. Holter and John Fields, "A Study of Waters for Irrigation," and "The Irrigation Plant," Oklahoma Agricultural Experiment Station Bulletin No. 29 (Stillwater, Oklahoma, September, 1897), pp. 3-4.

rains for use later to insure crops[93] and to provide water for stock.[94]

As for wells, the Station cautioned farmers to use care in drilling and to stop when good water was first hit. Drilling deeper for more output often resulted in striking bad water, thus making the whole unfit for use.[95] Windmills were recommended for elevating the water.[96]

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[93]Morrow, Oklahoma Agricultural Experiment Station Bulletin No. 18, pp. 12-17.

[94]Ibid., p. 9.

[95]Holter and Fields, Oklahoma Agricultural Experiment Station Bulletin No. 29, p. 11.

[96]Ibid., pp. 8-9.

CHAPTER V

THE ROAD IS NOT SMOOTH (1901-1904)

Education for the Farm

As Oklahoma Agricultural and Mechanical College entered its second decade of history, a major educational problem which had been evident for some time, though not exceedingly pressing, now demanded immediate and forceful action. The problem was that of convincing the people of the advantages and necessity of educating young people for the farm.

The doctrine of agricultural education had not been readily accepted.[1] Children were taught by their parents that farming was a life of never ceasing drudgery, toil, and labor, and that it was not an "honorable" profession.[2] The result was that students shied away from agricultural schools and studies.

In 1896, five of A. and M.'s six graduates received B. S. degrees in Agriculture. In the next three years, eighteen students were graduated, all with majors in the science and literature fields. In 1900, the Agricultural Department slipped back into the picture graduating two in a class of six. Not until 1904, however, did the Agricultural

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[1]John Fields, Letter to "Benson," no address given, December 27, 1904, "Letters" (Manuscript Copies), August 2 - December 30, 1904 (Okla. Agri. and Mech. College Library, Rare Books Room), XXIII, p. 477.

[2]First Biennial Report of the Oklahoma Territorial Board of Agriculture, 1903-1904, p. 190.

Department begin to graduate a steady, uninterrupted flow of students. That year, four from a class of twenty received Agricultural degrees.[3]

It was not that farmers did not appreciate the advantages of education, itself. They did, as was shown in 1900, when of the 367 students enrolled, 237, or sixty-four per cent, were from the farms of Oklahoma. In most cases, however, the basic idea in sending children to college was to fit them for occupations other than farming.

Speaking in the campaign against this unfortunate viewpoint, President Scott once said:

> While I believe there is altogether too much of this, and while I deplore the fact, yet within reasonable bounds I do not object to it; for it is a fact demonstrated by long experience that the best and most vigorous and most pure manhood comes into the ranks of so-called learned professions or skilled trades from the farms. But . . . the boy who is going to return to the farm as well as the boy who is going to leave it deserves something of the higher education--deserves that part . . . which bears directly upon his life work and will help him in the every-day operations of the farm; and deserves too, that other part which will make him an influential factor in the community and an intelligent and useful citizen of the commonwealth and will implant in him the intelligent resources which will make his life more sane and full, and rational, and liberal.[4]

In this same talk, Mr. Scott further emphasized:

> The chief end of the higher education which is directed toward agricultural pursuits is then, to raise the standard of intelligence and of scientific and systematic effort among farmers. . . It is not too much to hope that gradually, little by little, the number of those who farm with their brains as well as with their hands will grow larger. And in this desirable result the agricultural college and the experiment station ought to bear a notable part.
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> It is indeed an insult to the farmers' profession--the fundamental and the most dignified of all professions--to say that 'anybody can farm.'

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[3]Oklahoma Agricultural and Mechanical College, Alumni and Former Students Directory Issue, 1891-1935 (Stillwater, Oklahoma, October, 1935), p.10.

[4]A. C. Scott, "President Scott's Address," "Scott's Collection," (Okla. Agri. and Mech. College Library, Rare Book's Room Stillwater), no page.

> Anybody can farm, it is true; but anybody to farm successfully, must have gone deep into the mysteries of nature, either by patient, intelligent investigation and observation on his own account, or by help of the general wisdom and experience of men, as furnished by the excellent schools of agriculture now scattered throughout the land.[5]

From the time of its establishment the College had been faced to some degree with the problem of little demand for instruction in agriculture but unlimited demand for instruction in other fields of study. But A. and M. had been essentially an Agricultural College and it was 1899 before students no longer were required to take agricultural courses. With this relaxing of regulations, the College began to show marked expansion into fields other than Agriculture and its related sciences both of which had been built into reputable departments in spite of resistance.

Referring to this period, Director Fields once told the Territorial Board of Agriculture:

> . . . during that formative period when the institution was neglected by the legislature and was the butt of many jokes by facetious educators of the stereotyped sort, the institution developed a foundation for training in the sciences relating to agriculture which placed that branch of its work on an equal footing with other institutions of the same character.[6]

In spite of the adverse feelings toward it, the Agricultural Department did not cease to function. Neither did it reduce its work. Over a period of years, the reluctance to have youth educated for the farm began to give way to an increasing appreciation by farmers of the need and benefit of instruction of this sort for their children.[7]

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[5] Ibid.

[6] First Biennial Report of the Oklahoma Territorial Board of Agriculture, 1903-1904, p. 188.

[7] Ibid., p. 187.

Many factors contributed to this changing feeling. One was that in agricultural colleges throughout the nation, the trend was away from old-time methods of instruction where theory alone was taught and the practical was all but forgotten. No longer were students being turned out of agricultural schools with their heads filled with dry facts gleaned from text books. Instead they were being taught sound, scientific principles as well as the practical skill and knowledge necessary to apply them to the everyday problems in their farm enterprises.[8]

Another influencing factor affecting this changing attitude undoubtedly was the increasing demand by employers for agricultural graduates. For example, in 1901, the Agricultural Department in Washington instituted the Scientific Aid Program. The idea was to appoint graduates of Land Grant Colleges to positions in the Department

> . . . with sufficient salary to enable them to live comfortably, opportunity to pursue special work along their chosen line of science, and a certain prospect of a position in the government service at the end of two years of creditable work, with a salary of $1000.[9]

From fifty to a hundred men were to be appointed to these positions annually for a number of years.

By 1903, seven of A. and M.'s graduates were working for the Department of Agriculture in Washington, a number of them having entered the service through the Scientific Aid Program.[10] The College Paper reported the appointment of Arthur C. Lewis, '01, as a Scientific Aid with the following commentary:

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[8]Ibid., pp. 192-93.

[9]The College Paper, June 1, 1901, p. 36.

[10]The College Paper, November 16, 1902, p. 167; The College Paper, October 15, 1903, p. 87.

It is particularly gratifying to the college that his college course was accepted in the department at 100 per cent, and his thesis at 95 per cent, thus indicating that the standing of the institution there is all that it should be.[11]

Evidence such as this could not help influencing favorably the thinking about agricultural education.

The Station's Effects on Education

Then, too, the Experiment Station, whose direct influence on farmers and farming in the Territory had been more immediately felt and its purposes for existence more readily accepted than that of the College, was indirectly contributing to the more favorable attitude toward agricultural education. Its close relationship to the College and the interwoven College faculty and Station staff were strongly linked in this contribution.

The Experiment Station's contacts with farmers were specific and fundamental. The Experiment Station could be credited with actually having formulated a large part of the agricultural practices of the Territory. In both correspondence and publications, the Station found it necessary to "thrash over and over directions for growing and handling all of the crops grown."[12] Farmers depended materially on this information to orient them to the best farming practices for their new lands.

Station Director Fields noted:

While other stations have perhaps received more attention from the world at large than this station has, there is no other experiment station which is in closer touch with its constituents and whose work

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[11] The College Paper, October 15, 1903, p. 87.

[12] John Fields, Letter to Dr. A. C. True, Washington, D. C., September 19, 1902, "Letters" (Manuscript Copies), August 7 - November 24, 1902 (Okla. Agri. and Mech. College Library, Rare Book's Room, Stillwater), XIII, p. 157.

is more closely watched and followed at home than ours. Instead of pitching the high and mighty scientific bluff, we have always endeavored to help the little fellow struggling along on 160 acres to make a success of his work.[13]

With the passing years, the efforts of the College and the Station to gain acceptance of the importance of agricultural knowledge, and their efforts to spread agricultural know-how itself, resulted, in part, in steadily increasing enrollment. In 1901, in spite of dry weather and crop shortages in some areas of the Territory,[14] student enrollment topped the 400 mark[15] and was over 500 not long afterward.[16]

Changes and expansion in curricula offerings caused much of this enrollment increase. The facts that tuition continued to be free[17] and that many students were able to earn the hundred or so dollars needed to cover costs each College year, were influencing factors.[18]

Curricula Changes

The curricula which included the General Science and Literature Course, the Agriculture Course, the Mechanical Engineering Course, and

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[13]John Fields, Letter to Board of Regents, June 1, 1903, "Letters" (Manuscript Copies), March 10 - July 14, 1903 (Okla. Agri. and Mech. College Library, Rare Book's Room, Stillwater), XVII, pp. 325-326.

[14]John Fields, Excerpt from Article Written September 21, 1901, "Letters" (Manuscript Copies), May 31 - October 5, 1901 (Okla. Agri. and Mech. College Library, Rare Book's Room, Stillwater), X, p. 424.

[15]Oklahoma Agricultural and Mechanical College, Agricultural Experiment Station Tenth Annual Report, 1900-1901 (Stillwater, Oklahoma, 1901), p. 7.

[16]Oklahoma Agricultural and Mechanical College, Agricultural Experiment Station Fourteenth Annual Report, 1904-1905 (Stillwater, Oklahoma, 1905), p. 5.

[17]Ibid., p. 13.

[18]John Fields, Letter to L. W. Dongres, Editor, Hospodarska Listy, Chicago, Illinois, October 6, 1900, "Letters" (Manuscript Copies), October 4, 1900 - February 23, 1900 (Okla. Agri. and Mech. College Library Rare Book's Room, Stillwater), VIII, p. 12.

the two courses in the special sciences, Chemistry and Biology,[19] continued to be offered through the 1902-03 school year.[20]

Beginning in the fall of 1903, a major study change following careful consideration by the faculty was put into effect. The College Paper stated:

> While the preparatory department was in operation it kept becoming more and more apparent that many young men and women came to the college long enough to complete their common school work, but were unable to continue through the college course. The result was that they left the college without having received any of its most characteristic work in agriculture and household science. In nearly every case, too, they returned to the farms, where this work would be of special value to them. This was the condition that called imperatively for remedy. This institution has a special interest in being of use to the boys and girls who intend to remain on the farm.[21]

The Preparatory School, therefore, was discontinued and a new division known as the School of Agriculture and Domestic Economy was established.

The two-year course given in this School was arranged with a double purpose:

> . . . First, to provide instruction in agriculture and domestic economy requiring less time than the four years' course, and yet more extensive and systematic than the eight weeks' winter course; second to offer, in connection, such instruction in the common school branches as will prepare the student to enter the collegiate work.

The School of Agriculture and Domestic Economy was in session from October fifteenth, after fall work on the farm was no longer pressing, until March fifteenth, when the services of students might again be

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[19] Oklahoma Agricultural and Mechanical College, Agricultural Experiment Station Eleventh Annual Report, 1901-1902 (Stillwater, Oklahoma, 1902), pp. 10-11.

[20] Oklahoma Agricultural and Mechanical College, Agricultural Experiment Station Twelfth Annual Report, 1902-1903 (Guthrie, Oklahoma, 1903), pp. 7-8.

[21] The College Paper, October 15, 1903, p. 84.

required at home. For those who were able to be away from the farm for the entire school year, review work in the common school branches was offered before and after those dates.[22]

The new School met with immediate popularity in the Territory. The first year, 115 students enrolled.[23]

John Fields exerted a strong influence in promoting this program. Months before the change was adapted, he had written President Scott:

> Four years of short course instruction have demonstrated that there is a demand for this sort of instruction and for something more extensive along similar lines. At the earliest practicable moment, a two years' course combining general instruction with work in agriculture should be offered. Many do not take the short course because they think it is too short and do not take the four years' course because they think it is too long. In conversation with farmers throughout the territory, sentiment seems to strongly favor the short course work, but also seems to demand more of it.[24]

In addition to this curriculum innovation, two other changes were instituted in 1903. The number of general courses was reduced from five to three and a Sub-Freshman Class was introduced as part of the collegiate course.

The Sub-Freshman Class was established "to secure a higher degree of efficiency in the studies which underlie the more advanced collegiate work, particularly in English and mathematics." Applicants for this class had to be at least fourteen years old and were required to have

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[22]Oklahoma Agricultural Experiment Station Twelfth Annual Report, 1902-1903, pp. 7-8.

[23]Oklahoma Agricultural and Mechanical College, Agricultural Experiment Station Thirteenth Annual Report, 1903-1904 (Stillwater, Oklahoma, 1904), p. 5.

[24]John Fields, Letter to President A. C. Scott, Stillwater, Oklahoma, February 27, 1903, "Letters" (Manuscript Copies), November 21, 1902 - March 9, 1903 (Okla. Agri. and Mech. College Library, Rare Books Room, Stillwater), XV, p. 434.

completed successfully the eighth grade or passed a special examination satisfactorily.[25]

Applicants were admitted to the Freshman Class from the ninth grade or to the Sophomore Class after graduation from approved high schools.[26]

The three five-year collegiate courses offered were the Agricultural Course, the Mechanical Engineering Course, and the General Science Course.[27]

The five-year Agricultural Course was patterned from the recommendations of the Committee on Courses in Agriculture appointed by the Association of American Agricultural Colleges and Experiment Stations.[28]

The courses offered in the School of Agriculture and Domestic Economy during the first ten weeks of the fall term included arithmetic, spelling, geography, writing; livestock, and stock judging (boys); and domestic economy and drawing (girls). For the second ten-week period, students studied arithmetic, grammar, U.S. history; domestic economy and drawing (girls); and veterinary medicine, botany, and entomology (boys).

The second year's work in the School included grammar, civil government and commercial law, arithmetic, horticulture and floriculture, dairying, poultry, gardening, chemistry, domestic economy, stock feeding, and soils and crops.[29]

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[25] Oklahoma Agricultural Experiment Station Twelfth Annual Report, 1902-1903, p. 8.

[26] Ibid.

[27] Ibid., p. 9.

[28] First Biennial Report of the Oklahoma Territorial Board of Agriculture, 1903-1904, p. 189.

[29] Oklahoma Agricultural Experiment Station Twelfth Annual Report, 1902-1903, pp. 9-10.

Regardless of their future courses of study, all Sub-Freshman students had to take the same course of advanced common school subjects. In their Freshman year, they began branching only slightly toward their major fields, with agricultural majors taking merely nursery work and stock judging.

Agricultural Sophomores were given three quarters of a more specialized curriculum including such courses as geometry, soils and fertility, zoology, chemistry, trigonometry, pomology, breeds, public speaking, vegetables and small fruits, botany, and surveying.[30]

As juniors in Agriculture, they took physics, feeds and feeding, farm dairying, entomology, animal breeding, crops, public speaking, and a choice of several hours in botany, chemistry, histology, advanced physiology, or cellular biology.

The Senior agricultural curriculum covered agricultural chemistry, agricultural physics, geology, law, bacteriology, forestry, farm economics, evolution of cultivated plants, current history, feeds and feeding, plant breeding, a choice of botany, chemistry or embryology, and a choice of advanced bookkeeping or research work in agriculture or horticulture.[31]

Extra Curricular Activities

In 1901, agricultural majors were able to see some of the country's finest cattle, thanks to their extra-curricular activities. Professor F. C. Burtis arranged that year to take some of the men from his classes

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[30]Ibid., p. 10.

[31]Ibid.

to the American Royal Cattle Show in Kansas City. Expenses presented an obstacle but the students who were able to finance the trip benefited greatly from it. Professor Burtis made an unsuccessful effort to get reduced railroad and hotel rates for the students as he felt strongly that three days at the show would do them more good than a term in school.[32]

In 1902, A. and M. students again attended the Royal and that year took part in the students' judging contest.[33] They spent a profitable week in Kansas City examining show prize winners, studying classes and grades of cattle at the stock yards, making a tour of Swift's packing house, watching the sale of cattle at the livestock pavilion, and observing the set-up at the horse and mule yards.[34]

Five agricultural students journeyed with Professor Burtis to St. Louis in 1904 to visit the cattle show there. The students represented OAMC in the Model School of Stock Judging where they worked half days for a week for passes and ten dollars. Five states were represented in the model judging school by five boys each. After a week there, they were relieved by twenty-five students from five other states.[35]

An early attempt of the Agricultural students to organize an agricultural club on campus was at first enthusiastically accepted. In

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[32]F. C. Burtis, Letter to American Hereford Breeders' Association, Kansas City, Missouri, "Letters" (Manuscript Copies), January 7, 1901 - August 3, 1902 (Okla. Agri. and Mech. College Library, Rare Book's Room, Stillwater), XI, p. 190.

[33]The College Paper, November, 1902, p. 98.

[34]The College Paper, November 28, 1902, p. 129.

[35]F. C. Burtis, Letter to J. C. Gilbert, Port Arthur, Texas, October 10, 1904, "Letters" (Manuscript Copies), September 14, 1904 - March 14, 1905 (Okla. Agri. and Mech. College Library, Rare Books Room, Stillwater), XXV, p. 29.

November, 1901, the Agricultural Society held its first regular meeting and enjoyed a student's account of the 1901 American Royal Cattle Show and a talk on the forthcoming International Stock Show in Chicago.[36]

The Society suffered an early lapse and went out of existence until February 1904 when it was reorganized under the name of Agricultural Club. The College Paper notes the following as the purpose of the group:

> The object of this society is to promote and increase interest in the science of agriculture and horticulture by discussing questions which are intimately related to these lines of work. . . The Agricultural Club has for its object the training of young men upon the platform so that as they pass out into the various avenues of life they may be proficient leaders in their respective spheres of action. The student of agriculture cannot afford to neglect this part of his training even though it may not be included in the curriculum.[37]

An event which might have started the friendly rivalry between the agricultural majors and the engineering students that continues even to the present day, occurred in the summer of 1902. The College Paper reported the event after school opened in the fall:

> During vacation the boys employed in the mechanical department challenged the boys working on the horticultural farm to a game of ball. The challenge was accepted and the game took place on August 2nd. The 'farmers' won the game by the modest score of 37 to 2. The greatest feature of the game was the errors on both sides.[38]

Faculty Changes

By 1904, there were twenty-nine A. and M. Faculty members and assistants looking after the well-being of the students.[39] The term

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[36] The College Paper, December 2, 1901, p. 147.

[37] The College Paper, February, 1904, p. 199.

[38] The College Paper, October, 1902, p. 84.

[39] A. C. Scott, List of "Faculty and Assistants of the A. and M. College," signed by A. C. Scott, "Letters" (Manuscript Copies), August 24, 1903 - September 9, 1909 (Okla. Agri. and Mech. College Library, Rare Book's Room, Stillwater), XX, p. 256.

"assistants" did not refer to students as it generally does today, but instead to full-time faculty members.

In the Agricultural Department, in 1902, the position of Assistant in Agriculture was abolished and the more specialized positions of Assistant in Animal Husbandry and of Assistant in Soils and Crops were instituted in its place.[40] A year later, the position of Assistant in Bacteriology was formed for the primary purpose of aiding the Veterinarian in the manufacture and distribution of blackleg vaccine.[41]

Numerous hours of hard work typified the faculty members' schedules, especially of those members of the Agricultural Department who, for the most part, worked for both the College and the Station. Many were given teaching loads in excess of what should have been required of them, considering that they also had demanding Experiment Station duties.[42]

For all this, they were grossly underpaid. The A. and M. Board of Regents surveyed the salary schedules of several western institutions classed similarly with A. and M., and found that salaries paid by the Oklahoma institution in 1903 were by far the lowest. Maximum salary being paid to heads of departments was $1600 dollars a year with one department head receiving as little as $1200. Salaries for assistants ranged from $480 to $750 annually.[43] The College President was receiving $2500 a year and the Director of the Experiment Station, $2000.[44]

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[40] The College Paper, October, 1902, p. 83.

[41] Oklahoma Agricultural Experiment Station Twelfth Annual Report, 1902-1903, p. 19.

[42] Ibid.

[43] John Fields, Letter to Gov. T. B. Ferguson, Guthrie, Oklahoma, September 9, 1903, "Letters" (Manuscript Copies), July 16 - November 21, 1903 (Okla. Agri. and Mech. College Library, Rare Book's Room, Stillwater), XIX, p. 229.

[44] John Fields, Letter to Melvill Bull, Newport, Rhode Island, December 23, 1903, "Letters" (Manuscript Copies), November 23, 1903 - March 14, 1904 (Okla. Agri. and Mech. College Library, Rare Book's Room, Stillwater), XXXI, p. 91.

On the College farm, one herdsman was employed for $35 a month and a house; a hosteler and carpenter (one person) received $40 a month. Day labor was hired as needed for ten to twelve and a half cents an hour. In 1904, total labor on the College farm cost about $3000.[45]

Inadequate Facilities

As increasing numbers of students chose to attend Oklahoma A. and M., the need for additional buildings and facilities again became imperative. The Departments of Zoology and Veterinary Science were housed in the Library Building, and the Experiment Station offices were crowded into a portion of the first floor of the Chemistry Building,[46] to mention only two of the several building inadequacies.

Between July 1, 1901 and July 1, 1902, building facilities on the campus were practically doubled. Building valuation in July 1, 1902 was about $100,000. During that year, additions made to the physical plant included an Auditorium, quarters for the Department of Botany and Entomology, quarters for the Department of Domestic Economy, a building for the Department of Mechanical Engineering, a Boiler House, and a commodious barn for the College farm.[47]

The $6500[48] barn, a two-story, sixty by ninety-six foot brick building, provided storage space for hay and grain, stabling for livestock

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[45] A. C. Scott, Letter to Hon. L. W. Baxter, Guthrie, Oklahoma, June 17, 1904, "Letters" (Manuscript Copies), August 24, 1903 - September 9, 1904, p. 440.

[46] Oklahoma Agricultural Experiment Station Tenth Annual Report, 1900-1901, p. 9.

[47] Oklahoma Agricultural Experiment Station Eleventh Annual Report, 1901-1902, pp. 7-8.

[48] The College Paper, April 1, 1901, p. 10.

and a room for stock judging.[49] It was equipped with iron stalls for cows, cement floors and "up-to-date" fittings.[50]

The frame building which had been used first for a chemical laboratory for the Experiment Station, and later for office and recitation rooms for the Agricultural Department was moved during the summer of 1902 to the College farm where it was fitted up as a house for the herdsman.[51]

The farm water supply was also greatly improved that summer. The old system was connected to a storage pond with a capacity of one million gallons, located in the pasture. A particular advantage of the pond was that the bottom of it was seventeen feet higher than the first floor of the barn "giving a constant supply of water without any cost or bother of keeping pumps in repair."[52]

Fences of different patterns and makes were used on the farm so that their qualities could be compared under actual working conditions, and visitors could examine closely the various types.[53]

At the beginning of the 1902-03 school year, two rooms in the barn were outfitted with "modern" dairy machinery for the giving of practical lessons in the various methods of handling milk and its products.[54] Not

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[49]Oklahoma Agricultural Experiment Station Eleventh Annual Report, 1901-1902, p. 9.

[50]John Fields, News item written by Fields for publication, August 26, 1902, "Letters" (Manuscript Copies), August 7 - November 24, 1902, p. 64.

[51]Ibid.

[52]Ibid.

[53]Oklahoma Agricultural Experiment Station Eleventh Annual Report, 1901-1902, p. 19.

[54]The College Paper, March, 1903, p. 38.

only were the rooms used by agricultural majors, but students in the School of Agriculture and Domestic Economy and those attending the eight-week short courses also enjoyed the new facilities.

Aside from a shed erected for stabling horses of students, no additional major building was undertaken until the summer of 1904.[55] By the fall of that year a large green-house and a fully equipped dairy building were in use.[56]

The need for enlarged dairying facilities to accommodate the growing interest in the field had become imperative by 1904. Filling this need was the new brick dairy building. It housed the office, and buttermaking, cheesemaking and cheese-curing rooms on the first floor, and a large classroom, two laboratories, a wash room, and a store room on the second floor.[57]

Land was added to A. and M.'s original two hundred acres early in 1903 with the purchase of 160 acres for $3350. With this land, the Agricultural Department had 280 acres, the remaining eighty acres being occupied by buildings and used for horticultural work.[58] The opportunity for more extensive work with pasture and forage crops, and better facilities for pasture experiments with steers was made available with this purchase,[59] but still more experimental land was needed.

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[55] The College Paper, October 15, 1903, p. 100.

[56] The College Paper, November, 1904, p. 41.

[57] Press Bulletin No. 113, October, 1904, no page.

[58] John Fields, Letter to Gov. T. B. Ferguson, Guthrie, Oklahoma, January 17, 1903, "Letters" (Manuscript Copies), November 21, 1902 - March 9, 1903, p. 238.

[59] Oklahoma Agricultural Experiment Station Twelfth Annual Report, 1902-1903, p. 15.

College Financing

A. and M.'s flourishing plant now required over $50,000 annually for operations.[60] From the Morrill Fund, the College continued to receive $25,000 of which $2500 was set apart by the Territorial Legislature for the University at Langston.[61]

From the Hatch Fund, $15,000 was received annually. The major portion of the remainder came from the Territorial Tax Levy of one-tenth of a mill and from A. and M.'s portion of the income from land rentals in the Territory.[62]

It is interesting to note that in 1903, for actual purposes of instruction, A. and M. was receiving less money than either of the normal schools or the University at Norman. Each of the others was receiving a levy of one-half mill and one-fifth of the proceeds from the leasing of section thirteen, or an aggregate of $47,127.71 each. A. and M. received during the same period a one-tenth of a mill levy and the same amount of lease money, (OAMC's share having been reduced from the original one-third to one-fifth)[63] and $22,500 appropriated by Congress making a total of $40,566.74.

In view of this inequality, a repeated plea of the Board of Regents urged:

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[60] Oklahoma Agricultural Experiment Station Eleventh Annual Report, 1901-1902, p. 7.

[61] Oklahoma Agricultural and Mechanical College, Annual Catalogue, 1901-02, with Announcements for 1902-03 (Stillwater, Oklahoma, 1902), p. 8.

[62] Oklahoma Agricultural Experiment Station Tenth Annual Report, 1900-1901, p. 7.

[63] John Fields, Letter to Hon. H. G. Beard, Shawnee, Oklahoma, December 5, 1902, "Letters" (Manuscript Copies), November 21, 1902 - March 9, 1903, p. 76.

. . . that education in agriculture be recognized as of equal importance with education in other lines represented by other institutions and that sufficient revenue be provided to enable the work of the college to be made effective and available to every young man in Oklahoma who wants to utilize the advantages offered.[64]

Receipts from the sale of Station products ranged from about $1500[65] to $2500[66] annually. The proceeds from these sales were turned in to the Station Director who recorded the amounts and remitted the money to the Treasurer of the Board of Regents from time to time. A varying amount of this fund was retained by the Director for use as a revolving fund for the payment of cash purchases such as feeding stuffs, freight, express, postage and the like.[67]

In 1903, Council Bill No. forty-three was passed by the Territorial Legislature authorizing a special $2500 appropriation for the manufacture and free distribution of blackleg vaccine.[68] The Bill remained in effect a number of years though the appropriation was later reduced.[69]

Regarding this Bill, Director Fields reported to Governor T. B. Ferguson in 1904:

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[64]Ibid., pp. 467-468.

[65]Oklahoma Agricultural Experiment Station Thirteenth Annual Report, 1903-1904, p. 65.

[66]Oklahoma Agricultural Experiment Station Eleventh Annual Report, 1901-1902, p. 74.

[67]John Fields, Letter to Board of Regents, January 23, 1902, "Letters" (Manuscript Copies), January 1 - March 29, 1902 (Okla. Agri. and Mech. College Library, Rare Book's Room, Stillwater), XI, p. 126.

[68]A. C. Scott, Letter to Hon. H. G. Beard, Pawnee, Oklahoma, February 4, 1903, "Letters" (Manuscript Copies), December 26, 1902 - August 22, 1903 (Okla. Agri. and Mech. College Library, Rare Book's Room, Stillwater), XVI, p. 80.

[69]Oklahoma Agricultural Experiment Station Annual Report, 1904-1905, p. 63.

The Oklahoma Station is making good progress in the line of development, and is strengthening its position with the farmers of the Territory by doing work especially adapted to their immediate needs. In return, the farmers are loyally supporting the station. The appropriation for the distribution of vaccine was secured by the active canvass of farmers, and was the first real evidence of their interest in the Station.[70]

Popularity of Short Courses

An evidence of the growing acceptance of the College was the increasing popularity of the short courses. Only three had enrolled for the first short course in 1899, but the following year, twenty-three took the course[71] and each year thereafter increasing numbers of farmers attended. In 1901, spreading fame even brought a boy "who was unable to take the short course to his satisfaction in Pennsylvania," west to take the Oklahoma course.[72]

At the conclusion of the 1902 course, students taking the work presented the following to Dr. Scott:

> At the close of the eight weeks' work in the short course at the A. & M. College, we, the undersigned farmers of Oklahoma, having been students in that course, wish to express our entire satisfaction with the work. We strongly approve of the subjects covered and of the manner in which they are presented. This course has opened our eyes to the advantages of farming on a scientific basis. We heartily commend it to our brothers in agriculture, and we believe that if our fellow farmers of Oklahoma fully understood the benefits to be derived from it there would not be room to accommodate those who would come.
>
> We wish to congratulate the Agricultural and Mechanical College on its possession of trained specialists in its several departments. We approve of the work done by the Experiment Station and wish to thank

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[70]John Fields, Report to Gov. T. B. Ferguson, Guthrie, Oklahoma, December 2, 1904, "Letters" (Manuscript Copies), August 2 - December 30, 1904, pp. 418-419.

[71]John Fields, Letter to Editor, Farm Home, Springfield, Illinois, January 5, 1900, "Letters" (Manuscript Copies), October 4, 1900 - February 23, 1901, p. 321.

[72]John Fields, Letter to Prof. H. J. Waters, Columbia, Missouri, January 5, 1901, "Letters" (Manuscript Copies), October 4, 1900 - February 23, 1901, p. 324.

Director Fields and his able corps of assistants for their painstaking efforts to make our stay here one of pleasure, interest, and profit; and we hope the day is not far distant when the young farmers of Oklahoma will come from far and near to take advantage of the great opportunities so freely offered here.[73]

The instructors were likewise pleased with their short course students. One praised their enthusiasm by saying:

The difference between regular college students and short course students is that the former are best pleased when they get out of work while the latter like it best when they get more to do than they were promised.[74]

The courses were not entirely rosy nor without mishap. The College Paper notes in one issue, "The Short Course boys had their first practicum work in running a traction engine on February 17. The result was a torn up engine."[75]

The subjects taught in the short courses from 1901 to 1904 were essentially the same as those taught in 1900. They covered specific phases of agriculture including livestock, crops, horticulture, soils, economics, legislation, and mechanics.[76]

While the popularity of the short courses grew, interest in the Farmers' Institutes seemed to diminish somewhat. The Station continued to encourage the formation of Institutes, but difficulty was encountered because the Institutes were not permanent in character, and they lacked

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[73]John Fields, News Item Written March 4 or 5, 1902, "Letters" (Manuscript Copies), January 1 - March 29, 1902, p. 360.

[74]The College Paper, March 1, 1901, p. 135.

[75]The College Paper, March 1, 1902, p. 213.

[76]Oklahoma Agricultural Experiment Station Eleventh Annual Report, 1901-1902, p. 12.

systematic organization.[77] Also, farmers were generally not aware of the profitable experience the Institutes offered.[78]

Director Fields once wrote an Oklahoma agriculturist:

> . . . I was beginning to think that perhaps I was a hoodoo and that it was my fault that they were not getting along better with the institutes. Time after time I have gone or sent someone when I was sure that any sort of business judgment would lead one to conclude that it wouldn't pay and have kept on doing so in the hope that we might get some sort of an institute system after awhile. . . . But I haven't given it up yet and hope that you . . . will not for I hate to think that in time we can't get the farmers interested in their business more than they are at present.[79]

In 1900, Mr. Fields drafted a tentative bill for establishing a Board of Agriculture in Oklahoma and received backing on it from the Oklahoma Agricultural, Horticultural and Irrigation Association.[80] The Association appointed a committee to start the legislative wheels grinding on the bill.[81] Later, with revisions, Director Fields' bill was submitted to the Legislature, and it formed a basis for the bill which finally passed.[82]

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[77] First Biennial Report of the Oklahoma Territorial Board of Agriculture, 1903-1904, p. 22.

[78] John Fields, Letter to Horace J. Newberry, Secretary, Farmers' Institute, Harrison, Oklahoma, March 8, 1903, "Letters" (Manuscript Copies), November 21, 1902 - March 9, 1903, p. 490.

[79] John Fields, Letter to C. A. McNabb, Oklahoma City, Oklahoma, January 21, 1902, "Letters" (Manuscript Copies), January 1 - March 29, 1902, p. 100.

[80] John Fields, Letter to Hon. W. E. Bolton, Woodward, Oklahoma, December 20, 1900, "Letters" (Manuscript Copies), October 4, 1900 - February 23, 1901, p. 276.

[81] John Fields, Report to C. A. Shamel, Chicago, Illinois, December 7, 1900, "Letters" (Manuscript Copies), October 4, 1900 - February 23, 1901, p. 276.

[82] John Fields, Letter to Secretary J. B. Thoburn, Board of Agriculture, Guthrie, Oklahoma, May 6, 1904, "Letters" (Manuscript Copies), March 15, 1904 - August 1, 1905 (Okla. Agri. and Mech. College Library Rare Book's Room, Stillwater), XXII, pp. 188-189.

The Board of Agriculture

March 8, 1901, by an act of the Legislative Assembly, formation of a Board of Agriculture of the Territory of Oklahoma was provided for. Similar legislation had been attempted in the 1897 and 1899 sessions, but both attempts had failed.[83]

The Board was not actually organized, however, until nearly twenty-one months after passage of the bill because the law stated that there must be at least nine chartered Institutes before a Board could be organized.[84]

By November 18, 1902, there were thirteen established Farmers' Institutes, and Governor T. B. Ferguson called a meeting of Institute delegates to organize the Board.[85] At a meeting of the delegates, six members of the Board of Agriculture were chosen.[86] Offices for the Board were opened at Guthrie, April 2, 1903. J. B. Thoburn served as first full-time secretary[87] performing duties assigned to him by the six-man Board.

The Board's principle functions included:

> . . . the collection and publication of statistical information concerning agriculture, horticulture, animal husbandry and kindred industries of Oklahoma and . . . supervision of the county farmers' institute system.

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[83] First Biennial Report of the Oklahoma Territorial Board of Agriculture, 1903-1904, p. 6.

[84] John Fields, Letter to F. E. Dougan, Pawnee, Oklahoma, March 20, 1901, "Letters" (Manuscript Copies), January 1 - March 29, 1902, p. 448.

[85] First Biennial Report of the Oklahoma Territorial Board of Agriculture, 1903-1904, p. 9.

[86] Oklahoma Agricultural Experiment Station Twelfth Annual Report, 1902-1903, p. 18.

[87] First Biennial Report of the Oklahoma Territorial Board of Agriculture, 1903-1904, p. 10.

The Board also had the

> . . . power to adopt and devise such regulations as may be necessary to secure the efficient administration and proper enforcement of all laws which have for their object the preservation, protection and encouragement or improvement of any branch of agriculture . . . except such as have already been specifically delegated to the Board of Regents of the Agricultural and Mechanical College and the Livestock Sanitary Commission.[88]

With the formation of the Board of Agriculture, the College was rid of all the work of organizing and running the Institutes. At the same time, the Station retained all the advantages of the Institutes. Instead of undertaking the expensive job of trying to attend the many individual meetings, the College faculty now limited its activities for the most part to attending the annual meetings of county Institutes and to judging at county fairs.[89] Through 1904, the expense of this work was paid from Federal appropriations.[90]

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[88] Ibid., p. 6.

[89] Oklahoma Agricultural Experiment Station Thirteenth Annual Report, 1903-1904, p. 22.

[90] Oklahoma Agricultural Experiment Station Fourteenth Annual Report, 1904-1905, p. 25.

CHAPTER VI

EXPERIMENTS CONTINUE WITH THE NEW AND OLD (1901-1904)

The By-Words -- "Keep in Touch"

During the period from 1901-1904, agitation was felt in certain areas of the Territory regarding the establishment of sub-stations. Some persons admittedly felt that sub-stations, particularly one in the western part of the Territory, might be advisable. But the vital importance of other needs of the Station and College outweighed the needs for sub-stations, at least in the minds of A. and M. administrators.[1] They felt it best to develop the main Experiment Station in Stillwater first, and later on conduct experiments in all parts of the Territory through the Farmers' Institutes.[2]

The Experiment Station did try to bring the work of the Station close to the every-day life of the farmer and at the same time to keep the members of the staff in close touch with conditions in remote parts of the Territory. Personal correspondence was the main media for accomplishing this. Particular care was taken to answer every inquiry

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[1]John Fields, Letter to P. S. Carpenter, Kingfisher, Oklahoma, December 27, 1904, "Letters" (Manuscript Copies), August 2 - December 30, 1904, pp. 492-493.

[2]John Fields, Letter to J. W. Preston, Kingfisher, Oklahoma, February 10, 1905, "Letters" (Manuscript Copies), December 31, 1904 - April 1, 1905 (Okla. Agri. and Mech. College Library, Rare Book's Room, Stillwater), XXVI, p. 251.

completely and to mail bulletins answering questions when such were available. Hundreds of letters were mailed out each week giving consideration to individual problems of farmers in the Territory.[3]

The Station also kept in close contact with all sections of the Territory through correspondents who reported regularly regarding crop conditions and other matters of mutual interest.[4]

Visits by farmers to the Experiment Station were continually urged as a means of acquainting farmers with the station operations as well as acquainting the Station workers with the problems of the farmers.[5]

Through letters and bulletins which were sent out in increasingly large numbers, the results of the then current experiments were widely disseminated. In 1901, the bulletin mailing list included about 18,500 names[6] and by 1904, had grown to 21,000.[7] In 1902, there were only six stations (Iowa, Kansas, Michigan, two in New York, and Ohio) with more addresses on their mailing lists than were on the Oklahoma Station list.[8]

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[3]Oklahoma Agricultural Experiment Station Thirteenth Annual Report, 1903-1904, p. 22.

[4]John Fields, Report to Gov. T. B. Ferguson, Guthrie, Oklahoma, December 2, 1904, "Letters" (Manuscript Copies), August 2 - December 30, 1904, p. 418.

[5]Oklahoma Agricultural Experiment Station Twelfth Annual Report, 1902-1903, p. 42.

[6]Oklahoma Agricultural Experiment Station Tenth Annual Report, 1900-1901, p. 17.

[7]Oklahoma Agricultural Experiment Station Fourteenth Annual Report, 1904-1905, p. 21.

[8]John Fields, Letter to Dr. A. C. True, Washington, D. C., November 10, 1902, "Letters" (Manuscript Copies), August 7 - November 24, 1902, p. 432.

A breakdown of the 1903 mailing list shows that by far the largest number of bulletins was dispatched locally. Over 12,400 were sent to Oklahoma farmers and nearly 4,000 more to Indian Territory farmers. Over 254 local newspapers received bulletins while just under 130 were received by out-of-Territory newspapers. In addition, more than 2300 copies were sent to others outside the Territory (including the more than 1500 names on the official list furnished by the Washington Office of Experiment Stations).[9] More than thirty copies were mailed to persons in foreign countries.[10] The major portion of the envelopes were hand addressed.[11]

The bulletins were mailed out under the franking privileges of the Station. An estimate of the pounds of franked material sent from the Station through the Stillwater Post Office from November, 1898, through November, 1900, placed the figure at over 18,250 pounds for bulletins and press bulletins.[12]

From 1900 until 1902, over 7,544,000 pages were printed in Station publications at a cost of $2839.54, or less than thirty-eight cents per thousand pages.[13]

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[9]John Fields, Letter to Director W. L. Hutchinson, Agricultural College, Mississippi, February 17, 1903, "Letters" (Manuscript Copies), November 21, 1902 - March 9, 1903, p. 388.

[10]Oklahoma Agricultural Experiment Station Twelfth Annual Report, 1902-1903, p. 18.

[11]John Fields, Letter to Director W. L. Hutchinson, Agricultural College, Mississippi, February 17, 1903, "Letters" (Manuscript Copies), November 21, 1902 - March 9, 1903, p. 388.

[12]John Fields, Letter to Postmaster, Stillwater, Oklahoma, November 24, 1900, "Letters" (Manuscript Copies), October 4, 1900 - February 23, 1901, p. 171.

[13]John Fields, Letter to Dr. A. C. True, Washington, D. C., November 10, 1902, "Letters" (Manuscript Copies), August 7 - November 24, 1902, p. 423.

The overall cost of printing the publications reached such major proportions, however, that it became a serious burden on the Station's resources. Nearly all of the publications were out of print within a few months after they were issued. The size of editions had to be restricted because of lack of appropriations.

Unlike many states, Oklahoma did not contribute toward the payment of bulletin publications. In 1903, and in several succeeding years requests for additional funds from the Territory to help cover printing costs were made by the Station.[14] In 1904, the Station threatened delay of publication of experimental results if monies were not forthcoming.[15] The following year, the situation reached such a condition that the July, 1905, Experiment Station report warned that "some lines of work will be curtailed to permit of printing the results of other completed work."[16]

Some time during 1900 or 1901, the Experiment Station published its first circular. It was put out as a result of a demand for information concerning a variety of agricultural subjects and contained a list of thirty-one books on agriculture used by schools in the United States. The circular stated that the suggested books should be placed in every farm library. They could be obtained from the publishers, book dealers, or from the Experiment Station Director who would order them forwarded on receipt of the prices indicated.[17]

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[14] Oklahoma Agricultural Experiment Station Twelfth Annual Report, 1902-1903, p. 17.

[15] Oklahoma Agricultural Experiment Station Thirteenth Annual Report, 1903-1904, p. 21.

[16] Oklahoma Agricultural Experiment Station Fourteenth Annual Report, 1904-1905, p. 24.

[17] "Books for the Farm Library," Oklahoma Agricultural Experiment Circular of Information No. 1 (Stillwater, Oklahoma, not dated), no page.

In addition to the bulletins and circulars issued by the Experiment Station, farmers eager to learn more about Oklahoma farming, could subscribe to the three farm papers being published locally. Each of the three, the Oklahoma Farm Journal published in Oklahoma City, the Southwest-Stockman Farmer, published in Stillwater, and the Oklahoma Farmer, published in Guthrie, had a subscription price of fifty cents a year. While not connected with the College, they were sometimes recommended by the Station personnel as being particularly helpful to men on new claims.[18]

The Vaccine Program

By 1904, the Station staff, working under Director Fields, included a veterinarian, an agriculturist, a horticulturist, a botanist and entomologist, an associate chemist, an assistant in soils and crops, an assistant in bacteriology, an assistant in agriculture, (animal husbandry) and a clerk-stenographer.[19]

One of the largest programs undertaken during John Fields' time as Station Director was that of preparing and distributing free blackleg vaccine to stockmen. Started in 1899, it grew to major proportions after the turn of the century. By 1904, more than four hundred thousand doses had been supplied free of charge to farmers and stockmen in the Territory.[20] Market value of the vaccine was about ten cents a dose.[21]

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[18]John Fields, Letter to W. R. Swan, Secretary, Missouri and Kansas Telephone Company, Oklahoma City, Oklahoma, February 15, 1902, "Letters" (Manuscript Copies), January 1 - March 29, 1902, p. 232.

[19]Oklahoma Agricultural Experiment Station Thirteenth Annual Report, 1903-1904, p. 2.

[20]Oklahoma Agricultural Experiment Station Fourteenth Annual Report, 1904-1905, p. 31.

[21]John Fields, Letter to Gov. C. M. Barnes, Guthrie, Oklahoma, November 2, 1900, "Letters" (Manuscript Copies), October 4, 1900 - February 23, 1901, p. 125.

With the demand for more and more vaccine, came many problems involved in producing it in huge quantities.

It was manufactured from the black meat of diseased animals, and the Station depended upon Territorial stockmen to send this meat to the laboratory for processing. In 1902, an acute shortage of "black" meat stopped vaccine manufacture at a time when ten thousand doses had been requested.[22]

Costs rose with the volume being produced and funds were soon depleted. For awhile, money earmarked for experimenting was unrightfully used to make vaccine. When this source was cut off, urgent appeals were made by Station personnel to Oklahomans to write their representatives in the Territorial Legislature asking them to vote for a small appropriation for the purpose of making and distributing vaccine.[23] The 1903 legislature provided the required funds, and the program was continued with funds received under Council Bill No. 43.[24]

Losses from blackleg diminished noticeably because of the program. In general, excellent results were reported by farmers but occasional complaints led to investigation of certain cases by Station personnel. The trouble lay not in the vaccine itself, but in the careless disregard of the directions for use.

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[22]John Fields, Letter to Max Rein, Cestos, Oklahoma, November 24, 1902, "Letters" (Manuscript Copies), August 7 - November 24, 1902, p. 516.

[23]John Fields, Printed Notice signed by John Fields, December 1, 1902, "Letters" (Manuscript Copies), March 31 - August 4, 1902 (Okla. Agri. and Mech. College Library, Rare Book's Room, Stillwater), notice enclosed, no page.

[24]Oklahoma Agricultural Experiment Station Twelfth Annual Report, 1902-1903, p. 15.

In one case, instead of injecting the vaccine by means of a hypodermic syringe properly sterilized, a slit was cut in the hide and the vaccine was poured in, first from a medicine dropper and when that broke, from a teaspoon.[25]

Education on the vaccine's proper use had been an integral part of the program from the beginning but proper vaccinating methods as well as confidence in the vaccine actually had to be developed over a period of years. Stockmen wanted a cure and it took considerable persuasion to assure them there was no cure at the time, only a preventive.[26]

As the vaccine program continued, the Station began supplying vaccinating outfits at cost ($4.50) to farmers. Included were heavy hypodermic syringes, needles, and other articles necessary for proper administration of the vaccine.

The sets were ordered from a supply house by the Experiment Station and remailed from Stillwater to stockmen in the Territory as a special service. No profit was made by the Station in the transaction though considerable time was consumed in ordering and mailing the sets and in collecting payments from stockmen.[27]

Veterinary Department Studies

Beside the work with blackleg, the Veterinary Department spent considerable time working on bacterial analyses of water, tubercle-forming bacteria of alfalfa, horse breeding, coal-tar dips, bacterial

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[25] Oklahoma Agricultural Experiment Station Eleventh Annual Report, 1901-1902, p. 16.

[26] Ibid., p. 64.

[27] Oklahoma Agricultural Experiment Station Thirteenth Annual Report, 1903-1904, p. 47.

toxins,[28] hog cholera,[29] loco disease,[30] cattle mange or Texas itch,[31] lumpy jaw,[32] pink-eye,[33] and tuberculosis.[34]

A constant plague to the Veterinary Department and to the Station as a whole was the sporadic appearance of fraudulent cure-all peddlers. One traveling "veterinarian" reportedly claimed he sold a sure cure for blackleg, when actually he sold a "poisonous corrosive sublimate."

Another man sold farm rights for a preparation which he said would destroy borers if put on trees and would clean an orchard of gophers when buried in the ground. He even went so far as to claim the Experiment Station had offered him three thousand dollars for half interest in his patent.[35] In a letter regarding this incident, John Fields wrote a Pawnee doctor:

> . . . the man to whom you refer is an unmitigated liar, both as to his statement that the experiment station made any offer for the purchase of a portion of his 'blue sky,' and as to his statement that any material buried in the ground will be sure to clean out all of the gophers.[36]

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[28] Oklahoma Agricultural Experiment Station Fourteenth Annual Report, 1904-1905, pp. 18-19.

[29] Oklahoma Agricultural Experiment Station Thirteenth Annual Report, 1903-1904, p. 52.

[30] Oklahoma Agricultural Experiment Station Eleventh Annual Report, 1901-1902, p. 16.

[31] Oklahoma Agricultural Experiment Station Thirteenth Annual Report, 1903-1904, p. 49.

[32] Ibid., pp. 50-51.

[33] Oklahoma Agricultural Experiment Station Twelfth Annual Report, 1902-1903, pp. 45-46.

[34] L. L. Lewis, "Tuberculosis in Hogs," Oklahoma Agricultural Experiment Station Bulletin No. 63 (Stillwater, Oklahoma, May, 1904), p. 1.

[35] Oklahoma Agricultural Experiment Station Twelfth Annual Report, 1902-1903, p. 41.

[36] John Fields, Letter to Dr. F. H. Faatz, Pawnee, Oklahoma, May 6, 1903, "Letters" (Manuscript Copies), March 10 - July 14, 1903, p. 227.

In a letter to a Singer, Oklahoma man, Fields again dealt decisively with a fraudulent practitioner's claims. He wrote:

> . . . no analyses is necessary to enable us to state positively that there is no preparation which will transform the water, milk sugar, casein, and other materials of milk into a sufficient amount of butter fat to make a weight of butter equal to that of the milk taken.[37]

More Oklahoma Livestock -- More Livestock Experiments

In 1903, the valuation of livestock in the United States was $3,102,515,500. Oklahoma owned about fifty-five million dollars of this amount and the Territory's livestock was considered its largest and most valuable industry.[38] This fact was reflected in the widening lines of Station stock experiments.

Between 1901 and 1904, the Experiment Station broadened its livestock investigations and added to already extensive cattle, hog, and sheep trials more extensive studies in dairying and poultry raising. Work with beef cattle still predominated in the livestock tests.

A series of steer feeding experiments was started in the winter of 1899-1900 and carried on through 1904. From twenty to twenty-five grade steers were fattened each winter on different ration combinations of shelled corn, corn meal, Kafir meal, wheat meal, cottonseed, cottonseed meal, alfalfa hay, Kafir stover, prairie hay, wheat straw, and oat straw. The object of the experiments was to study the efficiency and economy in producing gains from the different combinations of feeds.[39]

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[37]Ibid., p. 411.

[38]The College Paper, March, 1903, p. 35.

[39]Oklahoma Agricultural Experiment Station Thirteenth Annual Report, 1903-1904, p. 16.

At the conclusion of the feeding trials, the Station agriculturist usually arranged for the cattle to be shipped, sold, and slaughtered in lots, just as they had been fed. Regular slaughter tests were run on the steers and information found thereby helped round out the feeding test data.[40] In March 1902, experimental steers weighing 1100 to 1200 pounds were sold bringing from $5 to $5.60 per hundred pounds.[41]

At commencement time in June, 1901, A. and M. held a public auction[42] to sell four of its registered bulls.[43] Prince Washington 166028, a Shorthorn, was sold to the Brookside Stock Farm, Ft. Reno, Oklahoma, for $225. A three year old Hereford bull, Vulcan 86136, was sold to Taylor and Houston, breeders of Herefords near Stillwater, for $125. Also remaining in the vicinity of Stillwater was the yearling bull, College Hesoid 120049, which was purchased by Harry Jones for $150. The only bull to go out of the Territory was the Red Poll, College Cavalier. A Kansas stockman purchased him for ninety-five dollars.[44]

As early as 1901, the College began showing its livestock. That year, eleven head of purebred Shorthorns, Herefords, Angus, and Red Polls

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[40]F. C. Burtis, Letter to George M. Walden, Cattle Salesman, Evans Snider, Buel Co., Livestock Commission Agents, Kansas City Stock Yards, Kansas City, Missouri, "Letters" (Manuscript Copies), August 5, 1902 - July 3, 1903 (Okla. Agri. and Mech. College Library, Rare Book's Room, Stillwater), XIV, p. 207.

[41]Oklahoma Agricultural Experiment Station Eleventh Annual Report, 1901-1902, p. 49.

[42]Press Bulletin No. 72, May, 1901, no page.

[43]John Fields, News Item, April 9, 1901, "Letters" (Manuscript Copies), October 18, 1899 - May 30, 1901 (Okla. Agri. and Mech. College Library, Rare Book's Room, Stillwater), VII, p. 290.

[44]John Fields, News Item, June 5, 1901, "Letters" (Manuscript Copies), May 31 - October 5, 1901, p. 22.

were exhibited at the annual convention of the Oklahoma Livestock Association held at Woodward in February.[45]

In 1904, College entries in the fat stock show at Oklahoma City won most of the prizes offered. The Angus bull entry easily led his class winning a silver trophy cup and a cash prize for the best Angus bull and an extra large, mounted silver cup suitably engraved for the Grand Championship.[46] Ironically, he won $105 worth of prizes and then sold for only $87.50.

A Hereford bull, competing against some of the best Hereford bulls from Missouri and Oklahoma,[47] won everything in his class.[48]

These two bulls were the first of a long string of fine entries which Oklahoma A. and M. has been sending to live stock shows ever since.

Sheep experiments were not too extensive during these years. In 1901 and 1902, only Shropshire and Cotswold sheep were kept.[49] One interesting experiment was made in 1904 with a sheep marking liquid sent the Station by "Shirwin-Williams Co." (sic.) It was tried on both sheep and steers without success. The marks on the sheep remained plain for less than six weeks and on the steers for less than a month.[50]

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[45] The College Paper, March 1, 1901, p. 135.

[46] The College Paper, March, 1904, p. 229.

[47] Ibid.

[48] John Fields, Letter to H. R. Thompson, Ralston, Oklahoma, February 25, 1904, "Letters" (Manuscript Copies), November 23, 1903 - March 14, 1904, p. 400.

[49] Oklahoma Agricultural Experiment Station Eleventh Annual Report, 1901-1902, p. 9.

[50] Reiley, (first name not legible), Letter to F. C. Burtis, Stillwater, Oklahoma, October 29, 1904, "Letters" (Manuscript Copies), September 14, 1904 - March 14, 1905, p. 60.

Experiments with hogs included feeding and some breeding trials. Probably the one point concerning hog feeding mentioned most often in bulletins and reports was the importance of pasturing hogs on green succuluent feed as much as possible. The Station urged farmers to select hog pasture crops with the same consideration for food composition of the plants as they would give food composition in a grain ration.[51] It was recommended that six to eight acre pastures be used and that they be divided into two or three sections, so while one part was being pastured, forage could be growing on the others.[52] It was noted that pastures were not only valuable for the feed, but also for the exercise they permitted the hogs.

Work in pig feeding also was carried on in connection with the steer feeding tests. Each lot of steers was followed by hogs for the purpose of ascertaining the value as pig feed of the dung of the different lots of steers.[53]

Hog breeding experiments were not very far reaching in the early 1900's. Concentration was generally on the grading-up process using scrub females and purebred males.[54]

Various Experiments with chickens were carried on and in 1901, the Poultry Department acquired a trio of Imperial Pekin ducks of the

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[51] Oklahoma Agricultural Experiment Station Tenth Annual Report, 1900-1901, p. 31.

[52] Press Bulletin No. 70, March, 1901, no page.

[53] Oklahoma Agricultural Experiment Station Thirteenth Annual Report, 1903-1904, p. 17.

[54] F. C. Burtis, "Reading Notice" sent to newspapers in the Territory along with advertisement of hogs for sale, March 7, 1901, "Letters" (Manuscript Copies), January 7, 1901 - August 3, 1902, p. 274.

fine Rankin strain. The ducks had taken the first premium at the Kansas State Poultry Show the year before.[55]

In 1902, Director Fields quoted prices of A. and M. poultry produce to a Pawnee man interested in obtaining some birds. Good barred Plymouth Rock cockerals were being sold by the Station for one dollar. Setting eggs were fifty cents to one dollar a dozen depending upon the pen from which they were obtained.[56]

Dairy interests in the Territory were developing as was evidenced by the fact that in October, 1904, the State Dairy Association held its organization meeting in Guthrie.[57] Also, large number of inquiries made of the Experiment Station on dairying matters, especially dairy feeding, indicated a general increase in Oklahoma's dairying industry.[58]

Work in dairying at the College continued much as it had in the past. It was not until 1904 that a small herd of native cows, from which a foundation dairy herd was to be selected, was purchased by the Experiment Station. The first studies after the purchase of the dairy stock concentrated on rations, care of the cows, record keeping[59] and handling

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[55]The College Paper, April 1, 1901, p. 6.

[56]John Fields, Letter to Dr. F. H. Faatz, Pawnee, Oklahoma, November 18, 1902, "Letters" (Manuscript Copies), August 7 - November 24, 1902, p. 475.

[57]The College Paper, November, 1904, p. 41.

[58]Oklahoma Agricultural Experiment Station Fourteenth Annual Report, 1904-1905, p. 49.

[59]Press Bulletin No. 113, October, 1904, no page.

of the milk.[60] Previous work in dairying had been confined mostly to the handling of milk and other dairy products.[61]

Particular pride was taken by the Station personnel in its fine span of registered Percheron mares purchased in the spring of 1901 from the Whitewater Stock Farm, Towanda, Kansas. The black mares, weighing 3100 pounds together, were bought for seven hundred dollars[62] for use as the College work team and by the students in stock judging practice.[63]

Wheat Experiments

In field crops, probably the most extensive studies carried on at the beginning of the new century continued to be wheat experiments. In the variety trials, originally started in 1892-93 with the testing of 254 varieties gathered from all sources, about twenty-five varieties were tested in 1903. This figure included the most desirable kinds from the previous years' tests as well as new varieties which had been introduced from time to time.[64]

In spite of many years of testing, the Station would make no commitment as to any one so-called best variety--that is, one which

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[60] Oklahoma Agricultural Experiment Station Fourteenth Annual Report, 1904-1905, p. 20.

[61] John Fields, Letter to George Carlisle, Crystal, Oklahoma, November 17, 1902, "Letters" (Manuscript Copies), August 7 - November 24, 1902, p. 467.

[62] John Fields, Letter to Dr. L. L. Dowd, Rudd, Iowa, March 16, 1901, "Letters" (Manuscript Copies), October 18, 1899 - May 30, 1901, p. 182.

[63] The College Paper, April 1, 1901, p. 6.

[64] Oklahoma Agricultural Experiment Station Twelfth Annual Report, 1902-1903, p. 20.

would give materially better yields than all other varieties year after year. "The best variety will soon deteriorate when grown in the careless way that is practiced on the average farm,"[65] the Station maintained.

It did, however, name the top several types as determined by the trials. The best ten varieties tested for six or more years included Red Russian, Fulcaster, Fultz, Turkey, Early Red Clawson, Sibley's New Golden, Missouri Blue Stem, German Emperor, Big English, and New Red Wonder.[66]

Weissenburg, a wheat imported from Hungary, which had been tested only three years on the A. and M. farm, showed much promise.[67] Flour from this wheat was reported to bring more money than any other kind on the Liverpool, England, market in the early 1900's.[68] It was one of the hard wheats which made certain Oklahoma flour much sought after.[69]

In 1901, a severe drouth caused an almost total loss of the corn crop, and farmers of Oklahoma were faced with either feeding wheat, which fortunately was plentiful, or feeding no grain at all. As a rule, wheat was not fed to stock, but a press bulletin, issued the summer of 1901, stated: "At 57 cents per bushel, wheat is by far the cheapest grain within . . . reach, and if the price of fat stock is maintained it can be fed with profit if the proper methods are followed."[70]

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[65] Ibid., p. 21.

[66] Press Bulletin No. 86, July, 1902, no page.

[67] Oklahoma Agricultural Experiment Station Twelfth Annual Report, 1902-1903, p. 22.

[68] Press Bulletin No. 74, July, 1901, no page.

[69] Oklahoma Agricultural Experiment Station Twelfth Annual Report, 1902-1903, p. 22.

[70] Press Bulletin No. 75, August, 1901, no page.

In general, the wheat experiments from 1901 to 1904 included: continuous culture on manured and unmanured soil; rotation with corn, oats, and cowpeas, manured and unmanured; time of seeding; time of plowing; variety tests and seed selection, and pasturing to ascertain the effect on yield.[71]

The Magruder plot, the one-acre plot which was first planted to wheat in 1892-93 and had had uninterrupted wheat culture since, continued to yield profitable information. In 1898 and 1899, one-half the plot had been given a total of twenty-six tons of manure. In the five years following, the manured plot yielded at the cumulative rate of 56.4 bushels more wheat per acre than the unmanured plot. At fifty cents a bushel, the difference in yield was valued at $28.20--the "pay" for applying the twenty-six tons of manure on an acre of ground.[72]

In 1901, sixteen samples of flour from eleven Oklahoma milling companies were tested at the College. The analytical work and baking tests were carried out by two students who used the results for their graduating theses. Certain "peculiarities" found in the composition of the flours examined, however, made it seem advisable for the Station not to publish the results as was originally planned but rather to report directly to the mills on their own samples and on the average properties of the flours examined.[73]

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[71] Oklahoma Agricultural Experiment Station Thirteenth Annual Report, 1903-1904, p. 17.

[72] Ibid., p. 27.

[73] John Fields, Letters to eleven Oklahoma Milling Companies, June 8, 1901, "Letters" (Manuscript Copies), May 31 - October 5, 1901, pp. 29-41.

Other Crop Experiments

A crop which also had considerable attention from the Oklahoma Experiment Station during the early 1900's was Kafir corn. Tests included growing Kafir in rotation and continuously on manured and unmanured soil, improvement of Kafir by breeding and seed selection,[74] and determining the value of cottonseed and Kafir corn products as feed for horses.[75]

Oats was getting some attention by the Oklahoma Station[76] as was cotton,[77] but in neither case were the tests very extensive. In 1904, a small cotton gin was purchased to aid in the variety and rotation tests being made.[78]

Work was also being done with castor beans[79] and broom corn.[80] Oklahomans, taking advantage of the Territory's early season, found they were able to market broom corn brush early, when highest prices usually were paid--a point of considerable advantage for farmers contemplating growing the crop.[81]

Peanuts had been found to do well in Oklahoma and many were being grown by farmers for the market. They were equally, or possibly even

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[74] Oklahoma Agricultural Experiment Station Thirteenth Annual Report, 1903-1904, p. 18.

[75] Ibid., p. 17.

[76] Ibid., p. 31.

[77] Press Bulletin No. 76, September, 1901, no page.

[78] Oklahoma Agricultural Experiment Station Thirteenth Annual Report, 1903-1904, p. 17.

[79] Ibid., p. 19.

[80] Oklahoma Agricultural Experiment Station Eleventh Annual Report, 1901-1902, p. 31.

[81] Press Bulletin No. 70, December, 1901, no page.

more, valuable to the Territory, however, as a hog pasture.[82] The versatile peanut could be harvested and sold if the market was good, or, if market prices were low, could be profitably fed on the farm--a definite advantage over broom corn and castor beans.[83]

A list of 1902 market prices for various livestock feeds gives an idea of the value, per hundred pounds, of the most popular feeds of the time. Wheat straw and cotton seed hulls were both selling for fifteen cents. Alfalfa was sixty cents; oat straw, a quarter; prairie hay, forty cents; corn stover, thirty cents; cotton seed meal, $1.25; cotton seed, seventy cents; oats, $1.25; bran, $1.15; wheat, $1.00; whole Kafir corn, $1.08; Kafir meal, $1.12; and corn, $1.08.[84] The Station was carrying on experimentation of some kind with each of these crops.

Bermuda Grass and Alfalfa

While the people of the Territory readily accepted some suggestions of the Experiment Station, they were apparently reluctant to accept others. A good example of this is seen in a letter from Director Fields to Dr. A. C. True of the Washington, D. C., Office of Experiment Stations, written in 1902. He said:

> The fetish of red clover and Kentucky blue grass continues to be worshipped in spite of the effort of the Station to encourage the growing of cowpeas, soy beans, and alfalfa, and of Bermuda grass. Ten years of solid effort in pushing cowpeas as a crop to take the place of

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[82] Oklahoma Agricultural Experiment Station Tenth Annual Report, 1900-1901, p. 34.

[83] Oklahoma Agricultural Experiment Station Twelfth Annual Report, 1902-1903, p. 33.

[84] Oklahoma Agricultural Experiment Station Eleventh Annual Report, 1901-1902, p. 41.

red clover has brought practically no result. I should dislike to undertake to find twenty-five acres of cowpeas in a ten days' drive, counting every patch that I saw as an acre.[85]

As Mr. Fields' letter indicated, the Station also experienced difficulty in "selling" Bermuda grass to the farmers. Of all the grasses tried on the Station farm, Bermuda was the only one which had shown it possessed the qualities needed for Oklahoma pasture grass.[86] It was particularly well adapted for pastures in southern and southeastern Oklahoma,[87] for once established, it remained green and growing from spring until heavy frosts.[88]

Director Fields wrote these emphatic words to a Ralston, Oklahoma man in 1902:

We are burning the bridges and making a straight Bermuda grass campaign for pasture and lawn and alfalfa for hay. Both are pronounced successes in so many places that it only requires hammering and yammering to make the people happy along these lines.[89]

One of the big problems in promoting alfalfa was that farmers persisted in trying to use it for a pasture crop rather than a hay crop.[90] Many farmers had unwarranted prejudices against the crop because early

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[85]John Fields, Letter to Dr. A. C. True, Washington, D. C., September 19, 1902, "Letters" (Manuscript Copies), August 7 - November 24, 1902, p. 157.

[86]Oklahoma Agricultural Experiment Station Twelfth Annual Report, 1902-1903, p. 30.

[87]Oklahoma Agricultural Experiment Station Fourteenth Annual Report, 1904-1905, p. 32.

[88]Oklahoma Agricultural Experiment Station Eleventh Annual Report, 1901-1902, p. 33.

[89]John Fields, Letter to H. E. Thompson, Ralston, Oklahoma, November 19, 1902, "Letters" (Manuscript Copies), August 7 - November 24, 1902, p. 480.

[90]Oklahoma Agricultural Experiment Station Eleventh Annual Report, 1901-1902, p. 15.

attempts to grow it for hog pasture had resulted in ruined stands. Education as to its proper use keynoted the sections on alfalfa in Station publications and correspondence for some time.[91]

Annual forage crops also received their share of attention from Station personnel. The results of several season's experiments showed that rape was a valuable source of green feed in Oklahoma. It was found to be a fine pasture crop particularly for spring and fall.[92] During the drouth summer of 1901, rape did unexpectedly well and with its drouth resistant qualities fresh in mind, farmers sowed an unusually large acreage of it in 1902.[93]

Vegetable and Fruit Trials

Of the vegetable crops, potatoes were most extensively studied. Experiments were carried on for many years on varieties, culture methods,[94] and methods of storing.[95] Bulletin 52 was devoted to potato culture as based upon Station experiments and the practical experience of growers around Shawnee where potato growing on a commercial scale was first practiced in Oklahoma.[96]

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[91] Oklahoma Agricultural Experiment Station Twelfth Annual Report, 1902-1903, p. 29.

[92] Oklahoma Agricultural Experiment Station Eleventh Annual Report, 1901-1902, p. 34.

[93] Ibid., p. 14.

[94] Oklahoma Agricultural Experiment Station Fourteenth Annual Report, 1904-1905, p. 18.

[95] Oklahoma Agricultural Experiment Station Eleventh Annual Report, 1901-1902, p. 62.

[96] Oklahoma Agricultural Experiment Station Fourteenth Annual Report, 1904-1905, p. 18.

Investigations on a smaller scale were also conducted with cabbage,[97] tomatoes, egg plant, onions, lettuce, radishes, salsify (oyster plant), beans, peas,[98] and sweet potatoes.[99] In 1903, the culture of ginseng, a Chinese herb, was attempted but in spite of careful attention, the plants died.[100]

In fruit growing, perhaps more than in any other line of Station work, its recommendations were largely followed by farmers. The suggested list of varieties for Oklahoma, issued in 1899, was supplemented from time to time by later and corrected lists. Local nursery men used these recommendations to a large extent when supplying stock trees. Fruit growers accepted and followed the Station's suggestions as to location, method of planting, care and cultivation of orchards.[101]

The Horticultural Department staff, like the livestock men, spent considerable time debunking fraudulent claims of unscrupulous salesmen. Time and again they urged farmers to purchase seeds and plants only from well-known and reliable nurserymen and seedsmen[102] and not from traveling "specialists" who made outrageous claims for their wares.

By 1904, the Horticultural Department was pursuing twenty-five distinct lines of investigation. In some cases, the same plots and

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[97] Oklahoma Agricultural Experiment Station Eleventh Annual Report, 1901-1902, p. 19.

[98] Oklahoma Agricultural Experiment Station Twelfth Annual Report, 1902-1903, p. 16.

[99] Oklahoma Agricultural Experiment Station Tenth Annual Report, 1900-1901, p. 35.

[100] Oklahoma Agricultural Experiment Station Twelfth Annual Report, 1902-1903, p. 55.

[101] Oklahoma Agricultural Experiment Station Fourteenth Annual Report, 1904-1905, p. 17.

[102] Press Bulletin No. 69, February, 1901, no page.

plants were used in more than one experiment. Fourteen of the tests were on varieties. Varietal tests were to be curtailed as rapidly as possible, however, and the plots devoted to other types of horticultural experiments. Fruits tested included almonds, apples, apricots, blackberries, cherries, currants, dewberries, grapes, peaches, plums, quinces, raspberries, strawberries, and pears.[103]

Native fruit-bearing plants of the Territory were also studied. The purpose of the work was to determine the value of the native fruits as a starting point in developing varieties better adapted for Oklahoma conditions than imported ones.[104]

In 1904, the Station grape vines, planted for cultivating, pruning, and training experiments, bore their first full crop but experimenters estimated it would be three years before definite test conclusions could be reached. In 1905, however, the vineyard had to be removed to make way for new buildings and the experiments were not completed.[105]

Forestry Studies

Forestry continued to receive a large share of attention both in experimental plantings on the Station grounds and in the study of native timber and commercial plantings elsewhere in the Territory.[106]

Supplementing the first planting of trees set out in 1898 for the

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[103] Oklahoma Agricultural Experiment Station Thirteenth Annual Report, 1903-1904, p. 18.

[104] Ibid., p. 19.

[105] Ibid., p. 18.

[106] Oklahoma Agricultural Experiment Station Eleventh Annual Report, 1901-1902, p. 17.

purpose of wood lot experiments[107] was another planting made in the spring of 1900. White ash, box elder, catalpa, white elm, black locust, honey locust, and soft maple seedlings of one season's growth were planted in thirty-four plots. In some plots, from three to seven kinds of trees were systematically arranged, while in others pure plantings were set out.[108]

Urging farmers to plant windbreaks, the 1904 Station report said:

> A hard wind during July or August will take as much water out of the ground in one day where it has full sweep and is not checked by a break of some kind, as it will in four days where the land is protected by a windbreak. The loss occasioned by such winds is not only the loss of water but direct damage to the plants by being broken off at the roots, having the fruit shaken off, and limbs broken out of the top.
>
> The windbreak on the farm should serve the double purpose of being a windbreak and a wood lot furnishing a constant supply of posts, fencing material, and firewood.[109]

Studies were begun in 1904 on grafting and "top working" trees in an effort to determine the effect of grafting weak-growing trees in the tops of strong-growing ones. In that same year, a variety test of ornamental hedge plants was started in an effort to find desirable hedges for this climate, the privet having been seriously damaged by disease.[110]

Soils Work

Soils work was continually carried on by Station staff members. The theory of a dry soil mulch was widely advocated. A letter from

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[107] O. M. Morris, "Planting Trees for Posts, Fuel, and Windbreaks," Oklahoma Agricultural Experiment Station Bulletin No. 60 (Stillwater, Oklahoma, December, 1903), p. 12.

[108] Ibid., p. 13.

[109] Oklahoma Agricultural Experiment Station Thirteenth Annual Report, 1903-1904, p. 53.

[110] Ibid., p. 19.

Director Fields explains in detail, the reasoning behind the theory:

The object of cultivation is to get air into the soil and to prevent loss of moisture either through the growth of weeds or by evaporation from the surface of the soil. When the first two or three inches of the soil are kept loose and dry, the effect is much the same as if the soil were mulched with hay or straw.

Water rises from the lower layers of the soil to the surface by means of what is called capillary action, a common illustration of this is a lamp-wick which has not been trimmed for some time. [sic] If the charred wick is allowed to remain until it forms a crust on the top then the lamp is difficult to light for the reason that this charred layer doesnot absorb the oil and until the flame of the match reaches the oil just beneath the top layer the wick cannot be lighted.

Without a question cultivation makes the soil which is stirred drier than that which is not stirred. The first two inches of soil on the field that has been cultivated and stirred frequently will contain less moisture than if it had not been cultivated but in the next foot or two of soil where the roots are growing and deriving food for the plant there will be much more moisture in the cultivated than in the uncultivated soil for the reason that the dry layer of dirt on top has kept the water below from getting away.[111]

Insects and Plant Diseases

In close conjunction with all the other work of the Station were the studies made with insects and plant diseases.[112] Studied were the root rot disease which was destroying many fruit trees in orchards of the Territory,[113] and black rot, which was threatening the grape industry in leading fruit-growing regions of Logan and Kingfisher counties.[114]

Apples seemed to be having more than their share of trouble with insects and diseases in the early 1900's. Wooly root, which had been found after four years of study[115] to be the result of a poor union

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[111] John Fields, Letter to C. W. Beckwith, Creek Indian Territory, July 16, 1903, "Letters" (Manuscript Copies), July 16 - November 21, 1903, pp. 7-8.

[112] Oklahoma Agricultural Experiment Station Tenth Annual Report, 1900-1901, p. 112.

[113] Press Bulletin No. 71, April, 1901, no page.

[114] Press Bulletin No. 73, June, 1901, no page.

[115] Oklahoma Agricultural Experiment Station Thirteenth Annual Report, 1903-1904, p. 19.

between the cion and stock and not the result of an organic disease, was prevalent in the Territory.[116]

Two apple diseases appeared in Oklahoma in 1904 about which the station repeatedly warned the farmers. The more destructive of the two, apple scab, was considered the worst fungus disease that fruit growers had to combat. It caused more loss to the fruit annually than any other one disease. Bitter rot, the other apple disease, although seldom destroying a crop, did cause loss of a large per cent of marketable fruit each year.[117]

Until about 1901, the codling moth had not damaged Oklahoma's apple crop much, but in that year it destroyed a large part of the Territory's crop.[118] Spraying was recommended, and tests with different insecticides as well as different methods of application were begun by the Station.[119]

In 1903, the first definite appearance of the Hessian fly in Oklahoma was noted and the Station took immediate steps to secure data necessary for successfully combating the pest.[120] Early recommendations noted in the 1903-04 Station report included using a variety of wheat grown in the area (northern parts of Oklahoma) known to have been subjected to the fly infestation but which had proved resistant. Also, it

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[116] Oklahoma Agricultural Experiment Station Fourteenth Annual Report, 1904-1905, p. 21.

[117] Ibid., p. 56.

[118] Press Bulletin No. 76, September, 1901, no page.

[119] Oklahoma Agricultural Experiment Station Thirteenth Annual Report, 1903-1904, p. 19.

[120] Oklahoma Agricultural Experiment Station Twelfth Annual Report, 1902-1903, p. 15.

was suggested that the stubble and volunteer wheat be thoroughly plowed under several weeks before winter wheat planting time in order to imprison the flies under ground. Still another recommendation was sowing wheat strips in August to which the flies would migrate and then plowing them underground just before the field was sown in the fall.[121]

Another insect, popularly thought to be making its way into the Territory during the early 1900's, was the boll weevil. Many suspicious specimens were sent to the Station for identification, but up to July, 1905, no true boll weevils had been received. Because of the occurence of the boll weevil in Texas, however, the threat of its entering Oklahoma was very real, and the Station urged farmers to take every precaution to prevent its introduction.[122]

Cotton, particularly in Lincoln County, was being damaged by the garden webworm (Pyrausta rantalis). The following rather unique method of spraying for this insect was advocated:

> The remedy for all leaf-eating caterpillars is to spray or dust the leaves with Paris green. The simplest method of applying the Paris green which has been extensively used, is by sifting it from sacks of coarse ducking material attached to the ends of a stout pole which is carried across the saddle by a man on horseback and constantly jarred by rapping on the pole with a club. By using a pole long enough to hold four sacks, four rows are sometimes dusted with the poison at once.[123]

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[121] Oklahoma Agricultural Experiment Station Thirteenth Annual Report, 1903-1904, pp. 57-58.

[122] Oklahoma Agricultural Experiment Station Fourteenth Annual Report, 1904-1905, p. 23.

[123] Oklahoma Agricultural Experiment Station Thirteenth Annual Report, 1903-1904, p. 60.

Additional studies still were made by the Station on chinch bugs,[124] parasites of domestic animals,[125] and the wheat or grain louse.[126]

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[124] Press Bulletin No. 84, May, 1902, no page.

[125] Oklahoma Agricultural Experiment Station Eleventh Annual Report, 1901-1902, p. 16.

[126] Press Bulletin No. 72, May, 1901, no page.

CHAPTER VII

SEARCHING AND GROWING (1905-STATEHOOD)

Agricultural Education

The extensive promotional work for agricultural education, which had begun early in the new century, gained momentum and by 1905 forces favoring education for the farm were working throughout the entire Territory. So successful was the campaigning, that by 1907, when Oklahoma became a State, provisions in its Constitution relative to teaching agriculture and industrial subjects put Oklahoma in the forefront of the "progressive" states as far as education of this sort was concerned.[1]

Oklahoma was particularly advanced in teaching these subjects in the common schools. There, agricultural education was given primary emphasis though it was being taught in the upper grade levels also.

Developing with these educational trends was A. and M.'s interest in teachers who would teach agriculture. As the introduction of compulsory agricultural courses in the common schools[2] spread, the College and the Territorial Board of Education took steps to help the movement.

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[1]Oklahoma State Board of Agriculture, First Biennial Report of the Oklahoma State Board of Agriculture to the Legislature of the State for the Years 1907 and 1908 (Guthrie, Oklahoma, 1908), p. 4.

[2]A. C. Scott, Letter to Professor P. W. Clark, Logan, Utah, July 14, 1906, "Letters" (Manuscript Copies), June 14 - August 20, 1906 (Okla. Agri. and Mech. College Library, Rare Book's Room, Stillwater), XXXII, p. 150.

One of the first concrete moves made by the College was the establishment of a course in agriculture for rural school teachers. The earliest attempts did not receive the sympathy of the teachers and consequently were not very effective.[3]

By 1906, however, school teachers were becoming more interested in the idea of agricultural education[4] and A. and M. again offered a course for teachers wishing to prepare themselves to instruct in elementary agriculture in connection with the work they already were giving in the public schools.[5]

Lectures on agricultural topics in A. and M.'s early Normal Course included the place of agriculture in the common schools, garden plots for schools, beautifying school grounds, bacteriology in the school, hygienic conditions of school life, Oklahoma soil studies, stock feeding, care and management of livestock, milk and its products, and improvement of farm crops.[6] In addition, review work in the general common school studies was given the teachers.[7]

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[3]John Fields, Letter to A. C. True, Office of Experiment Station, Washington, D. C., April 4, 1905, "Letters" (Manuscript Copies), April 3 - July 14, 1905 (Okla. Agri. and Mech. College Library, Rare Book's Room, Stillwater), XXVII, p. 11.

[4]A. C. Scott, Letter to Professor R. W. Clark, Logan, Utah, July 14, 1906, "Letters" (Manuscript Copies), June 14 - August 20, 1906, p. 150.

[5]John Fields, Letter to Prof. W. C. Bickford, El Reno, Oklahoma, January 27, 1905, "Letters" (Manuscript Copies), December 31, 1904 - April 1, 1905, p. 143.

[6]Oklahoma Agricultural Experiment Station Fourteenth Annual Report, 1904-1905, p. 10.

[7]Oklahoma Agricultural and Mechanical College, Annual Catalogue, 1905-6 With Announcements for 1906-7 (Stillwater, Oklahoma, 1906), p. 23.

About this same time, the Territorial Board of Education prepared a reading[8] or correspondence course in agriculture designed especially for teachers in rural schools. The course, conducted through A. and M., was a two-year course covering the subjects of plant production, animal production, breeds of livestock, dairying, dairy husbandry, farm crops and fruits, and care and management of animals.[9]

By 1907, added importance was given to the reading course because the pending State Constitution required teachers of agriculture in the common schools to pass an examination in the subject before launching the required agricultural programs.

The two-year reading course was divided into terms with different lessons emphasized in each. During the first year, plant production was given in the first term, animal production and breeds of live stock in the second, and dairying and dairy husbandry in the third. The second year, farm crops and fruits were studied during the first term, animal production, and care and management of animals during the second, and dairying and milk and its products in the final term.

The substance of the course was essentially the same as that given in the School of Agriculture and Domestic Economy of the College but without the practical or laboratory work.[10] It was free except for

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[8]A. C. Scott, Letter to Professor R. W. Clark, Logan, Utah, July 14, 1906, "Letters" (Manuscript Copies), June 14 - August 20, 1906, p. 150.

[9]Financial Records and Accounts of Oklahoma Agri. and Mech. College, "Letters" (Manuscript Copies), June 1, 1903 - May 29, 1908 (Okla. Agri. and Mech. College Library, Rare Book's Room, Stillwater), p. 100.

[10]Oklahoma Agricultural and Mechanical College, Agricultural Experiment Station Sixteenth Annual Report, 1906-1907 (Stillwater, Oklahoma, 1907), p. 10.

postage and texts. A limit of 300 "correspondents" at one time was placed on the course, and applicants enrolling after this number had been reached, were put on a waiting list until they could be accommodated.[11]

In 1906, the Normal Institutes of the Territory introduced agricultural education into their curricula,[12] giving teachers still other means of preparing themselves to teach agriculture.

Education for the farm on the college level also was gaining popularity. In 1904, four from a class of twenty received agricultural degrees, while the following year six in a class of twenty were agricultural graduates. In 1906, one out of sixteen, and in 1907, three out of eighteen students were graduated in agriculture.[13]

The continued reluctance of some farm youths to study in preparation for their business before attempting it, was lamented by Station Director W. L. English, who once wrote:

> . . . I cannot see why it is that a bright young man that has an opportunity to observe for himself the trend of affairs cannot see that his only chance of success is for him to get well into the front rank of agricultural affairs. How any one can contend that the old methods of farming and of doing things are going to succeed in the future is more than I can understand. . . . Today the man that farms must know more things than a man in any other line of business. It has ceased to be a matter of chance with the farmer whether he succeeds or not.[14]

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[11]Oklahoma Agricultural and Mechanical College, Annual Catalogue, 1906-07 With Announcements for 1907-08 (Stillwater, Oklahoma, 1907), pp. 31-32.

[12]A. C. Scott, Letter to Professor R. W. Clark, Logan, Utah, July 14, 1906, "Letters" (Manuscript Copies), June 14 - August 20, 1906, p. 150.

[13]Alumni and Former Students Directory Issue, 1891-1935, p. 10.

[14]W. L. English, Letter to Mrs. R. H. French, Arapaho, Oklahoma, June 14, 1907, "Letters" (Manuscript Copies), April 1 - June 25, 1907 (Okla. Agri. and Mech. College Library, Rare Book's Room, Stillwater), XXXVI, p. 433.

Agricultural graduates were needed and the demand for men to fill good positions far exceeded the supply.[15] The U. S. Department of Agriculture in Washington continued to claim a goodly number of agricultural graduates.[16] Teachers were also in demand. In 1906, ten of OAMC's graduates of former years, many agricultural majors, were back on campus teaching in the various departments.[17]

By the time the State of Oklahoma came into being, A. and M. could point with much pride to the work most of its graduates were carrying on.[18]

It could also point with considerable pride to its increasing enrollment, its broadening curriculum, and its expanding facilities. By 1906-07, regular student enrollment neared the 600 mark,[19] and an additional four hundred persons were taking the short courses each year.[20]

There still existed, however, one thorn in the side of higher education at Oklahoma A. and M. It was the fact that an eighth grade diploma and one year's work as a Sub-Freshman were all that were necessary

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[15] A. C. Scott, Letter to R. H'ron [sic] Guthrie, Oklahoma, July 13, 1906, "Letters" (Manuscript Copies), June 14 - August 20, 1906, p. 132.

[16] The College Paper, June, 1904, p. 122; and The College Paper, October, 1905, p. 14.

[17] The College Paper, October, 1906, p. 12.

[18] W. L. English, Letter to Mrs. R. H. French, Arapaho, Oklahoma, June 14, 1907, "Letters" (Manuscript Copies), April 1 - June 25, 1907, p. 434.

[19] Oklahoma State Board of Agriculture, Second Biennial Report of the Oklahoma State Board of Agriculture to the Legislature of the State for the Years 1909 and 1910 (Oklahoma City, 1910), p. 104.

[20] Oklahoma Agricultural and Mechanical College, Agricultural Experiment Station Fifteenth Annual Report, 1905-1906 (Stillwater, Oklahoma, 1906), p. 5.

for admission into the collegiate course. Educators felt this was not sufficient preparation for entrance to the Freshman class, but circumstances prevented a better solution.[21]

Expanded Curricula

In 1906 and 1907, a "general purpose" course, known as the Science and Literature Course was established, thus making a total of four courses leading to a bachelor of science degree. Already operating were the Agricultural Course with majors in agronomy, horticulture, animal husbandry, and dairying; the General Science Course with majors in chemistry, botany, and biology; and the Engineering Course with majors in mechanical, electrical, and civil engineering.[22]

In 1906, the Department of Agriculture was discontinued and two departments, Agronomy and Animal Husbandry, were created in its stead.[23] Tentative plans for the future called for the eventual division of the latter department to make independent departments of Animal Husbandry and Dairying.[24]

Courses in the newly created Agronomy Department were directly related to the production of farm crops. Included were

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[21]A. C. Scott, Letter to Professor Charles E. Marshall, Agricultural College, Michigan, "Letters" (Manuscript Copies), August 21, 1906 - January 22, 1907 (Okla. Agri. and Mech. College Library, Rare Book's Room), XXXIV, p. 351.

[22]Oklahoma Agricultural Experiment Station Fifteenth Annual Report, 1905-1906, pp. 5-6.

[23]Oklahoma Agricultural Experiment Station Sixteenth Annual Report, 1906-1907, p. 58.

[24]John Fields, Letter to Dr. A. C. True, Washington, D. C., July 28, 1906, "Letters" (Manuscript Copies), May 5 - August 15, 1906 (Okla. Agri. and Mech. College Library, Rare Book's Room, Stillwater), XXXI, p. 410.

. . . farm machinery, with special reference to tillage and harvesting implements; soil physics, which has a direct bearing on the problems of soil moisture, soil temperature, and aeration; soil fertility, which pertains to the productive capacity of soils and of the methods of securing maximum yields through the use of manure or fertilizers; plant breeding, with special reference to the staple crops in Oklahoma; and farm crops, in which the history, culture, and uses of economic plants are considered.[25]

Courses in animal husbandry were classified in general as stock judging, breeds of livestock, animal nutrition, feeds and feeding, farm dairying, and animal breeding.[26]

A large number of students still worked part-time to help cover the costs of their college educations which by 1906, averaged less than $200 each a year, exclusive of clothing costs.[27] Labor on the College farm and Experiment Station was still largely carried on by students[28] and ambitious young men could usually find all the work they wanted during the afternoons[29] and on the weekly holiday which was Monday (so established in 1896 by the faculty).[30]

The Still-Popular Short Courses

The schedule of agricultural short courses given each year was an ambitious one.

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[25] Annual Catalogue, 1906-07 With Announcements for 1907-08, p. 17.

[26] Ibid., pp. 38-40.

[27] A. C. Scott, Letter to Edwin P. Franck, S. McAlester, Indian Territory, July 12, 1906, "Letters" (Manuscript Copies), June 14 - August 20, 1906, p. 112.

[28] Annual Catalogue, 1906-07 With Announcements for 1907-08, p. 78.

[29] A. C. Scott, Letter to William Schein, Richland, Oklahoma, October 6, 1906, "Letters" (Manuscript Copies), August 21, 1906 - January 22, 1907, p. 234.

[30] "Minutes of the First Faculty, 1892 - 1899," p. 266.

The School of Agriculture and Domestic Economy, now classified as a short course and patterned after the "Minnesota plan,"[31] prospered. In 1906, carpentry, blacksmithing, engines and boilers, and farm mechanics[32] were added to the scientific and common school work already being given.[33] This two-year course, was headed by a principal who taught most of the classes in agriculture and sometimes instructed the common school subjects, too. In 1907, graduation exercises from the School of Agriculture and Domestic Economy were initiated and certificates were awarded to a class of ten members who had satisfactorily finished the work.[34]

In 1906, the materials taught in the eight weeks' course in general agriculture and dairying were incorporated into a course known as the One Year Course in Agriculture. The new ten weeks' program covered the subjects of

> . . . crops for Oklahoma, livestock, stock judging, stock feeding and management, veterinary medicine, dairying, soils, grain judging and seed selection, blacksmithing, engines and boilers, chemistry and botany, and entomology.[35]

Drawing the largest number of enrollees of any of the short courses was a week-long one in Stock Judging and Seed Selection. Though

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[31] A. C. Scott, Letter to C. P. Norgord, Madison, Wisconsin, June 28, 1906, "Letters" (Manuscript Copies), June 14 - August 20, 1906, p. 41.

[32] Oklahoma Agricultural Experiment Station Fifteenth Annual Report, 1905-1906, p. 8.

[33] Oklahoma Agricultural Experiment Station Fourteenth Annual Report, 1904-1905, p. 8.

[34] Oklahoma Agricultural Experiment Station Sixteenth Annual Report, 1906-1907, p. 9.

[35] Oklahoma Agricultural Experiment Station Fifteenth Annual Report, 1905-1906, p. 10.

expectations sometimes ran as high as a thousand attendees,[36] between four and five hundred persons generally took the course each year.[37]

A variety of incentives was used to encourage farmers to attend the week-long course. Reduced railroad rates of one and one-third fares for the round trip were usually arranged with an Excursion Bureau of which most of the local railroads were members.[38]

In some years livestock sales were held in connection with the course. Associations, such as the Shorthorn Breeders' Association, the Improved Corn Breeders' Association, and the Oklahoma Cattlemen's Association[39] often held meetings concurrent with or just preceding or following the short course.[40]

The program usually was arranged to precede the annual meeting of the Board of Agriculture in Guthrie, so that farmers attending one might be encouraged to attend the other.[41]

The subjects of stock judging and seed selection were covered, and, in addition, evening sessions were held during which general questions of interest to farmers were discussed.[42]

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[36]W. L. English, Letter to J. M. Connell, G. P. A., Topeka, Kansas, October 11, 1906, "Letters" (Manuscript Copies), August 15 - December 12, 1906 (Okla. Agri. and Mech. College Library, Rare Book's Room, Stillwater), XXXIII, p. 279.

[37]The College Paper, February, 1907, p. 47; and Oklahoma Agricultural Experiment Station Fifteenth Annual Report, 1905-1906, p. 10.

[38]W. L. English, Letter to William Howard Phelps, Antwine, Oklahoma, November 5, 1906, "Letters" (Manuscript Copies), August 15 - December 12, 1906, p. 361.

[39]Press Bulletin No. 128, January, 1906, no page.

[40]W. L. English, Letter to B. J. Hargon, Glencoe, Oklahoma, October 11, 1906, "Letters" (Manuscript Copies), August 15 - December 12, 1906, p. 272.

[41]Ibid.

[42]Oklahoma Agricultural Experiment Station Fifteenth Annual Report, 1905-1906, p. 10.

The College livestock used for the course was supplemented by carloads of cattle and horses shipped in from various places in Oklahoma, and by animals from herds of local breeders.[43] In 1907, a Hampshire hog, brought in from Ravenwood, Missouri, created quite a stir with the farmers because many had never seen a Hampshire hog.[44] There were few, if any hogs of this breed being raised in the Territory then.[45]

Guest specialists were used for the course. Included were stock and crop breeders from Oklahoma and other States,[46] men from the United States Department of Agriculture, prominent ranchers and farmers,[47] and farm magazine editors.[48] Sessions conducted by these men and speeches given by them supplemented the instruction by the College faculty.[49]

Judging of horses, cattle, mules, hogs, sheep, and poultry was offered those attending. Time also was devoted to the presentation of the principles recommended for selection of seed for farm crops. Corn judging, including Kafir corn judging,[50] was given an important place in

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[43]John Fields, Article on Short Course written February 11, 1905, "Letters" (Manuscript Copies), December 31, 1904 - April 1, 1905, p. 264.

[44]W. L. English, Letter to G. S. Lawson, Ravenwood, Missouri, January 8, 1907, "Letters" (Manuscript Copies), December 14, 1906 - April 1, 1907 (Okla. Agri. and Mech. College Library, Rare Book's Room), XXV, p. 120.

[45]Ibid., p. 63.

[46]John Fields, Article on Short Course written Febraury 11, 1905, "Letters" (Manuscript Copies), December 31, 1904 - April 1, 1905, p. 264; and W. L. English, Letter to B. J. Hargon, Glencoe, Oklahoma, October 11, 1906, August 15 - December 12, 1906, p. 272.

[47]The College Paper, February, 1907, p. 47.

[48]W. L. English, Letter to B. J. Hargon, Glencoe, Oklahoma, October 11, 1906, "Letters" (Manuscript Copies), August 15 - December 12, 1906, p. 27.

[49]John Fields, Article on Short Course written February 11, 1905, "Letters" (Manuscript Copies), December 31, 1904 - April 1, 1905, p. 264.

[50]Ibid.

the course, but not to the neglect of the selection of seed oats, wheat, cotton, and other crops.[51]

More Building Construction

The increasing services of the College (such as these short courses) and the expanding enrollment, began to put an excessive strain on campus building facilities, in spite of the fairly constant building improvements being made. The situation took on grave aspects in 1905, when all building appropriations came to an abrupt halt. An act of the United States Congress was necessary before the Oklahoma Territorial Legislature could appropriate additional sums for building purposes.

A unique circumstance had arisen which had made this step necessary. The Territorial Capital was at Guthrie, but Oklahoma City wanted it relocated within her boundaries. Oklahoma Delegate Dennis Flynn, in an attempt to retain the capital in Guthrie, had secured the adoption of a bill by the United States Congress prohibiting the Legislature of Oklahoma Territory from building additional public institutions until after statehood.[52]

It became necessary for A. and M. President Scott to travel to Washington, D. C., in February 1905, to plead that already existing institutions should be allowed their natural growth and expansion. His arguments resulted in a special bill allowing the Oklahoma Legislature to appropriate money for the erection of a new building for Oklahoma A. and M.[53]

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[51] Press Bulletin No. 116, January, 1905, no page.

[52] The Daily O'Collegian, November 21, 1941, p. 1.

[53] The College Paper, February, 1905, p. 84.

On March 4, 1905, the Legislators appropriated $75,000 for the erection and equipment of an agricultural building to be named Morrill Hall[54] in honor of the father of the Land-Grant Colleges, Senator J. S. Morrill of Vermont.[55] Additional amounts were also appropriated for engineering buildings and shops.[56]

Land Holdings

While in Washington, President Scott also promoted the passage of a bill giving the College additional land which was badly needed for experimental purposes.[57] It was with much elation that the College greeted the news that: "By an act of congress approved February 9, 1905, a section of school land lying immediately west of the college farm was donated to the institution for college farm and experiment purposes."[58]

Added to the 360 acres already a part of A. and M., it furnished the institution a compact tract of land 1000 acres in size.[59]

Though the land itself was donated, its actual acquisition was not altogether without cost. The Territorial Legislature had to appropriate $8,000 to pay the claims[60] of the five lesees of the section.[61] A

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[54] Oklahoma Agricultural Experiment Station Fourteenth Annual Report, 1904-1905, p. 5.

[55] The Daily O'Collegian, November 21, 1941, p. 1.

[56] John Fields, News Item written March 27, 1905, "Letters" (Manuscript Copies), December 31, 1904 - April 1, 1905, p. 486.

[57] The College Paper, February, 1905, p. 84.

[58] Oklahoma Agricultural Experiment Station Fourteenth Annual Report, 1904-1905, p. 5.

[59] Ibid.

[60] The College Paper, March, 1905, p. 98.

[61] Jno. H. Burford, Chief Justice, Fred L. Wenner, Secretary of Board for Leasing Land, and Joseph E. Dolesal, for the Leases, Letter to Board of Regents, June 2, 1905, "Letters" (Manuscript Copies), April 3 - July 14, 1905, p. 296.

Territorial board composed of the Chief Justice, the Secretary of the School Land Board, and one representative chosen by the lesees and the College, determined finally the amounts to be paid the former lesees.[62] Settlement was reached by June, 1905, and title to the section was transferred to the College.[63]

The 640 acres were varied in character. They comprised "about 200 acres of first quality bottom land, 300 acres of uniform upland, 100 acres of broken upland, and a black-jack ridge of about 40 acres."[64]

The year 1905 was also a bonanza period for the College in other respects. That year the legislature gave more money to A. and M. than in the preceding seven years combined.[65] This encouragement was one of many evidences that the College was gaining favor with the people of the still growing Territory. (Three and a half million acres had been added to the Territory in 1901 when the Kiowa and Comanche Indian countries became part of Oklahoma Territory,[66] and more land was added around the time of statehood.)[67]

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[62]John Fields, Letter to Hon. W. N. Walker, House of Representatives, Guthrie, Oklahoma, February 2, 1905, "Letters" (Manuscript Copies), December 31, 1904 - April 1, 1905, p. 182.

[63]The College Paper, June, 1905, p. 125.

[64]John Fields, Letter to W. Story Sherman, Cement, Oklahoma, February 6, 1905, "Letters" (Manuscript Copies), December 31, 1904 - April 1, 1905, p. 87.

[65]John Fields, Letter to President W. D. Gibbs, Durham, New Hampshire, April 17, 1905, "Letters" (Manuscript Copies), April 3 - July 14, 1905, p. 87.

[66]Wright, p. 263.

[67]W. L. English, Letter to Joseph Bush, Brookville, Indiana, October 6, 1906, "Letters" (Manuscript Copies), August 15 - December 12, 1906, p. 322.

With the laying of the cornerstone of Morrill Hall on January 15, 1906,[68] the removal of the agricultural classes and offices from Old Central basement and the College barn[69] became imminent. In the fall of 1906, the departments of Agronomy, Animal Husbandry, Chemistry, and Horticulture, as well as the business offices of the College, occupied their spacious quarters in the new structure.[70]

One of the unusual features in the new building was the farm machinery laboratory comprising some twenty-five hundred square feet of floor space. Here, up-to-date machinery including plows, cultivators, discs, grain drills, mowers, and binders were displayed. Another room was equipped with farm power machines including a number of gasoline engines.[71]

The equipment was furnished by leading manufacturing companies[72] including International, Parlin and Orindorf, John Deere, and Moline.[73] These companies found it quite profitable to have agricultural implements on display where farmers often congregated.[74]

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[68]The College Paper, February, 1906, p. 63.

[69]Annual Catalogue, 1905-6, With Announcements for 1906-7, p. 13.

[70]Oklahoma Agricultural Experiment Station Fifteenth Annual Report, 1905-1906, p. 5 and p. 18.

[71]Annual Catalogue, 1906-07 With Announcements for 1907-08, p. 17.

[72]Ibid.

[73]W. L. English, Letter to William Howard Phelps, Antwine, Oklahoma, November 5, 1906, "Letters" (Manuscript Copies), August 15 - December 12, 1906, p. 361.

[74]W. L. English, Letter to W. M. Parker, Oklahoma City, Oklahoma, February 4, 1907, "Letters" (Manuscript Copies), December 14, 1906 - April 1, 1907, p. 246.

Also included in the building was a crop museum--a room covering fifteen hundred feet of floor space and containing four cases for storing exhibition specimens of grasses, grains, and other crops.[75]

In the fall of 1906, the Experiment Station enlarged its facilities, too. A frame barn for horses to be used for breeding purposes was built. The two-story structure had ample space for fourteen horses, a hay mow, feed bins, a harness room, and a well-equipped laboratory for work in artificial impregnation.[76]

Also completed shortly thereafter was a solid cement-wall storage cave. Up to that time, it had been practically impossible for the Horticultural Department properly to care for materials to be preserved for further study or use.[77]

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[75] Annual Catalogue, 1906-07 With Announcements for 1907-08, p. 17.

[76] Oklahoma Agricultural Experiment Station Sixteenth Annual Report, 1906-1907, p. 53.

[77] Ibid.

CHAPTER VIII

EXPERIMENTATION STEADILY PROGRESSES (1905-STATEHOOD)

Experiment Station Personalities

Until October, 1906, John Fields directed the work of the Experiment Station.[1] After graduating with the class of 1891, from Pennsylvania State College, Mr. Fields had advanced rapidly in the agricultural field. From his first position as Instructor in Agriculture and Chemistry at Pennsylvania State College, he went to an export firm as technical expert in chemistry.

In 1896, he was employed for $75 a month by Oklahoma A. and M. Three years later, he became Director of the Experiment Station and Business Agent for the College. He remained Director for seven years, refusing in the mean time similar, but higher paying, positions with Pennsylvania State College and Texas Agricultural Experiment Station, and an important government commission to establish and conduct an agricultural school and experiment station in Manchuria, China.[2] In addition to his work as Director and Business Agent, John Fields served as State Chemist and Dean of Short Courses while at A. and M.[3]

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[1] Oklahoma Agricultural Experiment Station Fifteenth Annual Report, 1905-1906, p. 19.

[2] Scrapbook of Frank J. Wikoff, John Fields For Governor (Brochure, Okla. Agri. and Mech. College Library, Rare Book's Room, Stillwater), no page.

[3] Annual Catalogue, 1901-02 With Announcements for 1902-03, p. 5.

Mr. Fields left an indelible stamp on Oklahoma agriculture. When he resigned from the Experiment Station in 1906, he went to Oklahoma City as editor of the Oklahoma Farm Journal, a publication he had acquired with Frank Northup in 1902. It was probably the most widely circulated farm magazine in the Territory.[4] During his lifetime, among his other accomplishments, Mr. Fields became a nationally known authority on agriculture and a renowned lecturer on subjects related to farming and stock-growing.[5]

In appreciation of John Fields, A. and M. President Angelo Scott once said:

> I sincerely believe it is not too much to say that his editorial work of the past ten years, together with his speeches before innumerable farmers' gatherings, has marked him as not almost, but altogether, the most valuable man in Oklahoma with respect to its material development.[6]

Frank Northup, John Fields' business associate for many years and A. and M.'s first superintendent of printing, has said that the Experiment Station was given "real life" when Mr. Fields took over. He dominated agriculture in Oklahoma in the early 1900's through his keen ability. His personality has been fixed in the Oklahoma agricultural picture ever since.[7]

One of the first things John Fields did when he came to Stillwater, was to start analyzing soils from different parts of the Territory. He

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[4]W. L. English, Letter to Prof. Herbert W. Mumford, Urbana, Illinois, September 18, 1906, "Letters" (Manuscript Copies), August 15 - December 12, 1906, p. 161.

[5]Scrapbook of Frank J. Wikoff, John Fields For Governor (Brochure, Okla. Agri. and Mech. College Library, Rare Book's Room, Stillwater), no page.

[6]A. C. Scott, "John Fields, An Appreciation," Scott's Collection (Okla. Agri. and Mech. College Library, Rare Book's Room, Stillwater), p. 2.

[7]Frank Northup, 3735 NW 42, Oklahoma City, Oklahoma, November 5, 1955 (Interview).

made extensive studies of the climate and took advantage of every opportunity to observe farming conditions throughout the Territory. As a result of these early studies, the Oklahoma Farm Journal later promoted the zoning of Oklahoma into six agricultural zones for which specific crops and practices could be recommended. These zones have been very important in determining Oklahoma agricultural practices.[8]

Mr. Fields was also instrumental in placing Kafir corn on the agricultural map of Oklahoma. He began his studies of Kafir while at the Experiment Station and later continued his missionary work in its behalf in his writings and through his speeches.[9]

Education of farmers' children was as important to John Fields as was the betterment of farmers' crops. Some years after he left A. and M., he helped win the fight to consolidate schools in the State. "It was a victory won at the point of the pen, and John Fields held the other end of the pen."[10]

For a short time in 1907, Mr. Fields again served the College in an official capacity when he was elected treasurer of the Board of Regents to fill an unexpired term.[11]

John Fields never stopped working for the interests of the farmer. He was instrumental in promoting the Federal Land Bank Law and the

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[8] Ibid.

[9] A. C. Scott, "John Fields, An Appreciation," Scott's Collection (Okla. Agri. and Mech. College Library, Rate Book's Room, Stillwater), pp. 2-3.

[10] Ibid., p. 4.

[11] Financial Records and Accounts of Oklahoma Agri. and Mech. College, "Letters" (Manuscript Copies), November 10, 1906 - October, 1907 (Okla. Agri. and Mech. College Library, Rate Book's Room, Stillwater), p. 428.

Federal Reserve Bank Law and later became president of the Federal Land Bank of Wichita, a position he held for many years.[12]

One of A. and M.'s own graduates, William L. English, succeeded Mr. Fields as Director of the Station. At the time he took over, the Station staff, including the clerk, numbered ten people. Thirty names appeared on the College faculty list including such persons as the librarian, a clerk, the president's secretary, and the acting assistant in the Business Department.[13]

W. L. English, at the age of seventeen, riding a six-dollar bicycle and with ten cents in his pocket, set out from his Kansas home for Manhatten, Kansas, where he worked his way through two years of agricultural college.

Moving to Oklahoma with his mother, he stayed out of school for a year to help develop her farm and then attended Oklahoma A. and M., graduating with the class of 1905.[14] He was scarcely out of school when he was employed by his alma mater as Assistant in Animal Husbandry[15] from which position he soon advanced to Director and Dean of Agriculture.[16]

He remained in this latter position until November, 1910, when he was appointed Assistant Agriculturist in the Department of Farmers'

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[12]Northup, (Interview).

[13]A. C. Scott, Letter to Hon. F. D. Coburn, Topeka, Kansas, November 2, 1906, "Letters" (Manuscript Copies), August 21, 1906 - January 22, 1907, pp. 313-314.

[14]Northup, (Interview).

[15]The College Paper, June, 1905, p. 124.

[16]Oklahoma Agricultural Experiment Station Sixteenth Annual Report, 1906-1907, p. 3.

Co-operative Work of the Bureau of Plant Industry of the Department of Agriculture in Washington.[17]

Later he went to South Carolina for two years and then joined the Frisco Railroad from which he retired in 1953 as a vice president. More recently, he was elected Mayor of Springfield, Missouri, where he resides today.[18]

Effects of the Station's Experiments

During the early 1900's, the results of the Oklahoma Experiment Station trials were reaching the Oklahoma farmers, and repeated evidence indicated that they were being fairly well accepted and used. John Fields once wrote:

> Oklahoma does not have the usual proportion of farmers who have 'farmed all their lives' and fortunately none of the methods of their fathers and grandfathers. This condition, a new people in a new country, has made farmers observing, eager to seek information and resourceful in its application.[19]

This held true for a major portion of Oklahoma, but in western parts of the Territory farmers felt agricultural conditions differed so much from those in Stillwater that findings of many experiments at the Station would not apply to them. Consequently they continued to urge the establishment of sub-stations. So strong was this move in 1905, that College and Station officials became greatly alarmed. It was feared the agitation would cause failure of the College's attempts to get from the Legislature funds that were needed imperatively and at the same time

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[17] The New Education, November 15, 1910, p. 3.

[18] Northup, (Interview).

[19] John Fields, Article for Frank H. Greer, Guthrie, Oklahoma, March 30, 1904, "Letters" (Manuscript Copies), March 15, 1904 - August 1, 1905, pp. 55-56.

saddle the institution with a sub-station that would be without an adequate enough income to make its work really valuable.[20]

A year later, however, the attitude of the College toward sub-stations began to change. In a letter written by Director Fields at that time, he named sub-stations as important factors for bringing about great changes in Oklahoma agriculture. "As to the sub-stations," he stated, "you can count on my cooperation in any endeavors to secure appropriations providing for two of them."[21]

At the same time, Director Fields encouraged even more widespread use of the Station's experiments by farmers in all sections of Oklahoma. Many experimental results, through misunderstanding of the way in which the studies were conducted, sometimes were not being applied by farmers. Fields once wrote:

> They [the farmers] fail to appreciate the fact that there can be no rules for farming, but that there are general principles of wide application which should be studied and put into practice. All of course know that a method of preventing a disease of cattle which will be effective in Payne County will be equally effective in Greer and Beaver Counties. Those who study methods of feeding understand that the underlying scientific principles do not vary with the longitude. A chemical analysis made here is as useful as if made on the farm where the results of the analysis are put in use. The life history of an insect, or the facts about a disease of plants is, in general, the same in all localities.
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> But there is still too prevalent a tendency to disregard the results of experiments with farm crops and fruits conducted at the station farm.[22]

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[20]John Fields, Letter to A. C. True, Washington, D. C., January 3, 1905, "Letters" (Manuscript Copies), December 31, 1904 - April 1, 1905, p. 21.

[21]John Fields, Letter to George Bishop, Cordell, Oklahoma, May 21, 1906, "Letters" (Manuscript Copies), May 5 - August 15, 1906, p. 85.

[22]John Fields, Article on Purposes of the Experiment Station, July 20, 1906, "Letters" (Manuscript Copies), May 5 - August 15, 1906, p. 359.

It was the principle of the experiment, adapted to the individual farmers' situation, rather than the actual Station results which Director Fields urged farmers to study and apply.

The Sub-Station Question

A flicker of hope for financing sub-stations came in the spring of 1906 when the Adams Bill passed the U.S. Congress. The Bill provided additional sums for Experiment Stations and Oklahoma hoped to use some of the money to relieve increasing pressure for sub-stations. Their hopes were in vain, because restrictions on the use of the Adams Fund were even more stringent than those on the Hatch Fund--and neither provided money for sub-stations.[23]

Because funds derived from the Federal Government could in no way be used for the support of sub-stations, it was necessary that the Territorial Legislature supply the money for their establishment and operation.[24]

In February, 1907, the opportunity to carry on experimental work in western Oklahoma finally came, though not in the form of actual sub-stations. Congress had given all the remaining homestead land that had not been made subject to entry in the western counties of Oklahoma to the school institutions of the Territory. The College arranged to select from these endowment lands sufficient acreage to carry on experimental work--mainly in breeding corn for arid regions.[25]

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[23]John Fields, Letter to George L. Bishop, Cordell, Oklahoma, May 15, 1906, "Letters" (Manuscript Copies), May 5 - August 15, 1906, p. 50.

[24]Oklahoma Agricultural Experiment Station Sixteenth Annual Report, 1906-1907, p. 52.

[25]W. L. English, Letter to A. C. True, Washington, D. C., February 14, 1907, "Letters" (Manuscript Copies), December 14, 1906 - April 1, 1907, p. 285.

Among other areas, the Station was viewing a 1670-acre tract of good farming land at Fort Supply which had been turned over to the Territory for the location of an insane asylum. A plan even was suggested whereby convalescents at the asylum could be used for work on the farm.[26] Circumstances (mainly financial) prevented immediate establishment of these off-campus experimental set-ups.

In the meantime, however, the Station did begin some experiments with corn and broom corn plantings in western Oklahoma[27] by cooperating with individual farmers.

The Adams Act

As the years went by, additional funds were needed to cover these ever broadening operations of the College and Station. By 1906, the total income from all sources reached some $90,000. Appliances for instruction represented a value of about $150,000 and buildings had a valuation of approximately $200,000. The thousand acres of land at Stillwater was worth some $35,000.[28]

A substantial financial boost was given the Experiment Station when Congress passed the Adams Act. Under the provisions of the Act, Experiment Stations in the United States each were to be given an additional $15,000 annually--doubling the amount formerly received under the Hatch Act. The initial appropriation was for $5000 with sizable

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[26]Ibid., p. 336.

[27]W. L. English, Letter to E. C. Chilcott, Washington, D. C., April 15, 1907, "Letters" (Manuscript Copies), April 1 - June 25, 1907, p. 109.

[28]A. C. Scott, Letter to Edmund G. Kinyon, Solomsville, Arizona, July 14, 1906, "Letters" (Manuscript Copies), June 14 - August 20, 1906, p. 154.

amounts to be added each year until the appropriation reached the $15,000 mark.[29]

The Act stipulated that the money could be used only for original investigations and not for general maintenance of the Station. Experiments undertaken through provisions of the Act were reviewed and passed by the Washington Office of Experiment Stations which had power to reject proposed experiments not meeting specific requirements.[30]

As soon as funds from the Adams Act were received, the Station began a series of long-term experiments in three different fields. One of the first tests involved studies of problems connected with the breeding of animals and the effect of feeding cottonseed meal upon fecundity. The work was carried on through the cooperation of the Departments of Veterinary Science and Animal Husbandry. A primary object was to determine, as far as possible, the fundamental causes of sterility in farm animals and to devise methods whereby this sterility might be overcome.

Other early experiments initiated under the Adams Act included a study of the causes of non-setting of fruit on the tomato plant at blossom time, and an attempt to breed a strain of corn adapted to western Oklahoma growing conditions.[31]

Livestock Highlights

In addition to playing an important part in breeding, feeding, and other experiments during this time, the Animal Husbandry Department

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[29] Oklahoma Agricultural Experiment Station Fifteenth Annual Report, 1905-1906, p. 13.

[30] Oklahoma Agricultural Experiment Station Sixteenth Annual Report, 1906-1907, p. 48.

[31] Ibid., pp. 49-50.

was encouraging promotion of the sheep industry in Oklahoma, though it was some years before the Station itself had a sizable flock.

Director English, successor to John Fields, and John Craig, successor to William English, both were strong sheep men and both felt Oklahoma was natural sheep country.[32] Mr. English, addressing the Third Annual Meeting of the Territorial Board of Agriculture said:

> The natural conditions found in most parts of Oklahoma are almost ideal for the successful growing of sheep. In no place in the United States, can be found such an abundance of good pure water, a climate more perfectly adapted to the requirements of the sheep raiser, or a greater variety of grasses and forage to feed them on. Shade we have in abundance in most parts of the Territory, a soil dry enough to cause foot-rot to be a thing unknown, scab and the kindred diseases that sheep fall heir to, and that proves to be such a drawback to their profitable raising in a great many places, have never invaded our borders.[33]

The claim that sheep ate 576 of the six hundred different plants classed as weeds by the Department of Agriculture was also used as a strong argument[34] in favor of Oklahoma farmers securing small flocks and starting sheep enterprises.[35]

Receiving considerable encouragement from the College at this time was the dairying business. Oklahoma, with climate, soil, crops, and markets suitable for it, possessed rare natural advantages favoring development of the industry.

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[32] C. A. McNabb, Sec'y. Second Biennial Report of the Oklahoma Territorial Board of Agriculture, 1905-1906 (Guthrie, Oklahoma, 1906), p. 113.

[33] Ibid., p. 114.

[34] Ibid., p. 117.

[35] W. L. English, Letter to H. H. Gilmore, Kremlin, Oklahoma, August 28, 1907, "Letters" (Manuscript Copies), June 26 - December 19, 1907 (Okla. Agri. and Mech College Library, Rare Book's Room, Stillwater), XXXVII, p. 211.

The question which potential dairymen first asked was, quite naturally, ". . . can cows be kept at a profit and butter be made in the various sections of our state and sold at a remunerative price to both the factorymen and the farmers?"[36] To answer this question, the College entered the creamery business in 1905 by opening and operating a small dairying factory. The plan was to use the factory for instructional purposes[37] and, at the same time, to discover the practicality of dairying in Oklahoma.

Using milk and cream from local farms only, the College processed it into butter. The butter was placed on the market and sold at top market prices, enabling the creamery to pay premium prices to its patrons for their products.[38]

Though the College had no intention of going into the creamery business on a large scale, they found the venture so favorable they began taking in increasing amounts of cream and at times carried on a sizable commercial business. The project also came to serve as a check on creameries operated by private companies throughout the Territory.[39]

By 1907, the College creamery was making about a thousand pounds of butter daily during the summer months from cream supplied by farmers living in the vicinity of Stillwater. In March of that year, new

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[36] Oklahoma Agricultural Experiment Station Sixteenth Annual Report, 1906-1907, p. 31.

[37] W. L. English, Letter to Ray McGreer, Oklahoma City, Oklahoma, December 10, 1906, "Letters" (Manuscript Copies), August 15 - December 12, 1906, p. 491.

[38] Oklahoma Agricultural Experiment Station Sixteenth Annual Report, 1906-1907, p. 32.

[39] W. L. English, Letter to Ray McGreer, Oklahoma City, Oklahoma, December 10, 1906, "Letters" (Manuscript Copies), August 15 - December 12, 1906, p. 491.

machinery had to be installed to handle the output[40] and by July of 1907, the creamery, under the Dairy Department's direction, was placed entirely upon its own financial resources for its maintenance.[41]

During this same period, dairying in Oklahoma as a whole was rapidly expanding. In two or so years, the creamery business had grown from four or five creameries in the whole Territory to a creamery, or a representative of one, in every town of five hundred or more inhabitants. In one year alone, the increase in production was well over twenty-five percent.[42]

The over-all livestock tabulation at the College in the spring of 1907, showed more than three hundred head of hogs, cattle, horses, and sheep.[43] The purebred stock represented in this number included: cattle--Shorthorns, Herefords, Aberdeen Angus, and Red Polls; swine--Poland Chinas, Berkshires, Duroc-Jerseys, and Chester Whites; sheep--Shropshires and Cotswolds; and horses--Percherons.[44] In addition, the College had Barred Plymouth Rock and White Leghorn chickens, and Pekin ducks.[45]

During the 1905 Cattlemen's Convention in Guthrie, the Agricultural Department proudly displayed its multiplying string of Percherons to

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[40]W. L. English, Letter to William Parker, Oklahoma City, Oklahoma, March 21, 1907, "Letters" (Manuscript Copies), December 14, 1906 - April 1, 1907, p. 403.

[41]First Biennial Report of the Oklahoma State Board of Agriculture to the Legislature of the State for the Years 1907 and 1908, Part IV, p. 27.

[42]Second Biennial Report of the Oklahoma Territorial Board of Agriculture, 1905-1906, p. 171.

[43]W. L. English, Letter to A. C. True, Washington, D. C., March 28, 1907, "Letters" (Manuscript Copies), December 14, 1906 - April 1, 1907, p. 470.

[44]Annual Catalogue, 1905-6 with Announcements for 1906-7, p. 13.

[45]Annual Catalogue 1906-07 with Announcements for 1907-08, p. 18.

hundreds of farmers from all over the Territory who had gathered for the Convention. Three fine stallions, all raised on the farm, were to be offered for sale, and parading the animals on the street each day of the convention was one of the means the Department used to advertise the sale.[46]

Mules were added to the livestock roster in 1905 when the Department purchased a pair for use on the farm. The young team cost $350, and was a prize winner at the mule show held on campus during the 1905 Farmers' Short Course.[47]

Blackleg Vaccine Distribution

While the Animal Husbandry Department was carrying on experiments in breeding, feeding, and production of livestock, the Veterinary Department was busy with a different approach to Oklahoma animal problems.

Blackleg vaccine distribution continued to be a major function of the Department. In 1905, more than ninety-eight thousand doses, more than had been sent out in any previous year, were given to Oklahoma farmers free of charge.

In that one year, the station estimated that the vaccine it supplied had saved more than nine thousand Oklahoma cattle. This was based on data published by the Bureau of Animal Industry which showed that losses from blackleg were reduced from more than ten per cent to less than one per cent by vaccination. "Thus in this one item alone, the Station has returned its cost many times over," noted the Experiment Station Annual Report of 1905.[48]

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[46] The College Paper, February, 1905, p. 86.

[47] Ibid.

[48] Oklahoma Agricultural Experiment Station Fourteenth Annual Report, 1904-1905, pp. 18-19.

Between 1900 and 1907, the Experiment Station distributed over 625,000 doses of vaccine. This represented a total value of more than sixty thousand dollars at the price usually charged for vaccine purchased in small lots, such as were required by stockmen vaccinating ten to a hundred calves each year.[49]

Through the Station's persistent efforts, the annual loss of young cattle from blackleg was practically eliminated.

In addition to this work with blackleg vaccine, Station experiments were concerned with the eradication of animal insect pests. Tests were made with coal-tar preparations which were found generally to be good disinfectants but poor agents for destruction of external animal parasites.[50] Control of lice, Texas fever ticks,[51] hog parasites[52] and numerous other animal pests received much attention.

Entomological Studies

While the Veterinary Science Department struggled with stamping out animal diseases and insects, the Entomology and Horticulture Departments were engaged in fighting plant diseases and insects.

In May, 1905, a Nursery Inspection Law was passed naming the Station Entomologist and his assistant as official inspectors.[53] Much

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[49]Oklahoma Agricultural Experiment Station Fourteenth Annual Report, 1904-1905, p. 38.

[50]John Fields, Letter to Herbert Myrick, Chicago, Illinois, April 18, 1906, "Letters" (Manuscript Copies), February 8 - May 4, 1906 (Okla. Agri. and Mech. College Library, Rare Book's Room, Stillwater), XXX, p. 400.

[51]Oklahoma Agricultural Experiment Station Fifteenth Annual Report, 1905-1906, p. 17.

[52]Oklahoma Agricultural Experiment Station Sixteenth Annual Report, 1906-1907, p. 39.

[53]Oklahoma Agricultural and Mechanical College, Agricultural Experiment Station Seventeenth Annual Report, 1907-1908 (Stillwater, Oklahoma, 1908), p. 29.

time each summer was spent on nursery inspection. Expense, travel, and service costs amounted to about $600 annually and were paid by the Territorial Board of Agriculture.[54] At first the work was handled by the Station Entomologist alone, but the greatly increased numbers of nurseries and the need for closer inspection of the nursery stock as well as orchards in the vicinity of the nurseries, necessitated appointment of an assistant inspector in 1907.[55]

While performing the duties of Nursery Inspector in 1907, Station Entomologist, John Nicholson, discovered the dreaded San Jose Scale in an orchard in Payne County. San Jose Scale, one of the worst insect pests with which orchardists had to contend, was spreading rapidly in Oklahoma. Because of this fact and the proximity of the infested orchard, the Station immediately made arrangements with the owner to carry on a co-operative experiment. The object was to study more fully, the life, history, and habits of the insect and to test a number of different standard washes as well as some new washes recommended for the destruction of the insect.[56]

This was one of a number of such cooperative experiments. Another, conducted with farmers living in the vicinity of Stillwater,[57] concerned spraying apple orchards for the codling moth.[58] A complete power sprayer

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[54]M. J. Otey, Letter to Hon. C. A. McNabb, Guthrie, Oklahoma, October 5, 1906, "Letters" (Manuscript Copies), August 15 - December 12, 1906, p. 240.

[55]Oklahoma Agricultural Experiment Station Sixteenth Annual Report, 1906-1907, p. 55.

[56]Ibid., p. 51.

[57]Ibid., p. 52.

[58]Oklahoma Agricultural Experiment Station Seventeenth Annual Report, 1907-1908, p. 19.

and engine, valued at $200, was donated to the Station by Gould Manufacturing Company, of Seneca Falls, New York, to facilitate the spraying.[59]

Time and again, the Entomology Department in particular, had to face what might be classed as extreme emergency situations. Even though certain insects, or diseases, made their way into the Territory slowly, others invaded the crops rapidly, and within short periods of time laid waste thousands of acres.

Such an insect was the wheat plant louse commonly known as the green bug. Though the insect had been seen in the Territory before 1907, that year, often referred to as "'The Green Bug Year,'" the insect ravaged all but about fifteen per cent of the oat crop and about twenty-five per cent of the wheat crop in the Territory.[60] Hundreds of farmers wrote the Station asking for methods of eradication[61] but suitable means had not been found. With the coming of warm weather, the insects' own natural enemy, called the green bug parasite, finally destroyed the pest before satisfactory artificial methods could be applied,[62] but not before extensive efforts to meet the emergency had been made by the Oklahoma Station.

Also inhibiting the growth of wheat was the Hessian fly and the persistent enemy, the chinch bug. Control of the former by delaying

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[59] Oklahoma Agricultural Experiment Station Sixteenth Annual Report, 1906-1907, p. 52.

[60] Oklahoma Agricultural Experiment Station Seventeenth Annual Report, 1907-1908, p. 19.

[61] W. L. English, Letter to Charles Oden, Hastings, Oklahoma, April 1, 1907, "Letters" (Manuscript Copies), April 1 - June 25, 1907, p. 1.

[62] Ibid., p. 279.

fall planting until after October tenth, and by fall grazing of wheat was recommended. As for the latter, no suitable spray had been found and trap crops, dust traps, and other mechanical means for eradication were still advocated.[63]

As cotton culture expanded in Oklahoma, cotton pests grew in numbers. By 1907, the Entomologist had undertaken a rather extensive series of experiments with the cotton boll worm and the Mexican cotton boll weevil which were threatening Oklahoma's cotton growing industry with disaster.[64]

Also causing extensive damage was the cotton square-borer. Although little experimenting was done with means for controlling this insect, some recommendations were made by the Station toward eradication.[65]

One of the arguments used by the Station to encourage farmers to practice diversified farming was that it would result in a more successful control of plant insects and diseases. Diversified farming was also encouraged because so many staple and subsidiary crops could be grown, matured, and marketed in the area, and failure of one crop did not mean failure for the year. Also, soil fertility could be maintained more easily when following such a practice.[66]

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[63] Oklahoma Agricultural Experiment Station Fifteenth Annual Report, 1905-1906, pp. 47-52.

[64] Oklahoma Agricultural Experiment Station Sixteenth Annual Report, 1906-1907, p. 50.

[65] Oklahoma Agricultural Experiment Station Fifteenth Annual Report, 1905-1906, p. 53.

[66] John Fields, Letter to Frank H. Greer, Guthrie, Oklahoma, March 30, 1905, "Letters" (Manuscript Copies), March 15, 1904 - August 1, 1905, pp. 57-58.

Crop Rotation Experiments

Also highly recommended by the Station was the practice of crop rotation, especially where cotton was planted.[67] When land was added to the Station in Stillwater, area suitable for cotton growing was provided, and experiments which were formerly impossible were undertaken.[68]

At one time, an attempt was made to organize investigations in cottons improvement through a cooperative experiment between the Oklahoma and Texas Stations.[69] It was to be financed under the Adams Act, but the plan was not pursued because it met with the disapproval of the Washington Office of Experiment Stations.[70] The Oklahoma station did, however, conduct extensive cotton experiments alone.[71]

Around 1906, the cumbersome, inefficient forerunners of the modern cotton pickers were making their way into the Territory. Station Director English once wrote a Cushing farmer:

I am sorry to say that I am not altogether familiar with the work being done by so-called cotton pickers in the Territory.

So far as I can learn, there is no machine that will pick cotton successfully. Several cases have come to my notice of cotton pickers

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[67] Oklahoma Agricultural Experiment Station Fourteenth Annual Report, 1904-1905, p. 19.

[68] Oklahoma Agricultural Experiment Station Fifteenth Annual Report, 1905-1906, p. 16.

[69] W. L. English, Report to Dr. A. C. True, Washington, D. C., August 22 or 23, 1906, "Letters" (Manuscript Copies), August 15 - December 12, 1906, p. 51.

[70] W. L. English, Letter to Sec. C. A. McNabb, Guthrie, Oklahoma, October 2, 1906, "Letters" (Manuscript Copies), August 15 - December 12, 1906, p. 216.

[71] Oklahoma Agricultural Experiment Station Fourteenth Annual Report, 1904-1905, pp. 19-20.

that it was claimed could pick cotton successfully but so far I have yet to see one of them make good.[72]

Besides cotton, Kafir corn was being used in rotation experiments. Improvement of the crop through breeding and seed selection was also studied and its yeilds and characteristics were being compared with Jerusalem corn and milo maize.[73] One difficulty with Kafir corn was that the heads were not always at a uniform height which made harvesting by machinery difficult if not impossible. Work to develop Kafir of uniform height was carried on.[74]

Corn also was being given more and more attention by the Station. One of the first experiments under the Adams Act involved attempts to breed a strain of corn adapted to western Oklahoma. A type more resistant to extreme temperatures and moisture than was known at the time was needed. The experimental plan included securing cooperative aid from farmers and by 1907, effort toward producing a foundation stock for the corn experiments had been started in two different places -- Berlin, and Woodward.[75]

Although Oklahoma farmers did not always readily accept results of crop experiments from the Station, wheat enjoyed a rather unique position

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[72]W. L. English, Letter to W. L. Halstead, Cushing, Oklahoma, September 28, 1906, "Letters" (Manuscript Copies), August 15 - December 12, 1906, p. 203.

[73]Oklahoma Agricultural Experiment Station Fourteenth Annual Report, 1904-1905, p. 20.

[74]John Fields, Letter to Herbert Myrick, Chicago, Illinois, April 19, 1906, "Letters" (Manuscript Copies), February 8 - May 4, 1906, p. 399.

[75]Oklahoma Agricultural Experiment Station Sixteenth Annual Report, 1906-1907, p. 50.

in this respect.[76] Culture methods perfected by the Station were shown to increase average yield and profit fully twenty-five per cent.[77] Results such as these encouraged farmers to apply similar methods.[78] They were particularly receptive to time of plowing, time of seeding, wheat variety, and pasturing recommendations though they did not so readily accept the counsel to use manure on wheat land.[79]

As with corn and cotton, wheat was used in rotation experiments.[80] Other wheat experiments involved depth of plowing, treatment of wheat for loose and stinking smuts,[81] fall and spring pasturing of wheat,[82] and continuation of experiments with manured and unmanured plots. This latter experiment, which had been started many years before by Professor Magruder, continued to show definite advantages in wheat production of the manured over the unmanured plots.[83]

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[76]John Fields, Article on Purposes of Experiment Station, July 20, 1906, "Letters" (Manuscript Copies), May 5 - August 15, 1906, p. 359.

[77]John Fields, Letter to Herbert Myrick, Chicago, Illinois, April 18, 1906, "Letters" (Manuscript Copies), February 8 - May 4, 1906, p. 400.

[78]Oklahoma Agricultural Experiment Station Fourteenth Annual Report, 1904-1905, p. 19.

[79]John Fields, Article on Purposes of Experiment Station, July 20, 1906, "Letters" (Manuscript Copies), May 5 - August 15, 1906, p. 359.

[80]Oklahoma Agricultural Experiment Station Fourteenth Annual Report, 1904-1905, p. 19.

[81]Oklahoma Agricultural Experiment Station Sixteenth Annual Report, 1906-1907, p. 17.

[82]Oklahoma Agricultural Experiment Station Fifteenth Annual Report, 1905-1906, p. 31.

[83]Oklahoma Agricultural Experiment Station Sixteenth Annual Report, 1906-1907, p. 15.

Bermuda Grass Popularity

In forage crops, Bermuda grass still was given major emphasis. A number of years of research and carefully planned trials with nearly two hundred different kinds of grasses had produced only one crop suitable for replacing the failing native grasses--that was Bermuda grass.[84]

In 1905, cooperative studies with this grass were undertaken with fifty-seven farmers in Oklahoma. The work was confined to experiments in root or sod propagation in different localities of a strain of Bermuda grass which, at the Station, had withstood cold much better than that grown from seed. Officers of the County Farmers' Institutes helped with the tests and the secretary of the Board for Leasing Schools Lands encouraged trials by lesees on over-flow bottom lands and washy hill-sides in the hope of rendering useful such land which had formerly produced little.[85]

The variety of Bermuda grass which the Station developed, known as Hardy Bermuda grass, besides being much more resistant to frost than that grown from seed, was adaptable for pasture and hay on lands unfit for cultivation.[86] On two and one-half acres of thin upland soil at the Experiment Station, Bermuda grass had yielded 8242 pounds of cured hay within less than twelve months after planting.[87]

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[84]W. L. English, Article titled "Bermuda Grass for Oklahoma," June 22 - 24, 1907, "Letters" (Manuscript Copies), April 1 - June 25, 1907, p. 472.

[85]Oklahoma Agricultural Experiment Station Fourteenth Annual Report, 1904-1905, p. 26.

[86]John Fields, Letter to Herbert Myrick, Chicago, Illinois, April 18, 1906, "Letters" (Manuscript Copies), February 8 - May 4, 1906, p. 399.

[87]Oklahoma Agricultural Experiment Station Fifteenth Annual Report, 1905-1906, p. 23.

To emphasize the importance of propagating Bermuda grass only from roots and pieces of sod of the sort which had survived severe Oklahoma winters,[88] the Station began a campaign for distributing thirty pound packages of Bermuda grass roots[89] to any farmer who would pay the nominal express fee on them.[90] In this way, farmers in all parts of the Territory were able to start small plots of Bermuda grass from which they could transplant roots to other areas of their farms and ranches.

It was found that a plot planted in the spring with roots placed three feet apart each way would make a solid sod by August. This could be taken up to a depth of two inches and another sod would form on the same ground before fall.[91] Though this treatment was a little severe on the remaining root structure the first season the Station found that with plots two to three years old, one-or two-inch deep plowing to obtain the sod still left enough roots for a first-class stand on the original plot.[92]

Many farmers in the Territory took advantage of the Bermuda grass offer and the Station found itself mailing upwards of eighty-five crates a day during the spring of 1906.[93] By 1907, there were enough roots in

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[88]Ibid., p. 20.

[89]W. L. English, Letter to D. M. Circle, Kiowa, Kansas, October 30, 1906, "Letters" (Manuscript Copies), August 15 - December 12, 1906, p. 332.

[90]John Fields, Letter to Hon. David Hogg, Grand, Oklahoma, March 6, 1906, "Letters" (Manuscript Copies), February 8 - May 4, 1906, p. 152.

[91]W. L. English, Letter to D. M. Circle, Kiowa, Kansas, October 30, 1906, "Letters" (Manuscript Copies), August 15 - December 12, 1906, p. 332.

[92]John Fields, Letter to Frank Fillmore, Arapaho, Oklahoma, March 8, 1906, "Letters" (Manuscript Copies), February 8 - May 4, 1906, p. 155.

[93]John Fields, Letter to Robert Sohlberg, Guthrie, Oklahoma, April 24, 1906, "Letters" (Manuscript Copies), February 8 - May 4, 1906, p. 155.

various sections of Oklahoma to permit the Station to reduce its mailing and to encourage farmers to secure roots from others in their neighborhoods who had previously obtained them from the Station.[94]

The grass distribution was worthwhile in another respect. It did as much to gain the farmer's respect for the Experiment Station as any other undertaking of the Station.[95]

Alfalfa Gains

Of the legumes in Oklahoma, alfalfa was coming into its own. The Station did rather significant work between 1905 and 1907 in studying the tubercle-forming bacterial of alfalfa and other legumes.[96] Its findings helped disprove claims made by certain advertisers who purported to have germs or bacteria which, when used to inoculate seed of leguminous crops, would raise the nitrogen content of the soil.[97] Much of the analytical work leading to these conclusions was carried on by the Chemistry Department in cooperation with the Agricultural Departments.[98]

Also of significance in the Station's alfalfa program were the free tests for germination, quality, per cent of purity, and identification of noxious weed seeds present in alfalfa seed samples submitted by farmers.

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[94]W. L. English, Letter to Paul Cohme, Sayre, Oklahoma, December 13, 1907, "Letters" (Manuscript Copies), June 26 - December 19, 1907, p. 478.

[95]Oklahoma Agricultural Experiment Station Sixteenth Annual Report, 1906-1907, p. 54.

[96]Oklahoma Agricultural Experiment Station Fourteenth Annual Report, 1904-1905, p. 19.

[97]Oklahoma Agricultural Experiment Station Fifteenth Annual Report, 1905-1906, p. 55.

[98]Oklahoma Agricultural Experiment Station Fourteenth Annual Report, 1904-1905, p. 22.

Three weeds in particular were spreading alarmingly in Oklahoma during these years. They were dodder,[99] Russian Thistle,[100] and Johnson Grass.[101] Most of the weed seed was entering the Territory with crop seed imported from outside Oklahoma. While the Station tested a variety of seed, most significant were the alfalfa tests, because adulteration was so commonly practiced with this seed.[102]

Dealers were buying low grade seed, full of noxious weeds, with germination testing in the eighties, and selling it for prime or fancy seed.[103] The Station, through its tests was trying to compel Oklahoma seedsmen to furnish the farmers with good grades. It was unlawful for crop seed containing certain weed seeds to be sold in Oklahoma, and the Station did as much as possible to protect the farmer in spite of opposition from the seed companies.[104]

In one case, a company sent a man millet seed instead of the alfalfa seed he had ordered. The Station discovered the error when the farmer sent the seed to be tested. Indications were that it could easily have been an intentional fraud, though this was not fully substantiated.[105]

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[99]W. L. English, Letter to Robert S. Wallace, Gotebo, Oklahoma, June 24, 1907, "Letters" (Manuscript Copies), April 1 - June 25, 1907, p. 484.

[100]John Fields, Letter to Secretary C. A. McNabb, Guthrie, Oklahoma, May 26, 1906, "Letters" (Manuscript Copies), May 5 - August 15, 1906, p. 126.

[101]W. L. English, Letter to Amil H. Japp, Lawton, Oklahoma, October 15, 1907, "Letters" (Manuscript Copies), June 26 - December 19, 1907, p. 318.

[102]Oklahoma Agricultural Experiment Station Sixteenth Annual Report, 1906-1907, p. 55.

[103]W. L. English, Letter to A. B. Campbell, Geary, Oklahoma, June 14, 1907, "Letters" (Manuscript Copies), April 1 - June 25, 1907, p. 422.

[104]W. L. English, Letter to F. S. Pullim, Coyle, Oklahoma, February 14, 1907, "Letters" (Manuscript Copies), December 14, 1906 - April 1, 1907, p. 291.

[105]W. L. English, Letter to C. E. Reames, Welty, Indian Territory, April 15, 1907, "Letters" (Manuscript Copies), April 1 - June 25, 1907, p. 121.

By 1907, former prejudices of farmers against planting alfalfa were dwindling and the Station's persistent efforts to "sell" the crop were showing results. This was particularly true in central and southern Oklahoma where alfalfa was sown in the spring of 1907 to an extent never sown before.[106]

Other Crop Tests

Also making some progress by this time were the Station's efforts to convert farmers to the use of cowpeas. In Stillwater, the Station had started the rotation practice of following wheat with cowpeas, and some farmers began adopting this plan. It was hoped that the ultimate effect would be to discourage continuous wheat culture on the same soil--a habit many farmers were forming.[107]

Attempts to grow a popular fellow-legume, clover, had proved ineffectual, and the Station repeatedly recommended cowpeas instead.[108]

Also advocated as a catch crop to follow wheat was the soybean. These had proved desirable because they resisted drouth, were not attacked by cinch bugs, and provided a very valuable grain for mixing with corn or Kafir corn, or for balancing the ration in combination with other feeds. They were found to contain nearly twice as much protein as cowpeas and to yield more grain with less foliage or forage.[109]

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[106] W. L. English, Letter to Birdsell Mfg. Co., South Bend, Indiana, May 14, 1907, "Letters" (Manuscript Copies), April 1 - June 25, 1907, p. 327.

[107] Oklahoma Agricultural Experiment Station Fourteenth Annual Report, 1904-1905, p. 17.

[108] John Fields, Letter to Herbert Myrick, Chicago, Illinois, April 18, 1906, "Letters" (Manuscript Copies), February 8 - May 4, 1906, p. 400.

[109] Oklahoma Agricultural Experiment Station Fifteenth Annual Report, 1905-1906, p. 36.

Sorghum was getting praise from the Station, too. Well adapted to Oklahoma's warm climate and known to exhibit a certain degree of drouth resistance, sorghum once was described as the "never failing friend of the stockman farmer."[110]

About the only vegetable crop given notable attention by the Station during these years was the tomato. With the Adams fund, "a study of the causes of non-setting of fruit on the tomato plant at blossoming time" was undertaken. The experiment included an investigation of the effects on the fruit of different temperatures and different amounts of moisture on the plants.[111]

Much of the work of the horticulturists was carried on in conjunction with the entomologists and bacteriologists in the study of plant insects and diseases and of the eradication of both. In addition, the Department did considerable research on fruit varieties, and from time to time published the results of its extensive findings.[112]

In 1907, the horticulturist "undertook an experiment in acclimatization, the object being to determine the influence of the climate of Oklahoma on trees grown in extremes of climate, both north and south," which were transplanted to Oklahoma after they were grown.[113] New settlers were particularly anxious to known whether northern or southern grown trees should be selected for best results in Oklahoma.[114]

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[110] Oklahoma Agricultural Experiment Station Sixteenth Annual Report, 1906-1907, p. 43.

[111] Ibid., p. 49.

[112] John Fields, Letter to Herbert Myrick, Chicago, Illinois, April 18, 1906, "Letters" (Manuscript Copies), February 8 - May 4, 1906, p. 400.

[113] Oklahoma Agricultural Experiment Station Sixteenth Annual Report, 1906-1907, p. 51.

[114] Ibid., p. 20.

This Department also pursued the studies on windbreaks it had started several years before.[115]

Station -- Farmer Idea Interchange

Dissemination of information gleaned from vast numbers of large and small experiments continued to be an important function of the Station staff. Many investigations were so planned that the results would be immediately applicable on farms in the Territory. Others originated as the result of direct inquiries received from farmers.[116]

Numerous requests for information were handled through personal correspondence.[117] This interchange of questions and answers between the Station and the farmers of the Territory did much to influence the operations of the Station.

Bulletins, distributed to a mailing list of approximately 30,000 names by 1907, carried detailed results of the Station experiments.[118] Press bulletins, sent in great quantities to newspapers and periodicals throughout the Territory were copied and liberally used.

Information was also being disseminated to a certain extent through the Farmers Institutes. The Station was by now finding it increasingly difficult to finance its share of the Institute work.[119] Even so, in

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[115] Oklahoma Agricultural Experiment Station Fifteenth Annual Report, 1905-1906, p. 42.

[116] John Fields, Letter to Herbert Myrick, Chicago, Illinois, April 18, 1906, "Letters" (Manuscript Copies), February 8 - May 4, 1906, p. 399.

[117] Oklahoma Agricultural Experiment Station Fourteenth Annual Report, 1904-1905, p. 24.

[118] Oklahoma Agricultural Experiment Station Sixteenth Annual Report, 1906-1907, p. 56.

[119] Ibid., p. 57.

cooperation with the Board of Agriculture, members of the Station staff traveled many miles each year to Institutes to speak before the gathered farmers.[120]

Pressure was being exerted by Washington, however, to eliminate this activity from the duties of staff members paid out of the Hatch fund. Unlike many states, Oklahoma did not yet provide the Station with financial aid for its help with Farmers Institutes.[121]

As more counties began holding fairs, an increasing demand was made on the Station to supply live stock and crop judges. Unlike the Farmers' Institutes for which the Station paid the expenses of staff members the costs involved in judging at fairs were borne by the fair associations.[122]

Judging at fairs was not the only way the College participated in Oklahoma fairs. Often College livestock and crops were exhibited. Unless the college could enter the shows with the opportunity to compete for prize premiums to help cover exhibition costs, however, it usually did not enter.[123]

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[120] Oklahoma Agricultural Experiment Station Fifteenth Annual Report, 1905-1906, p. 17.

[121] W. L. English, Letter to Sec. C. A. McNabb, Guthrie, Oklahoma, June 28, 1907, "Letters" (Manuscript Copies), June 26 - December 19, 1907, p. 19.

[122] Oklahoma Agricultural Experiment Station Sixteenth Annual Report, 1906-1907, p. 57.

[123] W. L. English, Letter to New State Fair Association, Muskogee, Indian Territory, September 27, 1906, "Letters" (Manuscript Copies), August 15 - December 12, 1906, p. 198.

CHAPTER IX

STATEHOOD BRINGS CHANGES (STATEHOOD-1910)

In November, 1907, Oklahoma Territory and Indian Territory merged to form the State of Oklahoma, which in the Choctaw Indian language means "Red People."[1]

Both the population and the area served by the College was about doubled with this merger. Nearly a million and a half people comprised the new College constituency.[2] The lands (about nineteen and a half million acres, or roughly half of present-day Oklahoma) which still belonged to the civilized tribes of the Creek, Cherokee, Chickasaw, Choctaw, and Seminole Indians were joined to those lands comprising Oklahoma Territory, and together they formed the State.[3]

Following the uniting of the two areas and the recognition of Oklahoma Statehood by the United States, a new State governing body was formed. The changes in the government initiated a series of changes in the State's institutions which were affected over a number of years. Oklahoma A. and M. felt its full share of these changes.

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[1] First Biennial Report of the Oklahoma State Board of Agriculture to the Legislature of the State for the Years 1907 and 1908, p. 1.

[2] A. C. Scott, Letter to Director L. A. Clinton, Storrs, Connecticut, June 25, 1906, "Letters" (Manuscript Copies), June 14 - August 20, 1906, p. 27.

[3] Miss Angie Debo, (Interview).

A New Board of Agriculture

Important in the innovations resulting from Statehood was the "Oklahoma State Board of Agriculture and Board of Regents of All Agricultural and Mechanical Colleges"[4] which replaced the former Board of Agriculture. The first eleven-man Board[5] was appointed by Governor C. N. Haskell. At the request of the appointed Board, however, the Legislature enacted a law providing a system for electing Board members similar to the system that had been successfully followed in the Territory.[6]

The law, approved March 25, 1908, provided for a Board consisting of a president and ten other members, two from each of the five Supreme Court Judicial District. The first president was to be appointed, but after 1910, he was to be elected every four years "in the same manner as the governor." Board members, on the other hand, were to be elected by delegates chosen for that purpose and named by County Farmers' Institutes to attend the State Institute where elections were to be held. Board membership was to be rotated with members serving five-year terms.[7]

The first State Institute was held in Stillwater, August 11-12, 1908, withdelegates representing seventy-four counties present to elect the members of the Board of Agriculture.[8] State Institutes were generally

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[4]First Biennial Report of the Oklahoma State Board of Agriculture to the Legislature of the State for the Years 1907 and 1908, p. vii.

[5]A. C. Scott, Section 31, Board of Agriculture, from Oklahoma State Constitution. "Letters" (Manuscript Copies), January 27 - June 30, 1908 (Okla. Agri. and Mech. College Library, Rare Book's Room, Stillwater), XXXIX, p. 320.

[6]First Biennial Report of the Oklahoma State Board of Agriculture to the Legislature of the State for the Years 1907 and 1908, p. 10.

[7]Ibid., pp. 1-2.

[8]Ibid., part VII, p. 2.

held concurrently with the annual meetings of the State Board of Agriculture.

Requisite to becoming a Board member was the legal stipulation that all candidates, including the president, must have had at least five years of practical farming experience after reaching the age of twenty-one years.[9]

In general, the Board had jurisdiction over all matters affecting the State's animal industry, animal quarantine regulations, agriculture, horticulture, and arboriculture. It was also authorized to adopt rules and regulations for administering and enforcing State laws preserving, protecting, encouraging, or improving any branch of agriculture.[10]

As the Board of Regents for all A. and M. Colleges, the State Board of Agriculture selected professors, presidents, and other employees, fixed salaries, outlined employee duties, prescribed courses of study, and fixed rules for management.[11]

In the absence of the full Board, authority to transact all business relating to the Oklahoma A. and M. College was delegated to a five-man A. and M. College Committee.[12]

Agricultural Education

Another important change resulting from Statehood, was the establishment of a rather complete and comprehensive State system of agricultural

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[9]Ibid., p. 1

[10]Ibid., p. 2.

[11]Ibid.

[12]J. H. Connell, Letter to Professor Archibald Belcher, Alva, Oklahoma, July 1, 1908, "Letters" (Manuscript Copies), July 1 - August 15, 1908 (Okla. Agri. and Mech. College Library, Rare Book's Room, Stillwater), XLII, p. 1.

education. Critics of the authors of the Oklahoma Constitution often dubbed them "'Corn Field Lawyers,'" from the tremendous importance they attached to agriculture in the Constitution.[13]

Having a particular effect on A. and M. College was the Constitutional provision that agriculture should be taught in the public schools of the State.[14] A. and M. was later made "the technical head of the agricultural, industrial, and allied science system of education in Oklahoma,"[15] by Senate Bill 109 which put the Constitutional provision into effect.

This bill, approved May 20, 1908, was titled:

> An act to put into force section seven of article thirteen of the Oklahoma Constitution requiring the teaching of the elements of agriculture, horticulture, stock feeding, and domestic science in the common schools; to create a harmonious system of agricultural and industrial education for Oklahoma; to provide for the establishment of departments of agricultural instruction in the state normal schools and for the chair of agriculture for schools in the Agricultural and Mechanical College; and to provide for the establishment and maintenance of agricultural schools of secondary grade in each supreme court judicial district, with branch agricultural experimental stations and short courses for farms in connection therewith.[16]

With agricultural instruction in common schools thus decreed, its supervision was delegated to a State Commission of Agricultural and Industrial Education consisting of the State Superintendent of Public Instruction, the President of the State Board of Agriculture, and the President of A. and M.[17]

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[13] First Biennial Report of the Oklahoma State Board of Agriculture to the Legislature of the State for the Years 1907 and 1908, p. 5.

[14] A. C. Scott, Letter to C. H. Robison, Columbia University, New York City, February 4, 1908, "Letters" (Manuscript Copies), January 27 - June 30, 1908, p. 32.

[15] J. H. Connell, Letter to Hon. Horace Speed, Guthrie, Oklahoma, July 9, 1908, "Letters" (Manuscript Copies), July 1 - August 15, 1908, p. 94.

[16] First Biennial Report of the Oklahoma State Board of Agriculture to the Legislature of the State for the Years 1907 and 1908, p. 7.

[17] Ibid., p. 7.

The act further provided that a Chair of Agriculture for Schools be established and filled by a member of the A. and M. faculty. It would be the duty of the person filling the Chair to advise on and direct all matters relating to teaching Agriculture and allied subjects in the common schools. He would work under the supervision of the A. and M. President,[18] and would attempt to convey to the teachers information of professional worth related to agricultural and domestic science teaching.

Another provision in this important agricultural bill established in each Supreme Court Judicial District a District Agricultural School of secondary level in which courses leading to the Agricultural and Mechanical College and to the State normal schools were to be offered. In all, five were authorized (a sixth one was later provided in the Panhandle by the State Legislature)[19] each under the administration of the State Commission of Agricultural and Industrial Education, subject to the approval of the Board of Agriculture. Each school was to operate an experimental farm to conduct trials adapted to the needs of its respective Judicial District.[20]

Still another portion of the act stipulated that after July 1, 1909, all teachers would be required to pass an examination in the elements of agriculture and allied branches before receiving teaching certificates.[21] Thus, added to the academic duties of the teachers was the teaching of agriculture.

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[18] Ibid., p. 9.

[19] Oklahoma Agricultural and Mechanical College, Eighteenth Annual Catalog, 1908-1909 with Announcements for 1909-1910 (Stillwater, Oklahoma), p. 13.

[20] First Biennial Report of the Oklahoma State Board of Agriculture to the Legislature of the State for the Years 1907 and 1908, pp. 10-11.

[21] Ibid., p. 8.

To assist instructors in preparing for their new duties, the College established a regular collegiate course of instruction known as the Teacher's Normal Course. A Summer Normal Institute also was started.[22]

Although the Secondary District Agricultural Schools were organized independently of the College, the latter maintained a close relationship with them.[23] Students with insufficient preparation[24] or age[25] to enter A. and M. were encouraged to attend the District Schools where the course of study would prepare them either for a life on the farm[26] or for further study at the normal schools or at A. and M.[27]

By December, 1909, the six District Schools were operating respectively in Warner, Tishomingo, Broken Arrow, Lawton, Helena, and Goodwell.[28] A farm connected with each School served not only as a working laboratory for the students but as a place where results of Oklahoma's Experiment Station trials were applied to practical farming. The farms (sometimes

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[22]Eighteenth Annual Catalog, 1908-1909 with Announcements for 1909-1910, p. 16.

[23]Ibid., p. 55.

[24]J. H. Connell, Letter to Mrs. Virgie McCord, Sweetwater, Oklahoma, September 3, 1908, "Letters" (Manuscript Copies), July 17 - September 16, 1908 (Okla. Agri. and Mech. College Library, Rare Book's Room, Stillwater), XLIII, p. 302.

[25]J. H. Connell, Letter to Hugh Hardy, Mill Creek, Oklahoma, September 1, 1908, "Letters" (Manuscript Copies), July 17 - September 16, 1908, p. 253.

[26]Orange and Black, December, 1909, p. 16.

[27]Eighteenth Annual Catalog, 1908-1909 with Announcements for 1909-1910, p. 131.

[28]Second Biennial Report of the Oklahoma State Board of Agriculture to the Legislature of the State for the Years 1909 and 1910, p. 130.

referred to as Branch Experiment Stations)[29] were also used to determine the influence of temperature, rainfall, and soils on yields and to aid in other ways with Experiment Station studies. In some cases supervised original research was carried on, as when the Adams Fund work with drouth resistant varieties of corn was extended to include additional investigations at the Panhandle Agricultural Institute farm in Goodwell.[30]

Filling many of the teaching positions in the District Schools were graduates of A. and M. College, who suddenly found their services in unforeseen demand.[31]

Sweeping Personnel Changes

Following Statehood, A. and M. experienced a turnover of faculty members which by 1910 was almost complete. Only one of the "old guard" survived the changes which were generally political in flavor.[32]

President Scott was the first to be informed of his release. In his own words, spoken almost thirty-five years later, he said:

> In the fall of 1907, statehood came, and I was informed that all presidents of my political faith would be dropped. I executed a coup d'etat. I presented my resignation, but not to take effect until the end of the fiscal year, June 30, 1908. Rather to my surprise, this condition was accepted. . . . The year rolled on, and about June 1, 1908, my last commencement was held.[33]

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[29] J. H. Connell, Letter to John L. Gleason, Guymon, Oklahoma, August 7, 1907, "Letters" (Manuscript Copies), July 1 - August 15, 1908, p. 466.

[30] Second Biennial Report of the Oklahoma State Board of Agriculture to the Legislature of the State for the Years 1909 and 1910, p. 139.

[31] Orange and Black, September, 1909, p. 21.

[32] Northup, (Interview).

[33] The Daily O'Collegian, November 21, 1941, p. 1.

Speaking at this commencement was Dr. J. H. Connell,[34] editor of the "Texas Farm and Ranch"[35] and President-elect of Oklahoma A. and M.[36]

President Connell came to Stillwater with an impressive agricultural background. A graduate of Mississippi A. and M., he had taught agriculture at both the Kentucky and Texas A. and M. Colleges. He had been Director of the Texas Experiment Station for several years before taking up his publication work. In addition, he had helped organize the Texas Farmers' Congress and served as its President for ten years; had been one of the original promoters of the Southern Cotton Association; and had served on the executive committee of the Texas State Corn Growers group.[37]

Even though they knew uncertainty shrouded their future, A. and M. faculty members were unable for some time to learn exactly what changes would be made in the teaching staff. They did correctly anticipate that these changes would be sweeping in character.[38]

With the exception of the President, the A. and M. faculty was among the last of the personnel of the State institutions to be affected.[39] By the summer of 1908, though, the movement was under way. Director

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[34]A. C. Scott, Letter to J. H. Connell, Dallas, Texas, March 4, 1908, "Letters" (Manuscript Copies), January 27 - June 30, 1908, p. 96.

[35]A. C. Scott, Letter to Homer C. House, Station A., Lincoln, Nebraska, February 4, 1908, "Letters" (Manuscript Copies), January 27 - June 30, 1908, p. 24.

[36]Orange and Black, April, 1908, p. 5.

[37]Ibid., p. 6.

[38]W. L. English, Letter to Roy E. Burnett, Washington, D. C., November 20, 1907, "Letters" (Manuscript Copies), June 26 - December 19, 1907, p. 409.

[39]W. L. English, Letter to Director H. J. Wheeler, Kingston, Rhode Island, May 9, 1908, "Letters" (Manuscript Copies), March 10 - June 2, 1908 (Okla. Agri. and Mech. College Library, Rare Book's Room, Stillwater), XL, p. 411.

English resigned in August of that year, and until a new Director was selected, B. C. Pittuck was named Acting Director.[40]

Mr. English was later hired by W. D. Bentley as one of Oklahoma's first fourteen County Extension Agents. His work consisted mostly of supervising the work of the State's County Agents until he was promoted and sent to Washington, D. C., with the title of Field Agent, Washington Office.[41]

When the new Director eventually took over his duties, Mr. Pittuck became Dean of District Agricultural Schools and Assistant Director of Experiment Station. In 1910, maintaining his same title and duties, he moved his office to Guthrie where his work involved extending the experiments undertaken at A. and M. to the District Agricultural Schools. He also was available to serve as Acting Director of the Station in the absence of the Director.[42]

Early in the summer of 1908, the entire Animal Husbandry Department was released.[43] In August, a new man, W. A. Linklater, was hired to head the work of this Department.[44] That same month, a Station Chemist, an Assistant Professor of Chemistry, and a Farm Superintendent were named.[45]

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[40]B. C. Pittuck, Letter to C. H. Stoelting Co., Chicago, Illinois, September 22, 1908, "Letters" (Manuscript Copies), June 2 - November 13, 1908 (Okla. Agri. and Mech. College Library, Rare Book's Room, Stillwater), XLI, p. 408.

[41]W. D. Bentley, "Early History of the Farmers' Cooperative Demonstration Work in Northwest Texas and Oklahoma," Oklahoma Agricultural and Mechanical College and United States Department of Agriculture, Cooperating, Circular No. 252, General Series No. 91 (Guthrie, Oklahoma, 1928), p. 8.

[42]The New Education, February, 1910, p. 4.

[43]W. L. English, Letter to Dr. L. J. Allen, Oklahoma City, Oklahoma, June 11, 1908, "Letters" (Manuscript Copies), June 2 - November 13, 1908, p. 49.

[44]J. H. Connell, Letter to Professor R. W. Thatcher, Pullman, Washington, August 19, 1908, "Letters" (Manuscript Copies), July 17 - September 16, 1908, p. 82.

[45]J. H. Connell, Telegrams sent August 14, 1908 to new appointees, "Letters" (Manuscript Copies), July 1 - August 15, 1908, p. 492.

It was 1909 before a new Director was found. John A. Craig,[46] former Dean and Director at the Agricultural College at College Station, Texas was selected for the position.[47] A livestock man,[48] Director Craig was particularly known for his work with sheep. He had spoken more than once, however, on various livestock topics for A. and M. short courses.[49]

Some of the delay in appointing the new director was caused by President Connell's feeling that it would be wise to postpone his selection until the Agricultural Board elected by delegates from Farmers' Institutes (rather than the one appointed by the governor)[50] took office in the early fall of 1908.[51]

By 1910, others of the pre-Statehood agricultural faculty were leaving. O. M. Morris, Horticulturalist and Botanist; L. A. Moorhouse, Agronomist; and W. L. Burlison, Assistant Agronomist,[52] all of whom had been on the A. and M. faculty for some time, resigned that year.[53]

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[46] Orange and Black, January, 1902, p. 50.

[47] Second Biennial Report of the Oklahoma Territorial Board of Agriculture, 1905-1906, p. 119.

[48] F. C. Burtis, Letter to Professor John A. Craig, College Station, Texas, November 29, 1904, "Letters" (Manuscript Copies), September 14, 1904 - March 14, 1905, p. 119.

[49] Orange and Black, January, 1909, p. 50.

[50] J. H. Connell, Letter to Professor R. W. Thatcher, Pullman, Texas, July 8, 1908, "Letters" (Manuscript Copies), July 1 - August 15, 1908, p. 72.

[51] J. H. Connell, Letter to Dr. E. W. Allen, Acting Director of Experiment Stations, Washington, D. C., July 11, 1908, "Letters" (Manuscript Copies), July 1 - August 15, 1908, p. 72.

[52] Oklahoma Agricultural and Mechanical College, Agricultural Experiment Station Eighteenth Annual Report, 1908-1909 (Stillwater, Oklahoma, 1909), p. 3.

[53] Oklahoma Agricultural and Mechanical College, Nineteenth Annual Catalog, 1909-1910 with Announcements for 1910-1911 (Stillwater, Oklahoma, 1910), pp. VIII-X.

Mr. Morris left to become Horticulturist at the Washington State Agricultural College at Pullman.[54] Mr. Burlison became Assistant Professor of Agronomy and later Head of the Department at the University of Illinois in Urbana.[55] Mr. Moorhouse later became an Agriculturist in the Office of Farm Management of the United States Department of Agriculture and still later was associated with the Colorado College of Agriculture in Fort Collins.[56]

The sole "old guard" survivor of the Statehood changes was Dr. L. L. Lewis, Veterinarian and Bacteriologist.[57] He had served the College fourteen years by 1910. That year the students paid him tribute by dedicating to him the first edition of the College annual, "The Red Skin." The dedicatory remarks state in part, "he has risen to a degree of popularity among them the students that is excelled only by the fairness and friendly concern which he shows to all."[58] Years later, the College athletic stadium was named in honor of Dr. Lewis.[59]

Financial Unrest

The coming of Statehood threw the College into temporary financial unrest which caused some embarrassment to many persons connected with it. The Constitution stated that no money could be paid out under a

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[54] The New Education, August 15, 1910, p. 4.

[55] Alumni and Former Students Directory Issue, 1891-1935, p. 30.

[56] L. A. Moorhouse, The Management of the Farm (D. Appleton and Company, New York, 1925), pp. IX-X.

[57] Northup, (Interview).

[58] Senior Class of Oklahoma Agricultural and Mechanical College, The Red Skin, 1910 (Waverly Press, Baltimore, Md., 1910), I, p. 9.

[59] Northup, (Interview).

State appropriation more than two and a half years old. This eliminated the College's resources from the important Tax Levy since the Tax Levy bill had been passed three years before. Early in its existence, the State Legislature also passed a law which remitted State taxes for 1907, thus temporarily reducing A. and M.'s income even more.

The result of these actions was that the College was virtually without funds. Vouchers for teachers' salaries, labor, coal, repairs, etc., could not be issued. Money was available from Federal sources, but expenditure of it was restricted to specific purposes[60] and did not cover running expenses. Several uncomfortable months passed before funds were provided to cover these outstanding obligations.[61]

Contributing to this financial uncertainty, were the beginnings of discussions of the permanent distribution of the sale or rental proceeds of Sections Thirteen in various parts of the state,[62] including the distribution of the funds then on hand.[63] It was May 10, 1908, before an act was passed which finally provided for the apportionment of these funds. Under the act, one third of the monies provided through the fund titled, "Section Thirteen Fund State Educational Institutions" was to be allotted to A. and M. and the Colored Agricultural and Normal University.

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[60] Financial Records and Reports for Oklahoma Agricultural and Mechanical College, "Letters" (Manuscript Copies), June 1, 1903 - May 29, 1908, p. 110.

[61] A. C. Scott, Letter to Pius Greiner, Stillwater, Oklahoma, February 10, 1908, "Letters" (Manuscript Copies), January 27 - June 30, 1908, p. 51.

[62] Financial Records and Reports of Oklahoma Agricultural and Mechanical College, "Letters" (Manuscript Copies), June 1, 1903 - May 29, 1908, p. 57.

[63] A. C. Scott, Letter to Board of Regents, January 21, 1908, "Letters" (Manuscript Copies), June 1, 1903 - May 29, 1908, p. 57.

Of the total sum for the two institutions, the former would receive nine-tenths and the latter one-tenth.[64]

When Oklahoma became a State, the College, through the provisions of the Enabling Act for Oklahoma, began to receive the benefits from 250,000 acres of land given to the State by the Federal Government for the specific purpose of aiding the Agricultural and Mechanical College. With this act enforced, the College, for the first time, acquired essentially all the benefits of the various acts of Congress regarding Land Grant Colleges.[65]

The 250,000 acres were composed of rough lands generally fit only for pasturing purposes. Where tracts were large, cattle companies usually outbid the individual farmers in order to lease and control the whole tract, but where there were only one or two sections in an area, small farmers often were able to and did lease the land. In either case, rentals were low and the income derived from them was meager.[66]

In March of 1907, the United States Congress passed a bill which provided for "more complete endowment and maintenance of agricultural colleges now established." Five thousand dollars was to be added to College appropriations for the fiscal year ending June 30, 1908, and five thousand dollars more each year thereafter for four years. This would give A. and M. a total of fifty thousand dollars from this Federal source. A provision in the act stipulated that a portion of the

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[64]First Biennial Report of the Oklahoma State Board of Agriculture to the Legislature of the State for the Years 1907 and 1908, p. 15.

[65]Oklahoma Agricultural and Mechanical College, Annual Catalogue, 1907-08 with Announcements for 1908-1909 (Stillwater, Oklahoma, 1908), p. 10.

[66]W. L. English, Letter to G. E. Stevenson, Zionsville, Indiana, June 13, 1907, "Letters " (Manuscript Copies), April 1 - June 25, 1907, p. 413.

additional sum was to be used for courses for preparing teachers to instruct in the elements of agriculture and the mechanical arts.[67]

When the financial uncertainties of the period were finally resolved and the income from new sources tabulated with other income, the monies available for the fiscal year beginning July, 1908, amounted to eighty-six thousand dollars from the Federal government and 130 thousand dollars from the State, making a total of 216 thousand for the annual support of the institution.[68]

In 1908, A. and M. was the only Oklahoma institution to receive the entire maintenance appropriation it had requested. As a result the College was able to release the Adams and Hatch Funds monies from some of the "undue" burdens they had heretofore born. These funds now were channeled into activities more suited to the purposes for which they were appropriated.[69]

By 1909, eight projects were being financed under the Adams Act. They comprised studies of artificial impregnation; the effect of cotton-seed meal and other nitrogenous feeds on breeding stock; factors affecting setting of fruit of the tomato; breeding drought resistant corn; breeding sorghums, especially Kafir corn, milo maize, and broom corn to secure more drought-resistant types; investigations of San Jose Scale; breeding experiments with sheep, and bud development work.[70]

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[67] The Statutes at Large of the United States of America from December, 1905 to March, 1907 (Washington, 1907), XXXIV, p. 1281.

[68] J. H. Connell, Letter to Hon. Horace Speed, Guthrie, Oklahoma, July 9, 1908, "Letters" (Manuscript Copies), July 1 - August 15, 1908, p. 94.

[69] J. H. Connell, Letter to Dr. E. W. Allen, Acting Director of Experiment Stations, Washington, D. C., July 11, 1908, "Letters" (Manuscript Copies), July 1 - August 15, 1908, p. 135.

[70] Oklahoma Agricultural Experiment Station Eighteenth Annual Report, 1908-1909, p. 12.

Most of the Hatch Fund money was being absorbed in the administrative expense of the research work being done under the Adams Act. Eventually it was nearly all expended for that purpose.[71]

Physical Expansion

For a year following Statehood, no major physical improvements on the campus were started. Then, contracts were let for a $25,000 men's dormitory, and a $62,000 domestic science building and girls dormitory.[72]

In late 1909, a hog barn to be used exclusively for experimental purposes was erected at a cost of $1378.[73] Other improvements made late in 1909 included the addition of cooling, pasteurizing, and ice cream making equipment to the Dairy Department facilities.[74]

Shortly afterwards, a $10,000 general barn was begun with the idea that ultimately it would be used solely as a dairy barn.[75] In the mean time, the barn, which consisted of a two-story main section, fifty by seventy feet, and two one-story wings, sixty by thirty-five feet each, would house cattle, horses, and dairy cows. One wing contained furnishings for thirty-three dairy cattle, while the other had twenty-three horse stalls. The central portion had eight box stalls, ten by twelve feet, and feed rooms.[76]

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[71] Oklahoma Agricultural and Mechanical College, Annual Report of the Agricultural Experiment Station, 1910-1911 (Stillwater, Oklahoma, 1911), p. 8.

[72] H. J. Connell, Letter to Thomas C. Monson, R.F.D. 5, Shawnee, Oklahoma, September 1, 1908, "Letters" (Manuscript Copies), July 17 - September 16, 1908, p. 259.

[73] The New Education, January 15, 1910, p. 3.

[74] Orange and Black, December, 1909, p. 17.

[75] Nineteenth Annual Catalog, 1909-1910 with Announcements for 1910-1911, p. 31.

[76] The New Education, January 15, 1910, p. 3.

Late in 1910, plans were under way for the construction of an Animal Husbandry building. In this $15,000 structure, ample room for the study of livestock and for veterinary clinic class work would be provided. It would also house an ampitheater for livestock showing and judging under cover.

Plans also were advanced at this time for a new $5000 greenhouse in which class instruction with various crops could be given in all seasons.[77]

Enrollment

Physical expansion was not the only change Oklahoma A. and M. experienced during this period. The trends in educational thinking were changing--moving toward the practical and away from liberal education.[78] Emphasis was being given to "instruction regarding things near at hand, the commonplace things, in contrast to the things remote in both time and place."[79]

Education was also tending to become more individualistic. Educators were saying, "that individuals can no more wisely be run thru one educational mold than . . . their feet can all be forced into one size and shape of shoe." This revised educational thinking resulted in a wider variety of electives offered to the students.[80]

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[77] Eighteenth Annual Catalog 1908-1909 with Announcements for 1909-1910, p. 20.

[78] A. C. Scott, Letter to Dr. Ernest Cary, 7 Conant Hall, Cambridge, Massachusetts, May 4, 1908, "Letters" (Manuscript Copies), January 27 - June 30, 1908, p. 230.

[79] The New Education, January 1, 1910, p. 1.

[80] Ibid.

The public, too, began to affect educational thinking with its growing favor toward agricultural and industrial education. Throughout the whole country, national and state lawmaking bodies were giving more attention to improving and establishing this class of school than any other type. This naturally was followed by a noticeable swing toward scientific and practical training.[81]

In Oklahoma, emphasis was also being placed on the advantages of young people receiving their education in the home state. Arguments involving lower costs, proximity to students' homes, accredited instruction, latest and approved equipment, instructors specialized in respective fields, and acquaintance with fellow Oklahomans were advanced as reasons for attending Oklahoma educational institutions.[82]

Between Statehood and 1910, the cost of attending A. and M. was between $136 and $172 for nine months. This amount covered board, books, clothing, and minor personal expenses. To help offset this cost, students could earn twelve and a half cents an hour working on the campus.[83]

Enrollment of regular students increased during this period from 571 in 1907-08 to 925 in 1909-10. At the same time, students in Agriculture increased from 103 to 168.[84] Anywhere from sixty[85] to seventy-five per cent of the student body came from the families of farmers.[86]

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[81] The New Education, July 1, 1910, p. 3.

[82] Annual Catalogue, 1907-08 with Announcements for 1908-1909, p. 35.

[83] Nineteenth Annual Catalog, 1909-1910 with Announcements for 1910-1911, pp. 15-16.

[84] Second Biennial Report of the Oklahoma State Board of Agriculture to the Legislature of the State for the years 1909 and 1910, p. 104.

[85] Orange and Black, September, 1908, p. 32.

[86] First Biennial Report of the Oklahoma State Board of Agriculture to the Legislature of the State for the Years 1907 and 1908, part VI, p. 5.

Hundreds of other enthusiastic Oklahomans continued to attend the short courses held annually on the Stillwater campus. With the developing concept of fitting the "time to the subject as well as the subject to the student," came an increased number of short courses of varying duration.[87] There were the Summer Normal School, the Cotton Grading School, and the Agricultural and Domestic Science course, to mention but a few.[88]

New Departments

The natural growth of the College resulted in continual changes in curriculum and departmental organization. In the fall of 1908, Botany, which had formerly been associated with the Entomology Department, was combined with the Horticulture Department. The Entomology Department had concentrated on the study and eradication of insects to such a degree that botanical investigations had become secondary.[89] Following the transfer, botanical trials in weed distribution and eradication and plant diseases were begun and plans were laid to extend botanical research as time and facilities permitted.[90]

During this same period, the Dairy Husbandry Department became a separate unit. Formerly it had been part of the Department of Animal Husbandry and Dairying. Under its new status, the departmental work was further divided into farm dairying and commercial creamery work.

Class instruction related particularly to dairy farming, the object being "to develop a keener interest in dairy work and a kinder feeling

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[87] The New Education, January 1, 1910, p. 1.

[88] Orange and Black, September, 1908, p. 30.

[89] Oklahoma Agricultural Experiment Station Seventeenth Annual Report, 1907-1908, p. 19.

[90] Ibid., p. 17.

for the dairy cow." Commercial creamery work was carried on twelve months of the year. Here students could "secure practical training in all the phases of the work and fit themselves for managers of creamery plants."[91]

The 1908-09 Catalog announced that the various College courses of study as they had previously been called, would henceforth be known as divisions. The six divisions were Agriculture, Engineering, Domestic Science and Arts, Science and Literature, Teachers' Normal, and Business.[92]

The courses offered in 1909 by the Agricultural Division included the "regular" course, the Two-Year Course, the Short Course for Farmers, the Reading Course, a special Dairy Course in Buttermaking, and the Cotton-Grading Course.[93] The following year the Buttermaking Short Course was dropped and in its stead a Four-week Course in Creamery Buttermaking and Creamery Management, a Two-week Course in Ice Cream Making, a One-week Course in Milk and Cream testing, and an Industrial Buttermakers' Course were instituted.[94]

Departments of instruction in the Agricultural Division were listed in 1909 as, "Department of Horticulture and Botany, Department of Agronomy, Department of Dairying, Department of Animal Husbandry, Farm Department, Department of Short Courses, and Departments of Investigation,

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[91] Annual Catalogue, 1907-08 with Announcements for 1908-1909, p. 30.

[92] Eighteenth Annual Catalog 1908-1909 with Announcements for 1909-1910, p. 52.

[93] Ibid.

[94] Nineteenth Annual Catalog, 1909-1910 with Announcements for 1910-1911, p. 29.

(the Agricultural Experiment Station)."[95] The next year, the Department of Agriculture for Schools was also listed with the agricultural instruction departments.[96]

The Experiment Station was later sub-divided into seven departments, Veterinary Science and Bacteriology, Animal Husbandry, Dairy Husbandry, Entomology, Chemistry, Horticulture and Botany, and Agronomy.[97]

Around 1909, the Sub-Freshman Course was dropped and the regular College course reduced to four years.[98] Students could take majors in Agronomy, Animal Husbandry, Dairying, or Horticulture.

During their Freshman year, all students in the College were required to take the same course regardless of their chosen majors. As Sophomores, all Agricultural Division students were given the same work which included some practical agricultural subjects. By their Junior year, students were allowed some latitude and were permitted to specialize in one of the four above-mentioned subjects. Specialization in the Senior year was complete.[99]

Certain requirements were common to all departments of the Agricultural Division. Among them was the writing of an undergraduate thesis based on research in Agronomy, Animal Husbandry, Dairying, or Horticulture. Rural Economy was a required subject for all students

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[95] Eighteenth Annual Catalog, 1908-1909 with Announcements for 1909-1910, p. 52.

[96] Nineteenth Annual Catalog, 1909-1910 with Announcements for 1910-1911, p. 29.

[97] Annual Report of the Agricultural Experiment Station, 1910-1911, pp. 8-53.

[98] Eighteenth Annual Catalog, 1908-1909 with Announcements for 1909-1910, p. 44.

[99] Ibid., p. 55.

in this Division. It involved studies of factors of agricultural production, the organization of the farm, the economic processes which determine the size of farms, methods of acquiring land, tenancy and land ownership in the United States, markets and marketing, farmers institutes and other features pertaining to the farmer's duties as a rural citizen. A course in Agricultural journalism was also mandatory for all agricultural majors, as was College and Experiment Station work. The latter was an informative study of methods used in actual experimental work and was designed to bring them in closer touch with what was being done.[100]

Just after the turn of the century, the faculty, upon the suggestion of F. C. Burtis, discussed the possibility of offering post graduate work at Oklahoma A. and M. A committee designated to study the situation, gave an adverse report and the matter was dropped.[101] By 1908 the faculty had again raised the question and this time a faculty committee approved establishment of a two-year graudate program leading to Master of Science degrees in Agriculture, Engineering, Natural Sciences, and Domestic Economy.[102]

More Extra Curriculas

In 1908, student participation in livestock judging contests began to gain momentum, particularly within the State. That year, a team was given special training by Professor W. A. Linklater, animal

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[100] Ibid., p. 72.

[101] F. C. Burtis, Letter to J. B. Thoburn, Secretary of Board of Agriculture, Guthrie, Oklahoma, "Letters" (Manuscript Copies), July 6, 1903 - March 26, 1904 (Okla. Agri. and Mech. College Library Rare Book's Room, Stillwater), XVIII, p. 221.

[102] Orange and Black, December, 1908, p. 47.

husbandman, for two or three weeks prior to its participation in the State Fair Contest in Oklahoma City.[103]

The following year, students again judged at the State Fair. Among their competitors were several A. and M. graduates who were also contesting for the $100 offered in five prizes.[104] Juniors and Seniors were given advanced instruction in stock judging that year to prepare them for State and other fairs. The more competent students were sent out on request to be official stock judges at some of the county fairs.[105]

The Agricultural Society which in 1906 had again been reorganized,[106] made a remarkable showing in the first State Fair livestock judging contest. Members of the College team, all of whom were members of the Society, won all the judging prizes offered--an auspicious record for the group.[107]

New Purposes

As the College matured the concepts of its purposes changed. The 1907-08 Catalog stated that the purpose of the Agricultural Department was:

> . . . to equip young men for expert and scientific work, as practical farmers, as scientific authorities and investigators, as teachers, and as valuable contributors to the advancement of scientific agriculture; in its short courses to give the maximum of scientific agricultural training and information in the minimum of time to those who cannot take a collegiate course; in its correspondence work to fit teachers of the

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[103] Orange and Black, September, 1908, p. 36.

[104] Orange and Black, October, 1909, p. 20.

[105] Second Biennial Report of the Oklahoma State Board of Agriculture to the Legislature of the State for the Years 1909 and 1910, p. 113.

[106] The College Paper, February, 1906, p. 61.

[107] Orange and Black, October, 1908, p. 29.

common and secondary schools to give instruction in agriculture; and in its experiment station work, by research and experimentation, to be a trusted guide and leader to the farmers of the states.[108]

That the College was equipping young men for expert and scientific work was well indicated by the number of A. and M. graduates who were in Government agencies in Washington during this period. In 1908, more graduates (eight) from A. and M. were in the Agricultural Department than from any other school of its size. All of the men were doing well, and all who had been there any length of time were occupying responsible positions.[109] Graduates were making names for themselves and the College in other parts of the United States.

The Short Course Program

The short course program by this time was also achieving its purpose. The Short Course for Farmers, the popular name for the Annual Farmers' Short Course in Stock Judging and Seed Selection, continued to draw more than four hundred Oklahoma farmers each year.[110] Given in January, the week-long course offered numerous attractions to the farmers, including small livestock sales,[111] domestic economy classes for wives and daughters of men attending the short course,[112] meetings of the State Board of Agriculture, and numerous association meetings.[113]

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[108] Annual Catalogue, 1907-08 with Announcements for 1908-1909, p. 12.

[109] Orange and Black, November, 1908, pp. 35-36.

[110] Eighteenth Annual Catalog, 1908-1909 with Announcements for 1909-1910, p. 56.

[111] W. L. English, Letter to W. W. Myatt, Tulsa, Indian Territory, August 30, 1907, "Letters" (Manuscript Copies), June 26 - December 19, 1907, p. 221.

[112] W. L. English, Letter to L. W. Randolph, Orlando, Oklahoma, December 18, 1907, "Letters" (Manuscript Copies), June 26 - December 19, 1907, p. 499.

[113] W. L. English, Letter to J. R. Denning, El Reno, Oklahoma, October 22, 1907, "Letters" (Manuscript Copies), June 26 - December 19, 1907, p. 499.

A. and M. held its first Farmers' Cotton Conference and Cotton Grading School in August, 1908. T. A. Robinson, of the Galveston, Texas, Cotton Exchange and Board of Trade[114] was brought in as chief instructor for the School at a salary of forty dollars a week. He arrived in mid-July to begin his activities which in addition to instructing consisted of doing much of the preliminary ground work for the complete session.[115]

The purpose of the Free Cotton Course[116] was not to make experts of the students, but to help them "secure a good working knowledge of grades and relative valuations." Government standardization of cotton grades had a prominent place in the discussions.[117]

The course gained immediate popularity. One hundred and four people attended the first year.[118]

The following year, the course was given for four weeks. Its purposes were expanded to meet the demands of growers, ginners, merchants, and others interested in cotton grades and valuations. One of the chief

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[114]T. A. Robinson, Letter to S. F. Trader, Mountain Park, Oklahoma, August 29, 1908, "Letters" (Manuscript Copies), July 21 - August 29, 1908 (Okla. Agri. and Mech. College Library, Rare Book's Room, Stillwater), XLIV, p. 49.

[115]J. H. Connell, Letter to T. A. Robinson, 2111 1/2 Strand, Galveston, Texas, July 7, 1908, "Letters" (Manuscript Copies), July 1 - August 15, 1908, p. 53.

[116]T. A. Robinson, Letter to J. A. Westfall, Hartshorne, Oklahoma, August 7, 1908, "Letters" (Manuscript Copies), July 21 - August 29, 1908, p. 47.

[117]T. A. Robinson, Letter to G. W. Croisant, P. O. Box 53, Coweta, Oklahoma, July 24, 1908, "Letters" (Manuscript Copies), July 21 - August 29, 1908, pp. 28-29.

[118]Eighteenth Annual Catalog, 1908-1909 with Announcements for 1909-1910, pp. 158-159.

aims of the course was to emphasize the need for Oklahoma cotton handlers to change their careless methods of planting, seed selection, gathering, ginning, and marketing so that the State could compete successfully with other cotton-growing regions in raising superior cotton economically.[119]

The Dairying Department offered more and more short courses throughout the years as dairying interests in the State grew in number. The Industrial Buttermakers' Course, maintained throughout the year, featured instruction in ice cream making, dairy engineering, milk and cream testing, pasteurizing, starters, buttermaking, dairy farming, and creamery managing. Students taking the course worked directly under the supervision of an expert buttermaker and as soon as each one of them became thoroughly trained, he was recommended to fill a position as a buttermaker.[120]

A special course in Creamery Buttermaking was offered for four weeks beginning in early January. It was designed for managers of creameries, buttermakers, and persons with some creamery experience.[121]

Also of interest to creamery men, were the one-week courses in Milk and Cream Testing scheduled three times annually. Intended for agents at cream receiving stations and persons wishing to test milk or cream in cream stations or factories, the courses were given in co-operation with the State Dairy Commission. The State Dairy Inspector assisted with the work.[122]

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[119] Eighteenth Annual Catalog, 1908-1909 with Announcements for 1909-1910, p. 57.

[120] Nineteenth Annual Catalog, 1909-1910 with Announcements for 1910-1911, p. 58.

[121] Eighteenth Annual Catalog, 1908-1909 with Announcements for 1909-1910, p. 57.

[122] Nineteenth Annual Catalog, 1909-1910 with Announcements for 1910-1911, p. 58.

Ice cream making was taught during the annual two-week course in that subject. The making of ice cream, sherbets, water and fruit ices was studied.[123]

To assist Oklahoma teachers who were responsible for agricultural instruction in their schools, the College maintained its Correspondence or Reading Course in Agriculture. The course was arranged to afford willing students the opportunity to do systematic work in agricultural studies at home in preparation for their teaching responsibilities.[124]

Summer school sessions, too, offered teachers assistance in studying for their required teaching certificates in domestic science and agriculture.[125]

The Two-Year Course in Agriculture for boys and girls intending to stay on the farm was continued. Many young people who were able to get away from home during slack seasons for instruction in farm topics but who could not take the full four year curriculum enrolled in this course.[126]

The College also aided younger boys and girls in their agricultural pursuits. Through cooperation with the District Agricultural Schools, short courses for the young people were given at the six Schools. A featured event was the District Corn Contest. Winners of the county contests competed in the District contests for the opportunity to enter their corn exhibits in the State contest held during the Farmers' Short

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[123]Ibid., p. 57.

[124]Ibid., p. 56.

[125]The New Education, April 15, 1910, p. 2.

[126]Eighteenth Annual Catalog, 1908-1909 with Announcements for 1909-1910, p. 55.

Course in Stillwater. The winner of the State contest was given a scholarship to any of the District Agricultural Schools.[127]

The State achieved one of its many "firsts" in 1910 when A. and M. conducted the first Boys' School of Agriculture at the State Fair Grounds in Oklahoma City during the last week of the State Fair.[128] Two boys, between 14 and 18 years of age, were chosen from each county to attend and study practical agriculture. Their school "laboratory" was the entire Fair. Selections for this honor, although officially made by the County Superintendents of Schools and the County Farmers' Institutes, were usually based on competitive exhibits, essay contests, or the vote of boys' and girls' clubs.[129]

The students ate and slept on the fair grounds and spent most of their time studying live stock, machinery, seed selection, corn judging, dairying, animal diseases, and the like.

Oklahoma was the State that pioneered this type of school. It proved so successful the first year that the Board of Agriculture authorized College officials to plan six schools of the same type in different parts of the State for the next year.[130]

Extension Work

Oklahoma's Extension Service, which in essence had started with the College, really began to materialize about this time. The Farmers' Cooperative Demonstration Work of the U.S. Department of Agriculture was

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[127] Second Biennial Report of the Oklahoma State Board of Agriculture to the Legislature of the State for the Years 1909 and 1910, p. 141.

[128] The New Education, December 1, 1910, p. 2.

[129] Ibid., p. 1.

[130] Ibid.

developed in Oklahoma between 1907 and 1914. A. and M. College, during these same years, was expanding its agricultural extension activities also.

Circulars and material for the press were prepared and sent out in large quantities. Lectures and Farmers' Institute work continued to be promoted. Movable schools of agriculture and home economics were organized and conducted at various points in the States. County demonstration farms of forty acres each were established in many counties by the State Board of Agriculture under authority of a law passed by the Legislature in 1909.[131]

Oklahoma Boys' and Girls' Club activities began in 1908 under the general supervision of the College. At first the clubs met in conjunction with the County Farmers' Institutes. The boys were taught corn judging and the girls, cooking.[132]

The 1909-10 College catalog lists the purposes of the clubs as follows:

1. To acquaint the boys and girls of Oklahoma with the State system of agricultural and industrial education, extending from the common schools through the District Agricultural Schools to the A. and M. College.
2. To vitalize the studies for children in the common schools.
3. To develop in due course a system of education in common schools suited to the children of the common people.
4. To lead men and boys to study farm problems on their own farms.
5. To lead women and girls to study home and family problems in their own homes.
6. To awaken in the minds of our people the importance, the advantages and the possibilities of farm life.
7. To inculcate a class sentiment and a sense of independence in the minds of children who come from the farm.
8. to organize in rising generations the farm community as an independent social unit.

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[131] Bentley, p. 20.

[132] The New Education, August 1, 1910, p. 1.

The Boys' and Girls' Club work is a feature of the modern movement for education 'back to the farm.' In its broader sense it means to educate the hand, the eye and the heart, as well as the mind; to study things as well as books; to become a doer as well as a dreamer.[133]

The work of the clubs in each county was managed by an Advisory Committee composed of the County Superintendent of Schools, the Secretary of the Farmers' Institute, and the Secretary of the Womens' Club or Auxiliary of the Farmers' Institute.[134]

By 1910, three thousand boys and girls had been organized into agricultural clubs in all parts of Oklahoma.[135]

During these early years of extension efforts, employees of the United States Department of Agriculture doing Farmers' Cooperative Work in Oklahoma and personnel in the College extension program did not always work together in complete compatibility. For many years, agents of the USDA met at the College whenever practicable in order to promote harmony and friendly relations between the extension workers of the College and those of the Federal Government.[136] The functioning of the two groups thus was generally harmonized in an acceptable fashion, but not invariably.[137]

Extension work with adults continued and expanded during this period. There were, of course, the County Farmers' Institutes which were attracting crowds numbering as high as eight hundred and averaging from three to four hundred.[138]

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[133] Nineteenth Annual Catalog, 1909-1910 with Announcements for 1910-1911, p. 61.

[134] Ibid.

[135] Second Biennial Report of the Oklahoma State Board of Agriculture to the Legislature of the State for the Years 1909 and 1910, p. 104.

[136] Bentley, p. 9.

[137] Ibid., p. 20.

[138] Orange and Black, January, 1909, p. 4.

In 1909, during the Farmers' Short Course in Stillwater, a Seed Growers' Club was organized. Its purpose was to put farmers in touch with men growing pure varieties of corn who could provide quality seed.[139] Aiming for better products in the field and larger financial gains for the growers, club members pledged to plant each year for three years, not less than seven acres of corn using only selected seed. Reports of results of their plantings were sent to the College for study.[140]

Publications continued to play an important part in the College's extension work by helping to educate the State's farmers in practical agricultural methods. The mailing list of the Experiment Station contained more than twenty thousand names in 1908 and was the second largest of such lists in the United States.[141]

In cooperation with the railroads in the State, the College sponsored numerous seed and livestock trains which over a period of time toured large portions of the State. The trains featured car loads of College pure bred livestock, model dairy outfits,[142] machinery, and general College exhibits of scientific equipment, charts, models, and

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[139] Second Biennial Report of the Oklahoma State Board of Agriculture to the Legislature of the State for the Years 1909 and 1910, p. 81.

[140] L. A. Moorhouse, W. L. Burlison, and J. A. Ratcliff, "Corn Culture," Oklahoma Agricultural Experiment Station Bulletin No. 87 (Stillwater, Oklahoma, February, 1910), pp. 39-42.

[141] W. L. English, name and address not legible on letter. Written February 3, 1908, "Letters" (Manuscript Copies), December 21, 1907 - May 11, 1908 (Okla. Agri. and Mech. College Library Rare Book's Room, Stillwater), XXXVIII, p. 273.

[142] The New Education, August 1, 1910, p. 4.

apparatus.[143] College lecturers traveled with the trains to deliver brief talks at the stops[144] made in hundreds of towns.[145]

Exhibits at the State Fairs during the course of the years,[146] and lectures delivered by College personnel at popular gatherings such as meetings of Farmers' and Teachers' Institutes and other conventions were other means used by the College to promote its extension work with adults.[147]

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[143] The New Education, August 1, 1910, p. 1.

[144] The New Education, August 1, 1910, p. 4.

[145] Second Biennial Report of the Oklahoma State Board of Agriculture to the Legislature of the State for the Years 1909 and 1910, p. 105.

[146] Orange and Black, September, 1909, p. 20.

[147] Eighteenth Annual Catalog, 1908-1909 with Announcements for 1909-1910, p. 13.

CHAPTER X

THE STATION CONTINUES TO GROW (STATEHOOD-1910)

A Single Purpose

With the College responsible for instructional work and the Experiment Station responsible for investigational work, the two might well have gone their separate ways had not a great deal of effort been expended to unite them. The work of both ultimately had the purpose of educating the students and farmers. Important in achieving this purpose was the fact that many Agricultural faculty members were also members of the Station staff.[1]

The College farm also played an important part in this united educational process. As a test farm, it provided a place where farmers of the State could observe the best and latest agricultural methods. At the same time, it served as a laboratory for students studying agriculture.[2]

Broadening Livestock Experiments

In the ten years prior to 1908, the number of livestock in Oklahoma increased nearly five times while its dollar valuation went up nearly eight times. Included in this stock tabulation were horses, mules, milch cows, other cattle, sheep, and swine.[3]

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[1] Eighteenth Annual Catalog, 1908-1909 with Announcements for 1909-1910, p. 54.

[2] Ibid., p. 71.

[3] First Biennial Report of the Oklahoma State Board of Agriculture to the Legislature of the State for the Years 1907 and 1908, part IV, p. 18.

In keeping ahead or abreast of the times, as was its duty, the Experiment Station probed deeper into animal experimentation. Herds and flocks grew, and by 1910, the institution had more than 250 head of purebred livestock for student instruction, for breeding experiments, and for the benefit of the herds of the State.[4] The College purebred herds were valued at twenty thousand dollars that year.[5]

The bovine family was represented by purebred Shorthorns, Herefords, Aberdeen Angus, Red Polls, and Jerseys. Poland China, Berkshire, and Duroc-Jersey swine were kept. Percheron[6] and Standardbred horses were maintained and Shropshire, Dorset, and Merino sheep completed the purebred picture.[7]

In 1909, a flock of Dorset and Shropshire sheep were imported from England and a number of Percheron horses were secured from France.[8] The following year five thousand dollars worth of purebred stock was purchased, including eighteen purebred Jerseys and two Standardbred mares from Kentucky, and twenty-five Merino sheep from Ohio.[9]

College agriculturists reported growing interest by Oklahoma farmers

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[4]Second Biennial Report of the Oklahoma State Board of Agriculture to the Legislature of the State for the Years 1909 and 1910, p. 105.

[5]The New Education, October 1, 1910, p. 5.

[6]Nineteenth Annual Catalog, 1909-1910 with Announcements for 1910-1911, p. 35.

[7]The New Education, July 15, 1910, p. 2.

[8]Orange and Black, September, 1909, p. 20.

[9]The New Education, July 15, 1910, p. 2.

in the sheep industry,[10] even though statistics showed in 1908 that Oklahoma stood forty-first in United States sheep production.[11]

The College undertook more sheep experiments each year. In 1909, digestion trials with sheep were begun by the Animal Husbandry and Agricultural Chemistry Departments. Feeding different cuttings of alfalfa hay, the experimenters tried to determine the coefficients of digestibility for the nutriment elements of the alfalfa and the relative feeding value of the different cuttings of the hay.[12] The year before, experiments to compare rations composed of home grown roughages and grains for sheep fattening and to determine the practicability of fattening sheep for market in this region, were conducted.[13]

Efforts were also devoted to sheep breeding trials. They essentially involved studies of the "laws and principles involved in the establishment of a distinct strain or breed of sheep suitable for the Southwest . . . with a statistical record thereof, including both positive and negative results."[14]

The relatively new State of Oklahoma stood eleventh among the states in the production of pork, raising over a million and a half head in 1908.[15]

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[10] W. L. English, Letter to C. P. Sikes, Sec'y. Oklahoma Fair Association, Oklahoma City, Oklahoma, August 26, 1907, "Letters" (Manuscript Copies), June 26 - December 19, 1907, p. 204.

[11] W. T. McDonald and J. S. Malone, "Sheep Feeding," Oklahoma Agricultural Experiment Station Bulletin No. 78 (Stillwater, Oklahoma, April, 1908), p. 57.

[12] Orange and Black, October, 1909, p. 20.

[13] Oklahoma Agricultural Experiment Station Seventeenth Annual Report, 1907-1908, p. 50.

[14] Annual Report of the Agricultural Experiment Station, 1910-1911, p. 14.

[15] W. T. McDonald and J. S. Malone, "Rations for Fattening Hogs," Oklahoma Agricultural Experiment Station Bulletin No. 80 (Stillwater, Oklahoma, May, 1908), p. 89.

Hog feeding experiments received considerable attention from experimenters. With monies from the Hatch Fund, six hog projects were under way or had been completed by the time the 1909-1911 Experiment Station Report was issued. A forage experiment comparing winter barley and sorghum with half and full rations of corn chops fed confined hogs had shown gains proportional to the amount of grain fed. Alfalfa had proved a more satisfactory green feed than rape for confined hogs receiving varying rations of corn chops. In another forage experiment, feeding alfalfa and corn chops showed gains largely proportional to the amount of grain fed.

Hog feeding experiments in progress at the time of the 1909-1911 Report included comparisons of supplementary feeds with ear corn using alfalfa meal, tankage, and alfalfa hay; experiments with "hogging off" corn or letting the hogs themselves completely harvest the corn in the fields; and trials using cottonseed meal as a supplementary feed for hogs receiving varying amounts of corn chops.[16]

Tests were also made of the effects on hogs of drugs used to treat certain common diseases, especially hog cholera.[17] With the help of the Chemistry Department, extensive studies were started in 1908 on cottonseed meal and the blood of hogs believed to be diseased from eating cottonseed meal.[18]

Paralleling the growth of dairying interests in Oklahoma was the expansion of dairying experiments at the Station. Bacteriological investigations with milk and cream continued. Many butter samples, submitted

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[16] Annual Report of the Agricultural Experiment Station, 1910-1911, p. 14.

[17] Ibid., p. 50.

[18] Oklahoma Agricultural Experiment Station Seventeenth Annual Report, 1907-1908, p. 5.

to the College by creameries of the State for scoring and grading during meetings of creamery men, were tested. Ice cream samples also received extensive study and investigations.[19]

The Hatch Fund provided a specific grant for dairying experiments. Under it, a study was made of farm conditions and other factors affecting the keeping quality of cream particularly with regard to bacterial content, acidity, and flavor.[20]

Other Station dairying experiments related to the actual costs of making a pound of butter. Still others involved the incorporation of moisture in butter. Outside work of the Station included cooperative creamery investigations; a cow census taken preliminary to conducting experiments with herds of the College creamery patrons; and inspection of bottles, pipettes, etc., used by creameries in the State to test milk and cream.[21]

In 1907, the College creamery became entirely self-supporting. From the time of its origin three years earlier, profits had supported all phases of the business with the exception of the salary of the creamery superintendent. That year, however, even his salary was paid from the creamery fund.[22]

In January, 1909, the entire work of the Dairying Department, with the exception of College instruction work, was made a part of the

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[19]Ibid., p. 9.

[20]Annual Report of the Agricultural Experiment Station, 1909-1911, p. 13.

[21]Oklahoma Agricultural Experiment Station Eighteenth Annual Report, 1908-1909, p. 9.

[22]Second Biennial Report of the Oklahoma State Board of Agriculture to the Legislature of the State for the Years 1909 and 1910, p. 73.

Experiment Station by action of the State Board of Agriculture. That same year, the Department was greatly strengthened by the addition of a field or dairy farm investigator. New investigations regarding dairy farm conditions comprised the major portion of his responsibilities.[23]

Many members of the Station staff had responsibilities beyond their direct experimental work. One notable example was the Station chemist. In addition to work for the Station, he was responsible for analyzing and checking for adulterations, mislabeling, or misbranding, all stock foods and feeding stuffs and samples of dairy products[24] collected and sent to him for that purpose by the Secretary of the Board of Agriculture.[25] Provision for this work, along with one providing for the analyses of commercial fertilizers, was provided by a Territorial act approved in 1905. It was later extended by the Enabling act.[26] During twelve months in 1908-09, over three hundred analyses of feeds, dairy products, etc., were made by the Department.[27]

Commercial firms or individuals wishing analyses made of feeds, fertilizers, soil, or water could, for a fee, have them made at the Experiment Station chemical laboratories. Fees varied from one to ten dollars depending upon the extent of the analysis.[28]

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[23] Oklahoma Agricultural Experiment Station Eighteenth Annual Report, 1908-1909, pp. 27-28.

[24] First Biennial Report of the Oklahoma State Board of Agriculture to the Legislature of the State for the Years 1907 and 1908, pp. 17-18.

[25] Agricultural Experiment Station Sixteenth Annual Report, 1906-1907, p. 55.

[26] First Biennial Report of the Oklahoma State Board of Agriculture to the Legislature of the State for the Years 1907 and 1908, part II, p. 18.

[27] Oklahoma Agricultural Experiment Station Eighteenth Annual Report, 1908-1909, p. 11.

[28] Ibid., p. 30.

Bee culture, which had met with failure at the Experiment Station in the early days of its existence and with only moderate success when again taken up in 1904, began to show favorable results around 1908.

Success was credited to the fact that the increase in fruit trees, alfalfa, natural shrubs and flowers provided the bees with enough blossoms to produce honey. In the earlier days of Oklahoma, except for a few thickets along streams, blossoms which could be used for honey production were scarce.[29]

New Horticultural Studies

Until about 1908, most of the work emphasis in the Horticultural Department had been placed on testing varieties of fruits and vegetables.[30] Extensive plantings had been made at the Station, but in many cases, orchards were neglected so all that remained was a comparatively small collection of apples, peaches, and pears.[31]

By 1910, a more systematic and comprehensive study of varieties had been inaugurated and a new varietal orchard planted giving the Station fourteen acres of young orchard.[32]

Work with spraying was given over to the department of Entomology[33] and renewed emphasis was given plant breeding with the berry fruits,

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[29]W. L. English, "Bee Culture in Oklahoma," "Letters" (Manuscript Copies), March 10 - June 2, 1908, pp. 53-55.

[30]Oklahoma Agricultural Experiment Station Seventeenth Annual Report, 1907-1908, p. 12.

[31]Annual Report of the Agricultural Experiment Station, 1909-1911, p. 50.

[32]Ibid., p. 54.

[33]Oklahoma Agricultural Experiment Station Seventeenth Annual Report, 1907-1908, p. 12.

especially the blackberry and the dewberry. The goal was to achieve a hardy, drouth-resistant berry which would mature good fruit during June and July.

Orchard cultivation and the use of cover crops were studied.[34] Bud development work with peach and apple trees as affected by soil fertility and moisture content was carried on.[35]

Also, experiments by the Horticultural Department with growing post and fuel timber were continued[36] and in 1908, work in pecan budding and grafting was begun.[37]

Investigations with pecans were carried on both with results secured from growers in the State as well as with plantings at the Station itself.[38]

Under the Adams Fund, the Horticultural Department also continued its research on the blossoming and setting of tomato plant fruit.[39] Other work with tomatoes involved a fertilizer test to determine if fertilizers would influence the relative amount of seed pulp and solid flesh of the fruit. The results of this experiment, conducted for three years and concluded in 1908, indicated that fertilizers exerted no influence on the amounts of seed pulp and solid flesh.[40]

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[34]Ibid., pp. 16-17.

[35]Oklahoma Agricultural Experiment Station Eighteenth Annual Report, 1908-1909, p. 13.

[36]Oklahoma Agricultural Experiment Station Seventeenth Annual Report, 1907-1908, p. 16.

[37]Ibid., p. 18.

[38]Annual Report of the Agricultural Experiment Station, 1909-1911, p. 54.

[39]Ibid., p. 12.

[40]Oklahoma Agricultural Experiment Station Seventeenth Annual Report, 1907-1908, p. 15.

Several years work with potatoes led to little success at the Station. In 1908, a variety test with sweet potatoes was closed after concluding that the soil on which the tests were made was not suitable for potato culture.[41] Attempts to produce white potatoes with better storing qualities in hot, dry climate also proved inconclusive because of adverse climatic conditions.[42]

More Bermuda Grass Trials

Though several years of experimentation had indicated almost without exception that Bermuda Grass was the grass for Oklahoma, the Station continued to accumulate evidence in its favor. One season, when Timothy, Red Top, Kentucky Blue Grass, Meadow Fescue, Orchard Grass, and Bermuda Grass were all sown, dry weather destroyed all except the Bermuda Grass before the end of the summer.[43]

To promote the use of Bermuda Grass, the Station maintained its practice of sending out roots to farmers in Oklahoma but expenses eventually made it necessary to restrict the overall amount distributed. In 1908, roots were sent only to those people living in areas where Bermuda Grass had not already been established. If during previous years the Station had sent roots to farmers in the vicinity, recommendations were made to those planting it for the first time that they obtain starter roots from their neighbors.[44]

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[41]Ibid., p. 12.

[42]Ibid., p. 17.

[43]Oklahoma Agricultural Experiment Station Eighteenth Annual Report, 1908-1909, p. 19.

[44]W. L. English, "Letters" (Manuscript Copies), March 10 - June 2, 1908, Several such letters in this volume. Sample, p. 66.

Field and Forage Tests

In the legumes, alfalfa continued to receive major emphasis. Not only were experiments such as fertilizer trials[45] carried on, but alfalfa seed inspection became an important part of the work of the Department. In the first six months of 1908, over 140 samples of alfalfa seed were received from growers for examination for impurities and for germination tests.[46]

Some of the samples had as high as fifty per cent impurities.[47] A great deal of Russian Thistle and Johnson Grass had entered the State through imports of alfalfa seed. The situation had already prompted officials to legislate against the two weeds. The law forbade the selling or shipping into the State of any seed or grain infected with these weed seeds. It also provided that neither weed, already growing in the State, should be allowed to go to seed.[48]

Of the field crops, wheat, cotton, and corn were being given the most attention by the experimenters. The 1908-09 Annual Report of the Station stated that field trials with winter wheat covering some fifteen years showed that Sibley's New Golden was one of the best varieties so far tested in Oklahoma.[49]

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[45] Oklahoma Agricultural Experiment Station Eighteenth Annual Report, 1908-1909, p. 18.

[46] Oklahoma Agricultural Experiment Station Seventeenth Annual Report, 1907-1908, p. 48.

[47] L. A. Moorhouse and W. L. Burlison, "Alfalfa Seed in Oklahoma," Oklahoma Agricultural Experiment Station Bulletin No. 83 (Stillwater, Oklahoma, February, 1909), p. 5.

[48] Orange and Black, October, 1909, p. 20.

[49] Oklahoma Agricultural Experiment Station Eighteenth Annual Report, 1908-1909, p. 20.

But the major concern with wheat was not with specific varieties so much as with the fact that though Oklahoma wheat when threshed tested sixty-one to sixty-four pounds, was clean, plump, good color, and dry, it still would not bring the price it should on the market. The difficulty lay in the fact that the wheat was mixed. The mixture of hard and soft wheats would not make as many loaves of bread to the barrel nor as large, light loaves as pure wheat made. Neither was the quality of bread as uniform or as good. Oklahoma farmers were having wheat rejected or docked five to fifteen cents per bushel, and the Experiment Station was doing its utmost to educate farmers not to sow mixed wheat.[50]

As a result of the Third Annual Farmers' State Institute, a campaign was started for better wheat growing practices. At the meeting, an Industrial Agent of the Rock Island Railroad had told the farmers that most of the Oklahoma grown wheat was so mixed it would make only eighty to eighty-six per cent as many loaves of bread as pure wheat and that the State's farmers were getting some twelve to fourteen cents a bushel less for their wheat.[51]

The State Board of Agriculture, A. and M. College, and the Rock Island Railroad cooperated that year (1910) to sponsor a special train of five cars in which Farmers' Institute meetings were held for the purpose of promoting better wheat.

In each car speakers lectured about and demonstrated culture practices. Exhibits were made of different grades of wheat, of the flour made from each grade, and of loaves of bread made from each kind of flour.

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[50] The New Education, September 15, 1910, p. 3.

[51] The New Education, August 15, 1910, p. 1.

Lists of people who were producing pure seed wheat were furnished growers and dealers.

The train was a decided success. Daily attendance during the first week alone averaged fifteen hundred people.[52]

Growing interest in cotton prompted many cotton experiments at the College. Included were variety tests, continuous culture experiments on manured and unmanured soil, rotation investigations, effects of topping on yield, and tests with fertilizers using single elements (nitrogen, phosphorus, and potassium) at a time.[53]

The market price of raw cotton in 1908 was about ten cents a pound.[54] The average yield per acre on Oklahoma farms prior to the turn of the century was approximately one-half a bale. Predictions by the Experiment Station indicated that unless farmers took care to maintain soil productivity they could expect yields to decrease as the virgin soil lost its innate characteristics. Consequently such practices as growing cotton in rotation, building up seed through selection, and using manure on cotton were persistently urged.[55]

After having experimented with drouth resistant varieties of corn near Woodward in 1907, the Station moved these off-campus experiments to Ft. Supply in 1908.[56] Though corn had the major concentration, other

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[52]The New Education, September 15, 1910, p. 3.

[53]Oklahoma Agricultural Experiment Station Eighteenth Annual Report, 1908-1909, p. 19.

[54]Oklahoma Agricultural Experiment Station Seventeenth Annual Report, 1907-1908, p. 55.

[55]L. A. Moorhouse and J. F. Nicholson, "Cotton Culture," Oklahoma Agricultural Experiment Station Bulletin No. 77 (Stillwater, Oklahoma, March, 1908), pp. 35-39.

[56]W. L. English, Letter to Dr. E. G. Newell, Fort Supply, Oklahoma, March 17, 1908, "Letters" (Manuscript Copies), March 10 - June 2, 1908, p. 69.

crop potentials for the dry western portion of the State were also grown including Kafir, milo, and broom corn. The Kafir and milo gave excellent returns that year. Broom corn results were average and Indian corn produced a rather light yield.[57]

Insect Ravages

The loss of Oklahoma crops due to insects was estimated to be at least ten million dollars in 1908. In 1907, the codling moth alone caused a loss of five hundred thousand dollars to the State. With insects taxing agriculture to the extent of ten per cent of the products,[58] it is easy to see the important part experiments of the Station Entomology Department played in the agricultural economy of the State.

As far as insects go, Oklahoma is ideally situated. On the border between the corn and cotton belt, midway between the plains and valley regions, the State furnished ideal conditions for insects of all life zones. "The winters are short and mild enough to shield successfully the southern pests from destruction and the summers are long enough to allow full development and opportunity to do much destruction."[59]

The nursery inspection law, which was passed in May, 1905, went into effect in early 1907.[60] During the first three years of its enforcement, from ninety to a hundred nurseries were inspected annually by the Station entomologist and his assistant. To be eligible for certification by

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[57] Orange and Black, October, 1909, p. 19.

[58] Oklahoma Agricultural Experiment Station Seventeenth Annual Report, 1907-1908, p. 28.

[59] Ibid., p. 19.

[60] W. L. English, Letter to A. M. Henry, Tallahassee, Florida, March 20, 1908, "Letters," (Manuscript Copies), March 10 - June 2, 1908, p. 106.

the State Board of Agriculture, inspection of the nursery had to be "favorable."[61]

The inspection law was designed to prevent the importation and distribution of injurious insects and plant diseases in the state. Under the law the following insects and plant diseases were considered injurious: San Jose scale, new peach scale, black knot, crown gall, peach yellows, peach and plum rosette, woolly aphis, and Mexican cotton boll weevil.[62]

Inspection work provided only a small amount of the work of the Entomology Department. In addition, examination was made of codling moths and of effective ways to destroy them by use of sprays;[63] of green bugs, or Spring Grain Aphis and practices which would at least reduce the ravages of this pest;[64] of the chinch bugs and known methods for their control; of the life history and controlling methods of the Plum Aphis;[65] of peach and plum brown rot and pear blight[66] and ways of protecting trees from attack;[67] of boll worms and means for preventing losses;[68] and of the Hessian flies[69] which caused as much as twenty-five per cent wheat losses in some counties in 1908.[70]

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[61] Oklahoma Agricultural Experiment Station Eighteenth Annual Report, 1908-1909, p. 11.

[62] Agricultural Experiment Station Seventeenth Annual Report, 1907-1908, p. 29.

[63] Oklahoma Agricultural Experiment Station Seventeenth Annual Report, 1907-1908, p. 23.

[64] Ibid., pp. 57-58.

[65] Annual Report of the Agricultural Experiment Station, 1909-1911, p. 45.

[66] Oklahoma Agricultural Experiment Station Eighteenth Annual Report, 1908-1909, p. 22.

[67] Oklahoma Agricultural Experiment Station Seventeenth Annual Report, 1907-1908, p. 17.

[68] Ibid., p. 22.

[69] Ibid., p. 62.

[70] Ibid., p. 22.

Under the Adams Fund, the Entomology Department was also conducting studies of the corn plant louse, the cowpea louse, and the white ant during this period.[71]

Livestock Pests

The Veterinary Science and Bacteriology Department of the Station was also busy investigating pests. Concentration was on those hampering the animal world.

Distribution of blackleg vaccine was continued by this Department. By the summer of 1909, over 768,370 doses had been sent farmers in the State.[72]

A vaccine for hog cholera was also being dispensed by this Department. The disease had become prevalent in portions of the State and was causing devestating losses to hog raisers.[73]

The Texas fever tick continued its harmful ways. The Federal quarantine line, which included much of the State, prevented many Oklahoma cattle men from having free access to the cattle markets.[74] Payne County stock men, for example, were paying a tax of four or five dollars for every head of fat cattle they shipped out of the county because of the tick infestation. State and Federal authorities were ready to offer assistance

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[71] Annual Report of the Agricultural Experiment Station, 1909-1911, p. 12.

[72] Oklahoma Agricultural Experiment Station Eighteenth Annual Report, 1908-1909, pp. 7-8.

[73] Annual Report of the Agricultural Experiment Station, 1909-1911, p. 18.

[74] Oklahoma Agricultural Experiment Station Seventeenth Annual Report, 1907-1908, p. 70.

in eradication of the insect, and the Station continually urged hesitant farmers to cooperate and to help free the State from the quarantine regulations.[75]

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[75] W. L. English, Letter to W. D. Ellis, Yale, Oklahoma, June 11, 1908, "Letters" (Manuscript Copies), June 2 - November 13, 1908, p. 42.

CHAPTER XI

A PERIOD OF MANY CHANGES (1911-1914)

Political Skirmishes

The history of Oklahoma A. and M. around the time of World War I bears unsightly scars of political skirmishes, the full significance of which would necessitate an exhaustive study in itself. As one editorial writer stated in June, 1914:

> Five long years has the state board of agriculture been the object of attack. Sometimes it came from Campbell Russell, [a member of the Oklahoma Legislature for many years,][1] sometimes from the governor, and sometimes from the people--from what source [is] no longer a serious thing as it has been so handicapped and assailed that a Solomon would not be able to have handled that arm of the state government for the common good.[2]

Though the forerunners of these skirmishes were undoubtedly present prior to 1913, January of that year probably marks the first of many outbursts which climaxed in 1914. Dissatisfaction culminated that month during the Farmers' Institute meeting in Stillwater and for some time, complete uncertainty reigned.

Personnel wise, the College before this time had enjoyed a short-lived period of quiescence when relatively few new faculty appointments were made. The widespread dismissals around 1910 with their subsequent replacements apparently were satisfactory.

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[1] J. B. Thoburn, A Standard History of Oklahoma (The American Historical Society, Chicago and New York, 1916), II, pp. 941-945.

[2] The Tulsa Daily Democrat, June 11, 1914, p. 4.

One major change in the Agricultural Division had occurred during this period. James A. Wilson, former superintendent of the Murray State School of Agriculture, in Tishomingo, Oklahoma,[3] was named Director of the Experiment Station, succeeding John A. Craig.[4]

Major concerns of Director Wilson as he took over his position were the multifarious tasks expected of members of the College and Station staffs. He felt it would be ideal if each department could have three people in it--one to devote full time to research, another to devote full time to teaching, and the third to devote full time to extension. He once said:

> The constant strain of classroom instruction work not only consumes his [the investigator's] time and energy, but unfits a man of this temperament by diverting his attention during those daylight hours when his mental faculties are the keenest. . . . Natural adaptation which qualifies a research worker for his work in the laboratory, likewise makes the work of the teacher congenial and successful, whether in the classroom or on the platform car of a live stock demonstration train, as the case may be.[5]

Though some improvement was realized with this problem of overwork during the following year, it still was not solved and for some time continued to be of concern to Director Wilson.[6]

But problems such as these were not of major import, and the surface picture the summer and fall of 1912, was one of relative contentment with the manner in which the College and Station were being handled. The

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[3] Nineteenth Annual Catalog, 1909-1910 with Announcements for 1910-1911, p. 150.

[4] Annual Report of the Agricultural Experiment Station, 1910-1911, pp. 3-4.

[5] Ibid., p. 7.

[6] Oklahoma Agricultural and Mechanical College, Agricultural Experiment Station Twenty-First Annual Report for Year Ending June 30, 1912 (Stillwater, Oklahoma, 1912), p. 6.

Fifth Annual Farmers' State Institute, at its August meeting, unanimously adopted resolutions ". . .endorsing in strong terms the work of the Board of Agriculture and the College, not only in building up a great institution in Stillwater, but in extending agricultural education to the people. . . throughout the state. . . ."[7]

About a month after school started in the fall, Governor Lee Cruce, after touring the campus and visiting classes, said he was pleased with what he had seen of the College and of the students.[8]

Two Boards of Agriculture

Less than three months later, satisfaction apparently changed to dissatisfaction. In January, 1913, attendees at the Farmers' Institute, when electing a State Board of Agriculture, split into opposing factions and ended its day's business with two boards elected instead of one. A temporary injunction was filed against the "old" board, (so called because several of its members were reelected incumbents) by the "new" board (elected by the displeased members of the Institute). The injunction was intended to tie up the financial end of the College.[9]

Even before this occurred, the Federal government had withdrawn its financial support from the Oklahoma Experiment Station. Some said this was done because under President Connell's administration unsatisfactory results for the amount of research money expended had been forthcoming.[10] Others blamed it on the "indefinite" status of the Board.[11]

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[7] The New Education, August 15, 1912, p. 1.

[8] Orange and Black, October 23, 1912, p. 1.

[9] Orange and Black, January 22, 1913, p. 1.

[10] The Tulsa Daily Democrat, November 21, 1913, p. 7.

[11] The Tulsa Daily Democrat, December 1, 1913, p. 3.

In April, 1913, the State Legislature sent a "committee of inspection" to the campus to go thoroughly into the details of the work in the different departments, to inspect every phase of the work, and to consult with various administrators and faculty members. To all appearances, the committee seemed pleased with what they saw.[12]

Three Boards of Agriculture

On August 5, however, the people of Oklahoma, voting in a special election, approved an amendment to the State Constitution[13] to reduce the Board of Agriculture membership to five members.

Amid threats of injunction to enjoin him from attempting to change the Board(s) then in power,[14] the Governor sought the opinion of the Attorney General to learn whether the amendment was immediately effective, and if so, could he authoritatively name a new Board.[15]

The constitutional amendment provided that the State Board of Agriculture should consist of five members in place of the eleven, and that they should be "elected as provided by law."[16] The president of the eleven-man board had been elected in a general election while the remainder had been named at the State Farmers' Institutes.[17]

The Attorney General passed the opinion that the President of the eleven-man Board, G. T. Bryan, should continue his unexpired term. The other members, however, should be replaced by gubornatorial appointment.[18]

[12] *Orange and Black*, April 2, 1913, p. 1.

[13] *The New Education*, January 1, 1914, p. 2.

[14] *The Tulsa Daily Democrat*, August 17, 1913, p. 11.

[15] *The Tulsa Daily Democrat*, August 20, 1913, p. 3.

[16] *The Tulsa Daily Democrat*, August 24, 1913, p. 5.

[17] *First Biennial Report of the Oklahoma State Board of Agriculture to the Legislature of the State for the Years 1907 and 1908*, pp. 1-2.

[18] *The Tulsa Daily Democrat*, August 24, 1913, p. 5.

Soon afterwards, school started, and several new instructors filled A. and M. posts. Among the thirteen new staff members was R. W. Clark, who has been selected to fill the vacancy caused when Professor Linklater resigned to go to the State of Washington.[19] Mr. Clark left after being on the job only a few weeks,[20] and C. I. Bray, associate professor of animal husbandry, was put in charge of the Department.[21]

A man well versed in farm machinery and a specialist in the subject of irrigation, H. L. Thomson, was hired by the Agronomy Department in the fall of 1913. E. E. Hall, also was hired that fall by the Agronomy Department,[22] but remained in his position for only one year.[23]

The Governor's new Board was not long in taking action--action which led to more upheavel. In November, 1913, it summarily removed from their positions, President Connell, Dean Pittuck, then head of the College extension work, and three heads of departments, C. I. Bray, A. F. Rolf of the Poultry Department, and W. Evans, general superintendent of the farm work.[24]

Reasons for the removal were "general incompetence, neglect of duty, and extravagance in the expenditure for public funds."[25] Notice of the removal was supposed to have come after "careful investigation of the affairs of the institution" which were termed "highly unsatisfactory."[26]

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[19] The Progressive Agriculturist, June, 1913, p. 258.

[20] Orange and Black, September 17, 1913, p. 4.

[21] The Tulsa Daily Democrat, November 21, 1913, p. 7.

[22] Orange and Black, September 10, 1913, p. 3.

[23] Orange and Black, September 26, 1914, p. 1.

[24] The Tulsa Daily Democrat, November 21, 1913, p. 7.

[25] Ibid.

[26] The Tulsa Daily Democrat, November 21, 1913, p. 7.

More specifically, charges were made that the personal expense accounts of President Connell as well as some of the other officials of the school were larger than the Board thought necessary though no deliberate misappropriation of funds was charged.

In addition, it was said the Board had found the livestock on the College farm improperly cared for, and in many instances not as good as that seen on the farm of the average farmer. Claims also asserted that ". . . contrary to the general impression, most of the stock carried by the school officers on the annual demonstration trains did not come from the College but was borrowed from farmers."[27]

The Poultry Department, it was said, was neglected and showed signs of inattention. The stock was almost depleted, the new Board charged.

While the Governor's Board admitted that in some lines, the school had made remarkable progress under President Connell, his administration had, on the whole, been unsatisfactory.[28]

One newspaper described the situation with the following headlines which appeared atop one article:

> College Cog To Be Put in the Machine
> Removal of President Connell Just Another 'My Policies' Step of [Governor] Cruce
> Getting Ready to Run For Senator
> Announcement May Now Be Expected, Educational Affairs Being Fixed
> Shall Do His Bidding
> Latest Board of Agriculture Recognized Its Master's Voice and Discharged an Able and Faithful Educator, Who Has Built Up Two Great Schools--Discharged For Voting For Bill Murray In 1910--Governor's Appointees, Proven Rotten to the Core, Retain their Jobs.[29]

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[27]Ibid.

[28]Ibid.

[29]The Tulsa Daily Democrat, November 23, 1913, p. 13.

A few days later this same paper commented editorially:

Other squabbles may arise to dim the light made at Stillwater, but the great show goes merrily on and now and then some one of the comic actors issues an open letter or something, calling attention to the reforms of the state administration.

While it is expensive and sometimes embarrassing, still none of us can deny that the whole show, as staged, has been altogether different from anything ever before attempted, and if it be originality in color, staging and effect that our state administration strove to attend, [sic] by heck it grabbed the sweepstake prize and will hold it for all time.[30]

Official notification of the removal action taken by the appointed Board of Agriculture (one of the three groups which then claimed authority as the State Board of Agriculture) was never received in Stillwater by the College authorities so the "dismissed" members continued in their positions.[31] The President issued an open letter to parents and guardians of A. and M. students charging that the threatened dismissals came "without accusation, investigation, hearing, or other formality."[32]

He said in this letter that Board members had visited the campus once for two days after which they had expressed views indicating the College, in their opinion, was well organized and orderly. It was in this open letter that the charge was made that Federal funds had been cut off because of the "indefinite" status of the Board.

He went on to say that the College had never over-expended its funds, and had, in fact, turned back to the State treasury as much as $27,500 of unexpended funds in one year.[33] (An audit of seven years of the College bookkeeping, taken later, showed that "not a penny of the funds

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[30] The Tulsa Daily Democrat, November 26, 1913, p. 4.

[31] The Tulsa Daily Democrat, November 24, 1913, p. 3.

[32] The Tulsa Daily Democrat, December 1, 1913, p. 3.

[33] Ibid.

of the College, amounting to $2,269,821.24, had been misplaced, and not an error [in bookkeeping] been made.")[34]

The students of the College entered into the picture, too. At a mass meeting, they publicly refuted the derogatory statements which had been made regarding their competency and the standard of their college work.[35]

Classes were held uninterruptedly during this time.

District Court action finally restrained the appointed Board of Agriculture from carrying out their dismissal plans[36] and later, this Board was temporarily ousted by order of the District Court. The business of A. and M. was then turned back to the Board originally elected at the Farmers' Institute of January, 1913.[37]

The Governor's Board

The uneasiness in Stillwater was quieted only temporarily by this decision[38] as six months later, the case was appealed to the State Supreme Court which decided in favor of seating the Board of five, appointed by Governor Cruce.

The argument that the legislature had failed to comply with all the essential steps prescribed by law in submitting the resolution to amend the Constitution to a vote of the people was overruled by the Supreme

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[34]Orange and Black, January 30, 1915, p. 1.

[35]The New Education, December 1, 1913, p. 1.

[36]Ibid.

[37]The New Education, January 1, 1914, p. 1.

[38]Ibid., p. 2.

Court.[39] It held that the Constitutional amendment had been legally adopted.[40]

By June of 1914, final action had been taken by the Board toward the removal of President Connell and the other faculty members. J. F. Darby, a member of the five-man Board, was authorized to go to Stillwater and remain in charge of the institution until a temporary governing organization was perfected. The deposed men were given their dismissals effective May 4, the date the Supreme Court had made its decision.[41]

Back to Normal

Much to the general satisfaction of all concerned, the Board gave Dr. L. L. Lewis, long-time member of the A. and M. faculty, the position of Acting President.[42] His must have been a busy life, for not only did he serve in this capacity, but he continued to teach, and occupy the positions of Dean of the School of Science and Literature, and Dean of the School of Veterinary Medicine.[43]

Sixteen new faculty members were added to the staff the fall of 1914, including several in the school of Agriculture.[44] Resignations[45] were filled[46] and new jobs created.

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[39] The New Education, May 15, 1914, p. 1.

[40] The Tulsa Democrat, May 7, 1914, p. 3.

[41] The Tulsa Democrat, June 8, 1914, p. 2.

[42] Orange and Black, September 5, 1914, p. 2.

[43] Senior Class of Oklahoma Agricultural and Mechanical College, The Redskin, 1915 (no publisher noted), VI, p. 35.

[44] Orange and Black, September 5, 1914, p. 1.

[45] Orange and Black, May 24, 1914, p. 1.

[46] Orange and Black, October 3, 1914, p. 1 and October 17, 1914, p. 1.

The Department of Animal Husbandry, which had been without a permanent head for over a year and a half, signed W. L. Fowler as head of the Department. He came to the College from the University of Arkansas where he had been head of the Departments of Animal Husbandry and Dairy Husbandry. His experience also included work in Tennessee, Missouri, and Arizona.[47]

In taking over his position, Professor Fowler said:

> The condition of the Oklahoma Agricultural and Mechanical College is better than any other institution of its kind in the South. The College land is what might be called good, the buildings are fair, livestock is not what it should be, but the dairy department breed is good, although individually is rather mediocre. The department owns only one herd of dairy cattle, the Jersey, where it should have three or four of the leading breeds. The department is planning to get more beef cattle, a stallion and a few more Duroc Jersey, Berkshire, and Poland China hogs. Until this is done the department will be handicapped to a certain extent.[48]

Named to the important post of Director of the Experiment Station was W. L. Carlyle, former Director of the Idaho Experiment Station,[49] Dean of their School of Agriculture, and Acting President of the University.[50] After receiving his schooling in Canada, Mr. Carlyle came to this country and worked in agriculture in Minnesota, Wisconsin, and Colorado. A noted horse breeder, he spent considerable time in Europe studying livestock, particularly horse breeding, on behalf of the United States Government. He was well known throughout the country for his judging at leading livestock shows in the United States. When he came to

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[47] The New Education, November 1, 1914, pp. 1-3.

[48] Orange and Black, November 21, 1914, p. 1.

[49] The Progressive Agriculturist, December, 1914, pp. 128-129.

[50] The New Education, December 1, 1914, p. 2.

A. and M. he had already judged horses twelve successive years at the International Show in Chicago.[51]

With Professor Carlyle's appointment, and the restoration of the Experiment Station funds, the outlook for experimental work looked brighter than it had for some time.[52]

J. C. Darby, of the State Board of Agriculture, summed up the sentiment of many people when he said:

> This College is at the dawn of a new era, but that hasn't yet sufficiently dawned on the College. . . . There is before this College a wonderful future. You have an elaborate equipment for the furthering of agriculture over the State. You have an unprecedented opportunity in the spreading of agricultural knowledge.[53]

Campus Fires

Political upheavals were not the only crises faced during this period. In August, 1914, fire destroyed Morrill Hall[54] leaving losses amounting to approximately $150,000. Heaviest hit by the fire was the Horticultural and Botany Department which suffered a $12,561 loss.[55] Records of the College, and valuable equipment went up in smoke as the people, hampered by an exhausted water supply resulting from no rain in more than two months stood helplessly by.[56] Records, correspondence, files, supplies, etc., of the Farmers' Cooperative work of the U. S. Department of Agriculture, which just had been moved into Morrill Hall from the Federal Building in Oklahoma City, were destroyed.[57]

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[51] Ibid.

[52] The New Education, December 1, 1914, p. 2.

[53] Orange and Black, December 12, 1914, p. 1.

[54] Bentley, p. 21.

[55] The Progressive Agriculturist, September, 1914, p. 21.

[56] The Redskin, 1915, p. 144.

[57] Bentley, p. 21.

About two months later, the Women's building burned, adding several thousand dollars more damage to the loss already experienced in the Morrill Hall fire.[58]

On the constructive side, there were some new buildings erected between 1911 and 1914. During this time, a new $15,000 live stock judging pavilion was built. The two-story brick structure afforded ample room for study of livestock indoors in an arena fifty feet square. It was surrounded by an amphitheater with a seating capacity of between four hundred and five hundred people. In addition, the building contained two badly needed classrooms.[59]

By the fall of 1913, a new insectary and apiary had been completed. A two-story, twenty by sixty-foot building, it housed a laboratory and fumigatorium on the first floor and areas for bee experiments on the second floor. In the laboratory, spraying machinery and insecticides were studied. The fumigatorium was used for fumigating plants and seeds as well as for class demonstration work.

On the second floor, year round experiments with honey production, with bee raising, and with other insects were conducted. One of the unique features of the building was the "bug trap" on the roof. Made of glass with a bluish-white light in the center designed to attract insects, the trap snared the bugs which were then studied for such things as "the abundance of forms, the dates of first and last appearance in in adult form, and the time of night the different species fly."[60]

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[58] The Redskin, 1915, p. 150.

[59] Oklahoma Agricultural and Mechanical College, Twentieth Annual Catalog, 1910-1911 with Announcements for 1911-1912 (Stillwater, Oklahoma, 1911), p. 10.

[60] The Progressive Agriculturist, October, 1913, p. 36.

Another new building constructed in 1913, was a poultry building. Located northwest of the stock judging pavillion the forty-two by twenty-eight foot building consisted of two stories and a basement. One of the first elevators on campus was installed in the new construction. In the basement were an incubator room, an egg room, a killing and dressing room and a furnace room. The first floor contained an office, classrooms, a feed-mixing room and a workshop. On the second floor, storage rooms for feed and miscellaneous equipment were found.

The Poultry Department also prided itself on having seven, eight by twelve foot colony houses, and two, sixteen by sixteen foot semi-monitor laying houses. The Experiment Station had three additional semi-monitor laying houses.[61]

Under construction during the fall of '13, was a new tractor shed. Built for the Agronomy Department, it was twenty-four by forty feet and was designed to accommodate three tractors. Each year "traction engines" were lent the college for demonstration purposes during the short course in the winter. That year, the Department expected five engines--two steam and three gas engines. The plan was to use the steam engines the first part of the course and then return them, making way in the new shed for the three gas tractors. The most promising feature of the forthcoming tractor demonstration at the short course was the expectation of having a "'Big Four' gas tractor which measures 21 feet long, 13 feet wide, and 11 feet high."[62]

An evaluation of the buildings on the campus in 1913, showed that they had been erected by the State at a cost of over $525,000 and were

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[61] The New Education, October 1, 1913, p. 4.

[62] Orange and Black, October 8, 1913, p. 2.

"equipped with the latest and best appliances and scientific apparatus, representing an outlay by the State and Federal Governments of approximately $251,007." All the buildings were steam heated, electric lighted, and had sewer connections.[63]

In 1914, the overall College appropriations for educational and experimental work totaled $295,300. Of this amount, $43,000 was strictly for experimental work and the remainder was for running expenses of the College.[64]

Enrollment Gains

In spite of the strains and stresses of this period, the College was able to increase noticeably its student enrollment each year. Between 1911 and 1914, registrations increased from more than eight hundred to well over a thousand. During this same time, the number of graduate students nearly doubled bringing their count to about 125 by 1914.[65]

Of the forty degrees awarded in 1911, five were given in Agriculture. During the next three successive years, seven of the sixty-nine, twenty-six of the seventy-three, and nineteen of the seventy-nine graduates were Agricultural majors.[66]

Over forty per cent of the 1914 Agricultural graduates returned to the farm, among them some of the outstanding students in the class. Other A. and M. graduates could be found filling such positions as members

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[63]Oklahoma Agricultural and Mechanical College, Twenty-Third Annual Catalog, 1913-14, with Announcements for 1914-15 (Stillwater, Oklahoma, 1914), p. 10.

[64]The Progressive Agriculturist, December, 1914, p. 128.

[65]The New Education, February 15, 1914, p. 4.

[66]Alumni and Former Students Directory Issue, October, 1935, p. 10.

of the A. and M.[67] and other college faculties,[68] teachers in the District Agricultural Schools, graduate assistants in some of the better known agricultural colleges,[69] employees in Government services, workers at experiment stations,[70] and agricultural experts for railroad companies.[71]

Along with the many faculty changes experienced during these years, came an increase in total numbers from sixty-two to eighty-five. Of this eighty-five, fifteen gave about one-half of their time to research work in the Experiment Station. A few did not teach any classes but were employed purely for research work. Similarily, six instructors devoted their time to teaching young and old throughout the entire State through Extension work.[72]

More than a thousand Oklahomans were being given instruction each year during the College's short courses, including the annual gathering of farmers in Stillwater for the one week course of lectures and demonstrations.[73]

Nearly half of the regularly enrolled students came to College from rural homes in Oklahoma.[74] Many were entering A. and M. from the six District Schools. Under an agreement reached by the faculties of the

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[67]The Progressive Agriculturist, September, 1914, p. 21.

[68]The Redskin, 1915, p. 55.

[69]The Progressive Agriculturist, September, 1914, p. 21.

[70]Senior Class of Oklahoma Agricultural and Mechanical College, The Redskin, 1914 (no publisher noted), V, p. 95.

[71]The Redskin, 1915, p. 55.

[72]The New Education, February 15, 1914, p. 4.

[73]The Redskin, 1915, p. 42.

[74]The New Education, April 15, 1914, p. 4.

District Schools and the College, District School graduates could enter the Junior class at A. and M. conditioned in some technical Sophomore studies. They were encouraged to graduate in two years by carrying more than the average course load during their Junior and Senior years.[75]

Most of the young College people, including many from farms, earned part or all of their way through school. Spare time was not always abundant, however, since classes were held Monday through Saturday.[76]

In 1911, the State Board of Agriculture set aside $5000 to be paid out in student wages for work in the dairy, print shop, stock barn, orchard, gardens, and in the construction of buildings. A survey of the labor slips for September, 1911, showed students worked five thousand hours that month in these departments.[77] Similar appropriations of varying amounts were allowed the College for student labor in years to come.[78]

Large and small scholarships, many of which were offered from their own pockets by College faculty members or administrators, were becoming more customary. Many students who could not otherwise afford a College education were given the opportunity to attend as a result of these scholarships. Among those offered was one given for several years by President Connell to a District Agricultural School student writing the best essay or composition on topics such as "Marketing Crops and Other

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[75]The New Education, March 15, 1913, p. 2.

[76]Oklahoma Agricultural and Mechanical College, Twenty-First Annual Catalog, 1911-1912, with Announcements for 1912-1913 (Stillwater, Oklahoma, 1912), p. 194.

[77]The New Education, October 1, 1911, p. 2.

[78]The New Education, October 1, 1913, p. 2.

Farm Products." The ninety-dollar cash award given the winners went a long way toward paying the College expenses of the students.[79]

More Student Activities

The place of extra curricular activities seemed to gain prominence at this time. Perhaps it would be better to say students began to participate in a noticeably more active way.

In 1912, the stock judging team took first honors at the National Feeders' and Breeders' Show at Fort Worth, Texas.[80] The following year they judged at two different fairs in Fort Worth, coming in second once and third the other time against some very keen competition.[81] They placed second at Forth Worth in 1914, too.[82]

For the first time in the history of the College a team was sent in 1913 to the International at Chicago. Team expenses for this trip were appropriated by the State Board of Agriculture which also helped with the expenses of the Fort Worth jaunts. At the International, Oklahoma was tenth of thirteen teams entered.[83]

One of the new enterprises of the students of Agriculture was the publication of the monthly magazine, "The Progressive Agriculturist." First issued in September, 1912, it was published by the Agricultural Society,[84] and was sold for fifty cents a year, or ten cents a copy.[85]

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[79] The New Education, May 15, 1913, p. 1.

[80] The Progressive Agriculturist, November, 1913, p. 69.

[81] The Redskin, 1914, pp. 177-178.

[82] Orange and Black, October 17, 1914, p. 1.

[83] The Redskin, 1914, pp. 177-178.

[84] The Progressive Agriculturist, September, 1912, p. 3.

[85] The Progressive Agriculturist, November, 1912, p. 68.

The mission of the publication, printed in the first edition and signed by W. A. Linklater, then Dean of the Agricultural Division, reads:

> This paper will be edited by Senior students taking the four-year Agricultural Course, assisted by agricultural instructors of the College and members of the Experiment Station staff. These young men are deeply interested in the problems of the Oklahoma farmer. . . . In their efforts to publish an agricultural paper, which will be of material service to the agricultural interests of the State, they have the active cooperation and assistance of all of the members of the Agricultural Division of the College.
>
> These young men fully appreciate the task they have undertaken. They must justify the establishment of this paper by making it of real service to the Oklahoma farmers and stockmen, and incidentally give evidence of the soundness of their agricultural training, and in addition must finance this project without the financial aid of the college.[86]

Quoting the Oklahoma City, "Daily Oklahoman," "The Progressive Agriculturist" printed the following comment:

> 'The Progressive Agriculturist, published by the students at Stillwater, is something of a masterpiece among college publications. It contains much sound sense, is rich in information of interest to the farmers of our State, and is filled with interesting stories pertaining to all matters which are vital to successful farming.'[87]

Two agricultural organizations were active on campus during this period. One was the Agricultural Society, membership of which had increased to 57 in 1914-15.[88] This group continued to meet regularly to hear practical papers on "live" agricultural topics, and to talk over the papers at round table discussions.[89]

Another group was one of Senior Agricultural students who organized during the 1914-15 school year and called themselves the "Heighcedes." Thirty-one members joined the year it was organized.[90]

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[86] The Progressive Agriculturist, September, 1912, p. 3.

[87] The Progressive Agriculturist, June, 1913, pp. 258-259.

[88] The Redskin, 1915, p. 302.

[89] Senior Class of Oklahoma Agricultural and Mechanical College, The Redskin, 1911 (No publisher noted, 1911), p. 132.

[90] The Redskin, 1915, p. 291.

Higher Standards

In spite of continued revisions of the entrance requirements for the College,[91] many faculty members considered them too lenient.[92] For example, in the School of Agriculture, it was still possible for graduates of four-year high schools, consolidated schools or district agricultural Schools to enter the College as Sophomores providing they made up the Freshman subjects of farm machinery, stock judging, and elementary botany.[93]

In the fall of 1914, the faculty recommended that the College adopt the standards of admission and instruction set by the Carnegie Foundation for the Advancement of Teaching. These recommendations stipulated that all regular College courses should require four years of study for completion. In addition, a total of fifteen high school units were recommended as requirements for admission to the Freshman year.

In the Carnegie Foundation's classification of State agricultural colleges, Oklahoma A. and M. had ranked next to the bottom, because of its low entrance requirements. In standardized colleges, the courses of study required four years with 220 term credit hours, including time for gymnasium, literary work, and student activities. At A. and M., the course consisted of three years with 180 term credit hours and did not include gymnasium and student activities. It was consequently felt that the students at A. and M. were doing practically the work of the other colleges but were not receiving comparable credit for it.[94]

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[91] Twentieth Annual Catalog, 1910-1911 with Announcements for 1911-1912, p. 13.

[92] Orange and Black, October 24, 1914, p. 1.

[93] Twenty-Third Annual Catalog, 1913-1914, with Announcements for 1914-1915, p. 16.

[94] Orange and Black, October 24, 1914, p. 1.

The 1913-14 Catalog for the College announced a new change in nomenclature. The term "Division" was no longer used to apply to the groupings of the various departments. Henceforth they were to be called "Schools."[95] Courses in the School of Agriculture were to be taught by the Department of Animal Husbandry, the Department of Agronomy, the Department of Dairy Husbandry, the Department of Horticulture and Botany, and the Department of Short Courses.[96]

New Departments

In the spring of 1913, upon the recommendation of President Connell, the Board of Agriculture created a Department of Marketing. Five thousand dollars was set aside for use of the young Department during its first year which commenced July 1.

The plan called for employing marketing experts who could assist and advise Oklahoma farmers as to the best methods of preparation and sale of their products. Since the College was not actually going to sell the products for the farmers, it was not considered a commission business. Instead, the keynote of the work of the Department emphasized giving the farmer information which would enable him to sell his own products most advantageously.

Also included in the work of the Department was the grading of cotton samples free of charge. Besides grading the samples, the College informed the grower of the current market prices so the farmers could calculate the exact value of a bale of cotton on a given date.

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[95] Twenty-Third Annual Catalog, 1913-1914, with Announcements for 1914-1915, p. 29.

[96] Twentieth Annual Catalog, 1910-1911, with Announcements for 1911-1912, p. 27.

Fruit, and its proper handling also was given particular emphasis by the Department of Marketing.

President Connell, in advocating the measure creating the Department, said:

'Production and marketing are interlocked. Our farmers of the next twenty-five years will be much more efficient producers than now because they will be students of markets and marketing. Blind production of huge crops must cease.'[97]

Restatement of the aims and purposes of some of the long established departments appeared in the College catalogs during this era. They stated, for example, that:

The course in Agronomy is designed to acquaint the student with the fundamental principles in the production of farm crops, in the management of the soil, and in rural engineering. It offers practical training in these modern fields of science and fits men for farm management and for educational and research work. It seeks to supply the great demand for broadly educated scientists who understand soils, crops, and rural engineering.[98]

Of the Department of Dairy Husbandry, the catalog said:

The aim of the instruction offered in this department is to fit young men for positions as operators, superintendents, and managers of creameries and ice cream plants, also for positions in government and experimental dairy work, and managers of dairy farms.[99]

The Veterinary Department, which had long played an important role in agricultural affairs of Oklahoma, had so expanded that the School of Veterinary Medicine was established, and L. L. Lewis was named its first Dean. (Dr. Lewis, at the time, was also serving as professor of Zoology and Veterinary Medicine, and Dean of the School of Science and Literature.)

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[97] The New Education, June 15, 1913, p. 2.

[98] Twentieth Annual Catalog, 1910-1911, with Announcements for 1911-1912, p. 36.

[99] Ibid., p. 40.

The 1913-14 Catalog gives the purpose of the newly established School as:

> . . . to prepare young men for efficient service in treating and controlling livestock diseases that are common in Oklahoma, to occupy responsible positions in food and stock inspection work in either State or Federal service, and to be reliably informed regarding their profession.[100]

Common to all the agricultural departments was the special effort being made to bring students in closer touch with the College farm work. The farm was to be used "to illustrate so far as possible the preparation of the land, the growing of crops, and the management thereof, according to the best agricultural practices as adapted to Oklahoma." It had been felt by some faculty members that the students were too far removed from the work of and the progress made on the College farm. It was a situation the School of Agriculture hoped to remedy.[101]

In order to continue its efforts to help teachers with their agricultural studies and to aid those who wished "to read and digest in the home the very best works devoted to scientific and industrial subjects," the College maintained its reading course. Though sometimes called a correspondence course, it was not one in the true sense of the word. It was merely a course of study which any interested person could pursue at home.[102]

Continuing Short Courses

Between 1911 and 1914, the Department of Short Courses sponsored seven courses annually. Included were the two years' course in Agriculture

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[100] Twenty-Third Annual Catalog, 1913-1914, with Announcements for 1914-1915, p. 9.

[101] Twentieth Annual Catalog, 1910-1911, with Announcements for 1911-1912, pp. 35-36.

[102] The New Education, July 15, 1911, p. 2.

and Domestic Science and Arts, (changed to a twenty weeks' course and in 1913)[103] the Farmers' Short Course, a four weeks' course in Creamery Buttermaking and Creamery Management, a two weeks' course in Ice Cream Making, a one week course in Milk and Cream Testing, an Industrial Buttermakers' Course, and the Cotton Growers' Course.[104]

The short courses were designed to fill a gap between the extension work which was being carried on by the College, and the regular College courses. Through the short courses people of all ages from over the State were able to receive practical training along the lines of work offered in College classes in agriculture, mechanics, and domestic science and arts.[105]

It was only after years of experimentation and comparison of results by the College and the farmers themselves that Oklahoma's farming strongpoints became known. As suitable agricultural practices had evolved, the College used the intensive short courses as important means of educating farmers in better practices. They proved very effective and very practical instruments for teaching.[106]

Realizing the importance of short course instruction, the railroads continued their practice of reducing the cost of a full round trip fare to the price of a one and one-third fare for farmers attending the ever popular Farmers' Short Course held each winter.[107]

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[103] Orange and Black, October 8, 1913, p. 1.

[104] Twentieth Annual Catalog, 1910-1911 with Announcements for 1911-1912, p. 27 and Twenty-Third Annual Catalog, 1913-1914, with Announcements for 1914-1915, p. 30.

[105] Twenty-Third Annual Catalog, 1913-1914, with Announcements for 1914-1915, p. 49.

[106] Frank Northup, (Interview).

[107] The New Education, January 15, 1912, p. 2.

During this course, the typical week's program would include a Rally Day, especially devoted to rural schools; a country life and dairy day, with lectures by successful Oklahoma dairymen; crops and beekeepers' day, including talks by government grain experts; silo day; alfalfa day (which also included talks on hog cholera, swine plague, and traction engine plowing), and days devoted to talks on improved roads, rural churches;[108] cattle, horses, sheep, swine,[109] and poultry.[110]

In 1914, the College held its Poultry show during the Farmers' Short Course and farmers were invited to "'Come yourself--Show Your Birds.'" Classes were provided under every breed for cock, hen, cockerel, pullet, pen, and best dozen eggs.[111]

The 1914 Farmers' Short Course drew 947 men, women and children from nearly every county in Oklahoma[112]--more than double the number attending the preceding year. Attracting this large crowd was a roster of speakers including a silo expert from the University of Nebraska, a USDA grain sorghum expert, the dean of Kansas State Agricultural College, a Santa Fe Railroad agricultural demonstrator, a proprietor of a large dairy, the managing editor of Capper publications, and a marketing expert from the American cooperative Journal.[113]

The subject of some of the talks given during a typical week's

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[108] The New Education, December 15, 1912, p. 3.

[109] The Progressive Agriculturist, December, 1913, p. 113.

[110] Ibid., p. 114.

[111] Ibid.

[112] The Progressive Agriculturist, February, 1914, p. 189.

[113] Twenty-Third Annual Catalog, 1913-1914, with Announcements for 1914-1915, p. 51.

session illustrate major concerns of farmers and their families at that time. Included were discussions on the Extension Division, why Oklahoma farmers should keep more dairy cows, the Church as a community builder, Boys' and Girls' Club work, horticultural insect pests and fruit worms, how Oklahoma could keep better cows, agricultural clubs as community builders, fertilizers, farm management, grain sorghums, the Federal Cotton Reserve Fund, and how the railroad could assist farmers.

Also given were talks on farm crop insects, the home orchard, silos, cotton, livestock, marketing and railroad problems, agriculture for schools, bees, economic pork production, grass problems of Oklahoma, how Oklahoma farmers could produce better cream, preparation of seed bed, the beef cattle situation, home demonstration work, hog cholera, and others.[114]

Cooperative work, which did not exist at the time in Oklahoma, was the topic of many discussions. Types and advantages of cooperative dairy associations attracted considerable interest at the 1913 course. So did a talk on the Southern States Cotton Cooperative Corporation given by the Corporation's Oklahoma representative.[115]

The Cotton School also continued in popularity. Its emphasis was still to furnish general instruction to farmers, ginners, merchants, cotton buyers, and manufacturers in raising, judging and marketing cotton.[116]

The many short courses offered by the Department of Dairy Husbandry were well attended by those interested in the fields emphasized.

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[114] The Progressive Agriculturist, December, 1914, p. 131.

[115] The Progressive Agriculturist, January, 1913, pp. 127-129.

[116] The New Education, May 1, 1912, p. 1.

Though classified as a short course, the Two Years' Course in Agriculture and Domestic Science and Arts was closely "related to the other departments of the College by the provision to accept graduates of certain ranking for entrance without examination to the Sub-Freshman classes." This provision went into effect in 1913,[117] and students attending the course were considered members of the student body.

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[117] The New Education, March 15, 1913, p. 1.

CHAPTER XII

THE EXTENSION SERVICE AND EXPERIMENT STATION GROW (1911-1914)

Oklahoma has long been noted for its attempts to make a full and complete education available to everyone living within its borders. Education in agricultural matters has not been excepted. In fact, the State has been one of the leaders of agricultural education in this country.

Henry M. Hyde, writing for the March 21, 1911 "Saturday Evening Post," said:

> It has remained for Oklahoma, hardly out of its swaddling clothes as a State, to make agricultural education more nearly universal than anywhere else. How strong the feeling is shown by the fact that no person is allowed to teach in any of the common schools of the State unless his certificate shows that he is qualified to teach agriculture; and agriculture is required by law to be taught in every graded school. Nor does the work stop there. The students at six State Normal Schools and at the two University Preparatory Schools find agriculture among the prescribed courses. Young as the State is, six secondary agricultural schools are already in operation, the plan providing for one in each Supreme Court District.

Mr. Hyde later went on to say:

> . . . the greatest crop that an agricultural country can produce is a crop of good farmers, and . . . to successfully raise such a crop the work must begin early.[1]

Federal and Station Extension Services

In his article, Mr. Hyde neglected to mention other very important tools being employed to help educate the rural dweller--namely the Federal and State Extension services.

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[1] The New Education, April 1, 1911, p. 1.

Until the passage of the Smith-Lever Act, in 1914, extension work in Oklahoma was carried on both by the College and by the United States Department of Agriculture. The act united the services of the two groups under the management of the College.[2]

The newly formed unit was called the Extension Division of the A. and M. College. It was responsible for the activities formerly accomplished through the Farmers' Cooperative Demonstration work in Oklahoma, and the Extension work of Oklahoma A. and M.[3]

Walter D. Bentley was made first director of the Extension Division at the College.[4] Activities of the new Division fell into four established departments, Agricultural Extension, Agriculture for Schools, Boys' and Girls' Clubs, and College Publications.[5]

Oklahoma was one of the first of the States to take advantage of the provisions of the Smith-Lever act which eventually revolutionized extension work throughout the country.[6] The effect of uniting the two services was felt almost immediately. A "new sentiment" regarding agriculture, which could be traced largely to the increased efficiency of the extension work under the new organization, soon was realized. Basic in this new feeling was the harmony of all forces working for agricultural and industrial advancement of the State--harmony which formerly was lacking and the lack of which resulted in much lost efficiency.[7]

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[2]Bentley, p. 9.

[3]Ibid., p. 21.

[4]Ibid., p. 11.

[5]The Redskin, 1914, p. 117.

[6]The Redskin, 1915, p. 48.

[7]Ibid., pp. 41-42.

Club Work

For many years before this unification, A. and M. had been encouraging the organization of Boys' and Girls' Junior Agricultural Clubs throughout Oklahoma. The College had a dual purpose in promoting the clubs--one was to assist teachers of the state in putting into practical operation the agricultural instruction necessary in all state schools and the other was actively to interest Oklahoma rural youth in the practical side of their home life.[8]

In the winter of 1911, the State Board of Agriculture authorized expanding and strengthening club programs in every country, particularly in regard to corn, dairying, and domestic science activities.[9]

To encourage the young people to grow flowers and vegetables, seed and directions for caring for them were sent free of charge by the College to Club members. Literature on bread making, churning, sewing, and other similar topics was also distributed by the College.[10] The expanded program of 1911-1912, however, increased membership to such an extent that the program became too costly and it was necessary to discontinue free seed distribution in the spring of 1913.[11]

In 1909, when the agricultural clubs were first organized, 569 boys and girls joined.[12] By 1911, membership had increased to 1500[13]

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[8] The New Education, March 1, 1912, p. 1.

[9] The New Education, January 15, 1911, p. 1.

[10] Twentieth Annual Catalog, 1910-1911, with Announcements for 1911-1912, p. 56.

[11] The New Education, April 15, 1913, p. 1.

[12] Oklahoma Agricultural and Mechanical College, Twenty-Second Annual Catalog, 1912-1913, with Announcements for 1913-1914 (Stillwater, Oklahoma, 1913), p. 139.

[13] Senior Class of Oklahoma Agricultural and Mechanical College, The Redskin, 1912 (no publisher noted, 1912), III, p. 266.

and two years later, over 15,000 young Oklahomans were engaged in club work.[14]

Three types of clubs were organized, local, county, and state.[15] In 1912, in addition to the State group, there were thirty-eight county clubs and nearly twelve hundred local agricultural clubs.[16]

Any boy or girl not under nine or over eighteen was eligible to become a member. To form a club, five or more young people plus a supervisor (preferably a teacher) had to submit an application to the College. If accepted, the group was issued a charter. Charter members were given a year's subscription to "The New Education," a slick paper tabloid published by A. and M.; any free seed which was offered (prior to 1913); the privilege of entering contests to compete for prizes offered by the Farmers' Institutes, the Board of Agriculture, the District Agricultural Schools, A. and M., and other cooperating agencies; and any literature prepared especially for the members of the clubs by the professors of A. and M.[17]

In promoting interest in country life with the hope that ultimately these young Oklahomans would choose the farm for future careers, the College sponsored a number of contests with sizeable prizes offered the winners.[18]

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[14] The Redskin, 1914, p. 120.

[15] Twenty-Second Annual Catalog, 1912-1913, with Announcements for 1913-1914, pp. 141-142.

[16] The Redskin, 1912, p. 266.

[17] Twentieth Annual Catalog, 1910-1911, with Announcements for 1911-1912, pp. 56-57.

[18] The Redskin, 1912, p. 266.

Early contests were held in corn, bread, cotton, flowers, vegetables, and sewing. All club members were required to enter one of the contests and exhibit in it their best reports and products. Until the free seed distribution practice was halted, much of the corn and cotton grown for the contests came from seed furnished to the boys by the College.[19]

As the clubs grew in sizes and numbers, so did the scope of the contests in which the members could compete. In 1912, contests were held for Kafir, milo maize, corn, cotton, broom corn, peanuts, pigs, poultry, canning, sewing, and cooking.[20] The following year, the competition again was widened and club members entered exhibits under the broad categories of grain, sewing, miscellaneous crops, canning, hogs, and cooking.[21] Until the Federal and State extension work were joined, separate contests were conducted by the two agencies.[22]

Competition in the contests usually began on the county level with exhibits sent to the county fairs. County winners sometimes won trips to the State Fair School at Oklahoma City in late September and early October, and sometimes to the District Agricultural School Short Courses usually held in November. Winners at these levels were awarded trips to the Short Course for Farmers held annually at A. and M. There, delegates entered into competition for scholarship prizes for A. and M. and the District Agricultural Schools.[23]

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[19] Twentieth Annual Catalog, 1910-1911, with Announcements for 1911-1912, pp. 56-57.

[20] The Redskin, 1912, p. 266.

[21] Twenty-Second Annual Catalog, 1912-1913, with Announcements for 1913-1914, p. 143.

[22] The Redskin, 1915, p. 48.

[23] The Redskin, 1914, p. 120.

The two A. and M. scholarships awarded annually were worth $160 each while the four awarded for the District Agricultural Schools were valued at ninety dollars each. A large number of cash prizes and gold medals were also offered from the county through the State contests.[24] In 1913, the total value of prizes offered in these contests was close to $5000.[25]

College Sponsored "Schools"

A. and M. began sponsoring a State Fair School in conjunction with the work of the Boys' and Girls' Agricultural Clubs. From eighty[26] to a hundred members (generally contest winners) attended the sessions held during the Oklahoma State Fair in Oklahoma City. Regular class work and demonstrations were given the boys in farm crops, livestock, dairying, corn judging, poultry judging and other practical farming subjects. The girls had similar instruction in personal hygiene, sewing, household accounts, home gardens, dairying, and kindred subjects. Evenings were spent attending general lectures illustrated with latern slides and moving pictures.[27] Members of the faculty of the College and of the District Agricultural Schools taught during the Fair School.[28]

The College was also sponsoring Two-Day Schools of Agriculture and Domestic Science throughout Oklahoma. Sixteen were held the summer of

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[24] Twenty-Second Annual Catalog, 1912-1913, with Announcements for 1913-1914, p. 143.

[25] The Redskin, 1914, p. 120.

[26] The Redskin, 1914, p. 119.

[27] The New Education, October 15, 1911, p. 3.

[28] The New Education, October 1, 1911, p. 1.

1914--fourteen in connection with the county normal institutes and two in cooperation with the State Normal Schools' Institutes. Though the schools were not limited to teachers, they were a development of the program to help instruct teachers in Agriculture and Domestic Science which the College had started at the time of Statehood.[29] Over ten thousand persons, of whom over two thousand were teachers, attended in 1913.[30]

The planning and execution of the Two-Day Schools was handled by the Department of Agriculture for Schools of the College Extension Division. The programs were flexible so they could be adjusted to meet local conditions. In eastern Oklahoma, horticultural and livestock subjects were featured, while in the western portion of the State, livestock, farm crops, and entomology were stressed.[31]

Still other schools offered the people of the State were a series of Encampment schools. Generally, five were held each summer (each five days in length) in different counties of Oklahoma.[32] Attendance grew from over eleven thousand in 1910 or 1911[33] to over fifty-one thousand in 1913.[34]

At first, only one program was offered for adults and children alike, but in 1913, separate and distinct programs were offered the young people at least during some of the sessions.[35]

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[29]The New Education, June 15, 1913, p. 1.

[30]The New Education, August 15, 1913, p. 1.

[31]The New Education, June 15, 1913, p. 1.

[32]The Redskin, 1914, p. 117.

[33]Oklahoma State Board of Agriculture, Third Biennial Report of the Oklahoma State Board of Agriculture to the Legislature of the State for the Years 1910 and 1911 (Oklahoma City, Oklahoma, 1912), p. 64.

[34]The Redskin, 1914, p. 117.

[35]The New Education, July 1, 1913, p. 4.

The Encampment Schools, which were conducted by the College Extension Division, were actually abbreviated sessions of the College. The lecturers were some of the College's best. Equipment similar to that employed in the Stillwater campus classrooms was used. Their purpose was "to give to as many people of Oklahoma as possible the advantages of all the information and experience the College can obtain and in as condensed and practical form as possible."[36]

Daytime sessions covered such topics as livestock breeding, dairying, soil fertility, alfalfa, domestic science and arts, and nursing. Night programs were devoted to illustrated lectures on poultry, or beekeeping, or educational moving pictures and demonstrations of the X-Ray or the wireless telegraphy, or other features which were both educational and entertaining.[37]

Demonstration Trains

Of continued importance to the interests of agriculture in Oklahoma were the special demonstration trains operated cooperatively by the College and the railroads. Both groups recognized the value of better farming methods in Oklahoma and together they maintained the trains to disseminate information which was vital to farming in the particular areas where the railroad lines traversed.[38]

Portions of, or entire, trains featured such topics as poultry,

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[36]The New Education, May 1, 1913, p. 1.

[37]The Redskin, 1914, p. 117.

[38]The New Education, October 15, 1911, p. 2.

hogs, dairying, domestic science,[39] seed, general livestock,[40] alfalfa, general forage crops, Kafir, and feterita.[41]

The Frisco, Santa Fe, M. K. & T.,[42] and Fort Smith and Western lines were active in sponsoring these trains.[43]

Nearly sixty-five thousand persons visited the demonstration trains in one year to listen to lectures and to watch demonstrations. In 1914, the cost to the college of operating the trains amounted to $27.84 a day, or $10.38 a stop, or a fraction more than eight mills for each person reached. When compared to the cost of preparing and mailing a letter to each of these individuals, the demonstration trains were considered far more effective and much more economical.[44]

Demonstration Farms

In 1913, the State Legislature passed "An Act Authorizing the Board of Agriculture to Establish 'County Demonstration Farms' and Making an Appropriation Therefor. . . ."[45]

The Act authorized the Board of Agriculture to contract with "reliable and practical" farmers to cultivate forty acres of land under the supervision of the Board. The farms, known as County Demonstration Farms, had to be accessibly located in each county of the State. The

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[39]The New Education, October 1, 1911, p. 2.

[40]The New Education, February 1, 1911, p. 1.

[41]The Progressive Agriculturist, December, 1913, p. 114.

[42]The New Education, March 1, 1912, p. 3.

[43]The Redskin, 1914, p. 119.

[44]Ibid.

[45]Oklahoma State Board of Agriculture, Quarterly Report of Demonstration Farm Department for Quarter Ending March 31, 1913 (no publisher noted, 1913), p. 3.

Board was responsible for preparing and furnishing to these farmers a list of crops to be grown and all the available information relative to the best methods of planting, cultivating and harvesting. The Board also furnished them seed which was obtained from the Experiment Station farm in Stillwater.[46] No farms were established in counties where there were District Agricultural Schools, or in Payne County where A. and M. was located.[47]

Each farmer was required to keep accurate records of labor, costs, and the cultural practices he employed. If he could show by these records that he incurred a financial loss after explicitly following the directions given him by the Board, the farmer was reimbursed by the Board for his loss.[48]

As the farms were established they were found to be filling many needs. Probably the most important one was that of serving as a local experiment station for the farmers in the area. The value of scientific farming was illustrated again and again as demonstration farmers raised profit-making crops and their neighbors' crops failed or gave poor returns.[49]

Thus, by demonstration farms, by special trains, by Encampment and other schools, by teachers' institutes, by Boys' and Girls' Agricultural Clubs, by special lectures, and by the printed word, A. and M. along

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[46] Twentieth Annual Catalog, 1910-1911, with Announcements for 1911-1912, p. 36.

[47] Quarterly Report of Demonstration Farm Department for Quarter Ending March 31, 1913, p. 3.

[48] Quarterly Report of Demonstration Farm Department for Quarter Ending March 31, 1913, p. 4.

[49] The New Education, January 1, 1912, p. 2.

with other public and private groups was busy extending agricultural education to every nook and corner of the State.[50]

Persons interested in the agricultural development of Oklahoma were becoming increasingly active in supporting the operations of the College Extension Division. Bankers, business men's organizations, teachers, ministers, and many agencies were devoting more and more attention to the problems of the farm and home. Their efforts in behalf of rural communities substantially aided the College in its movement for better and more profitable agriculture.[51]

As many as 126,000 people in sixty-seven counties in Oklahoma heard lectures or saw demonstrations at agricultural meetings of various kinds sponsored by the College in one year.[52] This number of "contacts" is certainly a good indication of the tremendous efforts exerted by the College to aid the rural dweller.

A more indirect, but nevertheless a highly important way this same endeavor was being realized was through the Experiment Station. Much of the work of the Station was taken to the people of the State through the College Extension Division.[53] They operated cooperatively with the instructional staff at the College to promote all phases of agricultural education.

The dollar value of Oklahoma farm products increased annually, and in 1910, with over twenty-one million acres in farms, Oklahoma raised

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[50] The Redskin, 1914, p. 117.

[51] Twenty-Second Annual Catalog, 1912-1913, with Announcements for 1913-1914, p. 136.

[52] Ibid.

[53] The Redskin, 1915, p. 48.

over forty-seven million dollars worth of cotton alone. That same year, corn grown in Oklahoma was worth eighteen million dollars (a considerable drop from the previous year) oats was worth eight and a half million dollars; hay, almost two million dollars; potatoes over a half million; broomcorn, more than two and a half million; and alfalfa (above that used at home) was worth almost two and a quarter million dollars.

Kafir corn was valued at almost two million dollars; livestock (horses, mules, milch cows and swine) at more than five million; flour over nine and a half million, and dairy products almost three million.[54]

The future of nearly all these products in Oklahoma was being shaped to some degree by the experimental work of the College. The 1912-13 College catalog announced that the Oklahoma station had forty-five projects or lines of experimental and research work under way at that time. All of the work, with the exception of grain sorghum breeding studies was being conducted in Stillwater. The sorghum trials were under way at Goodwell at the Panhandle Agricultural Institute.[55]

College Livestock Herds

Over 450 head of registered and high grade animals comprised the College foundation herds and flocks the end of 1913. There were 243 sheep, seventy-six beef cattle, sixty hogs, forty-six dairy cattle, and thirty-four mules and horses. Foundation stock for the herds and flocks had been selected by some of the best stock judges on two continents.[56]

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[54] Third Biennial Report of the Oklahoma State Board of Agriculture to the Legislature of the State for the Years 1910 and 1911, pp. 16-17.

[55] Twenty-Second Annual Catalog, 1912-1913, with Announcements for 1913-1914, p. 147.

[56] The New Education, December 1, 1913, p. 1.

Draft horses, selected for the College by J. Crouch of Lafayette, Indiana, one of the best draft horse judges in America at the time, had been imported from France. In addition, some Oklahoma-bred draft horses were in the College bunch along with several Standardbred horses from top blood lines of Kentucky and Oklahoma breeders.

Among the noteworthy blood lines represented in the beef herd was that of the Blackbird family of Aberdeen Angus cattle and of Choice Goods in the Shorthorns. The foundation beef herd, in which there were Herefords, Angus, and Shorthorns, were noted animals from Bellows Brothers of Missouri, Makin Brothers of Kansas, and W. A. McHenry of Iowa.

Frank W. Harding from Waukesha, Wisconsin, one of America's top judges of sheep, had selected the foundation herd of Dorsets and Shropshires from flocks of Buttar and Mentor of England. The Merinos came from top sheep breeders in Kentucky, Indiana, Ohio, and Kansas.

As the result of introducing some excellent blood lines in the dairy cattle, mostly through the richly bred bull, Torment's Prussian King, the College was able to build up a young herd which in a very short time, had developed sufficiently for a number of the animals to be entered in the Advanced Registry. Among the dairy animals were choice selections from the herds of John A. Lee of Shelbyville, Kentucky, the Kentucky Experiment Station, and the Elmendorf Farm of Lexington, Kentucky.

The three breeds of hogs represented at the College were the Berkshires, Poland Chinas and Duroc Jerseys. Foundation swine stock had come from such breeders as A. M. Williams of Marlow, Oklahoma, Leon A Waite of Winfield Kansas, E. D. King of Burlington, Kansas, and Stryker Brothers of Fredonia, Kansas.[57]

[57]The New Education, December 1, 1913, p. 1.

Important experiments with all these animals were daily adding to the accumulating knowledge of the livestock industry in Oklahoma and in the United States alike.

In 1911, hog cholera appeared to reach the epidemic stage in Oklahoma and it was necessary for the College to double its efforts to supply farmers with hog cholera serum. Fortunately the Legislature had appropriated $7500 for buildings and equipment to carry on the study of the cholera serum and to prepare serum for distribution. The serum was sold to farmers at cost. By the fall of 1911, figures indicated that over a quarter of a million dollars in hogs had been saved Farmers in the State through the use of the serum.[58]

The fight against hog cholera had started in earnest in 1910. At that time, President Connell perceiving the effect heavy farming losses would have on the banks of the State, approached the bankers with an idea to help stamp out the disease. Anxious to help eliminate cholera, the bankers were happy to accept his plan of displaying, in every bank of Oklahoma, attractive posters showing illustrations of the application of cholera serum and containing information as to its prevention. The bankers assisted in other ways, too, in helping fight the disease, and were active agents in the war on hog cholera for several years.[59]

By 1913, the long hard battle which the College had waged against hog cholera and swine plague began to show results. Figures compiled by the United States Department of Agriculture showed that in the year ending March 31, 1912, Oklahoma's losses of hogs amounted to 145 of

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[58]The New Education, September 15, 1911, p. 2.

[59]The New Education, July 1, 1913, p. 4.

every thousand, while for the year ending March 31, 1913, the losses amounted to eighty-one of every thousand.[60]

Hog cholera, however, was not the only swine experiment being conducted by the College. In addition, hog feeding experiments were occupying an important place in the activities. A great deal of work had been done with feeding alfalfa to hogs, and in 1912, a bulletin was issued which dealt with this factor along with several others in hog management. Alfalfa had been found to be unquestionably the leading hog forage in the State. In normal seasons, it was found to afford a constant supply of palatable forage throughout the summer, and in addition, it was one forage on which hogs would make a substantial gain without additional grain rations.[61]

Use of Silage

In the line of feeding experiments, increased studies of the use of silage were becoming necessary in Oklahoma. From about 1910, the indispensibility of silos, especially in dry farming country, had begun to be recognized. So many silos had been put up in the State between 1911 and 1914, that the Station issued a special bulletin on the subject giving descriptions of the most common kinds of silos, their relative merits, and methods of construction.[62]

In the fall of 1913, the Animal Husbandry Department purchased fifty angus steers at the Kansas City market for feeding experiments. The

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[60] The New Education, July 1, 1913, p. 4.

[61] W. A. Linklater, "Hog Feeding," Agricultural Experiment Station Bulletin No. 94 (Stillwater, Oklahoma, July, 1912), p. 3.

[62] C. I. Bray and D. R. Forrester, "Silos in Oklahoma," Agricultural Experiment Station Bulletin No. 101 (Stillwater, Oklahoma, July, 1914), p. 3.

steers were highly bred animals from the C. C. Ranch of Big Springs, Texas. Drouth conditions had caused them to be sold by one place after another until the Oklahoma College was able to purchase them for a very reasonable rate in Kansas.[63]

In the early spring of 1914, they were sold after having been on an experimental feeding test from October 1 to January 25 in order to study the feeding value of different forms of silage. The cattle topped the Oklahoma City market the day they were sold. The highest price ever paid on any market for silage fed cattle, $8.65 a hundred pounds, was the sale price of the sixteen best head. This was also the highest price paid for beef cattle of any kind on the local market for almost two years.

The forty-eight head which were sold had been fed in three lots during the test. One lot was fed Indian corn and Kafir silage, another received straight Kafir silage, and the third was given a mixture of two-thirds Kafir and one-third peanut silage. Supplementary grain and cottonseed meal rations were fed each lot in equal portions.

The cattle fed on Indian corn and Kafir silage brought the highest price, $8.65 a hundred pounds. The cattle receiving straight Kafir corn silage brought $8.25 while the cattle fed peanut and Kafir silage sold for $8.00. The Indian corn-Kafir silage group weighed 1275 each, while the straight Kafir group weighed 1170 pounds. The peanut and Kafir silage fed cattle weighed 1183 pounds.[64]

The sixteen head bringing the highest price dressed sixty-three and a third per cent.[65]

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[63] The Progressive Agriculturist, October, 1913, p. 49.

[64] The New Education, March 1, 1914, p. 1.

[65] Ibid., p. 3.

Experiments with feeding silage to dairy cattle were also being conducted at this time. Results of one experiment showed that milk could be produced economically if cottonseed meal was used as the concentrate and silage was used in the roughage.[66]

Results of other dairy feeding experiments completed in 1913 had indicated that where cowpeas could be successfully grown and alfalfa could not, the dairy feeder would find cowpeas very good as a dry roughage. Tests also showed that Bermuda was more valuable as a pasture grass than as a hay and should be used as such. Wheat pasture had given better results than feeding roots to dairy cattle.[67]

While these dairy feeding experiments were being conducted, others regarding care and management of dairy cattle, dairy barns and stables, record keeping for dairies, dairy cow judging, and dairy breeding were also underway.[68]

In the line of dairy products, one of the important tests in process was a study of farm conditions and other factors which affected the keeping quality of cream. Investigations were along the lines of bacterial content, acidity, and flavor.[69]

Poultry began to receive due interest during this period and the poultry industry was given a prominent place in the Farmers' Short Course for the first time in 1911. Crowds turned out to hear the lectures proving it to be a topic of great interest.

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[66] Agricultural Experiment Station Circular 18, September, 1911, p. 4-5.

[67] R. C. Potts and C. I. Bray, "Dairying in Oklahoma," Agricultural Experiment Station Bulletin No. 99 (Stillwater, Oklahoma, June, 1913), pp. 3-15.

[68] Ibid., pp. 37-54.

[69] Agricultural Experiment Station Circular 18, September, 1911, p. 3.

Plans were made that year to establish a regular Department of Poultry Husbandry which would enable the College to give instruction in both practical and theoretical poultry culture and to set up an experimental department for trying out and demonstrating solutions to problems of poultry raising under Oklahoma conditions.[70]

The 1911-1912 College catalog announced that equipment for instruction, in poultry husbandry (including flocks of the leading varieties, poultry houses, incubators, and brooders) had been obtained and a standard poultry plant on a commercial basis actively was operating.[71]

In 1912, poultry husbandry was a leading feature on one of the demonstration trains. Interest throughout Oklahoma continued to be manifested in poultry, particularly in the breeding of purebred birds. Traveling with the train was a poultry expert who judged all birds assembled at each stop for exhibition by interested persons.[72]

One of the early experiments of the Station with poultry involved studies of the vitality and activity of sperm cells and artificial insemination of the chicken.[73]

Top of the Market

Beef animals were not the only A. and M. livestock to top the livestock market during this period. In December, 1913, the Experiment Station topped the Kansas City sheep market with nine-month old lambs

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[70] The New Education, April 1, 1911, p. 2.

[71] Twentieth Annual Catalog, 1910-1911, with Announcements for 1911-1912, p. 32.

[72] The New Education, January 1, 1912, p. 1.

[73] Oklahoma Agricultural and Mechanical College, Agricultural Experiment Station Circular No. 30 (Stillwater, Oklahoma, April 1, 1914), cover page.

selling for $8.50 a hundred pounds. This was as much as show lambs in Chicago had brought the week before. The sheep averaged 106 to 113 pounds and had been fed on silage, bran, ground corn, and cottonseed meal.

In the bunch were nine purebred Dorsets, sixteen Shropshire-Dorset crosses, and four Rambouillet-Dorset crosses. They were bought by Swift & Company for show window purposes during Christmas week.[74]

In February, Swift sent the College photographs of the dressed carcasses and wrote, "They were a very fancy lot of lambs. They looked well, dressed well, . . . cut up well from a butcher standpoint, and ate well from an eating standpoint.[75]

The Station's sheep breeding experiments being conducted at this time, involved a study of the laws and principles involved in the establishment of a distinct breed of sheep suitable for this portion of the country.[76]

Crop Reports

In 1912, the work of distributing Bermuda Grass roots, formerly handled by the Agronomy Department was turned over to the College Farm Department, because the growing of the grass on a practical basis had passed from the experimental stage. This was also true with regard to the vaccine distribution for hog cholera and blackleg.[77] From the fall of 1911 until the fall of 1912, thirty-four thousand doses of the

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[74] The New Education, December 15, 1913, p. 1.

[75] The New Education, February 1, 1914, p. 3.

[76] Agricultural Experiment Station Circular 18, September, 1911, p. 3.

[77] Twenty-First Annual Report of the Agricultural Experiment Station for the Year Ending June 30, 1912, p. 4.

hog cholera serum, and 115,000 doses of blackleg vaccine were distributed.[78] During the same approximate year, 842 orders for Bermuda Grass roots were filled by the Station.[79]

Sudan grass was beginning to make a name for itself in Oklahoma agriculture. It was planted for the first time at the Oklahoma station in the spring of 1912, and in 1915, it was reported to have proved itself as a valuable hay crop even under adverse conditions. It had been tested at various points throughout the State and promised to hold a permanent place among Oklahoma forage crops since it furnished to the farmer a hay and pasture plant intermediate between the millets and the sorghums.[80]

There no longer seemed to be any question as to the value of grain sorghums in the western half of Oklahoma. There they were replacing corn altogether and in the central and eastern portions of the State they were being used instead of corn on poor upland soil. It was advocated that they be grown to some extent in all parts of the State as an insurance against total failure in an unusually adverse season.[81]

Kafir was becoming one of the leading staple crops in the western portion of the State where conditions prevailed to which it was particularly well adapted. Closely associated with Kafir is milo maize and both were being grown almost exclusively for feed in the Panhandle. In 1912, exhibits from the State of Oklahoma of Kafir, milo maize, and

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[78] The New Education, September 1, 1912, p. 3.

[79] Twenty-First Annual Report of the Agricultural Experiment Station for the Year Ending June 30, 1912, p. 4.

[80] R. E. Karper, "Sudan Grass," Agricultural Experiment Station Bulletin No. 103 (Stillwater, Oklahoma, January, 1915), p. 3.

[81] O. O. Churchill and A. H. Wright, "The Grain Sorghums," Agricultural Experiment Station Bulletin No. 102 (Stillwater, Oklahoma, October, 1914), p. 4.

broomcorn took first place at the Dry Farming Congress held in Canada, indicating the quality of the products produced.[82]

At that same Canadian Dry Farming Congress, exhibits of wheat from Oklahoma won second place.[83] From the earliest days of experimentation at the Oklahoma Station, wheat had received a great deal of attention. More than 250 different kinds had been tested and of this number, two had proved superior to all others in regard to yield and quality. One was Sibley's New Golden, a semi-hard, red, winter wheat, recommended for the soft lands, particularly in southern and eastern Oklahoma. The other recommended variety was Kharkof, a pure, hard, red winter wheat recommended for the hard lands of western and northern Oklahoma. Analyses and bread baking tests had shown that these varieties possessed milling qualities equal to and often superior to wheat grown in the Middle Western wheat belt.[84]

According to a United States Census Bureau report, Oklahoma produced 1,074,149 bales of cotton in 1912; a record for the State.[85] With production results such as these, it was natural that the Station should be engaged in cotton experiments of various kinds. Variety tests, cultural methods, climatic studies as they applied to cotton, and control of insects received particular emphasis.[86]

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[82] The Progressive Agriculturist, January, 1913, p. 117.

[83] Ibid.

[84] The New Education, July 1, 1913, p. 1.

[85] The New Education, April 1, 1913, p. 2.

[86] Twenty-First Annual Report of the Agricultural Experiment Station for the Year Ending June 30, 1912, p. 4.

Fruit for Oklahoma

In 1911, the Station published a widespread survey taken of fruits being grown in Oklahoma. Over twelve hundred query sheets were sent to growers in the State. They were asked to check as either favorable or unfavorable, fruit varieties which they had grown. The survey results, published in a bulletin, covered Oklahoma plantings of the apple, crab-apple, pear, quince, peach, plum, cherry, grape, blackberry, dewberry, loganberry, raspberry, strawberry, and the gooseberry.[87]

One of the questions in the minds of fruit farmers of the day was, "How long would such a variety list remain up to date?" It was answered in the bulletin with the following observation:

> Forty years ago, the standard varieties of apples in the states bordering on Oklahoma were essentially the same as those which are today standard in the same region. While many new sorts have been introduced none of them have succeeded in supplanting the old-time favorites. The Ben Davis, Winesap, Missouri Pippin, and Jonathan were the most profitable commercial apples in the prairie region in that day and they are the most profitable commercial sorts there still.[88]

The Department of Horticulture had a number of research irons in the experimental fire at this time. It was still making studies with the blossoming and setting of the fruit of the tomato plant. Research work in the development of peach buds was also being pursued.[89] In addition, the Department was investigating pecans, experimenting in blasting subsoils to loosen hardpan and rocky ledges before setting out

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[87] N. O. Booth and D. C. Mooring, "Varieties of Fruits Raised in Oklahoma," Agricultural Experiment Station Bulletin No. 95 (Stillwater, Oklahoma, November, 1911), pp. 4-48.

[88] Ibid., p. 3.

[89] Agricultural Experiment Station Circular 18, September, 1911, p. 2.

trees, doing forestry planting work, and studying the relationship between seeds and the resultant plants.[90]

Insect Investigations

The persistent chinch bug continued to menace Oklahoma farmers. Method after method was tried in an attempt to eliminate the pest. In the fall of 1913, the Entomology Department wrote to Gov. Lee Cruce asking him to issue a proclamation setting aside a particular day for the general elimination of the hibernating quarters of the chinch bug and other injurious hibernating insects.[91] Governor Cruce designated December 18, 1913, as a day to be observed by farmers, road workers, railroad employees, and other interested parties for destroying places where chinch bugs were known to be hibernating.[92]

Along with the chinch bug, the green bug continued to pose problems for the State's agriculturists. The Department of Entomology busied itself with studies of both these insects along with investigations of means of control, life habits, and development of the corn plant louse, the cowpea louse, the white ant,[93] alfalfa web worm, false chinch bug, shot hole borer, melon louse, locust borer, the Howard scale, lace-winged bugs,[94] and many other insects common to truck and garden farms of Oklahoma.[95]

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[90] Agricultural Experiment Station Circular 18, September, 1911, p. 8.

[91] Orange and Black, November 19, 1913, p. 3.

[92] Oklahoma Agricultural and Mechanical College, Agricultural Experiment Station Circular of Information No. 24 (Stillwater, Oklahoma, December, 1913), no page.

[93] Agricultural Experiment Station Circular 18, September, 1911, p. 3.

[94] Ibid., pp. 6-7.

[95] C. E. Sanborn, "Garden and Truck Crop Insect Pests," Oklahoma Agricultural Experiment Station Bulletin No. 100 (Stillwater, Oklahoma, October, 1912), p. 3.

Results from these investigations, as with results of all Experiment Station trials were published in reports and bulletins. By the fall of 1912, the Station had published one hundred regular bulletins, 183 press bulletins, nineteen circulars of information, and twenty-one annual reports, besides a great volume of articles for the agricultural press. In addition, the Station staff was answering over twenty thousand personal inquiries annually.[96]

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[96] Twenty-Second Annual Catalog, 1912-1913, with Announcements for 1913-1914, p. 147.

CHAPTER XIII

ONLY A FRAGMENT

So ends a portion of the history of the School of Agriculture of the Oklahoma Agricultural and Mechanical College. Additional history is created day by day as the College records its contributions to the pages of the world's book of enlightenment. So it was before 1914, so it had been since, and so it will be for years to come.

Since 1914, when this fragment of the history is brought to a close, great forward strides have been made. The College property today is comprised of 146 acres of campus ground in Stillwater, 2245 acres of farm land adjoining the campus, "various stations, sub-stations, and spot locations throughout the state, besides 19,323 acres in the Lake Carl Blackwell area, the demonstration farm at Oklahoma City, and the Hissom demonstration farm at Tulsa."[1]

Today, the Division of Agriculture embraces the School of Agriculture, the Agricultural Experiment Station, and the Agricultural Extension Service.

Graduates of the School are prepared to fill positions as:

> . . . teachers in agricultural colleges and universities; experiment station workers; specialists in the United States Department of Agriculture; extension specialists and county agents; teachers of vocational agriculture in high schools and colleges; agricultural journalists with farm papers

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[1] The Oklahoma Agricultural and Mechanical College, Agriculture Bulletin, Catalog Issue for 1954-1955, Announcements for 1955-1956 (Stillwater, Oklahoma, August 1, 1955), XLII, p. 21.

and farm organizations; foresters; marketing specialists for farmers' co-operative marketing associations; agricultural specialists for railroads, banks and development companies; and research and extension workers for manufacturers of agricultural products, farm machinery and implements.[2]

Students may take majors in:

> . . . agricultural chemistry, agricultural economics, agricultural education, agricultural journalism, agronomy, animal husbandry, botany and plant pathology, dairying, entomology, forestry, horticulture, poultry husbandry, and sociology and rural life.[3]

Thus, within the life time of some of the first graduates of Oklahoma Agricultural and Mechanical College, the institution has developed from an idea in the minds of a few far-sighted individuals to a renowned school of higher learning.

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[2]Ibid., p. 23.

[3]Ibid.

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