



The Montana Agricultural Experiment Station and the development of dry farming techniques :  
1902-1920  
by Peter Dennis McGorry

A thesis submitted in partial fulfillment of the requirements for the degree MASTER OF ARTS in  
History  
Montana State University  
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Abstract:

The Montana Legislature established the Montana Experiment Station in 1893. The first ten years of its existence saw staff discontent and continued turnover, an absence of interest and financial support from the state government and a lack of strong directing leadership. In 1904, the Board of Executives of the Experiment Station asked Frederick B. Linfield, the station's Agriculturalist, to accept the position of station director.

Linfield served the State of Montana and the Experiment Station for almost forty years, but it was the years before 1920 that witnessed the real substance of his contribution. During those years under Linfield's leadership, the station grew to become a sound, stable and vital research institution capable of dealing with the awesome challenges of Montana agriculture. The experiment station was able to expand at home in Bozeman, as well as to establish and maintain three research sub-stations around the state. State support for the stations went from less than five thousand dollars a year to over one-hundred thousand dollars. The total staff grew from ten members to twenty-nine at the home station alone. By 1920 Linfield and the Experiment Station were able to challenge the agricultural problems facing the state; such as, drought, insect plagues, inflation- and falling grain and livestock prices.

The study undertaken here is not to determine how the Experiment Station coped with the drought years and the agricultural depression, which inflicted many hard years on Montana farmers, but how the station grew from an ill-directed, poorly funded and little recognized form in 1902 to a stable, funded and recognized institution with the vision and ability in 1920 to challenge the future.

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DEVELOPMENT OF DRY FARMING TECHNIQUES: 1902-1920

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A thesis submitted in partial fulfillment  
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of

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History

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## Preface

The Montana Legislature established the Montana Experiment Station in 1893. The first ten years of its existence saw staff discontent and continued turnover, an absence of interest and financial support from the state government, and a lack of strong, directing leadership.

In 1902 the Board of Directors hired Frederick B. Linfield to take the place of Robert Shaw, the Station's agriculturalist since 1898. Linfield was the fourth man in nine years to hold that position. In 1903 the Director of the station, Samuel Fortier, took a leave of absence to go to California to work on an irrigation project for the United States Department of Agriculture. The Executive Board of station named Linfield temporary Director. In 1904, when Fortier resigned, the Board appointed Linfield permanent Director. He was the third director in eleven years.

Linfield remained at the station as director and later as Dean of the Agricultural Division until 1937. Clyde McKee, the assistant Director replaced Linfield, who took the position of Dean Emeritus, one of partial retirement. In 1942 Dean Linfield severed his official connection with the Experiment Station and the College and retired completely.

When Linfield turned over the direction of the station to McKee in 1937, it was a well organized and functioning institution with clear and positive direction. It had come a long distance with Linfield since 1903.

Linfield had served the state of Montana and the Experiment Station for forty years, but it was in the first eighteen years from 1902 until 1920 that witnessed the real substance of his contribution. In the period from 1902 to 1920 Linfield worked, wrote, petitioned, taught, criticized and directed, and as he did, he grew, the Experiment Station grew and Montana Agriculture grew.

In the period from 1900 to 1920 the State's population exploded as settlers from a wide variety of places and backgrounds took up homesteads on the dry benchlands of the state. Although optimism among the people of the Experiment Station and the farmers dominated the early years, one homesteader after the other began to fail and move out of the state. Drought, insect plagues and ultimately a severe drop in the price of grain all but destroyed Montana's agricultural future. In order to cope with these problems the farmers needed to have a clear view of the situation, locate the source of their difficulty and accept the challenge before them. Leadership that had a good perspective on the problems as well as the

experience and facilities to challenge them, became the primary need.

Linfield and the Experiment Station were in a position to fill that need. They had the facilities, they had the organization, they had the staff, they had the moral and financial support of the state, as well as the Federal government, they had an established communication with the people, and most important of all, they had already challenged the enemy and suffered failure, and as such understood the vastness and complexities of the various problems.

The study undertaken here is not to determine how the Experiment Station coped with drought and agricultural depression during the 1920's and 1930's, but how it grew from an ill-directed, poorly funded and little recognized farm in 1902 to a stable, funded and recognized institution with the vision and the ability in 1920 to challenge the future.

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## Abstract

The Montana Legislature established the Montana Experiment Station in 1893. The first ten years of its existence saw staff discontent and continued turnover, an absence of interest and financial support from the state government and a lack of strong directing leadership. In 1904, the Board of Executives of the Experiment Station asked Frederick B. Linfield, the station's Agriculturalist, to accept the position of station director.

Linfield served the State of Montana and the Experiment Station for almost forty years, but it was the years before 1920 that witnessed the real substance of his contribution. During those years under Linfield's leadership, the station grew to become a sound, stable and vital research institution capable of dealing with the awesome challenges of Montana agriculture. The experiment station was able to expand at home in Bozeman; as well as to establish and maintain three research sub-stations around the state. State support for the stations went from less than five thousand dollars a year to over one-hundred thousand dollars. The total staff grew from ten members to twenty-nine at the home station alone. By 1920 Linfield and the Experiment Station were able to challenge the agricultural problems facing the state; such as, drought, insect plagues, inflation and falling grain and livestock prices.

The study undertaken here is not to determine how the Experiment Station coped with the drought years and the agricultural depression, which inflicted many hard years on Montana farmers, but how the station grew from an ill-directed, poorly funded and little recognized farm in 1902 to a stable, funded and recognized institution with the vision and ability in 1920 to challenge the future.

## Introduction: Land and Climate

The first ten years of the Twentieth Century in Montana saw more homestead claims filed than the last thirty years of the Nineteenth. In the period from 1900 to 1920, the public domain in Montana dropped from over sixty-five million acres to less than six. Yet even with such a high influx of homesteaders, a settler on the eastern benchlands of Montana may have gone weeks without seeing another human being. The county seat, to which he had to go to file his claim may have been several days-ride away. Although the homesteader did not realize it at the time, he was living in a state over twice the size of the New England states combined.

As the homesteader came into the state from the east, he found the land rolling gently westward for almost three hundred miles, sometimes interrupted by valleys, dotted with irregular hills and buttes, yet consistently climbing until it reached over four-thousand feet in the foothills of the Rockies.<sup>1</sup> In the western mountain regions he found high parallel ranges, often exceeding five-thousand feet, but interspersed with numerous fertile valleys often covered with timber and promise.<sup>2</sup>

If the settler crossed the state in the north, he encountered the Missouri River, which flowed north from the Gallatin Valley in the southwest to the Great Falls in the

north. Here it dropped over five-hundred and fifty feet, turned east and flowed across the northern reaches of the state into North Dakota.<sup>3</sup> If the settler chose a southern route across the state, he could follow the Yellowstone, which reached out from northwestern Wyoming to encounter the Missouri as it crossed into North Dakota.

In the western regions of the state the Clark Fork of the Columbia dominated the region, flowing westward, joined by the Blackfoot, Bitterroot and Flathead Rivers, occasionally turbulent but generally moving along slowly towards the Columbia River and the Pacific.<sup>4</sup> Dominating the river's flow and often obstructing the settlers' drive westward was the Great Divide which dominated the western third of the state.

The tremendous expanse of Montana was not the only intimidating factor the settlers had to face. The climate of the state was as varied and often as awesome as its geography. The homesteader often found himself being baked by an over-powering summer sun at one minute and being pitted with hail the next. The average precipitation in the state was about fifteen inches annually, but variations throughout all areas of the state were persistent. In the western regions of the state alone, variations went from ten inches a year to thirty inches a year; nevertheless, almost two-thirds of the state, largely encompassing the eastern bench lands, where

most of the homesteaders of this period settled, did nearly approximate the state average. But even then, yearly variations and monthly variations were significant.<sup>5</sup> The only consistent factor about precipitation that the homesteader could find was that most of it occurred in May, June and July, if it was to occur at all.

The homesteader in Montana had more to contend with, however, than the annual rainfall. Temperature also threatened his crops. The temperature determined the growing season, which in the western regions of the state barely amounted to ninety days, but it also affected the evaporation rate.<sup>6</sup> The higher the temperature the greater the amount of soil moisture lost through evaporation.<sup>7</sup>

Earlier histories identified the Great Plains, wherein much of Montana resides, as desert. Later works called it a garden. To the homesteader in Montana after 1900, sometimes it fit one description; at other times, the other. Montana's extreme size, its low precipitation extremes, its high and low temperatures were often what many people pictured Montana to be, but to the homesteader, and to the experiment stations set up to cope with his farming difficulties, these factors were not significant. The greatest challenge came from the variation in terrain and soils, as

well as the unpredictability of the climate. Often the environment created problems with too many variables for one group of individuals to handle. But eventually, after much labor and hardship, after many homesteaders came and went, and after much research and organization, the station and the farmers it served eventually won.

## MONTANA AGRICULTURAL EXPERIMENT STATION: 1893-1902

In the first twenty years of the Twentieth Century the Montana Experiment Station launched a program of research designed to bring success to thousands of homesteaders attempting to farm without irrigation in the drier high plains regions of the state. The beginnings of this program, however, date back to the last ten years of the previous century and the creation of an experiment station in 1893.

The establishment of a Land Grant College and Experiment Station in Montana was not unique, but consistent with events in the country throughout the period particularly since 1897 with the passage of the Hatch Act. However, the Legislature had to deal with the questions of a Land Grant College and Experiment Station, amid the politics and discord of setting up all state offices and institutions, since Montana had only obtained statehood four years earlier in 1889.

Although the Montana Legislature set up the Montana Experiment Station in 1893 it did not begin to function as a viable institution until after the appointment of Frederick B. Linfield in 1904. In its last ten years it lacked financial support from the state, was subject to a continued turnover in

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staff and was void of any clear direction or leadership. In effect, the state passed the necessary legislation to establish the stations and then cast it adrift with only federal funds to support it.

On February 16, 1893 the Legislature of the State of Montana approved "an act providing for the location and establishment of the Agricultural College of the State of Montana, and an Agricultural Experiment Station in connection therewith." The purpose of the station was "to aid in acquiring and diffusing among the people of the State of Montana useful and practical information on subjects connected with Agriculture, and to promote scientific investigation and experiments respecting the principles and application of agricultural science ...". According to the Montana Legislature, the money to fund this experiment station would come from a Congressional act which Congress approved on March 3, 1887. Researches referred to it simply as the Hatch fund.<sup>1</sup>

Section two of the State Law commissioned the State Board of Education to locate a permanent site for the College and Experiment Station at or within three miles of the city of Bozeman. Section four empowered the governor to appoint, with the consent of the State Board of Education, an Executive Board "consisting of five members, at least three of whom shall be residents of the County wherein said institution is situated."<sup>2</sup>

Section five authorized the Executive Board to "appoint a President and faculty of said College ... subject to the approval of the State Board of Education."<sup>3</sup>

Acting in accordance with this legal directive, Governor John E. Rickards appointed an Executive Board for the Experiment Station which, in turn, selected a staff. The Board appointed S. M. Emery as Director and Horticulturist; Luther Foster, M.S.A., Agriculturist and Botanist; F. W. Traphagen, who held a P.H.D. in F.C.S., Chemist and Veterinarian; W. L. Williams as Veterinary Surgeon.<sup>4</sup>

On March 22, 1893 the Board of Executives and the State Board of Education met in Bozeman to choose a site for the College and Experiment Station. For the College, the Board decided to accept a gift of twenty acres of land from Nelson Story, a member of the State Board of Education.<sup>5</sup>

Contiguous to the college site was a tract of land owned by Gallatin County and used as a County Poor Farm. After some discussion, the County and the City of Bozeman donated the tract to the State for use by the Experiment Station.<sup>6</sup>

The Experiment Station officially came into existence on July 1, 1893 and Emery and his staff began work in earnest.<sup>7</sup> The Agricultural Department began investigations into a variety of subjects dealing with cereal irrigation and potato

culture. The Department of Veterinary Science began investigations into animal diseases particular to the Rocky Mountain area, while the Chemistry Department worked in conjunction with the Agriculturalist on foods used in stock feeding, and the Veterinarian examining the effects of "loco" weed on domestic animals.<sup>8</sup> The Horticultural Department set out a wide variety of trees and plants.<sup>9</sup>

In the course of the next ten years they published studies dealing with potato production, swine feeding, small grains, alkaline soils, sheep feeding, sugar beets and strawberries.<sup>10</sup> Although virtually all studies dealing with the duty of water also included studies of irrigation, and that all grain studies utilized available irrigation, the Agricultural Department did in 1898 do several tests of the Campbell Soil Culture System; they reported no significant results at this time.<sup>11</sup> However, reports later revealed that Robert Shaw, who conducted the tests, felt that the Campbell System was basically inadequate since irrigated grains had superior yields.<sup>12</sup>

Although Shaw discounted the value of pursuing Campbell's theories any further, Director Emery was under continued pressure from Paris Gibson at Great Falls. Gibson continually pointed to the success of many dry farmers on

the tableland above Great Falls and called for Emery to begin experiments in dry farming practices.<sup>13</sup>

Director Emery was a horticulturalist and spent much of his time introducing fruit to Montana agriculture. Robert Shaw was from the Great Falls region and remained in Montana less than four years. While in Montana he showed very little interest in the Campbell Soil Culture System and preferred to devote his time to Agronomy studies conducted with the use of irrigation.<sup>14</sup>

Emery and Shaw had little interest in developing dry farming techniques, which partially explained why they did so little research that was to prove so vital to Montana agriculture in the future. This does not, however, provide a complete explanation.

When the Montana Legislature created the Experiment Station in 1893 it refused to provide any additional revenue to support the station. The Legislature made it clear that the station would have to operate strictly on the Federal revenue provided from the Hatch Fund.<sup>15</sup> Under the Hatch Act the station received fifteen thousand dollars each year.<sup>16</sup> Only one thousand of this was to be used for building construction, such as barns, sheds or storehouses.<sup>17</sup> The only exception to this curtailment permitted by the Hatch Act was in the first year of the station's existence.

In 1894 the station spent almost ten thousand dollars on salaries, labor, chemical supplies and building.<sup>18</sup> In the fiscal year 1895-1896, it spent over ten thousand dollars to cover salaries and labor alone.<sup>19</sup> The situation in 1898 saw little change. Salaries and labor cost the station over nine thousand dollars.<sup>20</sup> The only other source of income came from the proceeds of the crops grown on the farm. Those receipts, which generally amounted to less than two thousand dollars a year made up the total income for farm improvements.<sup>21</sup> The lack of funding not only made it difficult for the station to expand as rapidly as needs demanded, but it also made it somewhat dangerous, from a financial point of view, to experiment with a crop or conditions that could result in failure.

The lack of financial support from the State definitely hindered the amount of experimenting possible and the choice of conditions used, but it also hindered the usefulness of the station in other areas. In the early years of the station there was no Extension Service with which communication could be maintained between the station staff and the farmers they were trying to serve. The Farmers' Institutes were the only vehicle in a position to serve the purpose, but the institutes, too, lacked financial support from the State. The Farmers' Institutes relied solely on private contributions

and volunteer lecturers.<sup>22</sup>

The Station staff volunteered their time and conducted meetings throughout the western part of the state, whenever transportation and lodging could be arranged.<sup>23</sup>

In 1895 and 1896, and again in 1898, however, problems arose when the railroads refused to provide transportation to the Station staff.<sup>24</sup> In many instances, Director Emery had to beg the railroad and local people to obtain transportation or lodging for his staff.<sup>25</sup>

The Farmers' Institutes were not the only factor affected by the severe shortage of funds. The salaries provided for the Station staff were inadequate and often created severe financial hardships for those involved. Not only were the salaries low, but each member of the staff paid almost forty percent of his salary for lodging.<sup>26</sup>

Turnover of the staff occurred often, creating a situation where it was almost impossible to conduct any studies or maintain any form of continuity.<sup>27</sup>

This question of continual staff resignations in the early years of the station was a definite result of the lack of financial support. In addition, Director Emery proved a source of friction. Robert Shaw, who worked under Director Emery for two years was highly critical of him. In writing

to Linfield, Shaw stated that "You will understand, of course, that we were all in too close relationship to the devil during '98 and '99 and part of 1900. It was not until Director Fortier's appointment that any work of consequence was started. During all those years there was very little money to work with and little encouragement to try to use what there was."<sup>28</sup> In another letter, Shaw remarked that "suggestions of all kinds were invariably thwarted in some way," by "that man Emery."<sup>29</sup>

It was difficult to determine the exact nature of the problem with regard to the relations between Emery and his staff, but it was clear that he had much difficulty developing a working relationship with the men under him. They disliked him, and he became highly critical of them.<sup>30</sup>

In 1898 the Executive Board hired Samuel Fortier. Fortier was from Ogden, Utah and although interested primarily in irrigation studies, he was receptive to the possibilities of dry farm studies in Montana.<sup>31</sup> In 1900 Emery resigned as Director and the Board appointed Fortier to replace him.<sup>32</sup> Nineteen-hundred also marked the first year that the State Legislature approved appropriations from its annual budget for the Experiment Station. The Legislature furnished twenty-five hundred dollars to build and equip a

dairy. The Legislature also agreed to a two-thousand dollar expenditure to collect data on irrigation.<sup>33</sup>

In 1902 Robert Shaw resigned his position with the station to accept a similar appointment at the Michigan Agricultural College in Lansing. In October of that year the Executive Board, upon the advice of President Reid and Director Fortier, unanimously decided to accept Frederick B. Linfield's application for the vacant position.<sup>34</sup> When Linfield arrived later in October, he found the station completely disorganized and totally inadequate.<sup>35</sup>

Inadequate facilities and disorganized tests were not the only problem still besetting the station in 1902. In spite of Legislative reorganization of the Farmers' Institutes in 1901, problems still existed.<sup>26</sup> The State had appropriated funds but only enough to support a Board of Administrators. Much needed money for transportation and lodging was still not available.<sup>37</sup> To compound the situation, internal feuding broke out over the selection of a Secretary of the Board of Farmers' Institutes.<sup>38</sup>

In 1903, Samuel Fortier, still much involved in irrigation studies, took a leave of absence to go to California to work on an irrigation project for the United States Department of Agriculture.<sup>39</sup> The Board appointed Linfield

Linfield Vice-Director in charge of the station. In 1904 Fortier resigned and the Board of Executives named Linfield Director.<sup>40</sup> Linfield was the fourth man in nine years to hold this position of agriculturalist, and the third in ten years to hold the position of Director.<sup>41</sup> In ten years only four students in the Department of Agriculture had graduated.<sup>42</sup> Its buildings, livestock and equipment were not equal to what a good farmer would consider necessary to his success ..."<sup>43</sup> It was clear to Linfield that there was much to be done if the Experiment Station was to become more than a silent partner in the development of Montana Agriculture.

## F. B. LINFIELD AND THE MONTANA EXPERIMENT STATION: 1902-1920

In 1902 the direction of the Montana Agricultural College and Experiment Station took a dramatic shift with the arrival of Frederick B. Linfield. Contrary to previous leaders, Linfield refused to permit the station to remain the step-child among the State's institutional offspring. He envisioned the station as a leader in the economic development of Montana and proceeded immediately to project it as such. In his first fifteen years as Director of the station, Linfield altered the research direction in such a way so as to play a more realistic and decisive role in the state's overall development. Although he recognized the value of irrigation in Montana farming, he knew that irrigation could not be employed throughout the state; and lest Montana's resources remain dormant and her place in the community of states remain lost, the station needed to pursue and succeed in developing Montana's agricultural potential to the fullest. Linfield realized that complete agricultural development would provide the necessary foundation for the growth of a viable, home-supported industry in the state.

Linfield complemented his vision with vigorous leadership as both the Director of the station and primary farmer in the state. He became actively involved in political affairs

whenever he felt it in the best interests of the Station and the farming community. He publicly presented his views on tax questions and campaigned for responsible land-use legislation. He took the time to defend both the station and farmers from attacks by the public press, national and local, as well as by recognized leaders in the dry farm movement, such as Hardy Webster Campbell. He actively participated in dialogues concerning educational systems and the relationship of the Experiment Station to the University system. But, most significantly, he recognized the need for the sound development of dry farming research and campaigned vigorously for it. When Linfield arrived at the station in 1902 he brought vision, energy and courage, and the course of the station changed.

Frederick Bloomfield Linfield was born on July 18, 1866 on the Island of Twillingate, north of Newfoundland. As a boy he moved with his family to Goodrich, Ontario and in 1894 graduated from Ontario Agricultural College of the University of Toronto. After his graduation he accepted a position as an assistant in the Dairy Department at the Agricultural College in Toronto.<sup>1</sup> For two years he traveled around the Province conducting a dairy school in various farming communities.<sup>2</sup> In 1893 he accepted a position as Professor of Animal Industry and Dairying at the Utah Agricultural College in Logan, and began with the task of organizing a Dairy Department.<sup>3</sup> In

1902 the Executive Board of the Montana Experiment Station, after hearing strong endorsements from President Reid and Director Fortier, voted unanimously to ask Linfield to accept the position as Agriculturalist, just recently vacated by Robert Shaw.<sup>4</sup>

Linfield was not at the station in Bozeman a full year when he agreed to accept the position of Vice-Director and run the station during Fortier's leave of absence. In 1904 Fortier resigned and Linfield accepted the position as Director.

Alfred Atkinson, formerly the President of Montana State College, credited all the good results of experimentation work at the station directly to the outstanding leadership of Dean Linfield.<sup>5</sup> Local commentators credited Linfield with having played a major role in providing direction and ideas for the development of Montana's agricultural resources, including the development of its farms and ranches to the status they now hold.<sup>6</sup>

Linfield devoted most of his forty years at the station to the development of research organization in agriculture, but he was not a man of narrow interests. He was much aware and often involved in various public issues in the State, particularly those which involved the questions of either taxes or land use. In 1910 Linfield became so involved in

tax reform proposal that he went to the lengths of writing out his views on the subject, publishing his article in pamphlet form and then sending it out to various railroad and businessmen in the state for dispersment to the public.<sup>7</sup> Although, in principle, Linfield favored tax reform, he was strongly opposed at that particular time and did not hesitate to explain his position. He felt that valid reform would have to come from an independent tax commission since the political interests of Helena, Butte, and Anaconda dominated the Legislature.<sup>8</sup> At one point he expressed his willingness to cease all effort at reform and live under the existent state levy if it were "possible to get some particular industries in this state to pay their just proportion of taxes ..."<sup>9</sup>

Land use was also a major issue with Linfield. In 1907 when J. W. Dixon pressed for the Enlarged Homestead Act, Linfield expressed strong opposition. He was not opposed to the homesteaders having the opportunity to claim additional acreage when necessary, but he did oppose the concept of having one law govern all situations.<sup>10</sup> He wanted the lands in question surveyed and rated according to their potential as farm land or grazing land and then dispersed to the homesteaders according to their agricultural potential.<sup>11</sup> In 1908 the Northern Pacific did conduct just such a survey of their land and hired Montana State College students, under the

direction of Alfred Atkinson to do it.<sup>12</sup>

Linfield also actively involved himself in the question of Timberlands and their disposal. He argued that these lands, too, be surveyed to determine their suitability for cultivation, and if found to have good agricultural potential, then the state should require that the buyer cultivate them after he has utilized the timber. If the survey determined that the land was not suitable for cultivation, then the state should not sell them.<sup>13</sup> Linfield also argued that much of the land, even without timber, was too rugged for the plow and should be designated as range land. He considered almost half the acreage in the state in that category.<sup>14</sup>

As the Director of the station, Linfield became an outspoken defender of the station and the farmers it existed to serve. Many times in this role as defender he took vigorous issue with criticisms from the public press, both local and national. In 1907 he openly charged the Rocky Mountain Husbandman with misrepresentation and distortion of the truth in its reporting on the station's experiment work done in that year. The Husbandman had reported that the station suffered total failure in 1907. The newspaper had based this report on a statement from the station which had expressed dissatisfaction with some results obtained, indicating that they were simply not as successful as anticipated.<sup>15</sup>

In that same period, Linfield took issue with the Anaconda Standard which had printed a banner article announcing the opening of an engineering program at the University of Montana in Missoula. Finally, according to the Standard, Montana students would not have to leave the state to obtain a sound education in Engineering. Linfield, charging the Standard with irresponsibility, suggested that it not only recognize the programs offered at the State College in Bozeman, but publicize them and campaign statewide against the financial wastes of duplicity.<sup>16</sup>

Misrepresentation by elements outside of the state also came under strong attack from Linfield. In the early '20's the Nation's Business attempted to explain the reason for the deepening agricultural depression, which they ultimately identified as "shiftless farmers." Linfield took strong issue with such over-simplification and explained that the income of farmers in the central and north-central mid-west had in just two years from 1919 to 1921 dropped an average of eighty per cent. This indicated that, according to Linfield, if the Nation's Business was correct, the richest agricultural regions of the United States were inhabited by "shiftless farmers."<sup>17</sup>

While serving the State of Montana, Linfield made an effort to remain in close touch with agricultural development

on a national level. He maintained strong communication with directors of the various experiment stations around the country and oftentimes called on them for information or assistance, particularly in the area of dry farming research.<sup>18</sup>

Linfield's position as Director of Agricultural Research in Montana, coupled with his strong faith in his own judgment, eventually brought him into conflict with Hardy Webster Campbell, the nation's most noted author on dry farming techniques. Campbell's years of experience, national recognition and then position as editor of Campbell's Scientific Farmer were not enough to intimidate Linfield. In 1907 Linfield urged Gallatin County farmers to use the weighted-disc-harrow after plowing, rather than follow the Campbell method of using the sub-surface packer.<sup>19</sup> Linfield made this recommendation because the growing season in the valley was precariously short and, as a result, it was necessary to introduce time saving techniques.<sup>20</sup> Campbell refused to accept Linfield's explanation that different areas create varied conditions and thus call for new techniques. Campbell accused Linfield of misleading Montana farmers; however, he made no effort to refute Linfield's arguments, complaining that he did not want to waste his time in useless correspondence.<sup>21</sup>

In his communications with other people in Agriculture, Linfield was not always seeking advice nor arguing over methods.

Oftimes directors and experimenters wrote to him seeking his advice. In 1909 the Canadian Province of Alberta was organizing an Agricultural College. They had to decide whether or not the Agricultural College should be joined with and share the same site as the University, or be completely separate from the University. A request from the Minister of the Department of Agriculture in Alberta, Canada, prompted Linfield to publicly express his views concerning the relationship of the Agricultural College and Experiment Station to the University system.<sup>22</sup>

Linfield stated that ten years earlier he would have strongly advocated that the two systems remain separate. In the intervening years, however, the status of experiment stations nationally had improved and other state institutions such as the University system had recognized their value and integrity. He would now strongly endorse placing the two institutions together. He explained that "... the Agricultural Department has nothing to lose and something to gain by being closely associated with the other lines of education, provided, always, that the head of the institution is in full sympathy with industrial and agricultural education, and that a strong, well-rounded agricultural faculty is engaged."<sup>23</sup>

Linfield realized that if both systems recognized each other's purpose and needs, an efficient and valuable partnership could be drawn. The Agricultural School in particular

would profit from such an arrangement since students would be able to draw on the resources of the University for liberal arts work such as foreign language study, English or history.

Linfield agreed that in some states the two institutions did not work well together, such as in Nebraska and Minnesota, but he felt that the fault was in the personnel, not in the structure of the system.<sup>24</sup> In the case of Montana, Linfield pointed out that the separation of the two systems had little to do with educational philosophy, but rather "selfish local interest which scattered the institutions," and that, although a majority of Montanans recognized the mistake, they had already made the investment. Any effort to make a change would result in much local fighting.<sup>25</sup> Linfield exhibited definite tones of regret over the division of the Montana Systems, however, as the Agricultural College grew, more and more choices were made available to the students. Linfield must have been pleased that as the College grew and took on more of the attributes of a university, it had Alfred Atkinson an Agronomist, as President.

Linfield spent almost his entire adult life in the American West, and most of that in Montana. He loved the mountains and was particularly fond of Western Montana because of its timber-covered slopes, which he said, appealed to his humid East background.<sup>26</sup> In spite of his love for the West

and desire to see it develop, he took a practical view whenever anyone raised the question about people moving west. On a visit to the East around 1909 he strongly urged young Ontario farmers to think seriously and examine all the options before deciding to seek land in the West. He pointed out that sometimes far richer land at less the cost was available right at home. A move West could be the wrong decision.<sup>27</sup> This is not to say that Linfield did not believe in the future of the West and particularly Montana, for he strongly supported its future; but his belief was based on what he considered to be sound, practical judgement, which he thought should be encouraged and exercised at all times. It was just this kind of sound, practical judgement that led Linfield to his convictions that dry farming would be successful in Montana and with this success would also come the rise of Montana Agriculture and subsequent industry.

Within a very short time after his arrival in Montana, Linfield concluded not only that dry farming would be successful, but that it held the key to Montana's future economic development. Linfield drew his conclusions on the generally accepted premise that industrial development was preceded by agricultural development. He argued that successful agricultural development would bring capital into the state for the future development of industry, as well as a market capable of

supporting home industry.<sup>28</sup> Linfield further argued that the key to Montana agriculture was farming the dry benchlands in the central and eastern regions of the state.

Linfield developed his convictions about dry farming after a review of the available agricultural areas. Although he revised his position over the years, the changes were never enough to alter his basic conclusion. Linfield estimated that at the outside it was feasible to irrigate only six-million acres.<sup>29</sup> This left an estimated twenty to thirty-million acres of potential farm land if the farmer could employ dry farming techniques. According to Linfield, if left as rangeland, they would never provide the economic impetus that cultivated land would.<sup>30</sup>

With this belief that dry farming was necessary for Montana's future, came the conviction that farming without irrigation was not only possible in Montana, but would be highly successful. Linfield based his early judgement on several factors. He had spent nine years in Utah, much of it observing dry farming experimentation. When he came to Montana he observed that the vegetation was much greener and covered more of the land than in Utah.<sup>31</sup> A colleague from Utah noted the same thing. "The poorest dry farm areas in Montana are equal to the best in Utah."<sup>32</sup> Linfield was supported in his beliefs by Paris Gibson of Great Falls, who never missed an opportunity













































































































































































