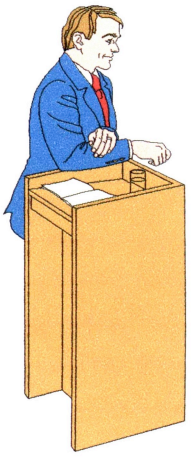
Milestones in the Legislative History

of

U.S. Land-Grant Universities



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Preface

As I became older and neared retirement, I became more interested in the history of things. I guess it is the general realization that I have more past to look back on than future to look forward to. In the process of writing a history of the Crop Science Department at Oregon State, I included some information about the beginning of the university, which led into some study of the 1862 Morrill Act. I realized that, in spite of the fact that I had spent all of my college schooling and my entire professional career at land-grant universities, I knew very little about the history of l-g institutions. Of course, I had heard of the Morrill Act, the Hatch Act, the Smith-Lever Act, etc., but really knew very little about them. So I began reading about the general subject, mostly on the internet. This was done for my own satisfaction, but the thought occurred to me that some of my colleagues were likely as uninformed as I was and perhaps a summary of the legislative history may be of interest to some.

This should not be considered an authoritative history. Most of it was found on the internet, although I believe most references are accurate and reliable. In a few cases, such as the list of 1862 colleges, information varied slightly from one reference to another. I did not cite some references, as any decent history should do.

So, consider this for what it is, merely some notes from my casual reading and not a scholarly work. But I do believe it to be reasonably accurate.

Addendum in 2007: Upon reviewing the first edition of this project, I was surprised to realize that I had omitted a very important law, the Smith-Hughes Act of 1917. This law greatly influenced the teaching of agriculture and home economics in American high schools, and, therefore, the creation of appropriate departments at the l-g universities to train the teachers. So this was added as Chapter Five. Also, I decided that although USDA is a federal agency, some divisions, namely ARS and CSRS, have had a major role in the l-g universities, so I have added a section of the beginnings and activities of USDA as well.

Milestones in the Legislative History of Land-Grant Universities

Chapter One. The Morrill Act of 1862

The major milestone in the history of land-grant (LG) universities was, of course, the 1862 Morrill Act. But the background of that Act is not all that well known. Justin Morrill, congressman from Vermont, was a popular politician and was a strong supporter of agriculture, but he almost certainly did not author the Morrill Act. John R. Campbell[1] has done an exceptionally skillful job in describing the conceptualization and passage of the Morrill Act of 1862, and his report is reproduced here in its entirety. (http://www.adec.edu/clemson/papers/campbell-chapter1.html)

"Occasionally, there is a person whose views and philosophies, whose vision and leadership, whose courage and tenacity change the course of history. Jonathan Baldwin Turner certainly was one such person. Turner was born on a rocky farm near Templeton, Massachusetts. He went to New Haven, Connecticut, at the age of 22, spent two years in preparatory study, then entered Yale College (now Yale University), where he took a traditional classical education. It was fortunate for the land-grant college and university movement when, in 1833, Turner accepted a teaching position at Illinois College in Jacksonville, Illinois. There he taught rhetoric, Latin, Greek, and nearly every subject in the humanities. Illinois College had been founded in 1827 under Presbyterian auspices. Yale President Jeremiah Day personally encouraged Turner to accept the teaching position at Illinois, and promised to award him a diploma, even though Turner would leave before graduation.

Jonathan Baldwin Turner was a unique combination of classical scholar, educator, farmer, amateur scientist, orator, religionist, social reformer, entrepreneur, and rugged individualist. But most importantly he was a restless visionary, abundantly imbued with a strong missionary spirit. Throughout his life, he was a proselytizer in the three areas that consumed his interest and energy--religion, politics, and education. In all three, Turner's ideas often were unorthodox, and this fact made him the subject of considerable criticism. In the church, he attacked many of the conventional views of his denomination. In politics, he was among the first in Illinois to speak out publicly against slavery. And in the 1830s, he plunged headlong into the crusade for universal education for those who normally did not have that opportunity—the sons and daughters of what he called "the working class".

In each of these areas of public debate, Turner brought vigor, passion, eloquence, and imagination. He was so much the center of public turmoil that finally, in 1848, under pressure, he gave up his professorship at Illinois College. He returned to his first love—agriculture.

Jonathan Baldwin Turner's thinking, talking, and planning for education ultimately led to concrete proposals for the creation of an industrial university. His speech before the Illinois Teachers Institute in Griggsville, Illinois, on May 13, 1850, entitled "A Plan of our State University for the Industrial Class," was a blueprint for what followed in the organization of public higher education in the United States. He proposed not only the foundation of a state university for the agricultural and general industrial classes in Illinois, but such a system in every state of the Union.

Turner's plan was influenced and guided by Jeffersonian ideals. He sought to develop young people's reasoning faculties, enlarge their minds, and cultivate their morals so that commerce, agriculture, and manufacturing could prosper to the benefit of every American. Education was truly in the public interest. The plan included three basic goals: 1) to establish colleges which would be open, at minimum cost, to laborers in agriculture, commerce, and the arts who needed educational assistance; 2) to develop curricula which would include instruction in practical and vocational subjects for the benefit of the working classes; and 3) to endow these colleges by grants of land from the enormous holdings of the federal government.

[1] **Campbell, John R. 1995. Reclaiming a Lost Heritage: Land-Grant and Other Higher Education Initiatives for the Twenty-first Century. Ames, IA. Iowa State University Press.**

There is debate as to the extent of Jonathan Baldwin Turner's influence upon Justin Smith Morrill, who later sponsored the legislation that gave impetus to the unique land-grant college and university system. Although the legislation carries Morrill's name, many have claimed for Turner the original definition of the idea and its transmission to Morrill. Turner's personal sincerity and profound conviction for the importance of his cause is well-known. He is remembered as the "John the Baptist" of a great national movement in education. A prophet of democracy, who, like Thomas Jefferson before him, recognized an educated electorate as prerequisite to a sustained, successful democracy. He was long on ideas and enthusiasm, and his philosophy and concepts remain valid today. Listen to the words and fervor of his creed, as expressed to a large audience in Monmouth, Illinois:

> **The sun never shown on such a nation, and such a power, as this soon would be, with such facilities of public advancement and improvement put in to full and vigorous operation. Set the millions of eyes in this great Republic to watching, and intelligently observing and thinking, and there is no secret of Nature or art we cannot find out; no disease of man or beast we cannot understand; no evil we cannot remedy; no obstacle we cannot surmount; nothing lies in the power of man to do or to understand, that cannot be understood and done. "**

The second major group Jonathan Baldwin Turner targeted for support of his plan for the establishment and maintenance of an industrial university was the Illinois farmers. In response to a passionate plea for their support of his plan, the following resolutions were adopted by the Convention of Illinois Farmers, held November 18, 1851, at Granville, Illinois:

> **"Resolved, that we greatly rejoice in the degree of perfection to which our various institutions, for the education of our brethren engaged in professional, scientific, and literary pursuits have already attained, and in the mental and moral elevation which those institutions have given them, and their consequent preparation and capacity for the great duties… of life in which they are engaged..**
>
> **Resolved, that as representatives of the industrial classes including cultivators of the soil, artisans, mechanics and merchants, we desire the same privileges and advantages for ourselves, our fellows and our posterity…as our professional brethren enjoy in theirs…**
>
> **Resolved, that we take immediate measures for the establishment of a university…expressly to provide a means of applying knowledge or science to the several pursuits of the industrial classes of our state…as well as to teach them how to read, observe and think, and act so as to derive the same needful and wholesome mental discipline from their pursuits in life, which the professional and military classes are taught to derive from theirs.**

Turner's plan was printed and widely distributed, and it was reprinted in many newspapers, including The New York Times, the nation's most widely circulated newspaper at the time. The newspaper's editors responded in their September 4, 1852, issue:

> **"The greatest idea of a higher or thorough education for the sons and daughters of farmers, mechanics and laborers, is everywhere forcing itself on the public attention. Our race needs instruction and discipline to qualify them for working, as well as for thinking and talking. It may be ten years since a few poor and inconsiderate persons began to 'agitate' in favor of a more practical system of thorough education, whereby youth without distinction of sex should be trained for eminent usefulness in all the departments of industry. It is worthy of note that one of the most extensive of the public land states proposes a magnificent donation of public lands to each of the states. In furtherance of this idea, Illinois has taken a noble step forward, in a most liberal patriotic spirit, for which its members will be heartily thanked by thousands throughout the Union. We feel that this step has materially hastened the scientific and practical education for all who desire and are willing to work for it. It cannot come too soon".**

And the editor of the Southern Cultivator wrote in his Augusta, Georgia, newspaper:

> **"We have been gratified by the perusal of an address delivered by Professor J.B. Turner of Jacksonville, Illinois, before a convention of farmers held in that state, in support of the establishment of a university, in which agriculture and the sciences shall be made a special branch of study. His suggestions are urged**

with zeal and ability, and his arguments are convincing, as the need and importance of such institutions. There is no subject more worthy of the highest effort of the human intellect, nor one which has been, until recently, so culpably disregarded, if not condemned. The triumph of a Republic can only be successfully achieved and permanently enjoyed by a people, the mass of whom, are an enlightened yeomanry, the proprietors of the land, too independent to be bought, too enlightened to be cheated, and too powerful to be crushed. There is not a good agricultural school in the United States. The truth is, the American people have yet to commence the study of agriculture as the combination of many sciences. Agriculture is the most profound and extensive profession that the progress of society and the accumulation of knowledge have developed. Whether we consider the solid earth under our feet, the invisible atmosphere which we breathe, the wonderful growth and decay of all plants and animals, or the light, the cold, or the electricity of heaven, we contemplate but the elements of rural science. The careful investigation of the Laws that govern all ponderable and imponderable agents, is the first step in the young farmer's education. This subject is beginning to take a strong hold on the minds of the people, and we are glad to see gentlemen of the talents and influence of Professor Turner lending a hand to put the ball in motion which, ultimately, will sweep down all opposition."

The third group to which Turner turned for support of his plan for educational reform was the Illinois Industrial League. He told those attending their 1851 convention in Chicago:

> **"…All of society is divided into two classes—the professional class and the working class. Colleges of this day provide a good liberal education for the professional class, which constitutes only a small fraction of the population. Nowhere are there colleges for the great mass of people. Society has become wise enough to know that its teachers need to be educated, but it has not become wise enough to know that its workers, too, need an education. We need a system of education adapted to the needs of the common man, which would elevate his to his rightful place in society. Education should be practical, as well as academic, and it should not be the monopoly of the privileged few, but rather the right of everyone who has the desire and the ability to learn."**

From 1852 forth, influential groups in Illinois reaffirmed their endorsement of the plan at their annual conventions. Most groups focused on the United State Congress. The following resolution was adopted at the third Convention of Illinois Farmers on November 24, 1852:

> **"Resolved, that this convention memorialize Congress for the purpose of obtaining a grant of public lands to establish and endow industrial institutions in each and every state in the Union."**

Other groups directed their resolutions and petitions to the Senate and House of Representatives of the State of Illinois. The fourth Convention of the Industrial League of Illinois, held in Springfield on January 8, 1853, adopted the following resolution"

> **"…we would, therefore, respectfully petition the honorable Senate and House of Representatives of the State of Illinois, that they present a united memorial to the Congress now assembled at Washington to appropriate to each state in the Union an amount of public lands not less in value than $500,000, for the liberal endowment of a system of Industrial Universities, one in each state in the Union, to cooperate with each other, and with the Smithsonian Institution at Washington, the more liberal and practical education of our industrial classes and their teachers, in their various pursuits, for the production of knowledge and literature needful in those pursuits, and development to the fullest and most perfect extent the resources of our soil and our arts, the virtue and intelligence of our people, and the true glory of our common country.**
>
> **We further petition that the executive and legislature of our sister states be invited to cooperate with us in this enterprise, and that a copy of the memorial of this legislature be forwarded by the Governors and Senates of the several states."**

This petition was unanimously adopted February 8, 1853, with a preamble and several resolutions reflecting the above sentiments.

Now Turner's campaign for education reform had become truly national in scope. He and his fellow crusaders around the country recognized that they had to rely on the united efforts of like-minded groups across the nation if they were to gain congressional support for their plan.

Although Illinois was the first state to advocate a national appropriation to establish an industrial university for every state and territory, New York and others soon asked Congress for appropriations of land to establish institutions in their respective states. For example, on April 2, 1850, the legislature of Michigan petitioned Congress for 350,000 acres of public land to establish an Agricultural College. And in February 1855 the Congress enacted a law that created the first college in the United States to offer agricultural courses for credit. That institution was an important forerunner of the national network of land-grant colleges and universities made possible by the Morrill Act of 1862. This victory represented the outcome of many years of agitation by various groups throughout the country for a new kind of higher education made possible by the creation of what were respectfully—even reverently—referred to as "people's colleges" and "people's universities.

Other states, some by recommendation, others by petition, asked Congress to appropriate United States Treasury funds to establish both an Agricultural Bureau and a national institution similar to those at West Point and Annapolis for the teaching of agriculture. For example, on April 20, 1852, the State of Massachusetts asked for a grant of public land in aid of a "National Normal Agricultural College", which should be to the rural sciences what the West Point Academy is to the military, for the purpose of educating teachers and professors for service in all the States of the Republic.

The New York Senate, in response to the invitation to support the Illinois Plan, passed a resolution on March 30, 1852, which was endorsed by the New York House of Representatives on April 17, 1852, asking Congress "to make grants of land to all the States for the purpose of education and for other useful public purposes."

Throughout the 1850s, Jonathan Baldwin Turner corresponded with members of the Illinois delegation in Congress, proving philosophical and conceptual information and urgings. He shared his own correspondence, speeches, and related materials, and entreated the delegates to introduce a bill supporting establishment of an "Industrial University" in each state of the Union.

Among Turner's voluminous correspondence, later organized and reviewed by his daughter Mary Turner Carriel, were two letters of special historical significance. The first was a letter from Richard Yates, member of the United States House of Representatives from Illinois, dated June 1852. In it, Yates acknowledged receipt of Turner's plan and stated that he had presented it to the National Agricultural Association, then in session in the City of Washington. This and its publication in the United States Patent Office Report gave Turner's plan wide publicity among people interested in the progress of agricultural education.

At the request of Congressman Yates, Professor Turner prepared a bill on the subject of industrial universities. But Yates concluded that it would not be politically prudent to push the matter in that session. The following fall, Yates was not re-elected to Congress, so the bill, unfortunately, was again delayed.

> **"…Further thought and discussion will suggest valuable amendments, so that the compulsory delay will not be wholly lost. Two years, or ten years, are nothing in the life of an institution such as this, compared with the importance of giving it a substantial basis and right direction."**
>
> **Jonathan Baldwin Turner**

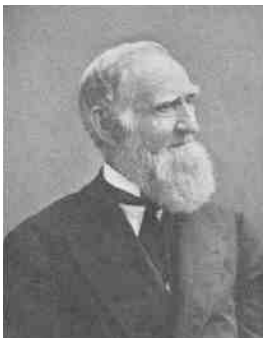
On October 7, 1857, Turner wrote Lyman Trumball, United States Senator from Illinois, respectfully asking him to introduce the bill. The Senator was supportive of the concept but, because he sensed a feeling of opposition in Congress against further major grants of federal land, expressed reluctance to comply. He believed the bill would more likely pass if it were sponsored by members of Congress from some of the old States. On December 4, 1855, some 18 months after the Illinois resolution had been introduced, Justin Smith Morrill of Vermont entered the United States House of Representatives. The Illinois members, following the reasoning of Senator Trumball, believed introduction of their bill could be entrusted to him. Representative Morrill was able, had a pleasing personality, and was a staunch friend of agriculture. He represented Vermont in the House from 1855 to 1866 and in the Senate from 1866 to 1898. In addition to the Morrill Acts of 1862 and 1890, he introduced the Morrill Tariff Act in 1861. Additionally, he helped to found the Republican Party and to pass the legislation that established the Library of Congress.

Just three months into his first term in Congress, Representative Morrill introduced a resolution authorizing the Committee on Agriculture to inquire into the expediency of establishing one or more National Schools upon the basis of the naval and military schools, in order that one scholar from each Congressional District and two from each State at large may receive a scientific and practical education at the public expense. The resolution was rejected.

Senator Trumball's October 19, 1857, letter had embraced Turner's plan, but recommended it be presented by a member from one of the old states. Trumbull noted that Congress had given much toward education interests in the new states, that they were in no frame of mind to do more, not even for Turner's plan, which embraced all the states, new and old. After considering the various strategies, Turner decided to send all documents, papers, speeches, pertinent correspondence, and pamphlets to Representative Morrill, along with the request that he introduce the bill. At first, Morrill was reluctant to do this. But after much persuasion, he consented.

The bill was introduced on December 14, 1857, but it was reported back unfavorably by the Committee on Public Lands. Morrill submitted it again, omitting the proposed grant of land to the Territories (these were later reinstated), in a speech on April 20, 1858. He said: There has been no measure for years which has received so much attention in the various parts of the country as the one now under consideration, so far as the fact can be proved by petitions which have been received here from the various states, north and south, from State sessions, from county sessions and from memorials. (Congressional Globe, 35th Congress, p. 1692).

It did not pass the House, but it was introduced again the next year, when it passed the House but failed in the Senate. Finally, in 1859, it was introduced again and passed both the House and Senate. In spite of its considerable Congressional support, President James Buchanan, an independently wealthy graduate of Dickinson College in Carlisle, Pennsylvania, vetoed the measure.



Jonathan Baldwin Turner

Disappointed but not discouraged, Turner conferred with his anti-slavery colleague and friend, Abraham Lincoln, about the bill President Buchanan had vetoed. Through two of his former students at Illinois College, Turner had indirectly helped Abraham Lincoln learn grammar when the future president was but a harvest hand. Before the Republican Convention of 1860, Turner told Lincoln that he believed the lawyer from the Illinois prairie would be nominated for president and then elected. To this Lincoln responded, "If I am, I will sign your bill for State Universities."

Later, Turner met with Lincoln's presidential opponent, Illinois Democratic Senator Stephen A. Douglas, from whom he extracted the commitment: "If I am elected I will sign your bill." So regardless of how the people voted, Jonathan Baldwin Turner knew that, after more than a decade of arduous effort, the world's greatest plan for education of the masses was assured passage.

In June 1861, Senator Douglas wrote Turner requesting a copy of his plan and the historical background of the proposed Industrial University System. He wished to personally introduce it in the next session of Congress. Senator Douglas had long before declared, "This educational scheme of Professor Turner's is the most democratic…ever proposed to the mind of man!"

Turner responded with a full and complete account, and sent it to the post office with his oldest son. To Turner's surprise and dismay, Rhodolphus Turner returned with the letter, saying a telegram had just been received announcing the death of Senator Douglas in Chicago.

When Justin Smith Morrill again introduced the bill, it passed both the House and the Senate (the Senate sponsor was Ohio's Benjamin Franklin Wade), and it was the first civil bill signed into law by President Lincoln on July 2, 1862. Representative Morrill cited two principal reasons for introducing the now famous land-grant Act:

1. …., the loud demand for more scientific instruction in the colleges, and

2. so much of the abundant public lands of the United States were being given away to local corporations, railroads, and other entities that he thought it very desirable for a portion of the proceeds

from such lands be directed in some way to the good of the whole people…and that the thoroughly educated, being most sure to educate their sons, appeared to be perpetuating a monopoly of education inconsistent with the welfare and complete prosperity of American institutions.

Although 1862 was a year of national crisis, the United States Congress, with commendable foresight, enacted three visionary laws—laws that have had profound impact upon the economic and social development of our nation.

First, on May 15, 1862, President Abraham Lincoln signed the Act that established the United States Department of Agriculture. This legislation provided important footing for the development of a scientific American agriculture, upon which would rest our nation's enormously productive food and agricultural enterprise.

Second, on May 20, 1862, Lincoln signed the Homestead Act, which greatly encouraged westward expansion by opening some 200 million acres of land for agricultural settlement and development.

Third, on July 2, 1862, Lincoln signed the First Morrill Act:

"An Act donating public lands to the several states and territories which may provide colleges for the benefit of agriculture and the mechanic arts: Be it enacted by the Senate and House of Representatives of the United States of America, in Congress assembled, that there be granted to the several states, for the purpose hereinafter mentioned, an amount of public land, to be apportioned to each state, in quality equal to 30,000 acres, for each Senator and Representative in Congress to which the States are respectfully entitled by apportionment under the census of 1860; …And be further enacted, that all monies derived from the sale of lands aforesaid…shall be invested in stocks of the United States, or of the States, or some other safe stocks, yielding not less that five percent, upon the par value of said stock; and that the money so invested shall constitute a perpetual fund, the capital of which shall remain forever undiminished, and the interest of which shall be inviolably appropriated…to the endowment, support, and maintenance of, at least, one college where the leading object shall be, without excluding other scientific and classical studies, and including military tactics, to teach such branches of learning as are related to agriculture and the mechanic arts, in such manner as the legislatures of the states may respectively prescribe, in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions in life."

All together, by 1890, the states and territories had received 11,367,832 acres of land. There were certain states, particularly in the Northeast (where the federal government did not own much land), that were empowered by the Morrill Act to select land in the west, then sell it. Money derived from the sale of this land was to be invested and the interest used in perpetuity to establish and maintain in each state and territory at least one college where the principal object would be training "in agriculture and the mechanic arts."

Some of the institutions which benefited from the Morrill Act of 1862 had already been established by the states. For example, Michigan had established an agricultural college in February 1855, and admitted its first 73 students in May 1857. In other cases, proceeds from the 1862 land-grant act were given to pre-existing institutions on condition that they would provide instruction in agriculture and the mechanic arts. Some of these were state-supported, others private institutions. In Massachusetts, the money was allocated partly to the Massachusetts Institute of Technology and partly to an institution in Amherst (now the University of Massachusetts) created for the express purpose of providing agricultural education. In Connecticut, the money went first to Yale College, but later to a special institution organized to take advantage of the act. In other states, notably Minnesota and Wisconsin, the money was given to the state universities which had already been established.

Justin Morrill

The land-grant act of 1862 proved to be an emancipation proclamation for those of modest financial circumstances who were striving for a college education. Federal provisions for the land-grant institutions were made in an era when fewer than two percent of the U.S. population continued their formal education beyond the twelfth grade. For the first time, colleges were accessible to the people, and the idea of equality of educational opportunity became reality. The land-grant act of 1862 has indeed appropriately been described as our nation's "Bill of Educational Rights."

"The land-grant university system is being built on behalf of the people, who have invested in these public universities their hopes, their support, and their confidence."

Abraham Lincoln

Summary and Comments:

1. Unquestionably, the Morrill Act of 1862 was the most important single event in the history of the U.S. land-grant universities.

2. Almost certainly, the true author of the 1862 Morrill Act was Jonathan Baldwin Turner, not Justin Morrill, although Morrill did yeoman's service in introducing, re-introducing, and fighting for passage of the bill.

3. Which was the first land-grant university? This requires a bit of qualification. The oldest l-g institution is Rutgers, which was founded in 1766 and was later designated as the l-g university for the state of New Jersey. Michigan is usually considered as the first l-g institution and Penn State was second. Both of these were founded as agricultural colleges in the 1850s as a result of funds appropriated by the U.S. Congress. The first university designated as a land-grant institution *as a result of the Morrill Act* was Iowa State, and Vermont and Connecticut soon followed. In 1863, 14 states had adopted the Act, and by 1870, 37 states had instituted a program for teaching agriculture, mechanical arts, and military tactics. Kansas State claims that it was the first university newly created as a l-g institution under the Morrill Act of 1862. . This claim is debatable because its forerunner was Bluemont College, established in 1958 under the auspices of the Methodist-Episcopal Church. Because of financial difficulties, the trustees of Bluemont College offered to the State of Kansas its 100 acres, building, library, and furnishings, which was accepted and became Kansas State Agricultural College.

4. Interestingly enough, the 1862 bill was sponsored in the House by Justin Morrill and in the Senate by Ohio's Benjamin Franklin Wade. Yet, while the name Morrill remains firmly attached to the famous Act, Wade is essentially never mentioned. Curious that it is not known as the Morrill-Wade Act.

5. Some of the first land-grant colleges were private colleges, including MIT and Yale. Even Oregon State was a private church school in 1868 when it became a land-grant college and remained as a partial church school until 1885.

6. The site of the land sold to provide funds for the colleges is often not well understood. Especially in the eastern U.S., there was not sufficient federal land within the state to fulfill the requirements of the Morrill Act, so land was provided primarily in the western states. For example, Merle Howes, a retired professor at the University of Massachusetts, set out to find where the land was situated for the UMass land grant. It took the cooperation of the Dept. of Interior, the Bureau of Land Management, and the National Archives, and from there, west to land offices in Nebraska and Kansas where most of the land for the new Massachusetts college turned out to be located. Probably every college could trace back to the original land grant, but there is not much interest in doing so.

Chapter Two. The Hatch Act of 1887.

The Hatch Act of 1887 provided funds to the land-grant universities to establish agricultural experiment stations. Its purpose was to "promote efficient production, marketing, distribution, and utilization of products of the farm as essential to the health and welfare of people and to promote a sound prosperous agriculture and rural life. Up to 25 percent of the funds were to be used for integrated cooperative research and extension activities." Much of the following discussion of the Hatch Act is taken from the writing of John R. Campbell[1]. That Act was a natural consequence of the Morrill Act of 1862 and had a major impact on the land-grant universities that continues to this day.

"The early private colleges did not emphasize research, but rather they focused on teaching and the preservation of knowledge and traditions. Neither faculty nor students were particularly interested in creating new understandings in either the realm of human experience or that of the natural world. They focused on reinforcing the cultural traditions they served.

The first federal call for adding a research dimension to higher education's mission—indirect though it was—came from George Washington. In his 1796 presidential message to Congress, he requested a Board of Agriculture with one of its purposes to be the encouragement of experimentation. This is not surprising since George Washington's Mount Vernon estate was a veritable experimental farm on which the owner sought ways to conserve soil, diversify cropping, and use new machinery. By careful seed selection, Washington developed an improved strain of wheat; he obtained one of the first patents on seed-sowing devices; his sheep produced nearly three times as much wool as those of his neighbors; and he was the first American to raise mules.

Thomas Jefferson, who served as a member of President Washington's cabinet and then as the third president of the United States, had an inventive mind as well as a flair for scientific experimentation. He worked out the mathematical principle of least soil resistance for an all-metal moldboard plow. He also invented a seed drill, a hemp brake, and improvements for the threshing machine. He tested varieties of at least 32 different vegetables at Monticello, and practiced horizontal plowing for soil-erosion control.

There was no agricultural research literature in the eighteenth century. Washington, Jefferson, and other early visionaries created it by conducting experiments on their own farms, then sharing the results by exchanging correspondence with interested persons in this country and abroad. They sought new seeds, new machines, improved foundation stocks, and better ways of farming. Indeed, Washington and Jefferson established a rich legacy for scientific experimentation.

Just six years after Thomas Jefferson saw the University of Virginia open with 40 students enrolled in 1825, Cyrus McCormick demonstrated his newly perfected reaper to a skeptical audience on a farm in Rockbridge County, Virginia. McCormick had at long last solved a problem that, for thousands of years, had been a major impediment in civilization's parade of progress. New developments followed quickly, producing rapid agricultural progress that would bring relief to the farm family's life of drudgery and deprivation.

Norman J. Colman, a Missouri farm magazine editor, was in 1885 appointed the first United States Commissioner of Agriculture (now Secretary of Agriculture). Colman was committed to passage of legislation that would provide funding for state agricultural experiment stations. A legislative committee comprised of three land-grant university presidents worked with Commissioner Colman in these efforts, which were endorsed by Congressman William Henry Hatch of Missouri and Senator James Z. George of Mississippi, who agreed to sponsor the proposed legislation. After considerable debate and compromise, the bill known as the "Hatch Act" was passed on March 2, 1887. It provided $15,000 per annum to establish agricultural experiment stations in connection with the land-grant colleges and universities established in the several States and Territories under the provisions of the Morrill Act approved July 2, 1862….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 investigations and experiments respecting the principles and application of agricultural science.

Congressman Hatch's own farm on the outskirts of Hannibal, Missouri, was later quite appropriately acquired by the Missouri Agricultural Experiment Station. This author and many others over the years conducted research on the Hatch farm.

The Hatch Act of 1887 was a sort of 'second growth' from the seed sown first by Jonathan Baldwin Turner, who also conducted experiments related to agriculture on his own farm near Butler, Illinois.

Another major contributor to passage of the Hatch Act of 1887 worthy of note was Wilbur Olin Atwater, who directed the Storrs (Connecticut) Agricultural Experiment Station from 1887 to 1902. Dr. Atwater served for 34 years as professor of chemistry at Wesleyan University, Middletown, Connecticut. The first agricultural experiment station in the United States was established at Middleton under his direction in 1875. It was later moved to New Haven. Atwater also served as the first chief of the Office of Experiment Stations of the United States Department of Agriculture."

As with most laws, passage of the Hatch Act was not easy, and it involved re-writing and compromise. In 1950, Harry Truman was on a barnstorming tour through the Midwest. Speaking from the rear platform of the train in Iowa to a largely rural audience, he said "That reminds me of a story about a man from my home state who was in Congress back in the eighties. His name was William Henry Hatch, and his name was attached to many laws which benefit the farmer.

Congressman Hatch was the author of a law in 1887 which granted $15,000 a year for each State to set up agricultural experiment stations in connection with its agricultural college. There were a lot of folks who raised Cain when that bill got to the Senate. You would have thought that the end of the world was just around the corner. One Senator from the great State of Kansas, said that this proposal was cooked up in response to the 'clamor of a certain select class of self-constituted reformers.'

This Senator went on to say, and these are his exact words—now this was in 1887—sounds like an argument in the Senate now: "It illustrates a tendency of this class of agitators to demand the continued interposition of the National Government in State and local and domestic affairs, and with the result, as I believe, of absolutely destroying the independence and freedom of individual conduct, and subverting the theory on which the government is based—" Now that is an exact quotation from the Senator from Kansas, who is also famous as a poet."

William H. Hatch

Summary and Comments

1. The $15,000 allotted to each land-grant university does not sound like much today, but it had a major impact on the schools of the day. For example, that $15,000 more than doubled the total budget at the time for Oregon Agricultural College.

2. The Hatch Act changed the entire nature of the land-grant schools by raising the importance of research equal to that of teaching. The later Smith-Lever Act did the same for extension, adding the third leg to the tripartite system we have today.

3. As with the Morrill Act of 1862, the co-sponsor, in this case Senator James George of Mississippi, is not named as part of the bill; thus it is not the Hatch-George Act. Perhaps George had nothing to do with writing the bill but merely served to introduce it to the Senate.

Chapter Three. The Morrill Act of 1890.

The 1890 Land-Grant Institutions were created as a result of the Second Morrill Act. The First Morrill Act of 1862 authorized the establishment of a land-grant institution in each state, but not everyone benefited from that law. Under the conditions of legal separation of the races in the South, African-Americans were not permitted to attend the original land-grant institutions. Although the Morrill Act of 1862 authorized "separate but equal" facilities, only Mississippi and Kentucky established institutions for African-Americans under this law, and only Alcorn State University was designated a land-grant institution.

From 1866 to 1890, several southern states established normal schools to train African American teachers. Although many of these institutions were similar to the land-grant universities, the federal government was unable to gain cooperation from the southern states in the provision of land-grant support to the African-American institutions.

Twenty-eight years after the passage of the Morrill Act of 1862, Justin Morrill—by then serving in the United States Senate—introduced the bill that was to become popularly known as the second Morrill Act. It was presented twelve times before becoming law. Because the act stated that funds should be "equitably divided" between white and black colleges, there was strong opposition from white Southern congressmen. Specifically, the Morrill Act provided that no money shall be paid out under this Act to any State or Territory for the support and maintenance of a college where a distinction of race or color is made in the admission of students, but the establishment and maintenance of such colleges separately for white and colored students shall be held to be a compliance with provisions of the Act, if the funds received in such State or Territory be equitably divided. Many of the African-American normal schools were incorporated into this system and 16 colleges became known as "1890 Institutions". (http;//www.csrees.usda.gov/about/offices/legis/secondmorrill.html)

One exception to this historical pattern is Tuskegee University, which was created as Tuskegee Normal and Industrial Institute by an act of the Alabama legislature in 1881. Twelve years later, the state granted the school its independence and incorporated a semi-private board of trustees to govern it. Thus, Tuskegee University is not a land-grant college, despite the fact that it was granted 25,000 acres of land by Congress in 1899. However, because Tuskegee has espoused the land-grant philosophy throughout its history, it traditionally has been associated with the African-American land-grant institutions and is generally regarded as an 1890 college, making the total of '1890' colleges at 17. A list of these colleges is in Appendix No. 2.

Federal funds for research and extension at the 1890 schools were provided under subsequent acts, not the second Morrill Act.

Chapter Four. The Smith-Lever Act of 1914

In the late 1800s and early 1900s, many of the land-grant universities were taking their information off campus with demonstration farms, corn clubs for boys, tomato growing and canning clubs for girls, and home management demonstrations for rural women. Two names appear as pioneers in establishing extension as the third responsibility of land-grant universities along with teaching and research. One of these two men was Seaman Knapp, a professor of agriculture and eventually president of what was to become Iowa State University. He is commonly called the "Father of the Extension Movement". The other was Kenyon L. Butterfield, President of Massachusetts Ag College.

Their views were very different. Knapp advocated "Cooperative Farm Demonstrations" directly by USDA through its field agents, demonstrations to be conducted by farmers themselves on their own farms. Knapp believed in the quote "What a man hears, he may doubt; what he sees, he may also doubt; but what he does, he cannot doubt." Knapp taught through a famous demonstration—Porter Farm near Terrell, Texas—70 acres, half in corn and half in cotton, using different seed varieties, fertilizers, and methods of planting and cultivation. He made $700 more than he would have made by using conventional methods. (http://courses.ag.uidaho.edu/aged359/pdfs/1_origins.pdf)

Butterfield promoted using dollars to support the land-grant institutions to conduct extension-type work—fairs, judging, tours, exhibits, publications, lectures, and farmer institutes. He planted the seed to fund Extension through the land-grant colleges.

President Theodore Roosevelt's Country Life Commission, in 1909, called for a national Extension Service to be organized by each land-grant institution and "to reach every person on the land in its state with both information and inspiration." By 1912, Extension departments had emerged in 43 land-grant colleges.

After much debate regarding Extension's organization with federal, state, and local cooperation, its mission and methods, the Smith-Lever Act of 1914 created the Cooperative Extension System. It was supported by Rep. Asbury Francis Lever of South Carolina and Sen. Michael Hoke Smith of Georgia. The Act provided federal support for land-grant colleges to offer educational programs to enhance the application of useful and practical information beyond their campuses through cooperative extension efforts with states and local communities. The Act has been amended many times, but it initiated the tripartite activities of the colleges and remains today as a crucial part of the three-pronged effort. Its impact on citizens of the U.S. has been enormous.

Chapter Five-The Smith-Hughes Act of 1917

Whereas the Hatch Act of 1887 was directed toward agricultural research and the Smith-Lever Act of 1914 was directed toward agricultural extension, the Smith-Hughes Act 1917 dealt with improving agricultural education. Introduced by Senator Michael Hoke Smith (of the Smith-Lever Act) and Representative Dudley M. Hughes, both of Georgia, it was passed by both the Senate and House, and signed into law by Woodrow Wilson on February 23, 1917.

The purpose of the Act was to provide funds to support the teaching of agriculture (which included home economics). The act stated that the purpose of vocational agriculture was to train people "who have entered upon or who are preparing to enter upon the work of the farm." Matching funds from State and local sources were required. The influence of the federal government was rigid and strong. Funds could be spent on salaries of vocational teachers, but not on teachers of academic subjects. Students were subjected to the 50-25-25 rule; i.e., 50 percent time in shop work; twenty-five percent in closely related subjects, and twenty-five percent in academic course work. This rule was in effect from the 1920 to 1960. One may reasonably assume that the authorities saw programs of practical instruction so endangered from a dominant academic elite that they required such protection by Federal law. The end result, however, was to segregate academic teachers and students from vocational teachers and students and to strengthen the social alienation that early critics of these steps had feared. Some funds could be used by the universities for the training of teachers of vocational agriculture.

The vocational agriculture programs led into the formation in 1928 of the Future Farmers of America, which continues to this day. I was surprised to read of the rigid separation of the vocational students from the academic curriculum. From my observations and experience, this separation was not strongly enforced and vo-ag students often participated fully in the academic activities of their high schools.

The Smith-Hughes Act has had a major impact on universities, in establishing departments of Agricultural Education for training vo-ag teachers, and on high schools in maintaining the ag and home economics training programs. The impact on American agriculture is not measurable, but it must be very large, indeed.

Chapter Six. The 1994 Land-Grant Act

The 1994 Land-Grant Act involved adding tribal institutions to the list of land-grant colleges. The following discussion is from the writing of John Campbell[1]:

"Just as the original land-grant act of 1862 and the second Morrill Act of 1890 were attempts to democratize higher education, so too was the initiative to secure land-grand status for the nation's tribal colleges. The Tribally Controlled Community College Act of 1978 stimulated development of the variety of technical two-year, four-year, and graduate schools presently located in or near tribal reservations. Their success in meeting community needs, coupled with a prevailing climate of strong self-determination, led the American Indian Higher Education Consortium (AIHEC) to approach the National Association of State Universities and Land-Grant Colleges (NASULGC) to consider the potential of a cooperative effort to secure land-grant status for their twenty-nine colleges. Employing the same argument used during the successful campaign by the University of the District of Columbia, the Pacific Island territories, and the Virgin Islands to achieve land-grant status, the Native Americans noted that their reservation, held in trust for American Indian tribes, were the only areas under U.S. flag that had not participated in the land-grant program.

During the spring of 1993, the leadership of AIHEC and NASULGC met to discuss opportunities that the granting of land-grant status to the tribal colleges would provide the members of both organizations. At the onset of the meetings, NADULGC President C. Peter Magrath pledged full support of the effort achieve land-grant status for the Native American-controlled colleges when he emphatically stated, "It is simply the right thing to do." Shortly thereafter, the Board of Directors of NASULGC approved a resolution "endorsing the quest by this nation's tribal colleges for federal legislation conferring land-grant status upon these colleges."

In November 1993, the AIHEC and NASULGC jointly testified before the U.S. Senate Committee on Indian Affairs in favor of land-grant status for the tribal colleges. In January 1994, Magrath created a special task force on tribal colleges and land-grant status to strengthen cooperation between the present NASULGC member schools and the tribal colleges. Task force chairman Michael P. Malone (president of Montana State University) and other NASULGC member institution presidents met with their tribal college counterpart in Kansas City, Missouri, to discuss issues of mutual interest.

In October 1994, Congress passed legislation conferring land-grant status on the twenty-nine Native American tribal colleges as a provision of the Elementary and Secondary Reauthorization Act. The bill authorized a $25 million endowment over a period of five years. The colleges would receive annual interest payments from this endowment. Additionally, the legislation authorized a $1.7 million challenge grant program for higher education initiatives in agriculture and natural resources and $50,000 per school that will go to the Cooperative Extension Service of the 1862 land-grant institutions in states that have tribal colleges. The 1862 institutions are to cooperate with the tribal colleges in setting up joint agricultural extension programs focused on the needs of Native Americans.

A month after the passage of the bill granting land-grant status to the tribal colleges, the NASULGC board voted to admit AIHEC as a member of the National Association. Thus, in January 1995 the AIHEC became the newest member of NASULGC, the nation's oldest higher education association.

The twenty-nine tribal colleges were located in twelve states. Most are two-year colleges and technical schools, but three are four-year institutions and one offers a master's degree. While some of the tribal colleges may differ in scope and nature from most other NASULGC institutions, they have an outstanding record in providing educational opportunities to American Indian people. Therefore, their role and mission are highly compatible with the legendary land-grant mission of providing and promoting educational opportunities where they are needed.

The land-grant college and university movement that began so nobly in 1862 in providing 'democracy's colleges" is now in the present era demonstrating once again its ability to adapt and change to meet new educational challengers and contingencies for a new century."

Since Campbell wrote the above in 1995, another institution, the White Earth Community College in Minnesota, was given land-grant status by the 2002 Farm Bill, Section 7201, and the list of tribal land-grant institutions now includes 30 in 12 states (Appendix 3).

Chapter Seven. Other Federal Legislation Impacting Land-Grant Universities

Subsequent to 1890, a number of bills were passed by the U.S. Congress amending or supplementing the "Big Four", the Morrill Act of 1862, the Hatch Act of 1887, the Morrill Act of 1890, and the Smith-Lever Act of 1914. Some of these are listed below with a brief description:

1907-Nelson Amendment to the Morrill Acts of 1862 and 1890 was passed, providing further increased appropriations to land-grant institutions.

1908-Benefits of the Second Morrill Act and the Nelson Amendment extended to Puerto Rico.

1924-Clark-McNary Act. Section 5 of the Act provided funds (on a matching basis by the individual states) for cooperative farm-forestry work.

1928-Capper-Ketcham Act. This provided for the further development of agricultural extension work at the 1862 land-grant colleges and that future funds be allocated "in addition to and not a substitute for" those made available in the Smith-Lever Act of 1914.

1929-Alaska Act of 1929. This extended the benefits of the Hatch Act and the Smith-Lever Act to the Territory of Alaska.

1931-Puerto Rico Act. This coordinated the agricultural experiment station work and extended the benefits of the Hatch and Smith-Lever Act to the Territory of Puerto Rico.

1935-The Bankhead-Jones Act added to annual appropriations for land-grant institutions. This extended the scope of research conducted under the Hatch Act and provided for the future development of Cooperative Agricultural Extension work and provided for further endowment and support of 1862 and 1890 colleges.

1945-The Bankhead-Flannagan Act furthered the development of cooperative extension work in agriculture and home economics.

1946-Agricultural Marketing Act. This extended authorized extension programs in marketing, transportation, distribution of agricultural products outside the Smith-Lever formula, but states were required to match Federal funds.

1949-Clarke-McNary Amendment. This authorized USDA to cooperate with land-grant colleges in aiding farmers through advice, education, demonstration, etc., and in harvesting, utilizing, and marketing the products thereof.

1953-Smith-Lever Act Amendment. This simplified and consolidated ten separate laws relating to Extension. Established new funding procedures based on rural/urban population formula and amounts. Repealed the Capper-Ketcham Act and the two Bankhead-Jones Acts of 1935 and 1945. Inserted "and subjects relating thereto" after agriculture and home economics and inserted reference to necessary printing and distribution of information.

1960-Land-grant status for the University of Hawaii established a new precedent. Since there was no longer adequate federal land to donate for the creation of an endowment, the University of Hawaii was given a $6 million endowment in lieu of land scrip.

1967-District of Columbia Post Secondary Education Reorganization Act gave land-grant status to Federal City College, now the University of the District of Columbia. This established a precedent for federal trust areas to participate in the land-grant system.

1968-The Navajo Community College Act created the first tribally controlled college.

1968-District of Columbia Public Education Act. This designated Federal City College as the land-grant institution for extension in the District of Columbia and authorized funds for this work.

1972-University of Guam, Northern Marianas College, the Community Colleges of American Samoa and Micronesia, and the College of the Virgin Islands secured land-grant status through the Education Amendments of 1972.

1978-The Tribally Controlled Community College Act stimulated the development of a variety of technical, two-year, four-year, and graduate colleges located on or near tribal reservations.

1994-National Agricultural Research, Extension and Teaching Act of 1994. Land-grant status was conferred on 29 Native American colleges as a provision of the Elementary and Secondary Education Reauthorization Act. The bill authorized a $23 million endowment for them, to be built up over five years. The colleges were to receive annual interest payments from the endowment. The act also provided grants for a pilot project to coordinate food and nutrition education programs of states, and it provided for demonstration grants for extension and nonprofit disability agencies to provide on-the-farm agricultural education and assistance directed at accommodating disability in farm operations.

1994-The Department of Agricultural Reorganization Act of 1994. This established the Cooperative State Research, Education, and Extension Service (CSREES) to coordinate USDA and state cooperative agricultural research, extension, and education programs. It also established the CSREES to consolidate cooperative research and agricultural extension and education programs with state agricultural experiment stations and extension services within land-grant and related universities.

2002 The 2002 Farm Bill, Section 7201, granted land-grant status to the White Earth Tribal and Community College in Mahnomen, Minnesota.

General Comments

Unquestionably, land-grant universities have had an enormous impact on this country over the past century and a half. Their concept represents a major step beyond the higher education in other countries of the world. However, it would be a mistake to suppose that the Morrill Act of 1862 was intended that every student should become either a farmer or a mechanic. The design included not only instruction for those who may hold a plow or follow a trade, but such instruction as any person might need…"*and without the exclusion of those who might prefer to adhere to the classics".*

The 1862 colleges, the 1890 institutions, and the 1994 Tribal land-grant colleges are listed in the following appendices. I had considerable difficulty in compiling the lists because various references are different. An example: MIT was originally one of two land-grant colleges in Massachusetts, presumably to handle the mechanical requirements of the 1862 Morrill Act. But I was not sure whether that status holds true today. One reference includes MIT on the list, another does not. However, in the 1990s, a controversy arose on campus because of the anti-gay policy taken by the U.S. Defense Department. There was considerable discussion in the faculty senate and other groups about the possibility of eliminating ROTC because of conflicts with MIT's established policy of non-discrimination based on sexual preference. Some questioned whether this would be possible because the 1962 Morrill Act called for instruction in military science and MIT *is a land-grant university!* Might MIT be forced to repay the federal government for all the land and financial grants received over the past century and a half? Others said that military science could be taught without ROTC on campus. The question was tabled and presumably ROTC is still on campus. The point is that MIT still considers itself a land-grant institution. (The 2007 list includes both U. Mass. at Amherst and MIT as land-grant universities.)

I believe that the web page of the National Association of State Universities and Land-Grant Colleges (NASULGC) is now up to date and I have used their list in compiling the following three appendices. Part of my frustration came when I was consulting an older NASULGC web page, which did *not* include MIT and it had other discrepancies. I believe the list of 106 land-grant institutions (107 with Tuskegee) in Appendices 1-3 is accurate as of 2007.
(http://nasulgc.org/about_nasulgc/nasulgc_members.htm) and
(http://nasulgc.org/about_nasulgc/members_tribal.htm)

Appendix No. 1. 1862 Land-Grant Universities

Auburn University—Auburn, AL
U. of Alaska, Fairbanks, AK
American Samoa Community College, Pago Pago, Samoa
U. of Arizona, Tucson, AZ
U. of Arkansas, Fayetteville, AR
U. of California, Davis, CA
Colorado State Univ., Ft. Collins, CO
U. of Connecticut, Storrs, CT
U. of Delaware, Newark, DE
U. of Florida, Gainesville, FL
U. of Georgia, Athens, GA
U. of Guam, Mangilao, Guam
U. of Hawaii, Honolulu, HI
U. of Idaho, Moscow, ID
U. of Illinois, Urbana, IL
Purdue University, West Lafayette, IN
Iowa State Univ., Ames, IA
Kansas State Univ., Manhattan, KS
U. of Kentucky, Lexington, KY
Louisiana State Univ., Baton Rouge, LA
U. of Maine, Orono, ME
Northern Marianas College, Saipan
U. of Maryland, College Park, MD
U. of Massachusetts, Amherst, MA
Massachusetts Instit. of Technol., Cambridge, MA
Michigan State College, East Lansing, MI
College of Micronesia, Kolonia, Pohnpei, Fed. States of Micronesia
U. of Minnesota, St. Paul-Minneapolis, MN
Mississippi State Univ., Starkville, MS
U. of Missouri, Columbia, MO
Montana State Univ., Bozeman, MT
U. of Nebraska, Lincoln, NE
U. of Nevada, Reno, NV
U. of New Hampshire, Durham, NH
Rutgers Univ., New Brunswick, NJ
New Mexico State College, Las Cruces, NM
Cornell Univ., Ithaca, NY
North Carolina State Univ., Raleigh, NC
North Dakota State Univ., Fargo, ND
Ohio State Univ., Columbus, OH
Oklahoma State Univ., Stillwater, OK
Oregon State Univ., Corvallis, OR
Pennsylvania State Univ. University Park, PA
U. of Puerto Rico, Rio Piedras
U. of Rhode Island, Kingston, RI
Clemson Univ., Clemson, SC
South Dakota Univ., Brookings, SD
U. of Tennessee, Knoxville, TN
Texas A & M, College, TX
Utah State Univ., Logan, UT
U. of Vermont, Burlington, VT
U. of the Virgin Islands, St. Croix & St. Thomas
Virginia Polytech. Instit., Blacksburg, VA
Washington State Univ., Pullman, WA
West Virginia Univ., Morgantown, WV
Univ. of Wisconsin, Madison, WI
U. of Wyoming, Laramie, WY

Appendix No. 2. 1890 Land-Grant Universities

Alabama A&M Univ., Normal, AL
***Tuskegee Univ., Tuskegee, AL**
U. of Arkansas at Pine Bluff, AK
Delaware State Univ., Dover, DE
Florida A&M Univ., Tallahassee, FL
Fort Valley State Univ., Fort Valley, GA
U. of District of Columbia, Washington, D.C.
Kentucky State Univ., Frankfort, KY
Southern Univ. and A&M College, Baton Rouge, LA
U. of Maryland-Eastern Shore, Princess Anne, MD
Alcorn State Univ., Lorman, MS
Lincoln Univ., Jefferson City, MO
North Carolina A&T State Univ., Greensboro, N
Langston Univ., Langston, OK
South Carolina State Univ., Orangeburg, SC
Tennessee State Univ., Nashville, TN
Prairie View A&M Univ., Prairie View, TX
Virginia State Univ., Petersburg, VA
West Virginia State College, Institute, WV

*Tuskegee is not an official land-grant university but is commonly included in the group.

Appendix No. 3. 1994 Native American Tribal Land-Grant Colleges

Dine College, Tsaile, AZ

Hehaka Sapa College, Davis, CA

Haskell Indian Nations Univ., Lawrence, KS

Bay Mills Community College, Brimley, MI

Fond Du Lac Community College, Cloquet, MN
Leech Lake Tribal College, Cass Lake, MN
White Earth Tribal and Community College, Mahnomen, MN

Blackfeet Community College, Browning, MT
Dull Knife Memorial College, Lame Deer, MT
Fort Belknap Community College, Harlem, MT
Fort Peck Community College, Poplar, MT
Little Big Horn College, Crow Agency, MT
Salish-Kootenai College, Pablo, MT
Stone Child College, Box Elder, MT

Little Priest Community College, Winnebago, NE
Nebraska Indian Community College, Macy, Niobrara, and S. Sioux, NE

Crown Point Institute of Technology, Crown Point, NM
Institute of American Indian Arts, Santa Fe, NM
Southwestern Indian Polytechnic Institute, Albuquerque, NM

Fort Berthold College Center, New Town, ND
Little Hoop Community College, Fort Totten, ND
Sitting Bull Community College, Ft. Yates, ND
Turtle Mountain Community College, Belcourt, ND
United Tribes Technical College, Bismarck, ND

Oglala Lakota College, Kyle, SD
Sinte Gleska college, Rosebud, SD
Si Tanka College, Eagle Butte, SD
Sisseton-Wahpeton Community College, Sisseton, SD

Northwest Indian College, Bellingham, WA

College of the Menominee Nation, Keshena, WI
Lac Courte Oreilles Ojibwa Community College, Hayward, WI

ADDENDUM

U.S Department of Agriculture—Origin and Evolution

Because this writing is about state-owned land-grant institutions, and USDA is a federal agency, including a discussion of USDA might seem out of place. But two sections of USDA, namely Agric. Research Serv. (ARS) and the Cooperative State Research Service (CSRS), have had a close working relationship with the universities, so I considered its inclusion here as fully appropriate.

The idea of establishing a federal department of agriculture was not arrived at suddenly. Indeed, in 1799, President Washington suggested to Congress the establishment of a National Board of Agriculture, but this was not accomplished. USDA actually traces its beginning back to the US Patent Office, which was established in 1790. The first patent was for a method of making potash fertilizer by burning wood ashes.

In 1836, Henry Ellsworth, a man interested in improving agriculture, became Commissioner of Patents, a position with the Department of State. He soon began collecting new varieties of seeds and plants and distributing them through members of the Congress and agricultural societies. In 1839, Congress answered his plea for aid by appropriating $1000 for the three-fold purpose of collecting agricultural statistics, conducting agricultural investigations, and distributing seeds. With this money, Ellsworth inaugurated an Agricultural Division in the Patent Office.

Although appropriations came irregularly in the years immediately following, Ellsworth by his personal interest and zeal kept the work going. In 1 year alone, over 30,000 packages of seeds were given away. The agricultural statistics gathered in 1842 were published, with a survey of crop conditions. In 1849, the Patent Office was transferred to the newly created Department of the Interior.

Succeeding Commissioners continued the work of Ellsworth. In 1854, Charles Mason employed a chemist, a botanist, and an entomologist to conduct experiments, Congress having granted the division $35,000. Two years later, a 5-acre garden was obtained and investigations in the cultivation of sorghum and tea were begun.

Occasionally, someone reports that an official in the Patent Office suggested it be closed because "there was nothing left to invent". This is a myth, but may have been inadvertently caused by a statement in Ellsworth's 1843 report in which he said "The advancement of the arts, from year to year, taxes our credulity and seems to presage the arrival of that period when human improvement must end." But Ellsworth was simply using a bit of rhetorical flourish to emphasize the growing number of patents as presented in the rest of the report. He even outlined specific areas in which he expected patent activity to increase in the future. Recent publications have attributed the "everything that has been invented…" quote to a later commissioner, Charles H. Duell, who held that office in 1899. Unlike Ellsworth, who may

have been merely misquoted, there is absolutely no basis to support Duell's alleged statement. Just the opposite is true. Duell's 1899 report documents an increase of about 3,000 patents over the previous year, and nearly 60 times the number granted in 1837[a].

In the ensuing years, agitation for a separate bureau of agriculture with the Department or a separate department devoted to agriculture kept recurring. In 1862, Congress passed and Abraham Lincoln signed a law establishing the Department of Agriculture without cabinet status. Lincoln called it "the people's department".

According to this Act, the Commissioner was directed "to acquire and preserve in his Department all information concerning agriculture which he can obtain by means of books and correspondence, and by practical and scientific experiments….., by the collection of statistics, and by any other appropriate means within his power, to collect, as he may be able, new and valuable seeds and plants, to test, by cultivation, the value of such of them as may require such tests, to propagate such as may be worthy of propagation, and to distribute them among agriculturists". Actually, all these powers were in substance identical with those exercised by the Agricultural Division under the Patent Office. Isaac Newton, chief of the Agricultural Division, was appointed as first Commissioner, and he retained the majority of his former associates[b].

In the 1880s, varied special interest groups were lobbying for Cabinet representation. Business interests sought a Department of Commerce and Industry. Farmers tried to raise the Department of Agriculture to Cabinet rank. In 1887, the House and Senate passed bills giving cabinet status to the Department of Agriculture and Labor, but farm interests objected to the inclusion of labor, and the bill was killed in conference. Finally, on February 9, 1889, President Grover Cleveland signed a bill into law elevating the Department of Agriculture to Cabinet level.

During the Great Depression, farming remained a common way of life for millions of Americans. The Department of Agriculture was crucial to providing concerned persons with the assistance that they needed to make it through this difficult period, helping to ensure that food continued to be produced and distributed to those who needed it, assisting with loans for small landowners, and contributing to the education of the rural youth. In this way, the Department of Agriculture became a source of comfort as people struggled to survive in rural areas. Throughout the agency's history it discriminated against African-American farmers, denying them loans and access to other programs well into the 1980s[c].

Today, many of the programs concerned with the distribution of food and nutrition to people of America and providing nourishment as well as nutrition education to those in need are run and operated under the USDA Food and Nutrition Service.

USDA also concerns itself with assisting farmers and food producers with the sale of crops and food on both a domestic and on the world market. It also plays an important role in overseas aid programs, by providing surplus foods to developing countries to support development programs, sometimes via USAID or directly to foreign governments, international bodies such as WFP or approved non-profit organizations. The USDA's

National Animal Identification System assists large agri-business and factory farms track disease in herds, a necessary regulation for sale of meat overseas.

Present operating units within USDA are as follows: Ag Marketing Service; Ag Research Service; Animal and Plant Health Inspection Service; Plant Protection and Quarantine; Center for Nutrition Policy and Promotion. Cooperative State Research, Education, and Extension Service (formerly CSRS); Economic Research Service; Farm Service Agency; Food Safety Inspection Service; Foreign Ag Service; Forest Service; Grain Inspection, Packers and Stockyards Administration; National Ag Library; National Ag Statistics Service' Natural Resources Conservation Service; Risk Management Agency; and Rural Development.

Clearly, USDA has played an important role in many areas of people's lives. Two agencies within USDA have been particularly important with land-grant universities, the Agricultural Research Service (ARS) and the Cooperative State Research, Education, and Extension Service (CSREES).

The Agricultural Research Service

ARS was created in 1953. As nearly as I can tell, this was an administrative move that had little effect on federal research activities. Agricultural research had been conducted within the Department since its beginning. These federal scientists were commonly located at land-grant universities, and close cooperation with state scientists was the norm. Federal workers usually were considered as full members of the appropriate university faculty, often supervised graduate students, and even taught classes occasionally. It has been my personal experience at two land-grant universities that, although the federal scientists drove different pickups, used a different budget process, and were known to be federal and not state, they were fully integrated into the department in all aspects, sharing offices and facilities.

The following table lists just a few selected USDA research accomplishments. A complete itemization of these would require many pages.

Examples of USDA Research Accomplishments[d]

1862	First USDA research bulletin issued on sugar content of several varieties of grapes and their suitability for wine.
1867	Patron of Husbandry, later known as the National Grange, organized by USDA employee. This was the first general farmer's organization to permit women equality of membership and privilege.
1883	Methods developed to detect food adulteration; precursor to Pure Food and Drug Act.
1891	First comprehensive list of animal and human parasites developed; today it comprises more than 30 volumes.
1899	Field mapping of soils begun by USDA.
1902	First plants methodically bred for disease resistance.
1906	Founded the science of nematology in the U.S.
1913	Rhizobium nodules from soybean plants started world's first rhizobium collection, established as a formal collection in 1975.
1923	Commercial hybrid seed corn developed.
1932	Katahdin released, first pest-resistant potato variety.
1941	Demonstrated that methyl bromide is a broad-spectrum biocide and controls nematodes.
1943	Texas cattle fever eradicated.
1946	Released 5,000 beetles as biological controls against Klamath weed; the first successful attempt in the U.S. to control a weed with a plant-eating insect.
1948	Kennebec potato released.

1953	Discovered that plants use the red part of sunlight to launch growth changes.
1955	Omar soft white winter club wheat released; multiple gene resistance to common bunt.
1961	First commercial semidwarf cultivar of a cereal grain in North America released; Gaines high-yield wheat helped launch "Green Revolution".
1965	Discovered molecular structure of transfer RNA.
1966	Eradicated screwworm fly from the U.S. using sterilization.
1968	Reported that soil eventually controls disease 'take-all' after years of continuously grown wheat.
1970	Controlled tansy ragwort on rangelands in the western U.S. using biological control.
1976	Controlled alligatorweed in the southeastern U.S. using biological control.
1984	First transgenic farm animals born (sheep and pigs)
1987	Developed microinjection technique to move a whole chromosome into a single cell of another plant.
1995	Valley Forge and New Harmony elm trees released, tolerant to Dutch elm disease.
2001	Research headed by ARS showed that Bt transgenic corn, developed to resist crop pests and reduce pesticide use, poses no significant risk to monarch butterflies.
2002	Genetically engineered a tomato to boost its levels of good-for-the-body lycopene. This is the first food to be nutritionally improved with the help of biotechnology.
2004	Showed that vitamin E reduces upper respiratory infections in the elderly.
2005	Developed an edible coating to keep sliced apples fresh. Being used by restaurants, stores and the School Lunch Program.

As indicated above, this is a very small sampling of the accomplishments that USDA lists[d]. I have no doubt that USDA scientists played a leading or the only role in these advances, but I know from experience that many items on the list were conducted in close cooperation with state departments of agriculture and university scientists.

THE COOPERATIVE STATE RESEARCH, EDUCATION, AND EXTENSION SERVICE (CSREES)

The state agricultural experiment stations have received federal money since they were established in 1887. With the view of helping to facilitate information exchange among the state experiment stations, the Office of Experiment Stations (OES) was created in 1877 and soon grew into an institution that helped formulate policy for the experiment station system. During the first 25 years of its existence, the OES served largely first as a clearing house of information. Later, it introduced uniform accounting forms and standards, followed by the introduction of fiscal reviews that arose out of a concern for the management of the experiment stations and the uniformity with which they were delivering research programs relative to local needs.

In 1906, the Adams Act enabled each state to receive additional federal funding to pay the necessary expenses of conducting original research and experimentation. This act required for the first time that each state submit a written plan of work, with all activities grouped into distinct "projects". Each project proposal was to state a general area of concern, the central problem to be addressed, and the specific methodology or experimental approach that would yield information toward a solution. This project system continued in existence until quite recently.

Over the years, periodic disagreements arose between the state experiment stations and USDA on the research agendas and procedures of the two systems. These undoubtedly were

important and troublesome to administrators, but as nearly as I could see, had little impact on the work being conducted at the scientist level, and will not be discussed here.

In 1961, OES was re-named the Cooperative State Experiment Station Service, and in 1963 changed again to the Cooperative State Research Service (CSRS). There was a concern for a national inventory of on-going agricultural research in the USDA and the state system. As part of this program, the Current Research Information System (CRIS) was established in 1967. Annual CRIS reports for each project were prepared by each project. For those of us active during that time, the CRIS reports were expected tasks to be completed by a certain date each year.

The other involvement the scientists had with CSRS was in the periodic departmental reviews. About every 5 years or so, each department prepared for an on-site review by a CSRS representative and a panel of selected scientists. These scientists from around the country were picked largely by the department being reviewed. The reviews usually were for 5 days, and included individual presentations by each research project, a demonstration of buildings and other facilities, and discussion of graduate student training.

My personal opinion, which might not be shared by anyone else, is that the primary benefit to the department was in the preparation for the review. Project leaders were forced to stop and take stock on what had been accomplished in recent years, how it met over-all objectives, and directions in which the project is expected to go in the future. This should be a common exercise among project leaders, but, frankly, it is not. What was done last year is likely good enough for this year and next year. The reviews helped organize the thinking of numerous scientists. I cannot think of even one suggestion or recommendation originating from the panel that was of benefit to the department. The most beneficial recommendations to administrators were surreptitiously 'fed' to the panel who were asked that the suggestions be included in their report. I believe everyone agreed that the local scientists were as experienced and wise as the members of the panel, but there is no question in my mind that the 'experts' from out-of-state were listened to more closely.

The name of CSRS was changed in 1995 to the Cooperative State, Research, Education and Extension Service (CSREES). In recent years, the thrust of this agency has shifted toward becoming a research organization running extramural competitive grant programs, and away from the formula funding of state experiment stations. Listed 11th among 15 key external factors that might constrain progress toward the agency's performance is "*coordination and cooperation of state partners*"[e]. This document makes little mention of maintaining or strengthening the federal-state partnership. The future of this long-standing relationship is open to question.

Conclusions

Clearly, USDA has had an enormously beneficial influence on the country in numerous ways. Both ARS and CSRS have been useful partners with the state experiment stations for many years, and it is to be hoped that this teamwork can continue indefinitely.

Citations

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d -History of Research at the U.S. Department of Agriculture and Agricultural Research Service—ARS Timeline. http://www,ars,usda.gov/is/timeline/comp.htm Accessed September 26. 2007.

e -ESCOP/ECOP Formula Funds Task Force-2007. Overview: The USDA and Land-Grant University System Partnership to Support Agriculture Research. http://www.agnr.umd.edu/users/near/ffund/taskForce/StatusOfPartnership. pdf Accessed September 27, 2007.