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# Four Men with a Vision: The Founding Fathers of the Iowa Agricultural College and Model Farm and Cornell University

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# Four Men with a Vision: The Founding Fathers of the Iowa Agricultural College and Model Farm and Cornell University

## **Abstract**

When a casual visitor strolls today across the sprawling campuses of the universities of Iowa State and Cornell, they may find it hard to believe that 150 years ago Iowa State consisted of a small handful of buildings and Cornell did not exist at all. That two such remarkable and well-known schools of higher learning even exist at all represents a story both stirring and complex that developed over the course of the early nineteenth century cumulating in the passage of the 1862 Morrill Land Grant Act. This essay will explore the 1862 Morrill Act, its background, and the actions of four key individuals—Ezra Cornell, Andrew White at Cornell, and Benjamin Gue and Adonijah Welch at Iowa State—who were instrumental in implementing the educational ideals of the Land-Grant Act at the inception of each institution.

## **Disciplines**

Archival Science | Higher Education | Information Literacy | Public History

## **Comments**

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Farm and Cornell University

To be concerned in the establishment and development of a university is one of the noblest and most important tasks ever imposed on a community or on a body of men. It is an undertaking which calls for the exercise of the utmost care, for combination, coöperation, liberality, inquiry, patience, reticence, exertion, and never-ceasing watchfulness.

Daniel Coit Gilman (1)

When a casual visitor strolls today across the sprawling campuses of the universities of Iowa State and Cornell, they may find it hard to believe that 150 years ago Iowa State consisted of a small handful of buildings and Cornell did not exist at all. That two such remarkable and well-known schools of higher learning even exist at all represents a story both stirring and complex that developed over the course of the early nineteenth century cumulating in the passage of the 1862 Morrill Land Grant Act. This essay will explore the 1862 Morrill Act, its background, and the actions of four key individuals—Ezra Cornell, Andrew White at Cornell, and Benjamin Gue and Adonijah Welch at Iowa State—who were instrumental in implementing the educational ideals of the Land-Grant Act at the inception of each institution.

Although a thousand miles separate Iowa State and Cornell they share a broad connection forged by geography and immigration. The Great Lakes and Corn Belt region sprawls across the north central part of the United States reaching from central New York in the East to the Iowa-Nebraska border in the West. This broad swath of America shares similar weather and soils and was dominated for many decades by both agriculture and manufacturing. Hardy settlers migrated westward in the early nineteenth century primarily from the eastern seaboard states bringing with them the traditions and ideals of old New England and infused with the cultural habits of those who had recently arrived from northern and central Europe. Thus, though separated by hundreds of miles, the two campuses were both shaped by similar cultural influences. Moreover, the four men who were at the helm during those first years shared some similarities in their backgrounds. Cornell and Gue, both raised as Quakers who later left that church to become Unitarians, grew up less than 100 miles from each other in western New York; while White and Welch spent their first years as educators working a few miles from each other in central Michigan. And all of them were good Republicans. (2)

The two campuses also shared a common bond as both were the result of the passage of the Morrill Land Grant Act, which Abraham Lincoln signed into law on July 2, 1862. By the late 1860s both schools were in operation and holding classes, although in admittedly austere surroundings. This article will focus on the very early years of both institutions when, despite the vigorous efforts of these four men of vision and energy, success was by no means certain and the chance for failure quite real. The first part will examine the general background to the Morrill Act, followed by a look at these remarkable personalities whose tenacity and vision enabled each school to get established.

The coming of the Civil War, horrible as it was, represented a fortuitous turn of events for the history of the land-grant movement that had begun decades before. The departure of the southern states during the Spring of 1861, along with the election of a president more sympathetic to government assistance to higher education, enabled Justin Morrill to succeed on his second try at getting the land-grant legislation passed and signed into law. On July 2, 1862, Abraham Lincoln placed his signature at the bottom of what became the Morrill Land-Grant Act and a new type of college was born, one that would change forever the role of the United States government in the realm of higher education. These fledgling institutions reflected the equalitarian spirit that had begun to flourish during Jacksonian Era. For each of these new schools, as Willis Rudy observed: “its main standards were quantitative, its main concerns materialistic, its educational bias utilitarian, and its outlook optimistic”. (3)

The legislation that Lincoln signed on the July day in 1862 had been a long time coming and represented a range of influences whose development spanned the decades following the Revolutionary War. The history of the Land-Grant Act has spawned an extensive historiography over the past century, but for most scholars the beginnings of any modern assessment started with the work of long-time Iowa State University historian, Earle Ross, whose 1942 *Democracy's College: The Land-Grant Movement in the Formative Stage* provided the first sophisticated treatment of the topic, carried the story up to 1890 and the passage of the second Morrill Act. Ross, a prolific historian, was, interestingly enough, a native New Yorker who earned his Ph.D. from Cornell University in 1915. Over the course of his career he published numerous articles on history of the land-grant idea as well as two histories of Iowa State University. (4) In 1956 Eddy's history of the land-grant movement, *Colleges for Our Land and Time*, continued the narrative up to the 1950s. Based on his Cornell University dissertation,

Eddy book expanded on Ross' original study and observed that advent of the new colleges were not the result of a popular movement, as Ross had argued, but instead evolved from a "gradual awakening of education to fill the needs of an expanding and increasingly complex country". (5) Allan Nevins published a series of his lectures on the land-grant movement and its institutions in 1962 with the collective title *The State Universities and Democracy*. (6) J.B. Edmond's 1978 *The Magnificent Charter* also contributed to the by-now standard interpretation, first established by Ross, that the land-grant movement was for the most part an inevitable response to increasing demands by the American public for an educational institution suitable to the common working man. (7)

By the early 1980s the established interpretation of the land-grant movement was undergoing a challenge. Part of this was the result of recent work that questioned the conventional wisdom about the nature of antebellum colleges. Colin Burke, for example, reviewed Tewksbury's 1932 study and concluded that more colleges had survived than Tewksbury had originally thought. (8) Stanley Guralnick and David Potts each expanded the existing understanding of the curriculum and the student characteristics of the antebellum college. (9) In his 1981 essay, Eldon Johnson noted a number of misconceptions about early land-grant colleges including the belief they had been born out of student demand. Johnson pointed out that the limited number of high schools that existed in many states made it necessary for many early land-grant colleges to establish preparatory departments for incoming students as well as provide inducements such as free tuition and scholarships. (10)

In the past twenty years a new generation of scholars has grappled with the complex history of the land-grant movement. In his study of George Atherton and federal support for land-grant education, Roger Williams presents a more nuanced assessment of the movement's

history while asserting that its development represented an “expression and diffusion of certain political, social, economic, and educational ideals”. He notes that the entire idea of a “movement” was an historical construct “to give form and meaning to otherwise nebulous and uncertain developments”. (11) Although Williams’ book dealt mostly with Atherton and the 1890 Morrill Act, his early chapters on the 1862 Morrill Act and its background aptly summarize the historiographical work that has taken place in the fifty years since Ross and Eddy’s histories.

As the current century dawned Roger Geiger edited a collection of essays that treated anew the history of higher education in the nineteenth century. Geiger himself authored two excellent articles that provided an updated perspective on the land-grant movement and its history. (12) Even more recently Geiger and Nathan Sorber, whose dissertation was directed by Geiger and the aforementioned Roger Williams, edited a new scholarly collection in recognition of the bicentennial of the Morrill Act. (13) Sorber argues that the land-grant movement was not the result of popular demand, as shown by Ross, Eddy and the other earlier writers, but instead was driven by “a coalition of middle class reformers: gentlemen farmers from agricultural societies, scientists trained in European universities, and Whig and Proto-Republican statesmen wanting science-based institutions to produce skilled workers for a new economy”. (14) Sorber’s scholarship reflects how contemporary social science research such as that done recently by Bledstein and Singelmann can be used to acquire a more sophisticated understanding of the multiple influences behind the land-grant movement. (15)

Before going into more detail about the four men and their individual impact on each institution, it would be useful to provide a brief survey of the forces that led to the passage of the Morrill Act. Space does not permit a lengthy discourse, nor is it necessary, since many others have already tread this path. What follows is a cursory overview of some of the more salient

events, organizations, and people that drove the land-grant movement in the first half of the nineteenth century. (16)

George Washington, Thomas Jefferson, and Benjamin Franklin all represented, in one way or another, the avid interests in science and agriculture displayed by our nation's early leaders. Franklin's well-known scientific experiments and Jefferson's tinkering in his gardens at Monticello reflected their endless curiosity about the natural world. As the nation expanded both in size and population during the early nineteenth century more and more Americans became interested in greater educational opportunities for the average citizen. The Common School movement led by Horace Mann and others during the 1830s helped generate public support for local schools. (17)

Meanwhile interest in various states for the creation of schools whose chief focus would be on topics relating to agriculture became apparent in the new century. Part of the agitation for these schools came from the burgeoning agricultural press and part came from the similarly nascent rise of agricultural societies that began flourishing in the second decade of the nineteenth century. (18) In 1819 Simeon De Witt, surveyor-general of the state of New York, published a pamphlet outlining the need for a new college devoted to agriculture. Few years later, in 1823, the Gardiner Lyceum became the earliest American school focused on agriculture. In 1845 the Cream Hill Agricultural School in Connecticut was founded. The next year the Farmer's College, near Cincinnati, Ohio started instruction. In New York the People's College opened its doors in 1860, after more than a decade of discussion and planning. The advent of the Civil War doomed its chances for survival, unfortunately. More successful were the efforts in Michigan and Pennsylvania with the nearly simultaneous creation of Michigan's Agricultural College and Pennsylvania's Farmer's High School in February 1855. Before that decade ended schools were

also begun in Maryland, chartered in 1856 and opened in 1859, and in Iowa which the legislature devoted \$10,000 for the Iowa State Agricultural College and Model Farm. (19)

By the 1830s and 1840s the nation was on the move, driven by a steady population increase as well as a wealth of new inventions that were changing the country's infrastructure and fostering the need for education that was useful for the many, and not just for the few. The growth of canals, railroads, roads, and the amazing telegraph, spurred a demand for people with technical skills. The antebellum college, designed for the most part, as a place for religious training, appeared ill-suited to meet these new technical demands. (20) Still, the established colleges, especially Harvard and Yale, recognized the impact of scientific advances and each school established a separate space for such study: the Sheffield Scientific School at Yale, and the Lawrence Scientific School at Harvard. These schools had been preceded by the United States Military Academy (1802) with its focus on engineering instruction, and the earliest technical college, the Polytechnic Institute, founded by Stephen Rensselaer in 1824. (21)

Moreover, developments in agricultural scientific research were also picking up speed with the 1840 publication of Justus Liebig's influential book, *Organic Chemistry in its Application of Agriculture and Physiology*. Liebig's research showed that a plant's roots absorbed ions of nitrate, phosphate, potassium and calcium. Thus soil fertility could be maintained permanently through a careful balancing of nutrients. (22) The application of careful scientific research that would in turn enhance agricultural productivity was exciting to nineteenth century agriculturalists who were becoming increasingly concerned about American soils that were in danger of wearing out and becoming useless for cultivation.

These aforementioned forces began to crescendo during the 1840s and early 1850s and began coalescing around a political and legislative solution that would have to come from the

central government in Washington, D.C. In the decades prior to the Civil War the federal government had gotten in the habit of providing land for schools. Both the Land Ordinance of 1785 and the 1787 Northwest Territory Ordinance had set aside township grants for locating centers for learning. In the 1830s Congress additionally allowed for land to be set aside for the establishment of a state university within a given territory. (23) By the early 1850s the idea that Congress should do more for the industrial classes began to bear fruit. Led by men such as Jonathan Turner, an Illinois educator, who in speeches and writings, advocated the granting of public land for the creation of colleges that would be separate from the existing classical colleges and provide an equal education for “the industrial classes, including all the cultivators of the soil, artisans, mechanics, and merchants.” (24) These schools, according to Turner, would exclude classical subjects from their curriculum, since knowledge of these dead languages was of no use to farmers or mechanics. Turner’s writings were widely shared among the agricultural community and by 1853 the Illinois congressional delegation was being urged to transform the Turner Plan into national legislation. (25)

Turner’s suggestions along with those of many others were swirling around Washington, D.C. by the time Justin Morrill showed up as a new congressman in 1855. Hailing from Vermont, Morrill had been a successful business and then retired and entered politics. He represented Vermont’s second congressional district from 1855 to 1867, and then served as Senator from 1867 until his death in 1898. Although his formal schooling was limited—he was through with any classroom work by the age of 15—he retained an avid interest in education for the common man throughout his legislative career. Thus within his first term as congressman he introduced a bill in December 1857 that would authorize Congress to grant lands for the establishment of agricultural colleges. Both houses of Congress passed Morrill’s bill by early

1859, but President James Buchanan vetoed it on the grounds that it was inexpedient and unconstitutional. With the election of Abraham Lincoln in 1860, and the resulting departure of the southern states' congressmen, Morrill reintroduced his bill in December 1861. This second bill was passed again by both houses in June 1862 and was signed into law by Lincoln on July 2<sup>nd</sup>. The president always regretted his limited schooling, noting on one occasion that “that is what I have always regretted—the want of a college education. Those who have it should thank God for it”. (26)

The land-grant act provided each state with 30,000 acres of public land for each of its representatives and senators in Congress. (27) If a state no longer held any public lands, it received land script, or land-procurement certificates, which it could use to obtain land from another state. A small portion of the revenue from the sale of this land could be used to purchase ground for the college, but none of the money could be used for the construction of any buildings. The states would have to provide that funding. The crux of the act was contained in section 4 which outlined the legislation's prime purpose:

Each state may take and claim the benefits of the Act 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 each such branches of learning as are related to agriculture and the mechanic arts in such a 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.

Morrill was deliberately vague in his description of what exactly should be taught at these new schools. Although asserting that the “leading object” would be related to agriculture and the

mechanic arts, he also insisted that the “other scientific and classical studies” not be excluded in the curriculum. Military tactics was added to the language of the earlier version in recognition of the difficulties experienced by the Army of the Potomac during the first two years of the Civil War. It should also be noted that Morrill carefully left up to the individual states the responsibility of determining exactly what should and should not be taught “in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions in life”. It would take several decades for individual institutions to establish a curricular balance between “liberal and practical” education. (28)

With the Morrill Act now in force, the next step was its implementation. (29) Legislation is one thing; making it into a functioning entity is another. This essay will focus on the role that four men played in making a reality out of Morrill’s educational ideas in Iowa and in New York in the formative years prior to the beginning of each institution. Although sharing the same founding federal legislation, the two schools represented different approaches to applying the basic tenets of the land-grant act to the process of creating a curriculum. How they differed and how they were the same will be explored in the foregoing text. Additionally this essay will consider the how the educational vision and actions of four men—White and Cornell in New York, and Gue and Welch in Iowa—contributed each in their own way to the ultimately successful launching of their respective academic institutions.

Iowa was the first state to accept the conditions of the Morrill Act with the legislature granting acceptance on September 11, 1862; New York’s legislature followed on May 5, 1863. (30) In early 1863 Cornell University did not yet exist, while the Iowa Agricultural College and Model Farm (IAC) had been officially established five years earlier. (31) With little money from a legislature burdened with supporting the Union cause during the Civil War, the IAC

remained more of a model farm than it was a college. Making it a college was the next logical step. And to do so would require the special talents of Benjamin F. Gue and Adonijah S. Welch.

Benjamin Gue spent much of his life in the political sphere as an Iowa legislator, lieutenant-governor, and newspaper publisher. Yet he considered his labors on behalf of the Iowa Agricultural College to be his “most worthwhile accomplishment”. (32) Born in 1828 in Green County near New York’s eastern border in a devout Quaker family, Gue and his family moved to a Quaker settlement in western New York in 1831, near Farmington—about fifty miles from Ithaca—where the young Gue attended local schools. He spent some time at two nearby academies at Canandaigua and West Bloomfield. After a stint at teaching, Gue and his brother Joseph set out for Iowa in 1852 and purchased a small farm in Scott County. Benjamin’s Quaker heritage influenced his antislavery passions, and he soon involved himself in local politics. He helped organize the nascent Iowa Republican Party in 1856, and the next year was elected to the lower house of the Iowa General Assembly.

After two terms there, in 1861 Gue was elected to the Iowa Senate where he served until 1864. He left the Senate and moved to Fort Dodge to take over as editor and publisher of the *Iowa North-West*. In 1865 he was elected lieutenant-governor and served one term with Governor William Stone. A tall angular man with high cheek bones, with an “exceptionally rich clear far carrying voice”. (33) Gue cut an impressive figure on the floor of the state legislature. Charles Aldrich, who served alongside Gue in the legislature, observed upon Gue’s passing in 1904: “If one wished what was the right in morals, in business, in politics, he never as was disappointed in Gue. He was outspoken, fair, and without guile, trickery, finesse or pretense.” (34) Gue’s interest in the affairs of the agricultural college had never waned—he had been one of the leaders in creating the original 1858 legislation—and in 1866 he was elected president of the

college's board of trustees, a position he would hold until May 1870. It was during these crucial formative years for Iowa State that his contribution was especially significant. (35)

Gue's role in the founding of the IAC has been often told, and given that our focus is on the years after Iowa's acceptance of the Morrill Act, a brief summary of Gue's earlier contribution to the college's history will suffice. In the winter of 1858, Gue, Robert A. Richardson, and Ed Wright, all newly elected members of the Seventh General Assembly, put together a bill, which Richardson introduced in February 1858. Acutely aware of his own limited education, Gue gave an impassioned speech on the bill's behalf, and after the original appropriation requested was cut in half to \$10,000, the bill passed. (36) In 1860 an effort was made to repeal the 1858 act establishing the college, and Gue again led the fight with a spirited defense as author of a majority report of the agricultural committee. Through some parliamentary maneuvering, Gue was able to table the bill to repeal the college and it never came up for a vote. Once more in 1864, friends of the state university sought to have the land-grant money diverted to Iowa City upon the condition that a department of agriculture would be established. This idea was squelched again by Gue and "friends of the college" and the entire grant remained secured to the school in Ames. (37) Thus by the time the college was finally ready to get organized to start its educational mission, Gue had already been involved in several skirmishes with the school's opponents.

In 1864, Gue moved to Fort Dodge after he had purchased the local newspaper, *The Iowa North West* and involved himself in local affairs, all the while keeping a close eye on the Ames college. In late 1866 Gue joined the Board of Trustees for the IAC and in January 1867 was elected president of the board. At that same meeting a small committee was charged with the task of visiting "Agricultural Colleges in other States, in order to procure all information

necessary for the successful organization of our College”. (The board had taken a similar approach to information finding when they were considering, in late 1859, what sort of building they should construct as the college’s main edifice). (38) Unlike the experience of Cornell University, the IAC did not have on its board someone like Andrew White, who with his extensive knowledge of how colleges functioned would almost single-handedly craft Cornell’s organization and structure. Not wanting to reinvent the wheel, the Iowa board instead selected Governor William Stone, Gue and another board member, Peter Melendy, to obtain information from other schools and report what they found. Their goal was to locate a faculty and president for the IAC which was “designed to be as perfect in organization, and all of its equipments, and of high an order, as any Educational Institute in the West”. (39) Melendy, who was a prominent cattleman near Cedar Falls and president of the Iowa State Agricultural Society at that time, served the college in a number of ways during its formative years. He was responsible for locating the 240,000 acres of Iowa land that became available because of the Morrill Act. During that same period he also served as secretary of the college, was superintendent of the Model Farm, and sat on the Board of Trustees for a total of fourteen years beginning in 1861. Stone was unable to leave his duties as governor, so Gue and Melendy ended up doing the committee’s work. They would make a fine team. (40)

Throughout 1867 Gue and Melendy corresponded with various agricultural schools seeking the names of individuals who could be recommended as potential faculty members or as president. They soon realized that letter writing was not the answer, so in October 1867 they set forth to visit agricultural schools in person and learn first-hand how these schools worked. In January 1868 they submitted a lengthy report to the IAC Board about what they had found in their travels. The report summarizes the curricula and organizing principals of the Michigan

Agricultural College as well as shorter accounts of how the Massachusetts and Pennsylvania Agricultural Colleges and Yale's Sheffield Scientific School were organized. The report devoted nearly twenty pages in detailing the curriculum, labor system, and school rules at the Michigan Agricultural College, the school that Gue and Melendy believed represented the ideal template for an agricultural college. (41) The influence of the Michigan school on the early organization of the IAC will be explored a bit later in this paper.

In the conclusion of their report, Gue and Melendy listed a large number of institutions and people they met including Andrew White and Ezra Cornell. Gue's daughter recounts that Cornell had invited her father to Ithaca so they could discuss "details of developing a land grant college were discussed at length with great benefit to the inexperienced man from a pioneer state." (42) At that stage, Cornell University itself was still very much in the discussion stage. In addition to Cornell University and the two agricultural colleges mentioned above, the Iowas spent time at Harvard University, Amherst College, the Smithsonian Institution in Washington, D.C., Farmers' College in Ohio, the School of Mines in New York City, and the Agassiz Museum in Cambridge, Massachusetts, the name just of few of their stops. At each institution they met with the chief presiding officer as well as prominent faculty members. Gue and Melendy noted that the mass of information obtained was too extensive to include in their summary report but would be "invaluable in the organization, furnishing, fitting up and inaugurating our college." (43) It is exceedingly unfortunate that the vast amount of information gathered by Gue and Melendy on their expedition has not survived to the present day. Their excursion included visits to some of the most significant institutions of higher learning—both land grant and traditional—in the country along with conversations with some of the leading

educational figures of the day. The data and observations they collected would have represented a remarkable picture of higher education in the mid-1860s.

In their report to the IAC Board, Gue and Melendy did not mention Gue's chance meeting with Justin Morrill. William Brewer, who for many years taught agricultural science at Yale's Sheffield School of Science, recounted a meeting that Morrill had with members of the Sheffield school faculty in November 1867. Brewer noted that among the men meeting at Daniel Gilman's house on the evening of November 11 was Benjamin Gue "who chanced to be here visiting our school and who was glad of the opportunity thus to meet Mr. Morrill." It had to indeed have been a remarkable experience for Gue to have been in New Haven on the same evening that the author of the land-grant act showed up! The group questioned Morrill "as to his own intentions" as well as the views of other congressmen who worked on his bill. Morrill responded bluntly that he never intended the land grant institutions to be agricultural schools. He noted that a clerk was responsible for the bill's title. For Morrill the most important aspect of his bill was that the "teaching of science should be the leading idea". Moreover, he wanted the 'useful sciences' to be taught. He was adamant that the teaching of science should take precedence over the teaching of agriculture, and was less concerned about whether not a participating college had a farm attached to it. He also was less than enthusiastic about manual labor and did see it has having much educational value to the student. (44) For Gue these words were probably somewhat disconcerting, since both he and Melendy strongly supported the agricultural emphases that they envisioned for the IAC curriculum. They also held in high regard the importance of manual labor as an integral part of the college's educational experience. (45) Given their disagreement with some of Morrill's opinions (and that Morrill had spoken in

confidence), it is probably not surprising that they decided to exclude any mention of Gue's meeting with the great man in New Haven.

The curriculum at IAC would evolve over the months that followed the January 1868 Gue and Melendy report. Initially the Gue and Melendy recommended the following courses for the new school:

Natural Philosophy, Chemistry, Botany, Forestry, Horticulture, Fruit-growing, Animal and Vegetable Anatomy and Physiology, Geology, Mineralogy, Meteorology, Entomology, Zoology, Veterinary Art, Plain Mensuration, Leveling, Surveying, Book-keeping, Practical Agriculture, Landscape Gardening, with other such branches as may be added by the Faculty and Trustees. (46)

Earlier in their report, Gue and Melendy reproduced the Michigan Agricultural College curriculum for probably 1866 or 1867 (they did not indicate the specific year) and for the most part the courses noted above were taught at the Michigan school. It is interesting, however, what subjects the Iowans did not include from the Michigan catalogue: history, English grammar and composition, moral philosophy, inductive logic, civil engineering, and French. (47) When the first IAC catalogue is created in 1869, some of these differences would be resolved. One major reason for this was the hiring of Adonijah Welch as the college's first president.

From the outset a top priority for the IAC board was to find a president and then hire a faculty. In their report Gue and Melendy listed Adonijah Welch at the top of their list of potential presidents. Gue set out in early 1868 to recruit his new president, who at the time was living in Florida and would soon be chosen to serve a truncated term as United States Senator

from that southern state. Welch came to Gue's attention because of his long association with education in Michigan.

Adonijah Strong Welch was the eldest child of Bliss and Elizabeth Welch and grew up on his father's farm near East Hampton, Connecticut where he was born in 1821. Recognizing that the new university in Ann Arbor, Michigan might afford him a quality education, at age 18 Welch enrolled in a preparatory academy in Romeo, Michigan and then entered the University's sophomore class and graduated in 1846. At Michigan Welch received a typical college education for the period with heavy emphases on the classics and a sprinkling of mathematics and natural science. (He later returned to the University and earned a master's degree in 1852). After earning his undergraduate degree, he studied law in Detroit and was admitted to the Michigan bar. He never practiced, however, but instead took his first educational position as principal of the first graded school in Jonesville, Michigan about 60 miles southwest of Ann Arbor. (48)

Designed to match the course offerings available at private academies or select schools, the Jonesville Union School opened its doors in January 1848 under the leadership of Welch and two assistants. The school's primary goal was to train teachers for the common schools and also prepare young men and women for college. Courses taught included algebra, geometry, chemistry, Latin and Greek, and even Spanish. (49) Welch served as director from 1847 to 1849, and then resigned due to ill health and ventured out to the California gold fields, where he enjoyed more hospitable weather and a chance to mine for gold. Over his lifetime, Welch (who like his counterpart White of Cornell) was a small man and somewhat frail of stature, would at times need to leave his work for a period of time to restore his health. After each break, he would return refreshed and ready for new challenges. (50) In California, unfortunately, he did not strike it rich, but did come down with typhoid fever. Fortunately by early 1851 his health

was restored and he returned to Jonesville where he once again took up his duties as director. During 1852 he completed his master's degree at the University while at the same time becoming well known in the educational community of southern Michigan.

In October 1852 he was named the first Principal of the newly created Michigan State Normal College in Ypsilanti with classes officially starting in March 1853. At the time, there were no such schools west of Albany, New York and only three states had them at all. In anticipation of the new school's opening, Welch conducted two teacher institutes for local teachers which were quite popular and soon led to the founding of the State Teacher's Association with Welch as that body's first president. In remarks at the October 1852 Teachers Institute, Welch explained his basic teaching philosophy, a philosophy that would remain with him for the duration of his professional career:

No amount of text-book knowledge, as such—no memory of straggling undigested facts or details—no skimming of the area of knowledge of whatever sort, can make the genuine scholar or independent thinker. It is rather by investigating the relations of *facts* and *things*—by a close scrutiny of the reasons on which opinions are founded—by a rigid analysis of every subject brought before his attention—that the student, at last, attains to a genuine cultivation of intellect.

Welch added that the most important task of any school was to assist its charges in securing “a symmetrical development of intellect,” by making “*proportionate* attainments in the various departments of knowledge”. (51) For Welch, the best education was one that provided a

balanced curriculum with equal attention to literature, the arts, mathematics, and the sciences. This view would undergird Welch's thought and actions both in Ypsilanti and in Ames.

The Normal School established two separate curricula for its prospective teachers. The English Course, lasted two years and designed for teachers in the lower primary grades, consisted of instruction in various aspects of the English language, geography, geology, algebra, geometry, and trigonometry, and coursework in anatomy and physiology as well as chemistry. The Classical Course added an extra year of course and included a good amount of Latin and Greek coursework in addition to those subjects taught in the English Course. Both programs contained a capstone course on the theory and practice of teaching. (52) Welch ran a tight ship as Principal making sure his pupils focuses on what was important. One former student remembered Welch years later:

He was the most rigid disciplinarian in the school room that I ever knew. His compressed and quivering lip was to the luckless transgressor an omen of impending calamity not to be mistaken or misunderstood. It was a fearful foreboding of vigorous corrective treatment. (53)

Another former student observed that as a teacher Welch was "deliberate yet intense in thought, measured and careful in speech, he held the wrapt and undivided attention of all who were before him. . . . He was a man of dauntless courage and immovable firmness. (54) For his later work at the IAC, he would need all the courage and firmness he could muster.

In 1859, Welch needed another break from his labors and spent some time touring Europe before rejoining the Ypsilanti school. In 1865, he decided he needed a longer recuperative period and resigned his Principalship permanently and moved to Jacksonville,

Florida where he joined his brother-in-law and purchased “a hundred acres of land, built a sawmill, planted oranges and thought they had bright prospects”. He also found time to teach in an African-American school. His years in Florida quickly turned sad as both his first wife, Eunice P. Buckingham and then his brother-in-law both passed away. With Eunice Welch raised a daughter and two sons. During that period, Welch became actively involved in the somewhat chaotic Reconstruction Era Florida politics and was chosen chairman of the state Republican Party. The upshot was that on June 17, 1868 Welch, whose political experience was nearly nonexistent, was elected by the Florida legislature to serve as United States Senator to fill out the short term that would expire on March 3, 1869. It must indeed be considered remarkable that Welch, having arrived in Florida only three years before, would be considered a viable candidate for such a high office by long-time Florida politicians! Unfortunately the records are quite hazy about Welch’s political activities in Florida and we only know the most basic of details. Meanwhile, in February 1868 Welch also found time to remarry, this time to Mary Beaumont Dudley, a widow whose husband had been on the faculty of the Michigan Normal School. (55)

While Welch was busy with Florida politics, he was at the same time being pursued by Gue for the presidency of the IAC. When Gue and Melendy were at the Michigan Agricultural College during the Fall of 1868, they learned of Welch from President Theophilus Abbott. Welch had served from 1863-1866 on the Michigan State Board of Agriculture, which was the governing body of the school outside Lansing. Abbott assured his Iowa visitors that “If you could get A. S. Welch, he is the best man in America to organize your college.” (56) The IAC board was clear that for its president, their leader “must be a man clearly comprehending the plan and objects of an agricultural college, who is in full sympathy with its friends, and a firm believer in the idea.” (57)

In March 1868 Gue and his newspaper partner, Nelson M. Page traveled to Illinois and then to Michigan and Ohio where they visited Oberlin and Antioch Colleges. Both colleges were at the forefront of including women as students equal to men. Gue noted in his newspaper that Antioch College had broken away from

the old fossilized notion that *white* boys alone were ordained to be the only recipients of a thorough education and that girls and colored boys had no rights inside of College walls. It has labored most successfully to demonstrate that religious instruction need not be sectarian, but might and should be in Educational institutions, comprehensive, pure, free from bigotry and narrow and cramped sectarian bounds and forms, that too often mar and deform beauties and truths.

In the same issue of *The Iowa North West* a March 24, 1868 letter by Gue written while he was in Detroit, confirms that Adonijah Welch, a man “so highly recommended by leading men of State” will be nominated for president to the IAC Board of Trustees. (58)

Once back from his travels, Gue corresponded with Welch asking him on April 10<sup>th</sup> if he would consider the presidency of the Ames college. On May 1<sup>st</sup>, Welch replied that he would indeed accept the offer if he were elected unanimously by the Board. At the May 11, 1868 meeting the Board did indeed unanimously support the nomination of Welch as president. They also, after vigorous debate, voted 9-3 in favor of allowing women as students. Gue and Melendy led that fight and succeeded in bringing along the majority of the rest of the Board. It helped that the University of Iowa had admitted women from the outset, but the programs at Oberlin and Antioch also were noted. (59)

Thus by mid-May of 1868 Welch knew he would be the new president of the IAC. Despite knowing this, he also allowed his name to be put forward in Florida as Senator for the short-term that would run from June 1868 to March 1869. One wonders why Welch agreed to the Senate term, since by March 1869 he would no longer be a Floridian (a state in which he had lived only three years anyway). Perhaps his decision was out of a sense of duty to the state's Republican Party, which he had led during the early post-Civil War period. Perhaps he was curious about what it would be like being a U.S. Senator, although he certainly was not in office long enough to do much of anything for his adopted state. Whatever his reasons, 1868 would be a busy year for Welch as he took on the role of U.S. Senator, while at the same time undertaking the daunting task of organizing and launching a new agricultural college in Iowa.

1868 would be an important year as well for Andrew White and Ezra Cornell with classes slated to begin in October of that year at the newly created university in Ithaca, New York. Like Gue and Welch in Iowa, events conspired to bring together this improbable pair to foster their own land grant school in the years during and after the Civil War. (60)

Ezra Cornell was born in Westchester Landing, New York in 1807 and was thus older than White by over a quarter of a century. Whereas White was the child of a wealthy banker, Cornell's considerable fortune was earned by years of hard work aided with a bit of luck and a touch of genius. Cornell's parents, Elijah and Eunice Cornell, both devout Quakers, moved to De Ruyter, New York in 1819 where Elijah worked as a farmer and pottery maker. Ezra, the oldest of six children, attended school only three months a year and by the end of his schooling had achieved what would be today a fifth grade education. He learned carpentry skills and 1826 left home to work in the sawmills of Syracuse, a thriving town about twenty-five miles north. He soon moved to Homer, the hometown of Andrew White, where he labored as a carpenter and

mechanic, and then in 1828 traveled by foot westward twenty-five miles to Ithaca. In Ithaca, a growing community at the tip of Lake Cayuga, Cornell began working at the local plaster and flour mills of Jeremiah S. Beebe. He helped build a new flouring mill for Beebe and also engineered a 200 foot long tunnel through solid rock to help power it. In 1831 Cornell married Mary Ann Wood, who was not a member of the Quaker faith. For this act of defiance, Cornell was formally excommunicated from the De Ruyter Society of Friends and would spend the rest of his life not formally associated with any denomination and suspicious of such ties. Indeed ever afterward, he “refused to recognize the right of any church organization to place themselves between him and the Divine Master.” (61) In matters of organized religion, Cornell and White would mirror each other’s thinking. In later years Cornell contributed financially to various churches and would help found Ithaca’s Unitarian Church. (62) (Benjamin Gue, also raised as a Quaker, would, like Cornell, join the Unitarian faith later in life). Cornell and his wife settled down on an acreage near Ithaca where nine children were born.

The economic downturn at the end of the 1830s cost Cornell his job and by the early 1840s he was looking for new ways to earn a living. In 1841 he began selling a new style of plow and had been given the territories of Georgia and Maine. Traveling by foot—his favorite mode of travel—Cornell walked to Georgia but made few sales given that a slave and a hoe worked quite well in that region. In August 1843 he journeyed to Maine to visit an old friend, Francis O. J. Smith, a member of Congress who was an early enthusiast of Samuel Morse’s new telegraph invention. Smith asked Cornell if he could help design a device that would enable Smith to lay a pipe underground for the new telegraph line. Cornell, whose mechanical aptitude probably bordered on genius, promptly sketched out a machine that would carve a ditch in the ground, lay the pipe, and then cover it up. A successful trial of Cornell’s invention was

conducted on August 19<sup>th</sup> and Cornell was hired to lay telegraph pipe between Washington, D.C. and Baltimore. Cornell soon discovered that the insulation was defective and spent the winter of 1843-1844 studying electricity in the Library of Congress. He became convinced that stringing the lines above ground using glass-insulated poles would work much better. Morse agreed and by May 1844 Morse was able to tap out the famous message “What hath God Wrought” from the Supreme Court chamber in Washington, D.C. and Ezra Cornell had a new mission in life. (63) For the next dozen years Cornell built new lines, competed with other telegraph companies, and struggled to stay afloat financially during those years when lines were being built all over the eastern part of the country.

His facility with applied mechanics stood him in good stead, and he also sensed that this new form of communication would have a profound impact on the steadily expanding American economy. Sometimes called the “Communication Revolution” the advent of the “canal, turnpike, steamboat, railroad, telegraph, submarine cable . . .” and other inventions represented a new type of industry distinct from the foundries and factories of the Industrial Revolution. (64) Through the use of electrical impulses, the telegraph was able to separate the message from the sender in a way that had never been done before. The transmission of information could be “dematerialized” or “detached from the movement of people, animals, or things.” (65) This was indeed an incredible new device and Cornell was involved at the outset in creating an infrastructure for this new industry. By the mid-1850s a movement to consolidate the various lines began and in April 1856 Hiram Sibley and his associates merged their company with Cornell’s New York & Western Union Telegraph Company to form the new Western Union Telegraph Company. Cornell became the largest shareholder of the new company and soon retired from active involvement in its day to day operations. (66) Thus by the early 1860s Cornell had become a

very wealthy man with an annual income of over \$100,000, equal to nearly \$3 million in today's currency.

Although a wealthy man, Cornell had no desire to simply bask in his newly found wealth and do nothing. Indeed, as Carl Becker noted, with Cornell's "dour, hard-bitten New England conscience, with his fine Quaker feeling for justice and humanity," in retirement he would stay busy helping his fellow man in whatever way he could. (67) Thus, in 1857 he purchased a 300 acre farm on the outskirts of Ithaca and began experimenting with breeding American Shorthorn cattle. This farm would one day become the site of Cornell University. He also involved himself in various local and state agricultural organizations. In 1861 he was elected vice president of the New York State Agricultural Society, and the next year became president. As president he attended the International Agricultural Exposition in London where he rubbed shoulders with agricultural leaders from other nations. (68)

He joined the Whig Party as a young man, and then in 1856 traveled to Philadelphia as a delegate to the first national Republican convention where John C. Frémont was nominated for president. In 1861 Cornell was elected to the New York state legislature where he served as chairman of the agriculture committee. Two years later he joined the state senate and would serve another four years there representing Broome, Tioga, and Tompkins counties. During his years in the New York legislature Cornell worked to promote his two chief concerns: education and agriculture. He had always maintained a deep interest in the role of education in bettering the common man. As early as 1846 he assured his oldest son, Alonzo, that those "who attempt to climb the hill of science must begin early in the morning of life with a resolute determination" that can only be beneficial by "uniting industry with perseverance". In another letter Cornell

observed that: “Without knowledge a man is powerless . . . he cannot see the purpose for which he is placed in this troublesome world.” (69)

Cornell’s support of agricultural education was initially reflected in his support of the New York College of Agriculture, which had been chartered at Ovid, New York in 1853. He sent his son and a nephew to that school and kept a close eye on their progress there. (79) (The Ovid institution will be one of the players in the ultimate creation of Cornell University, and will appear again a bit later in the story.) As his term as president of the New York Agricultural Society concluded in 1863, Cornell staunchly defended his belief in the importance of advanced education for farmers and those in the industrial trades. He noted the recent passage of the Morrill Act the year before and the availability of new funds to support agricultural training:

This is a high trust confided by the nation to farmers and mechanics of our country, and they must see to it, that it is not diverted from its proper channel, nor impaired in its usefulness by subdivisions among weak and inefficient institutions. (71)

At this point Cornell was thinking primarily that the Ovid school should be the recipient of the Morrill Grant funding. Within less than a year he would make the acquaintance of Andrew Dickson White, and his outlook would be greatly broadened.

Andrew Dickson White was born in 1832 of much different circumstances than Cornell. His father was a prominent banker in the small town of Homer, New York, about 15 miles southwest of Cornell’s hometown of De Ruyter, where White grew up in comfortable circumstances along with his only sibling, Horace, who was three years younger. In 1839 his father’s banking business took the family to the larger city of Syracuse where White attended the local schools, and where he maintained a home until he built his presidential residence on the

campus of Cornell University in the early 1870s. Whereas Cornell's formal education ended in his teens, White's schooling continued with his enrollment in the nearby Geneva College, a school associated with the Episcopal Church, much favored by White's parents. The young scholar spent an unhappy year at the small school, unimpressed by his fellow students and the small faculty. He yearned to attend Yale University, and after a brief struggle with his parents over his future academic direction, they finally yielded, and in 1851 he enrolled at the New Haven, Connecticut school. At Yale, he obtained the best of the classical nineteenth century educational approach with much rote learning and "gerund-grinding" all of which left in him a distaste for that style of instruction that would never leave. (72)

After graduation from Yale in July 1853, he joined his good friend and fellow Yale alumnus, Daniel Gilman, for a three year visit to Europe. (Gilman, who would remain close to White until Gilman's death in 1908, would be chosen the first president of Johns Hopkins University in 1876). (73) White and Gilman traveled to England where they marveled at the ornate campuses of Oxford and Cambridge. While Gilman traveled on to Russia, where he would serve as attaché to the American representative to Russia, Thomas Seymour, White stayed for a few months in Paris, where he learned French. He then journeyed to Russia and acted as a French interpreter for Seymour for several weeks. Then, tiring of Russia and its cold climate, White settled in Berlin where he attended the University of Berlin and sat at the feet of the venerable Leopold von Ranke. By the middle of the nineteenth century the German university system was considered one of the best in the world and its approach toward freedom of teaching and research would influence later American university development. White thoroughly enjoyed his time in Europe, learning the local languages, and browsing bookstores where he began building his private library which would one day exceed 40,000 volumes. (74)

After returning to the United States in 1856, White received his master's degree from Yale automatically as a reward for staying out of trouble for three years post-graduation. Thus armed with his new advanced degree, White looked around for someplace where he could teach his most cherished subject, history. He found his calling at the relatively new university in Ann Arbor, Michigan, and for the next few years served under the tutelage of Michigan's dynamic president, Henry P. Tappan, as a professor of history and rhetoric.

In October 1857, White, who the previous month had married Mary Outwater, a Syracuse neighbor's daughter, arrived at Ann Arbor to spend the next several years teaching history and literature and absorbing the educational ideas at Tappan's university. The youthful looking White, who at the age of 25 was sometimes mistaken for a freshman by the upperclassmen, quickly settled into his teaching role, which he enjoyed immensely. White's approach to the classroom was innovative in a number of ways including being one of the first to use a syllabus, often speaking extemporaneously without notes, and reading directly from historical sources that he brought from his growing personal library. His classes were popular and many times White would entertain his students in his home. Although no evidence exists, it is quite likely that Welch and White knew each other during the years both men labored at their respective institutions separated by only a few miles of Michigan countryside. The fraternity of members associated with higher education in mid-nineteenth century America was a small one. (75)

In his career in academe, White had been exposed to a number of curricula, including that of Yale, Oxford, Cambridge, University of Paris, and, of course, the University of Berlin. The German system was a favorite of Henry Tappan, who sought to broaden the old-style classical college coursework by instituting a parallel plan that included a classical course and a scientific course side-by-side. At Yale and Harvard the scientific schools had been created as separate

programs, but at Michigan they represented two tracks within the same system, one that led to a bachelor of arts degree, and the other to a bachelor of science. For Tappan, universities were more than colleges, they were actually: (76)

*Cyclopedias* of education: where, in libraries, cabinets, apparatus, and professors, provision is made for studying every branch of knowledge in full, for carrying forward all scientific investigation; where study may be extended without limit, where the mind may be cultivated according to its wants, and where, in the lofty enthusiasm of growing knowledge and ripening scholarship, the bauble of an academical diploma is forgotten.

For Andrew White, Tappan's philosophy of combining science with the arts, made a lot of sense and mirrored much of his own thinking. The basic curriculum that White eventually established at Cornell University would look a great deal like the one Tappan installed at Michigan.

The years at Michigan were happy ones for White, but his circumstances changed in 1860 when his father passed away, and White began spending more time in Syracuse dealing with his father's banking business. Still, never far from his thoughts was his desire to create a new institution in his home state that would blend the various academic features of the universities he had either attended or visited since his early days at Geneva College. The university he created in his mind would have the architectural grandeur of Oxford and Cambridge but would expand upon the classical curriculum with courses in modern languages, history, and architecture. It would also "be under control of no single religious organization . . . and be free from all sectarian and party trammels." (77) He knew the kind of university he wanted, what he needed now was someone to pay for it.

On September 1, 1862, White crafted a carefully constructed letter to Gerrit Smith, a wealthy and well-known abolitionist and liberal reformer, asking for help “in founding and building a worthy American university” in western New York. White assured Smith that with the settling of his father’s estate, White would have over \$200,000 he could contribute to the project. The institution White had in mind would be open to all “regardless of sex or color.” It would be an “asylum for Science” where scientific research would not need to “fit *Revealed Religion*.” There would be instruction in moral philosophy, history, and political economy and new literature (by which White meant modern languages). White’s university would have “the best of Libraries—collections in different departments—Laboratory—Observatory—Botanical Garden perhaps—Professorships—Lectureships.” For White this new university would be “a center of education permeated with the true spirit of Christ; yet unshackled.” It would be an institution that was Christian yet sectarian and beholden to no particular denomination. Despite White’s fervent plea, Smith, who was advanced in years and not in the best of health, could offer only encouragement to the young man. (78)

In many respects White’s 1862 letter to Smith foreshadowed not only the nature of what would become Cornell University, but also higher education in general. His desire to include women and African-Americans, for example, represented a viewpoint that was still relatively rare in mid-nineteenth century America. Oberlin was one of the institutions that accepted both women and minorities. Women were more likely to be accepted in the western schools. In 1855 Iowa opened its doors to both genders followed by Wisconsin in 1867, and Kansas, Indiana, and Minnesota in 1869. Only with the retirement of Tappan, who vigorously opposed co-educational institutions, did Michigan accept women in 1870. Iowa State would from the outset be co-educational, but White’s Cornell would not have its first female student until the fall of 1870 and

she only stayed one semester. Only with the creation of Sage College in 1872, the result of a large gift from Henry Sage, a prominent businessman and member of Cornell's board of trustees, would Cornell begin to seriously include women in its student body. (79) Although disappointed in Smith's response to his invitation, White bided his time for another opportunity. And it would not be long in coming.

White and his family were well known among the Syracuse Republicans and in the fall of 1863—despite living in Ann Arbor—White was nominated for and elected to a seat in the New York State Senate. As the youngest of the senators, he had just turned 32, White soon became acquainted with Ezra Cornell, who at 57, was one of the oldest members. The two men were a contrast in many ways with White being nervous and excitable, and of small, almost delicate stature. A former student remembered him as “a little man who looked as though he might have been big if he had wanted to.” The same student recalled Cornell as “tall and spare, grave and serious, shrewd and kindly, looking past the things of today, toward the long future of the long tomorrows.” (80) White, who chaired the committee on education, and Cornell, who led the committee on agriculture, soon found themselves at loggerheads over Cornell's plans to divide the Morrill land grant money between the People's College and the New York Agricultural College, of which he was an ex-officio trustee.

When the Morrill Act was passed in 1862, New York as the largest state, received 989,920 acres, nearly a tenth of the total grant. If the land had been located in contiguous sections it would have covered an area of over 1500 square miles, equal to one-third the size of Connecticut and three-fourths as large as Delaware! The sale of this land would provide solid long-term support for any institution associated with it, and in New York there were a number of small and struggling schools who sought this money. The winner, at least at the outset, was the

People's College of Havana, which formally received the blessing of the New York legislature in May 1863, with the condition, however, that the money would be allocated only if within three years the school had hired ten competent professors, and acquired a 200 acre farm, as well as buildings, laboratories, a library, and grounds that would support instruction for 250 students.

(81) Established in 1853, with the cornerstone finally laid in 1858, the People's College represented forward thinking for the time by being coeducational and creating a curriculum that combined instruction in mechanical and agricultural topics along with exposure to ancient and modern languages, history, astronomy, aesthetics, and mental and moral philosophy. Adult students not intent on earning a degree could attend lectures on agricultural chemistry, geology, and mechanics. Although it ultimately failed to thrive, the People's College was presented as a prototype of a land-grant college during the congressional debates on the Morrill Act. Indeed, Amos Brown, the college's president, was one of the primary lobbyists for the act. Challenged by a lack of sufficient funding, by 1863 the school still was not in operation. (82)

In early 1864, Charles Cook, a major benefactor of the People's College had become quite ill, and it was becoming increasingly apparent that he would not provide additional funding to the struggling school. (83) Cornell, sensing an opportunity, introduced a bill in February that would divide the Morrill Act monies between the People's College and the Agricultural College at Ovid. The New York Agricultural College, which for years had been advocated by the state's agricultural society, had been established by the legislature within days of the People's College in 1853, and by the late 1850s had created a small campus at Ovid. In December 1860, it officially opened its doors with an entering class of twenty-seven men and four faculty. When the Civil War broke out in April 1861 the school's enrollment had increased to forty. Unfortunately, the war's outbreak led to the departure of the school's president, Major Marsena

R. Patrick, and the fledgling institution quickly lost students and faculty and by the Spring of 1862 it had closed. (84) It is ironic that when the 1862 land-grant became available, the New York legislature gave it to the People's College, which had never opened its doors, while excluding from consideration the New York Agricultural College, whose mission would have obviously been in line with the educational orientation of the Morrill Act. Such an action, one historian declared, could "only be regarded as a triumph of legislative manipulation." (85) Cornell hoped that with his bill he could recoup half of the land-grant money and thus reopen the college. White's stubborn opposition, however, dashed his hopes, for the time being.

But Cornell was a stubborn man, and he could not shake his dream of restarting the agricultural college. For over forty years Cornell had been keeping track of his personal finances in a little ledger he called his "ciphering book". By August of 1864 he calculated he would earn over \$100,000 (around \$3 million today) during that year. On August 29<sup>th</sup> he noted: "My greatest care now is how to spend this large income, to do the most good to those who are properly dependent on [me]—to the poor and posterity." (86) A month later Cornell and his fellow trustees of the agricultural college met for a somber board meeting. "They had come to preside at a funeral, to wind up the affairs of their suspended institution . . ." White was invited to attend, although his presence was not appreciated by the other members. As the meeting wound down, Cornell quietly stood, and reading from a piece of paper, announced that if the group would move the college to Ithaca he would provide a 300 acre farm and erect the necessary buildings, plus donate \$300,000 as an endowment. All of this contingent upon the Legislature dividing the fund between Ovid and Havana. Everyone applauded gleefully until White rose and repeated his firm opposition to the plan. As the celebratory mood began deflating, White then added that if Cornell and his friends would instead ask that the entire land-

grant be kept together along with Cornell's offer of a farm and endowment, he would support that effort with all his might. (87) Heartened by White's statement, Cornell said nothing further about this matter throughout the rest of the year, but the possibility of establishing a new college stayed in his mind.

In January 1865 Cornell was ready to move forward. In early January he sidled up to White as they walked near the state capitol and quietly said: "I have about half a million dollars more than my family will need; what is the best thing I can do with it for the State?" White was probably not entirely surprised at the question, since Cornell had already the previous September indicated a willingness to donate \$300,000 for a college. But not wanting to miss his main chance, White assured Cornell that "the best thing you can do with it is to establish or strengthen some institution for higher instruction." White continued excitedly:

I then went on to show him the need of a larger institution for such instruction than the State then had; that such a college or university worthy of the State would require far more in the way of faculty and equipment than most men supposed; that the time had come when scientific and technical education must be provided for in such an institution; and that education in history and literature should be the bloom of the whole growth. (88)

Cornell listened attentively, but said nothing right away, but within a day or two White gleefully confided to Gilman that Cornell had offered "\$500,000 on condition that the whole agricultural fund go to the Ag coll. & that it be placed hi his part of the State." (89) Cornell and White met with members of the People's College board of trustees in mid-January and their plan received the assent of their most prominent member, Horace Greeley. (90). Greeley, the well-known publisher of the *New York Tribune*, was aware of the fragile condition of the Havana college, and

was supportive of any endeavor that would ultimately produce an institution that would thrive. He would become a member of the first Cornell University board of trustees after the Ithaca school was established in 1865.

On February 7, 1865 White introduced a bill to establish a new university named after Ezra Cornell. (91) Cornell first opposed being the institution's namesake, but relented after White assured him that it was a time-honored tradition to name colleges after their major benefactors. For Cornell, the most important aspect of the new school should reflect his basic philosophy for higher education: "I would found an institution where any person can find instruction in any study." (92) This succinct statement remains the motto of Cornell University to this day.

The debate over the passage of the Cornell University bill occupied several weeks of the legislative session, with much give and take and numerous conferences held by Cornell and White in their homes and offices. White gave an impassioned speech in support of the bill in March, and after much wrangling and speech making from those on both sides, the bill finally became law on April 27, 1865. During the process the supporters of the People's College were able to insert a clause in the bill that allowed them until July 27<sup>th</sup> to meet the original conditions placed on that college in 1863. Fortunately for Cornell and White, that deadline passed with nothing more done by the People's College trustees and Cornell University began its official journey at the end of July 1865. (93)

The Cornell University Board of Trustees met for the first time on April 28, 1865 and elected White to its membership. At its September 5<sup>th</sup> meeting, White was charged with chairing a committee to draft the by-laws upon which he labored for over a year, finally presenting the

lengthy report at the Board's November 21, 1866 session. The "Report of the Committee on Organization" concisely distilled many of White's ideas about education and will receive more attention a bit later. At the same November meeting, Cornell nominated White for president. White recorded that the move was "unexpected by me". Despite his plea that the Board choose someone "of more robust health, of greater age, and of wider reputation in the State," his election was unopposed. In his diary White sighed: "Was unanimously elected President of the University. May Heaven strengthen me." Given that White has worked ceaselessly day and night for months to gain passage of the enabling legislation, and then worked many months more to craft the organizational structure for the new institution, it not surprising that Ezra Cornell and his colleagues on the Board believed without reservation that White was the best person to lead the school during its formative years. As opposed to the experience in Ames, Cornell did not have to look high and low for its president: he was right there the entire time. (94)

By mid-1868 the Iowa Agricultural College and Cornell University were finishing up the final work before the start of classes. At Cornell White's vision of a campus quadrangle of stately buildings was taking shape with the construction of the first one, Morrill Hall. Inside the front and back covers of White's diaries for 1865, 1866, and 1867 he had sketched out rough drawings for how he thought the quadrangle should look. And now his plans were taking shape. In Ames similar progress was being made on the construction of Old Main the stately building that would stand until two separate fires in 1900 and 1902 destroyed it. (95) As Melendy had done in Iowa, Ezra Cornell took responsibility for handling the purchase of land made available through the Morrill Act. He devoted the last years of his life (he died in 1874) toward acquiring timber land in Wisconsin that could be held and then sold at a later date when the price had risen. From his diligent efforts, Cornell University established an endowment of \$5,000,000 by the end

of the nineteenth century. (96) By the beginning of the twenty-first century Cornell's endowment had increased to nearly \$5,000,000,000.

Before classes could formally begin, both institutions needed a concrete plan for how they were going to be organized, and this assignment fell to White and Welch for their respective schools. As noted above, White received his assignment in September 1865—before he was chosen president—and he presented his sub-committee's report in November 1866. Cornell would not open for another two years, which gave the university some time to implement its recommendations. Welch, on the other hand, had a much shorter time frame given that after he was hired as president in May of 1868. He still needed to complete his term as Senator from Florida, while at the same time move his family from Jacksonville to Ames and complete that institution's organization plan all before classes officially started in the Spring of 1869. This essay will conclude with an examination of each school's organizational plan, its curriculum, and the inaugural addresses of White and Welch all of which laid the groundwork for the academic direction for each school in its early years.

In September 1868 Welch and his wife and children traveled from the train depot in “a big lumber wagon that was sent to escort in state, the president of the Iowa Agricultural College from Ames to his new home. Only half of the Main Building was completed, the wings being added later, and it was set in a broad expanse of rough, unbroken prairie.” (97) They spent their first night in the “rudely-furnished, unscrubbed hospitality of the Farm House”. Now on the job, Welch was quite aware of the challenges before him, and knew that the College

must organize , at the start, a library, museum, cabinets, laboratories, and must equip, at once, a workshop with all its machinery, a garden, vineyard and orchard, and a farm with

its full supplies of buildings, implements, vehicles and fine stock, the whole to be conducted so as to illustrate the latest and best methods, and above all, a corps of competent professors must be gathered from the four corners of the earth, must just suit a new latitude and fall into line without confusion. (98)

A tall order indeed, but Welch had already done similar work in his stint at Ypsilanti in the 1850s. His middle name was Strong, and he would need every bit of physical and emotional strength he possessed to bring the new college to fruition. Toward that end, he assured Gue in mid-September that he was “working steadily at my report” which would outline the college’s path forward. (99)

Like White at Cornell, Welch chaired a small sub-committee for the task, and produced his organizational plan in October 1868. Although Gue and Melendy had favored the curriculum as taught at the Michigan Agricultural College, Welch brought his own perspective to his assignment. As a grammarian, who a dozen years before had published a 264 page study of the English sentence, Welch had carefully scrutinized the text of the Morrill Act and concluded that the “principal clause announced in precise English” that the agriculture and the mechanic arts would by law be the leading subjects taught at any school accepting the grant. Welch noted that the law would permit the teaching of scientific and classical studies not connected with agriculture or the mechanic arts to round out the curriculum, but, he added, “the creation of a department of general science and literature which should overshadow the departments essential to the enterprise, would be a manifest violation of the spirit and intent of the national law.” Thus to Welch the way forward was quite clear: the college would have two distinct academic tracks, one in agriculture and the other in mechanic arts; military tactics and other associated scientific

and classical studies would be allowed, but would remain subordinate to the two main disciplines. (100)

For the first one and a half years all IAC students would take the same classes. Algebra and geometry, physical geography, physiology and hygiene, as well as general chemistry, botany, and mensuration and surveying represented the basic sciences. The humanities were represented by rhetoric and English language and literature. Although perhaps surprising to contemporary readers, the subject of bookkeeping was introduced in the first semester and reflected the strong belief by many agricultural thinkers of the time that efficient record keeping was an excellent way for farmers to keep track of how well their farms were working and, through these accounts, assist agricultural scientists in learning more about the efficacy of their recommendations. (101) By the second half of the second year, the students began their specialized training in either agriculture or mechanic arts with courses focused on each area. Thus the agriculturalists studied soils, entomology, analytical and agricultural chemistry, practical agriculture, landscape gardening, and rural architecture, while the student who took the mechanic arts track engaged themselves in the study of engineering, calculus, architectural and machine drawing, principles of architecture, and carpentry and masonry.

In the last semester of the fourth year all students came together for instruction in mental philosophy and constitutional law before splitting up again for courses in veterinary science and art or civil engineering. Welch added that students could take courses in French and German, as well as music and free-hand drawing outside the prescribed curriculum. (102) One should note that nowhere was there any mention of Greek or Latin. These vestiges of the old-fashioned college course offerings would not be included in a land-grant college curriculum! Moreover, even the teaching of history, which had been included in the courses offered at the Michigan

Agricultural College, was not part of the IAC class schedule. Finally the inclusion of mental philosophy, or what we would today call psychology appeared in the last semester. Welch had a special affinity for this area and late in his career would publish a thick tome on the psychology of teaching. From the fall of 1871 forward, the mental philosophy course name was changed to psychology. All in all, the curriculum at IAC was relatively simple, straight-forward and focused closely on agriculture and the mechanic arts. In its simplicity it would provide “a more useful, practical and business education, suited to every-day life of nearly every man.” (103)

There is little doubt that Ezra Cornell would have been quite comfortable with the curriculum at IAC. In the main, it reflected what Cornell had hoped would be taught at his beloved New York State Agricultural College. Yet, he also appreciated the larger vision of Andrew White and the hope for an institution “where any person can find instruction in any study”. White, for his part, believed a different interpretation should be applied to the wording of the original land-grant act. In New York State’s enabling legislation that established Cornell University the wording from the Morrill Act was modified slightly to include other branches of science and knowledge, beyond agriculture and mechanic arts, “as the trustees may deem useful and proper.” (104) This subtle change in wording, no doubt crafted by White during the legislative debate in Albany, would open the door to the creation of a broader curriculum than that envisioned by Welch and his colleagues in Ames.

Since White had more than a year to prepare his *Report of the Committee on Organization*, it is a much longer document than the one authored by Welch. At fifty pages it was twice as long as the IAC plan and went into extensive detail about a wide range of issues relating to establishing the Ithaca school. White, who brought to bear his varied academic experiences from Berlin, France, and Michigan, envisioned an institution divided into two basic

divisions. One he called the Division of Special Sciences and the Arts, and the other was labeled the Division of Science, Literature and the Arts in General. The Special Sciences and Arts division would consist of nine departments: agriculture, mechanic arts, civil engineering, commerce and trade, mining, medicine and surgery, law, jurisprudence, political science and history, and a final department of education. The Science, Literature, and Arts in General division would be comprised of three different general courses, each with its own mix of classical and modern languages accompanied by standard science and mathematics courses, and other more traditional offerings that were part of most contemporary colleges in the country. In this way White hoped to create a specialized curriculum for agriculture, engineering, and the other new areas such as law and education, while at the same time also providing a more traditional curriculum for those wanting a more familiar structure. White also emphasized that students could take whatever courses they wished as long as they were within one division or the other. He considered it a “great evil” to insist “on the same curriculum for all students, regardless of their tastes or plans.” By the time the first classes were set, White’s Division of Special Sciences and Arts had been whittled down to five: agriculture, mechanic arts, civil engineering, military engineering and tactics, mining and practical geology, and history, social and political science. The departments of Law, medicine, and commerce and trade would await implementation at a later date. (105)

1868 would be a busy year for both institutions with classes slated to start in the Fall. While the IAC trustees worked to hire Welch and get the Old Main constructed, White and Cornell were busy doing much of the same work at Ithaca. While Ezra stayed in Ithaca to supervise the new building construction, White, buttressed with funds from his own resources as well as those provided by the university’s benefactor, traveled to Europe during the Spring and

early summer on a quest for books, equipment for the new laboratories and shops, and the fervent hope for acquiring new faculty. He was successful in obtaining the services of James Law, from the University of Edinburgh, to be Cornell's first professor of veterinary sciences. White also convinced the prominent Oxford University historian, Goldwin Smith, who had recently resigned his position, to pack his bags and move to the hills of Ithaca to teach modern history to American students. All in all, it had been a successful foray across the Atlantic for the new Cornell president. By the time classes began in late September, White had hired twenty new faculty to teach the huge incoming inaugural class of 418 students, the largest in the history of higher education in the United States. (106)

For Welch, there would be no thought of foreign travel. Instead he labored in Ames and attended to the myriad details associated with the start of classes. In his "Plan of Organization" Welch had called for the hiring of eighteen faculty. Before classes officially started in March 1869, the IAC believed it necessary to provide a preparatory term in October 1868 to help its new potential students succeed with college level work. For this preparatory term, which enrolled 61 students (54 men, and 7 women), Welch had so far only hired three full time instructors in addition to himself. Norton S. Townsend, was from Ohio, and had attended medical school, been an army surgeon during the Civil War, and had served in the Ohio legislature and a term in Congress. He had been a member of the Ohio State Board of Agriculture and was deeply interested in promoting agricultural education. George Jones, an 1859 Yale graduate, was a mathematical whiz and had taught most recently at the Franklin Institute in New York. Finally, for the area of chemistry, Welch hired Albert E. Foote at the age of 22, who had studied at Courtland Academy in New York, as well as studying chemistry at

Harvard and the University of Michigan, where he had earned a medical degree. These three men plus Welch would be the instructional core of the IAC during its first years. (107)

To meet the challenge of obtaining a qualified professor to teach agriculture, an obviously significant part of any land-grant curriculum, both Cornell and IAC ended up hiring the same man. Isaac P. Roberts had been born on a farm in 1833 near Seneca Falls, New York, about thirty miles north of Ithaca. As a young man he migrated west to Indiana before settling on a farm near Mount Pleasant, Iowa in 1862. As an ambitious farmer in the area, he became well-known and in August 1869 was recommended by one of the IAC Trustees to become the college's first instructor in agriculture. Settling into the Farm House with his wife, Roberts struggled to establish an agricultural program at the new college. He and his students labored to clear the land for the fields, and he spent his time lecturing and using the farm fields as his laboratory. He had little choice: the college's small library was of little help. "I might as well have looked for cranberries on the Rocky Mountains as for material for teaching agriculture in that library," he remarked later. Meanwhile, White had been unsuccessful in hiring a suitable agriculture professor at Cornell. Finally, in 1873, after the IAC experienced some turbulence amongst the faculty and administration, Roberts accepted a call to return to New York and take up the post of agriculture professor at Cornell where he would remain for the rest of his career. (108)

The inauguration date for Cornell and the IAC were separated by only a few months, with the one in Ithaca occurring on October 7, 1868 and the one in Ames taking place on March 17, 1869. At each ceremony the four men profiled in this paper were featured speakers. Their remarks have been preserved and a perusal of what they had to say serves as a valuable summary of their hopes and dreams for the fledgling institutions they helped foster. For White and

Cornell, the previous months had been challenging with travel for White, and for Cornell, constant work on either the timber lands in Wisconsin, or supervising construction of the campus' first buildings. By early October both men were exhausted and under the care of physicians. Nevertheless, each man gathered the strength necessary to greet the throngs that arrived on the morning of the seventh to launch the new university.

Cornell spoke first and remained seated during his remarks. He noted that the day marked only the beginnings of the university that would “place at the disposal of the industrial and productive classes of society the best facilities for the acquirement of practical knowledge and mental culture.” He assured his listeners that the new institution would “fit the youth of our country for the professions, the farms, the mines, the manufacturers, for the investigations of science, and for mastering all the practical questions of life with success and honor.” Moreover, he hoped the new school would prove highly beneficial “to the poor young men and poor young women of our country.” Cornell had not given up on his desire for women to attend his university, and made sure his remarks included a reference to that goal. A year earlier he had written his grand-daughter assuring her that it was the “wish of her Grand Pa that girls as well as boys should be educated at the Cornell University”. (109)

White followed his old friend and launched into a spirited speech outlining his major goals for the new institution and his guiding principles. He grouped them into four basic divisions: Foundation Ideas, Formative Ideas, Governmental Ideas, and Permeating Ideas. Each division was then subdivided further. Thus White's Foundation Ideas consisted of four subparts: first, the close union between liberal and practical instruction, which was called for by the Morrill Act; second, the absolute necessity of nonsectarian control. Both Cornell and White believed strongly their new institution be nonsectarian and would brook no interference from

religious denominations. For White, the baleful influence of religion on science was something he fretted over for decades and about which he would ultimately write his magnum opus in 1896. (110) White's third Foundation Idea concerned the importance of a strong relationship between the university and the state's public school system. White's fourth Foundation Idea recognized the need for the state to concentrate its revenues to enhance higher education. White's insistence on not dividing the Morrill Grant lands had been instrumental in keeping the funds together to support a single institution. His Formative Ideas were twofold: (1) the equality between different courses, be they theoretical or practical; and (2) increased attention to scientific study. White, as a classically trained scholar, was not initially enamored of the culture of applied science. He remembered wondering during his days at Yale when seeing fellow students engaged in the coursework at the Sheffield Scientific School "that beings possessed of immortal souls should waste their time in work with blow pipes and test tubes." (111) His association with Daniel Gilman and with Ezra Cornell, however, convinced him of the absolute utility in scientific study and its practical applications and he became an energetic spokesperson for scientific research in higher education. He believed the Cornell curriculum would be a vast improvement over that of the classical colleges and the concomitant "droning over the metaphysics of the Latin subjunctive or the abstrusities of the Greek accents." (112)

White's final two large divisions were Governmental Ideas and Permeating Ideas. His main point for Governmental Ideas was that the Board of Trustees should have limited terms and be chosen by ballot. White also was interested in having the students govern themselves as opposed to having the faculty serve as some sort of police force. White believed the students could live in campus housing using the discipline of simple military organization and thus reduce the need for adult supervision. (113) White's Permeating Ideas covered his belief that the

university should develop the individual person in all areas of his life including the intellectual, moral, and religious spheres. Although he was opposed to sectarian control, he was a faithful Christian and insisted that all students attend chapel daily. White concluded his remarks by noting that Cornell University would be open to all races, and, in time, would also be open to women. White, however, did not advocate admitting women students at the outset, believing that the school already had its hands full trying to educate the over 400 male students currently enrolled. With the speeches concluded, the students began their classes the next day.

By March 1869, the Iowa State Agricultural College and Model Farm was ready to start formal classes. The faculty and other staff had been hired, the preparatory classes had concluded in December, Welch had completed his term as Senator as of March 3<sup>rd</sup>, Main Hall was for the most part completed, and 173 incoming students—136 men and 37 women—were officially enrolled for the first semester of full-time coursework. On the morning of March 17<sup>th</sup> a large crowd, numbering perhaps as many as 1200, appeared on the barren campus west of the village of Ames to witness the inauguration ceremonies of the new college. Gue spoke first noting that where the crowd now stood, not that many years before had been

nothing but a great prairie farm, wild, but beautiful in its wildness, remote from railroad, river, cities or towns, it seemed far better adapted for the quiet retreat of some pioneer farmer and backwoods hunter, than for a site upon which to erect a College for the children of farmers and mechanics of a great State.

But there now existed an institution, and one for which Gue had delivered a guiding hand over the first decade of its existence. Iowa now had, Gue asserted with pride, an institution within reach of the young Iowan of moderate means where a thorough education could be combined

with the practical knowledge of the sciences “illustrated in the field and workshop.” The course of instruction at the IAC “must be eminently practical” with no time squandered on dead languages of the past. Its mission was to provide to its students “a more thorough knowledge of the natural sciences, and useful arts.” Finally, Gue assured his listeners that one of the chief aims of the IAC would be to open its doors to “any of God’s people, whether high or low in social circles, rich or poor, white or black, man or woman.” Gue was a staunch supporter of women in higher education and had stubbornly insisted that they be included alongside men when the IAC opened. A few weeks after his speech in Ames, Gue poked fun at Cornell’s tardy inclusion of women students in his newspaper, calling the Cornell Trustees “fossilized specimens” of an antediluvian past. As he gazed out over the assembled group, Gue was comforted that having “already passed through the stages of doubt, ridicule, reproach, slander, ignorant fault finding, and malicious misrepresentation, unscathed” he could look forward with confidence that the new institution could thrive and grow. (114)

With the keys to the newly constructed Main Building in hand, Welch delivered his inaugural address. He divided his speech into two parts: the first dealt with the importance of practical education vs. the tradition one based on the classics; the second part was devoted to a lengthy defense for the education of women in higher education. Leaving behind a curriculum obsessed with “the dead Past” Welch urged his listeners to appreciate the importance of studying the Natural Sciences and how such study would benefit the young and formative minds of IAC’s students. “The immense vocabulary which their nomenclature has made, can never be encompassed without a powerful exertion that renders the memory ready and retentive. Welch believed that by investigating the various disciplines associated with the sciences—both in agriculture and the mechanic arts—would “keep the reflective faculties in a state of constant

tension.” Although Welch spent a great deal of time touting the significance of the applied sciences, his audience may have missed an important paragraph he included toward the end of his first section:

Political economy, social science, commercial and constitutional law, and moral philosophy, are a harmonious and beautiful group; and if we combine with these our own language and literature, we have variety enough with which earnestness of study can preserve the desirable breadth and balance of culture. (115)

During the early years of his presidency, Welch would face repeated challenges from those outside the college who believed that teaching anything not directly related to agriculture and the mechanic arts was unacceptable. William Wynn, a long-time IAC faculty member remembered later that Welch jealously guarded the “whole of that side of the curriculum embracing Languages, Literature, History, Intellectual and moral sciences, etc.” The contest over what was taught at the Ames school would fester on and off for over twenty years until the hiring of William Beardshear in 1891. (116)

Welch ended his address with an extensive discussion of why women should not be barred from attending colleges and universities. His entire educational experience had included schools that accepted both genders in the classroom, so for Welch, the question of women in college had long been settled. For those hearing his remarks that March morning, Welch made it clear that women were clearly endowed with an equal amount of native intelligence to men, “the mental capacities of women are the same in number with those of man, it is idle to deny.” Welch pointed to a number of women who had easily performed as well as men in their chosen fields, such as French writer Madame de Staël, the American astronomer Maria Mitchell, or even the

military leader, Joan of Arc. Given a chance at more education, Welch was confident many more women could contribute in equal fashion. Moreover, he assured his listeners, “in twenty-five of personal observation in the charge of promiscuous schools, I have found the female student fully equal to the male in capacity for thoroughness in any of the branches of study, whether common or higher.” For Welch, the admission of women to the IAC was simply a foregone conclusion and one that had already been reached at Oberlin College and the University of Iowa, and would within a few years become the norm at most institutions of higher learning. (117)

It is readily apparent that the speeches at the two inaugural ceremonies emphasized different areas of concern. White spent a good part of his remarks spelling out the multiple ideas that undergirded the rather complex curriculum at Cornell, while also making sure that everyone understood the his school would be firmly nonsectarian. White, who had little or no personal experience with females in the classroom (the University of Michigan would begin admitting women in 1870), made only passing reference to the issue of women students. Welch also spent a good amount of time outlining the importance of providing a practical education to the industrial classes, while not mentioning the matter of sectarian control at all. On the other hand Welch devoted half his address to the—at the time—still controversial issue of women in higher education. He had spent years in schools that were co-ed and was quite comfortable in that environment. In addition, Welch was greatly influenced by his wife Mary, who would be instrumental in establishing the first home economics department in the United States at the IAC in 1871.

On the central Cornell University campus statues of White and Cornell gaze at each other across the four hundred feet of grass that separates them. The second of the original buildings on

the south edge of the Arts Quad is named after White. And, of course, the entire institution is named after Ezra Cornell. At Iowa State University no buildings bear the name of Adonijah Welch or Benjamin Gue. Welch has an off-campus street named after him, and for Gue there exists a small grove of trees on the central campus surrounding a small marker that says: “In Memory of Benjamin Gue, Founding Father of Iowa State College, March 22, 1858”. Although each man is memorialized in different ways, they all represented a similar nineteenth century ideal: that providing a college education to the industrial classes was an important thing to do, and one that all four would devote months and years to achieving.

They came from different backgrounds. Cornell was barely educated, but was a mechanical genius with a strong background, a personal interest in agriculture, and great wealth. White was exceedingly well educated, but had only the vaguest understanding of agriculture and the mechanic arts. He came from a wealthy family, traveled extensively, was well read and well spoken. The youngest of the four, he would outlast all of them and live into the second decade of the twentieth century. Welch had a farm background, but upon gaining his University of Michigan education, never looked back and spent his professional career directing one type of school or another. By the time he arrived in Ames in 1868, he already had nearly two decades of experience managing public and normal schools. White’s experience as an education administrator, on the other hand, was limited to the classes he taught at the University of Michigan. Gue, who also had a rural background, was for much of his life a politician and a newspaperman, and devoted his early years in the Iowa legislature focused on creating and passing the bills that established the Ames agricultural college. All four men had dabbled in politics in one way or another, with Gue, White, and Cornell serving in their state legislatures, and Welch for a short time as a United States Senator.

Each man brought his own unique talents to the immense challenge of creating a new type of institution, one that reflected the goals of the Morrill Act. White's university in Ithaca would interpret the Act broadly, making sure that the agriculture and mechanic arts were supported by a phalanx of humanities and social science courses. At the IAC, Welch would cleave to a more strict interpretation of the Act, but would also seek to incorporate courses beyond those specifically related to agriculture and the mechanic arts. All men shared the same vision: that of creating an institution of higher learning for the sons (and for the IAC) the daughters of the laboring classes of Americans. After one-hundred and fifty years, their vision has proven to be an enduring one.

Notes:

1. “The Utility of Universities” in Daniel Coit Gilman, *University Problems in the United States* (New York: The Century Co., 1898), 45.
2. For more on the geographical aspects of migration, see Donald W. Meinig, *The Shaping of America: A Geographical Perspective on 500 Years of History, Vol. 2: Continental America, 1800-1867* (New Haven, CT: Yale University Press, 1993), esp. 222-428. An interesting recent discussion of regional migration is found in Colin Woodard, *American Nations: A History of the Eleven Rival Regional Cultures of North America* (New York, N: Viking, 2011). An older, but still useful account is by Lois Kimball Mathews, *The Expansion of New England: The Spread of New England Settlement and Institutions to the Mississippi River, 1620-1865* (Boston, MA: Houghton Mifflin Company, 1909). A quantitative assessment can be found in Donald H. Parkinson, “How Mobile Were Nineteenth-Century Americans? *Historical Methods* 15 (Summer 1982), 99-109. A useful overview of the Great Lakes and Cornbelt region can be seen in chapter 8 of Susan Wiley Hardwick, Fred M. Shelley, and Donald G. Holtgrieve, *The Geography of North America: Environment, Culture, Economy* (Glenview, IL: Pearson Education, Inc., 2013). Also informative for the Iowa region is John Madson, *Where the Sky Began: Land of the Tallgrass Prairie*, rev. ed. (Ames, IA: Iowa State University Press, 1995).
3. Willis Rudy, “The *Revolution* in American Higher Education—1865-1900,” *Harvard Educational Review* 21 (Summer 1951), 163.
4. Earle D. Ross, *Democracy’s College: The Land-Grant Movement in the Formative Stage* (Ames, IA: Iowa State College Press, 1942). That same year Ross also published

*A History of The Iowa State College of Agricultural and Mechanic Arts* (Ames, IA: Iowa State College Press, 1942). This book was an expansion of “The Land-Grant College: A Democratic Adaptation,” *Agricultural History* 15 (January 1941), 26-36. In 1958, Ross authored a shorter version of the college history titled *The Land-Grant Idea at Iowa State College: A Centennial Trial Balance, 1858-1958* (Ames, IA: Iowa State College Press, 1958). Ross summarized his main ideas in “Contributions of Land-Grant Colleges and Universities to Higher Education,” in William W. Brickman and Stanley Lehrer, eds., *A Century of Higher Education: Classical Citadel to Collegiate Colossus* (New York, 1962), 94-109. Dorothy Schwieder provides a brief biographical sketch of Ross in David Hudson, Marvin Berman, and Loren Horton, eds., *The Biographical Dictionary of Iowa* (Iowa City, IA: University of Iowa Press, 2008), 429-430.

5. Edward Danforth Eddy, Jr., *Colleges for Our Land and Time: The Land-Grant Idea in American Education* (New York: Harper & Brothers publishers, 1956), 267. While conducting his dissertation research, Eddy corresponded with Ross and provided him with an outline of his dissertation chapters for comment. See, Eddy to Earle D. Ross, May 16, 1951, Earle D. Ross Papers, Box 9, Folder 7, RS 13/12/23, University Archives, Iowa State University Library.
6. Allan Nevins, *The State Universities and Democracy* (Urbana, IL: University of Illinois Press, 1962). That same year Nevins produced a pamphlet on the Morrill Act published by the Civil War Centennial Commission, *The Origins of the Land-Grant Colleges and State Universities: A Brief Account of the Morrill Act of 1862 and its Results* (Washington, D.C.: Civil War Centennial Commission, 1862).

7. J.B. Edmond, *The Magnificent Charter: The Origin and Role of the Morrill Land-Grant Colleges and Universities* (Hicksville, NY: Exposition Press, 1978).
8. Colin B. Burke, *American Collegiate Populations: A Test of the Traditional View* (New York: New York University Press, 1982). See also, Donald G. Tewksbury, *The Founding of American Colleges and Universities before the Civil War, with Particular Reference to the Religious Influences Bearing upon the College Movement* (New York: Teachers College, Columbia University, 1932). For a valuable assessment of the early nineteenth century academic environment, see Laurence R. Veysey, *The Emergence of the American University* (Chicago, IL: University of Chicago Press, 1965). The role of classical studies in the antebellum curriculum is explored in Caroline Winterer, *The Culture of Classicism: Ancient Greece and Rome in American Intellectual Life, 1780-1910* (Baltimore, MD, 2002).
9. Stanley M. Guralnick, *Science and the Antebellum American College* (Philadelphia, PA: The American Philosophical Society, 1975); David B. Potts, "Curriculum and Enrollments: Some Thoughts on Assessing the Popularity of Antebellum Colleges," *History of Higher Education Annual* v. 1, no. 1 (1981), 88-109. Also by Potts is "American Colleges in the Nineteenth Century: From Localism to Denominationalism," *History of Education Quarterly* 11 (Winter 1971), 363-380. For an older, but still useful survey of the antebellum college, see R. Freeman Butts, *The College Charts its Course: Historical Conceptions and Current Proposals* (New York: McGraw-Hill Book Company, Inc., 1939). Frederick Rudolph surveys college curricula in *Curriculum: A History of the American Undergraduate Course of Study since 1636* (San Francisco, CA, 1977). Also instructive are two other histories: Louis

- Franklin Snow, *The College Curriculum in the United States* (Ph.D. Dissertation, Columbia University, 1907), and Willis Rudy, *The Evolving Liberal Arts Curriculum: A Historical Review of Basic Themes* (New York, NY, 1960). For more reassessments of the pre-Civil War colleges, see James McLachlan, "The American College in the Nineteenth Century: Toward a Reappraisal," *Teachers College Record* 80 (December 1978), 287-306, and James Axtell, "The Death of the Liberal Arts College," *History of Education Quarterly* 11 (Winter 1971), 339-352.
10. Eldon L. Johnson, "Misconceptions about the Early Land-Grant Colleges," *Journal of Higher Education* 52 (July-August 1981), 333-351.
  11. Roger L. Williams, *The Origins of Federal Support for Higher Education: George W. Atherton and the Land-Grant College Movement* (University Park, PA: Pennsylvania State University Press, 1991), 1-2.
  12. Roger L. Geiger, "The Era of the Multipurpose Colleges in American Higher Education, 1850-1890," in Roger L. Geiger, ed., *The American College in the Nineteenth Century* (Nashville, TN: Vanderbilt University Press, 2000), 127-152; and "The Rise and Fall of Useful Knowledge: Higher Education for Science, Agriculture, and the Mechanic Arts, 1850-1875," in *The American College in the Nineteenth Century*, 153-168. In his introductory essay to the same collection, Geiger provides an outstanding summary of recent scholarship: "Introduction: New Themes in the History of Nineteenth-Century Colleges," in *The American College in the Nineteenth Century*, 1-36. Also valuable is Geiger's longer survey "The Ten Generations of American Higher Education," in Philip G. Altbach, Patricia J. Gumpert, and Robert O. Berdahl, eds., *American Higher Education in the Twenty-First Century: Social, Political, and*

*Economic Challenges* 3<sup>rd</sup> ed. (Baltimore, MD, 2011), 37-68. See also, Joseph F. Kett, *The Pursuit of Knowledge under Difficulties: From Self-Improvement to Adult Education in America, 1750-1990* (Stanford, CA, 1994). For examples of significant early nineteenth century educational observations, see the selections reprinted in Richard Hofstadter and Wilson Smith, eds., *American Higher Education: A Documentary History* vol. 2 (Chicago, IL, 1961).

13. Roger L. Geiger and Nathan M. Sorber, eds., *The Land-Grant Colleges and the Reshaping of American Higher Education* (New Brunswick, NJ: Transaction Publishers, 2013). Also published as *Perspectives on the History of Higher Education* v. 30 (2013).
14. Nathan M. Sorber, “*Pride in Showing their Toil Hardened Hands: The Intersection of Class and Gender in Land-Grant Education Discourse and Practice, 1862-1895*,” paper presented at 2012 Annual Meeting of the American Educational Research Association. Access for members of AERA available at [www.aera.net/repository](http://www.aera.net/repository). Copy provided by author. Sorber’s dissertation is an excellent synthesis of the new scholarship: “Farmers, Scientists, and Officers of Industry: The Formation and Reformation of Land-Grant Colleges in the Northeastern United States, 1862-1906,” (Unpublished Ph.D. Dissertation, Pennsylvania State University, 2011). See also Sorber’s “Creating Colleges of Science, Industry, and National Advancement: The Origins of the New England Land-Grant Colleges,” in Geiger and Sorber, eds., *The Land-Grant Colleges and the Reshaping of American Higher Education*, pp. 41-71.
15. Burton J. Bledstein, *The Culture of Professionalism: The Middle Class and the Development of Higher Education* (New York: W. W. Norton & Co., 1976), and

Joachim Singelmann, *From Agriculture to Services: The Transformation of Industrial Employment* (Beverly Hills, CA: Sage, 1978).

16. In addition to the writings of Ross, Eddy, and the others noted above, useful background syntheses can be found in Williams' *The Origins of Federal Support for Higher Education*, especially chapter 2 "The Land-Grant Movement's First Fifty Years," 11-53, as well as in the first two chapters of Winton U. Solberg's *The University of Illinois, 1867-1894: An Intellectual and Cultural History* (Urbana, IL: University of Illinois Press, 1968), 1-58.
17. For a survey of the Common School movement, see Carl F. Kaestle, *Pillars of the Republic: Common Schools and American Society, 1780-1860* (New York, 1983). Also useful is Rush Welter, *Popular Education and Democratic Thought in America* (New York, 1962). The general intellectual environment of the antebellum period is reviewed by Rush Welter in two books: *The Mind of America, 1820-1860* (New York, NY, 1975) and *Popular Education and Democratic Thought in America* (New York, 1962). Also still valuable is Merle Curti's classic *The Growth of American Thought* (New York, 1953), esp. 344-367.
18. Albert Lowther Demaree, *The American Agricultural Press, 1819-1860* (New York, 1941). For a review of one prominent nineteenth century Iowa agricultural newspaper, see Elaine Harvey Edwards, "Iowa's Early Agricultural Press: A Content Analysis of the *Iowa Farmer and Horticulturalist, 1853-1856*," (Master's Thesis, Iowa State University, 1994). A general history of agricultural societies can be found in Donald B. Marti, *To Improve the Soil and the Mind: Agricultural Societies, Journals, and Schools in the Northeastern States, 1791-1865* (Ann Arbor, MI, 1979). An overview of efforts

- to promote agriculture can be found in Margaret W. Rossiter, “The Organization of Agricultural Improvement in the United States, 1785-1865,” in Alexandra Oleson and Sanborn C. Brown, eds., *The Pursuit of Knowledge in the Early American Republic: American Scientific and Learned Societies from Colonial Times to the Civil War*
19. Good overviews can be found in Alfred Charles True, *A History of Agricultural Education in the United States, 1785-1925* (Washington, DC, 1929), 23-94, and L. H. Bailey, ed., *Cyclopedia of American Agriculture, v. 4: Farm and Community* (New York, 1909), 355-422.
  20. For an understanding of science in the pre-Civil War college curriculum, see Stanley M. Guralnick, *Science and the Ante-Bellum American College* (Philadelphia, 1975). A more general assessment is Robert V. Bruce, *The Launching of Modern American Science, 1846-1876* (New York, 1987).
  21. John S. Brubacher and Willis Rudy, *Higher Education in Transition: A History of American Colleges and Universities* 4<sup>th</sup> ed. (New Brunswick, NJ, 1997), 61-62. An overview of nineteenth century technological developments is available in Todd Timmons, *Science and Technology in Nineteenth-Century America* (Westport, CT, 2005). Also valuable is Charles R. Morris, *The Dawn of Innovation: The First American Industrial Revolution* (New York, NY, 2012).
  22. Liebig’s work is explained in Margaret W. Rossiter, *The Emergence of Agricultural Science: Justus Liebig and the Americans, 1840-1880* (New Haven, CT., 1975). See also, Reynold M. Wik, “Science and American Agriculture,” in David D. Van Tassel and Michael G. Hall, eds., *Science and Society in the United States* (Homewood, IL, 1966), 81-106.

23. For more on this early land-grant legislation, see David Tyack, Thomas James, and Aaron Benavot, *Law and the Shaping of Public Education, 1785-1954* (Madison, WI, 1987), and Harold M. Hyman, *American Singularity: The 1787 Northwest Ordinance, the 1862 Homestead and Morrill Acts, and the 1944 G.I. Bill* (Athens, GA, 1986). Older, but still useful is Frank W. Blackmar, "The History of Federal and State Aid to Higher Education in the United States," *Bureau of Education, Circular of Information*, no. 1 (1890), 3-343. Also, Sarah Phillips sets the land-grant bill within a larger context in "Antebellum Agricultural Reform, Republican Ideology, and Sectional Tension," *Agricultural History* 74 (2000), 799-822. A helpful historical perspective is provided by George Donald Merrill, "Land and Education: The Origin and History of Land Grants for the Support of Education," (Ph.D. Dissertation, University of Southern California, 1965).
24. J. B. Turner, *Industrial Universities for the People Published in Compliance with Resolutions of the Chicago and Springfield Conventions and under the Industrial League of Illinois* (Jacksonville, IL, 1853), 16. For an account that promotes Turner's influence on the passage of the Morrill Act, see Edmund J. James, "The Origin of the Land Grant Act of 1862 (The So-Called Morrill Act) and Some Account of its Author Jonathan B. Turner," *University Studies, University of Illinois* 4 (1910), 7-139.
25. Although a biased account, Turner's main biography is by his daughter, Mary Turner Carriel, *The Life of Jonathan Baldwin Turner* (Jacksonville, IL?, 1911). A more recent balanced treatment is by Judith Ann Hancock, "Jonathan Baldwin Turner (1805-1899): A Study of an Educational Reformer," (Ph.D. Dissertation, University of Washington,

- 1971). See also, Donald R. Brown, "Jonathan Baldwin Turner and the Land-Grant Idea," *Journal of the Illinois State Historical Society* 55 (Winter 1962), 370-384.
26. Biographies of Morrill include William Belmont Parker's *The Life and Public Services of Justin Smith Morrill* (Boston, MA, 1924.) A more modern treatment is by Coy F. Cross, II, *Justin Smith Morrill: Father of the Land-Grant Colleges* (East Lansing, MI, 1999). A close review of the land-grant legislation is provided by Randal Leigh Hoyer, "The Gentleman from Vermont: The Career of Justin S. Morrill in the United States House of Representatives," (Ph.D. Dissertation, Michigan State University, 1974), and by Lee Sewart Duemer, "The Origins of the Morrill Land Grant Act of 1862: A Convergence of War and the Threat of War, Agricultural Influence, Modernization, and the American University Movement," (Ph.D. Dissertation, University of Pittsburgh, 1996). The historical background is provided by Scott Allen Key, "The Origins of American Land Grant Universities: An Historical Policy Study," (Ph.D. Dissertation, University of Illinois at Chicago, 1995). See also, I. L. Kandel, *Federal Aid for Vocational Education: A Report to the Carnegie Foundation for the Advancement of Teaching* Bulletin no. 10 (Boston, MA, 1917). Earle Ross provides a good assessment of Morrill's contribution in "The *Father* of the Land-Grant College," *Agricultural History* 12 (1938), 151-186. On Lincoln's quote, see Stephen Fiske, "When Lincoln Was Inaugurated," *Ladies Home Journal* 14 (March 1897), 7. Ross also downplays Lincoln's overall interest in agricultural education in "Lincoln and Agriculture" *Agricultural History* 3 (1929), 51-66. The views of western states to the act is profiled by Paul Wallace Gates in "Western Opposition to the Agricultural College Act," *Indiana Magazine of History* 37 (1941), 103-136. The political context is provided by

Leonard P. Curry, *Blueprint for Modern America: Nonmilitary Legislation of the First Civil War Congress* (Nashville, TN, 1969). The economic aspects of the act are discussed in Scott Key's "Economics or Education: The Establishment of American Land-Grant Universities," *Journal of Higher Education* 67 (1996), 196-220.

27. The official version of the act is "An Act Donating Public Lands to the Several States and Territories which May Provide Colleges for the Benefit of Agriculture and the Mechanic Arts" ch.130, 12 Stat. 503, 7 U.S.C.301 et.seq.
28. For a summary analysis of the Section 4 of the act, see Edmond, *The Magnificent Charter*, 17-18, and Eddy, *Colleges for Our Land and Time*, 32-45.
29. For a list of the land grant schools who accepted the grant and their starting dates, see G. Lester Anderson, ed., *Land-Grant Universities and Their Continuing Challenge* (Lansing, MI, 1976), Appendix, Table 2. Chronological details can be found in Henry S. Brunner, *Land-Grant Colleges and Universities, 1862-1962* (Washington, DC, 1962). Also valuable is Benjamin F. Andrews, "The Land Grant of 1862 and the Land-Grant Colleges," *Department of the Interior, Bureau of Education Bulletin* , no. 13 (1918), 3-63. Henry F. French, who was president of the Massachusetts Agricultural College, provides an assessment of agricultural education soon after the passage of the act. His report is found in *Report of the Commissioner of Agriculture for the Year 1865* (Washington, D.C., 1866), 137-186. French also includes information about agricultural schools in France, Germany, and England. Also valuable for its broad view is Mark R. Nemeck, *Ivory Towers and Nationalist Minds: Universities, Leadership, and the Development of the American State* (Ann Arbor, MI, 2006).

30. *Acts and Resolutions Passed at the Extra Session of the Ninth General Assembly of the State of Iowa which Convened at the Capitol in Des Moines, on the Third Day of September, A. D. 1862* (Des Moines, IA, 1862), Chapter 26 “Agricultural College”; *Laws of the State of New York Passed at the Eighty-Sixth Session of the Legislature Begun January Sixth, and Ended April Twenty-Fifth, 1863, in the City of Albany* (Albany, NY, 1863), Chapter 460.
31. *Acts and Resolutions Passed at the Regular session of the Seventh General Assembly of the State of Iowa which Convened at the Capitol, Des Moines, on the First Monday of January, A. D. 1858* (Des Moines, IA, 1858), Chapter 91 “Agricultural College”. The text of Gue’s speech can be found in Benjamin Gue Papers, Box 2, N15/7/1-2, Archives, State Historical Society of Iowa, Des Moines, Iowa. Earlier calls for an agricultural college included William Duane Wilson, “Plan of an Agricultural School” *Iowa Farmer and Horticulturist* 4 (June 1956), 11-12. An account of the early years of the IAC can be found in Tanya Zanish-Belcher, “Early Research Efforts at Iowa Agricultural College and Model Farm, 1858-1905,” in Allison H. Sheridan, ed., *The Land-Grant Act and the People’s College, Iowa State University* (Ames, IA, 2011), 43-59.
32. Katherine Gue Leonard to Wallace Barron, April 16, 1858, Wallace E. Barron Papers, Box 3, Katherine Gue Leonard file 3/8, RS 21/2/13, University Archives, Iowa State University Library.
33. Katherine Gue Leonard to Wallace Barron, April 8, 1858, Wallace E. Barron Papers, Box 3, Katherine Gue Leonard file 3/8, RS 21/2/13, University Archives, Iowa State University Library.

34. *Des Moines Register and Leader*, June 2, 1904, p. 7.
35. Biographical information on Gue is available in David C. Mott, "Benjamin F. Gue," *Annals of Iowa* 20 (1937), 603-631; Johnson Brigham, "Notable Deaths," *Annals of Iowa* 6 (1904), 476-477. Also useful is the Earle D. Ross' introduction to *Diary of Benjamin F. Gue in Rural New York and Pioneer Iowa, 1847-1856* (Ames, IA, 1962). Gue's daughter, Katherine Gue Leonard, provides a short synopsis of his life and career in her "Notes on the Life of Benjamin F. Gue, 1828-1904," Benjamin F. Gue Papers, Box 1, Folder 1 (Biographical Materials, 1865-1959), RS 1/3/52, University Archives, Iowa State University Library. Gue's obituary is published in the *Des Moines Register and Leader*, June 2, 1904. L. Glenn Smith notes that Gue's name was pronounced like "way". See, Smith, *Teacher Education at Iowa State University, 1868-1982* (Iowa State University, 1982), 7.
36. The early legislative history of the IAC is covered in Earle D. Ross, *A History of the Iowa State College of Agriculture and Mechanic Arts* (Ames, IA, 1942), 14-21 [hereafter cited as *A History of the Iowa State College*]; Earle Dudley Ross, *The Land-Grant Idea at Iowa State College: A Centennial Trial Balance, 1858-1958* (Ames, IA, 1958), 21-27; Dorothy Schwieder, "The People's College," in Allison H. Sheridan, ed., *The Land-Grant Act and the People's College, Iowa State University* (Ames, IA, 2011), 27-28. Beyond the histories noted above, a good recent survey of the first seventy-five years is by Pamela Riney-Kehrberg, "Foundations of the People's College: The Early Years of Iowa State," in Dorothy Schwieder and Gretchen Van Houten, eds., *Tradition and Transformation: A Sesquicentennial History of Iowa State University* (Ames, IA, 2007), 11-32. An unpublished history of the college by Louis B. Schmidt and titled

“The Iowa State College of Agriculture and Mechanic Arts, 1851-1891,” probably produced in the early 1920s and missing endnote citation information, can be found in Louis B. Schmidt Papers, Box 3, RS 13/12/22, University Archives, Iowa State University Library. Schmidt published two shorter versions in “Origin and Establishment of Iowa State,” *Alumnus* 24 (1929), 215-218, and “Origin and Establishment of the College,” *Alumnus* 28 (1933), 187-195. Also useful is Christie Dailey, “Implementation of the Land-Grant Philosophy during the Early Years at Iowa Agricultural College, 1858-1890,” (Unpublished Master’s Thesis, Iowa State University, 1982). Also useful is Charles Bessey’s account, published as “Laying the Foundations,” *Annals of Iowa* 3<sup>rd</sup> ser., 9 (1909), 26-44.

37. Benjamin F. Gue, “The Origins of Iowa State College: A Founder’s Own Account,” *Annals of Iowa* 34 (1958), 342-348. Gue’s original manuscript is located Benjamin F. Gue Papers, Box 2, folder G935, N15/7/1-2, Archives, State Historical Society of Iowa, Des Moines, Iowa. Gue’s majority report for the agriculture committee can be found in *Journal of the House of Representatives of the Eighth Session of the General Assembly of the State of Iowa Convened at the Capitol, at Des Moines on Monday, the 9<sup>th</sup> Day of January, A.D. 1860* (Des Moines, IA, 1860), 245-246.
38. *Report of the Secretary of the Iowa Agricultural College and Farm*, no date but probably December 1859. This report is appended to the *First Report of the Secretary of the Iowa Agricultural College to the General Assembly of the State of Iowa for the Years 1858 and 1859* (Des Moines, IA, 1859). Board members visited the Farmer’s College at Cincinnati as well as the Farmer’s High School in Pennsylvania and corresponded with individuals at the agricultural colleges of Michigan and New York.

39. Minutes of the Iowa Agricultural College Board of Trustees, January 14, 1867 and January 15, 1867, Minute Book for 1865-1873, RS 1/8 University Archives, Iowa State University Library. [hereafter cited as IAC Board of Trustees Minutes]*The Iowa North West*, October 2, 1867, p. 2. Earlier in 1859, Suel Foster, the first head of the IAC Board had asked Jonathan Baldwin Turner if he would be president of the new college, but Turner evidently declined. Foster to Turner, March 5, 1859, copy in the Papers of Regents Members of the Board, Box 1, Folder 1/5 "Suel Foster" RS 1/3/2, University Archives, Iowa State University Library. The original of this letter is in the Jonathan Baldwin Turner Papers, Illinois History and Lincoln Collections, University of Illinois at Urbana-Champaign.
40. For Melendy's contribution to the early IAC, see Luella M. Wright, *Peter Melendy: The Mind and the Soil* (Iowa City, IA, 1943), 200-211. Gue provide a thumbnail sketch of Melendy in *History of Iowa from the Earliest Times to the Beginning of the Twentieth Century* 4 vols. (New York, NY, 1903), 4:186-187. Melendy was a consistent advocate for the agricultural college. See, for example, his presidential address to the Iowa State Agricultural Society in September 1865 in *Report of the Secretary of the Iowa State Agricultural Society*, "September Meeting," (Des Moines, IA, 1866), 42-43. Melendy's efforts to locate college lands for sale or lease are recounted in Roscoe L. Lokken, *Iowa Public Land Disposal* (Iowa City, IA, 1942), 169-175. See also, Johanna C. Fedson Kirkman, "A History of Land Grants Used for Education in Iowa," (Master's Thesis, Iowa State College, 1928), 88-108. Melendy's observations on the early history of the IAC are also found in "Personal Recollections

of Iowa Men and Events,” Peter Melendy Papers, Box 45, Folder 9, M243, Archives, State Historical Society of Iowa, Des Moines, Iowa.

41. The Board of Trustees minutes for January 15, 1868 made brief mention that the Gue/Melendy report had been given. But the text of the report is found in the minutes. For the full report, see “Report of the Committee on Organization, and Selection of Faculty,” in the *Second Report of the Trustees of the Iowa Agricultural College, to the Governor and General Assembly of Iowa* (Des Moines, IA, 1868), 25-62. [hereafter cited as “Report of the Committee on Organization”]. For histories of the Michigan agricultural college, see W. J. Beal, *History of the Michigan Agricultural College and Biographical Sketches of Trustees and Professors* (East Lansing, MI, 1915), and Keith R. Widder, *Michigan Agricultural College: The Evolution of a Land-Grant Philosophy, 1855-1925* (East Lansing, MI, 2005).
42. “Report of the Committee on Organization,” 57. Katherine Leonard Gue, “Notes on the Life of Benjamin F. Gue, 1828-1904,” Benjamin F. Gue Papers, Box 1, Folder 1 (Biographical Materials, 1865-1959), RS 1/3/52, University Archives, Iowa State University Library.
43. “Report of the Committee on Organization,” 56-57.
44. William Brewer, “The Intent of the Morrill Land Grant,” William Brewer Papers, Box 45, Folder 299 “Morrill Land Grant”, Manuscripts and Archives, Yale University Library. Brewer wrote up his notes in the late 1880s, and then typed them again in 1908 when he was clearing out his office at Yale. Morrill expanded on his rationale for promoting the land-grant act in the years after the act’s passage. His most extensive comments are found in: Justin S. Morrill, *The Land-Grant Colleges: An Address*

*Delivered at the Eighty-Ninth Commencement of the University of Vermont and State Agricultural College, June 28<sup>th</sup>, 1893* (Burlington, VT, 1893), and Massachusetts Agricultural College, *Addresses Delivered at the Massachusetts Agricultural College, June 21<sup>st</sup>, 1887, on the 25<sup>th</sup> Anniversary of the Passage of the Morrill Land Grant Act* (Amherst, MA, 1887), 17-26. Gue had evidently provided an account of his visit to Ithaca and New Haven in the November 27, 1867 and December 18, 1867 issues of the *Iowa North West*. Unfortunately those issues are no longer extant.

45. Melendy summarized his views (and probably those of the rest of the IAC Board) in his January 1, 1866 “Report of the Secretary of the Iowa Agricultural College and Farm.” This document has no publisher or publication date, but is contained in *Legislative Documents Compiled by Order of the Eleventh General Assembly of the State of Iowa, which Convened in Des Moines, January 8, 1866* (Des Moines, IA, 1866).
46. “Report of the Committee on Organization”, 60.
47. *Ibid.*, 30-32. In his history, Beal reproduces the 1871 catalogue which had changed little from what Gue and Melendy reported, Beal, *History of the Michigan Agricultural College and Biographical Sketches of Trustees and Professors*, 69-70. See also, for another example, the 1869 catalogue in State Agricultural College, *Catalogue of the Officers and Students of the State Agricultural College* (Lansing, MI, 1869).
48. Biographical sources on Welch are quite slender. Ross provides a brief summary in *A History of the Iowa State College*, 59-60. Brief biographies appear in the *Dictionary of American Biography*, v. 19 (New York, 1936), 617-618; *National Cyclopaedia of American Biography* v. 12 (New York, 1904), 291; and *American National Biography*, v. 22 (New York, 1999), 919-921. Additional material can be found in Adonijah S. Welch

Papers, Box 1, Folder 1 “Biographical Information”, RS 2/1, University Archives, Iowa State University Library. [Hereafter cited as Welch Papers]. The early University of Michigan curriculum is described in Howard H. Peckham, *The Making of the University of Michigan, 1817-1967* (Ann Arbor, MI, 1967), 22-23.

49. Charles R. Starring and James O. Knaus, *The Michigan Search for Educational Standards* (Lansing, MI, 1969), 35-36. A brief history of the Jonesville School is found in Ralph Monroe Powers, *Jonesville Union School at Jonesville Hillsdale Co. Michigan* (Jonesville, MI, 1876, republished in 2008). A brief history of the Jonesville school is also found in *History of Hillsdale County, Michigan, with Illustrations and Biographical Sketches of Some of its Prominent Men and Pioneers* (Philadelphia, PA, 1879), 139-142.
50. Welch recounted his experiences in California, which were published in Wisconsin and Michigan newspapers. His letters were published in the Milwaukee *Sentinel and Gazette* in 1849 and 1850 and reproduced a century later in William H. Hermann, ed., “Three Gold Rush Letters of Adonijah Strong Welch,” *Iowa Journal of History* 57 (1959), 61-73. See also, “The Fayette Rovers as Recorded by A.S. Welch” Adonijah S. Welch Papers, Box 1, Folder 3 “Biographical Information”, RS 2/1, University Archives, Iowa State University Library. The Fayette Rovers account appeared in the December 11, 1849 issue of the *Hillsdale Whig Standard*, p. 2. See also Francis W. Shearman, *System of Public Instruction and Primary School Law of Michigan* (Lansing, MI, 1852), 570-572.
51. *Annual Report of the Superintendent of Public Instruction and Accompanying Documents Made to the Legislature for the Year 1853* (Lansing, MI, 1853), 127.

Emphasis in the original. Welch's remarks given upon becoming Principal at the Normal School are also printed in *ibid.*, 81-85. Histories of the Normal School include the standard account of the first half century by Daniel Putnam, *A History of the Michigan State Normal School (Now Normal College) at Ypsilanti, Michigan, 1849-1899* (Ypsilanti, MI, 1899). Also useful are: Ebert R. Isbell, *A History of Eastern Michigan University, 1849-1965* (Ypsilanti, MI, 1971), and Ronald Flowers, *The Michigan State Normal School and the Preparation of Teachers: A History and Institutional Analysis* (Saarbrücken, Germany, 2008).

52. Putnam, *A History of the Michigan State Normal School*, 39-40. See also, Isbell, *History of Eastern Michigan University, 1849-1965*, 13-21, and 109-112. A course catalogue for 1858 provides more detail: *Catalogue of the Officers and Students of the Michigan State Normal School for the Year 1857-1858* (Detroit, MI, 1858). A general overview of the development of both the Normal School and the Agricultural College can be found in Willis F. Dunbar, *The Michigan Record in Higher Education* (Detroit, MI, 1963), 83-102.
53. C. F. R. Bellows, "Reminiscences: The Early Days of the Normal School," in Michigan State Normal School, *Proceedings of Anniversary Day Exercises, Thursday March 28, 1895* (Ypsilanti, MI, 1895), 8-9.
54. *The Normal News*, February 1894, p.7 cited in Isbell, *A History of Eastern Michigan University, 1849-1965*, 111. That issue of *The Normal News*, which was the Michigan State Normal School newspaper, is no longer extant.
55. The quote about Welch and his business prospects is from a letter Arvin Benjamin Shaw wrote to Edgar Stanton in 1940, Box 1, Folder 5 "Correspondence on Welch

Family” RS 2/1, Welch Papers. *The Weekly Floridian*, June 23, 1868, p. 2 noted the June 17 election of Welch as Senator. On Florida’s political scene during this period, see Jerrell H. Shofner, *Nor Is It Over Yet: Florida in the Era of Reconstruction, 1863-1877* (Gainesville, FL, 1974), 177-197; Shofner, “Political Reconstruction in Florida,” *Florida Historical Quarterly* 45 (1966), 145-170, and Shofner, “Florida: A Failure in Moderate Republicanism,” in Otto H. Olsen, ed., *Reconstruction and Redemption in the South* (Baton Rouge, LA, 1980), 13-46; and William Watson Davis, *The Civil War and Reconstruction in Florida* (Gainesville, FL, 1964, reprint of 1913 edition), 531-532. For a bit more on the skirmishing that led to Welch’s selection, see Canter Brown, Jr., *Ossian Bingley Hart: Florida’s Loyalist Reconstruction Governor* (Baton Rouge, LA, 1997), 218. Brief biographical information about Mary Welch can be found in Ercel Sherman Eppright and Elizabeth Storm Ferguson, *A Century of Home Economics at Iowa State University: A Proud Past, a Lively Present, a Future Promise* (Ames, IA, 1971), 10-11.

56. Gue mentions Abbott’s recommendation in his remarks at Welch’s funeral, which were reproduced in *The Aurora* 18 (April 1889), 6-9. Welch’s service on the Agricultural Board is noted in Beal, *History of the Michigan Agricultural College*, 346-347. For Welch’s thoughts on Michigan’s agricultural development, see, for example, his lecture “The State Agricultural Society: Its Means and Ends,” in *Three Lectures Delivered before the Michigan State Agricultural Society at its Annual Meeting, at Lansing, January 17, 1865* (Lansing, MI, 1865), 39-64.
57. “Report of the Committee on Organization,” 27.

58. *The North West*, April 8, 1868, p.2. Emphasis in the original. It should be noted that Andrew White was considered for the presidency of Antioch prior to his involvement with starting up Cornell University. Antioch College, *The Book of Antioch, 1853-1929* (Yellow Springs, OH, 1929), 15-16.
59. IAC Board of Trustees Minutes, May 11, 1868. In the footnotes to the published version of his remarks at Welch's funeral Gue alludes to his correspondence with Welch about the position. There is no record of this correspondence in the archives. *The Aurora* 18 (April 1889), 6-7.
60. Any historian working with the primary resources available on Cornell and White is confronted with an embarrassment of riches. While the papers of Welch total two linear feet and Gue's collection only a bit larger, the Cornell University archives has preserved 30 linear feet of material pertaining to Ezra Cornell and nearly 100 linear feet for White. Moreover, selective parts of Cornell's correspondence have been digitized. Although White's papers have not been digitized, there was an extensive effort made in the 1960s to microfilm not only what was in White's files, but also correspondence produced by White that ended up in numerous other archival collections in Europe and in the United States. The 149 reels of microfilm that contain the *Andrew Dickson White Papers at Cornell University* represent a veritable treasure trove of nearly 100,000 primary documents relating to White's career and the history of Cornell University during his time as president. White's Papers are in Collection 01-02-02 in the Division of Rare and Manuscript Collections, Cornell University. Hereafter cited as White Papers. The guide to White's microfilm collection is *Andrew Dickson White Papers at Cornell University, 1846-1919*, edited by Herbert Finch and Patricia H.

Gaffney (Ithaca, NY, 1970). Hereafter cited as ADWMC. Cornell's papers are housed in the same facility and are labeled Collection 1-1-1. A great deal of Cornell's correspondence is digitally available at <http://rnc.library.cornell.edu/EAD/htmldocs/RMA00001.html#s1a>.

61. For biographical information on Cornell, see Philip Dorf, *The Builder: A Biography of Ezra Cornell* (New York, 1952), Alonzo B. Cornell, *True and Firm: Biography of Ezra Cornell, Founder of the Cornell University, A Filial Tribute* (New York, 1884), and Mary Emily Cornell, *The Autobiography of Mary Emily Cornell* (Ithaca, NY, 1929), esp. 5-32. An older work, useful for its collection of reprinted letters is Albert W. Smith, *Ezra Cornell: A Character Study* (Ithaca, NY, 1934). Also quite valuable are assessments by Carl Becker and Morris Bishop in their respective works: Becker, *Cornell University: Founders and the Founding* (Ithaca, NY, 1943), 43-65; and Bishop, *A History of Cornell* (Ithaca, NY, 1962), 8-28. Quote is from Cornell, *True and Firm*, 276. Cornell's family history is explored in Albert Hazen Wright, "The Background of Ezra Cornell, the Founder of Cornell University, His Ancestry," *Studies in History* no. 27 (Ithaca, NY, 1965). This publication is also number 10 in Wright's series *Pre-Cornell and Early Cornell*. A more recent history of Cornell is Carol Kammen, *Cornell: Glorious to View* (Ithaca, NY, 2003). Kammen also put together a valuable historical collection of student writings in *First Person Cornell: Students' Diaries, Letters, Email, and Blogs* (Ithaca, NY, 2006).
62. Elaine D. Engst, "Cornell University," in John W. Oliver, Jr., Charles L. Cherry, and Caroline L. Cherry, *Founded by Friends: The Quaker Heritage of Fifteen American*

*Colleges and Universities* (Lanham, MD, 2007), 73. This text is also available at:  
[http://ecommons.library.cornell.edu/bitstream/1813/5418/1/Engst\\_CU.pdf](http://ecommons.library.cornell.edu/bitstream/1813/5418/1/Engst_CU.pdf)

63. Alonzo Cornell reproduces his father's account of his telegraph beginnings in Cornell, *True and Firm*, 71-80. A more detailed account of Cornell's work in the telegraph business is found in Dorf, *The Builder*, 44-201. For more context and Morse's role, see Kenneth Silverman, *Lightning Man: The Accursed Life of Samuel F. B. Morse* (New York, 2003), 220-246.
64. For an early comment on the existence of the "Communication Revolution" see Robert G. Albion, "The *Communication Revolution*," *American Historical Review* 37 (1932), 718-20. The quote is from page 718. Daniel Howe discusses this topic in his *What Hath God Wrought: The Transformation of America, 1815-1848* (New York, 2007), 690-698, as does David M. Henkin in *The Postal Age: The Emergence of Modern Communications in Nineteenth-Century America* (Chicago, 2006), 15-41.
65. The impact on the telegraph on the history of human communication has generated an impressive literature. The quote comes from Roland Wenzlhuemer, *Connecting the Nineteenth-Century World: The Telegraph and Globalization* (New York, 2013), 30. See also James W. Carey, *Communication as Culture* (Boston, 1989) and also his "Technology and Ideology: The Case of the Telegraph," *Prospects: The Annual of American Cultural Studies* vol. 8 (1983), 303-325. Menachem Blondheim, *News over the Wires: The Telegraph and the Flow of Public Information in America, 1844-1897* (Cambridge, MA, 1994) provides a good overview of the telegraph's use. A broader perspective is provided by Richard R. John, *Network Nation: Inventing American Telecommunications* (Cambridge, MA, 2010).

66. For two older, but still valuable, accounts of the history of Western Union, see Robert Luther Thompson, *Wiring a Continent: The History of the Telegraph Industry in the United States, 1832-1866* (Princeton, NJ, 1947), and James D. Reid, *The Telegraph in America: Its Founders, Promoters, and Noted Men* (New York, 1879). A more recent study is Joshua D. Wolff, “*The Great Monopoly: Western Union and the American Telegraph, 1845-1893*,” (Ph.D. Dissertation, Columbia University, 2008).
67. Carl Becker, *Cornell University: Founders and the Founding* (Ithaca, NY, 1943), 61. Hereafter cited as Becker, *Cornell University*.
68. Engst, “Cornell University,” in Oliver, Cherry, and Cherry, eds., *Founded by Friends*, 75-76.
69. Ezra Cornell to Alonzo Cornell, February 8, 1846, Ezra Cornell Papers, Box 3, Folder 7, Division of Rare and Manuscript Collections, Cornell University Library, Cornell University. Hereafter cited as Cornell Papers. [This is available in the Cornell Papers digital collection]. Second quote is from a letter dated February 1, 1846 from Cornell to Alonzo published in Smith, *Ezra Cornell*, 54. Smith reproduced a number of Cornell’s letters in his biography.
70. The school’s director, Major Marsena R. Patrick, assured Cornell that he would monitor the spending habits of Cornell’s progeny. Patrick to Cornell, April 16, 1861, Cornell Papers, Box 21, Folder 4.
71. “Address Delivered before the New York State Agricultural Society, at the Annual Meeting, Albany, February 12, 1863 by Hon. Ezra Cornell, President,” *Transactions of the New York State Agricultural Society, with an Abstract of the Proceedings of the County Agricultural Societies* v. 22, 1862 (Albany, 1863), 29. Cornell’s speech is also

discussed in Ellis Pierson Leonard, *A Cornell Heritage: Veterinary Medicine, 1868-1908* (Ithaca, NY, 1979), 27-28. The broader context is provided by Donald B. Marti, *To Improve the Soil and the Mind: Agricultural Societies, Journals, and Schools in the Northeastern States, 1791-1865* (Ann Arbor, MI, 1979); and by Clarence H. Danhof, *Change in Agriculture: The Northern United States, 1820-1870* (Cambridge, MA, 1969). For a study that focuses on New York state, see Ulysses Prentiss Hedrick, *A History of Agriculture in the State of New York* (Albany, NY, 1933).

72. William Dickson White, *Autobiography of Andrew Dickson White* (New York, 1905), vol. 1, 30. Hereafter cited as White, *Autobiography*. An unpublished version of the beginning of White's *Autobiography* can be found in Reel 147 ADWMC titled "The Founding of Cornell, 1887, and an earlier draft". The entire manuscript is more than 300 pages long.
73. Biographical material on White can be found in his two-volume *Autobiography*. The best—and only book-length biography—is by Glenn C. Altschuler, *Andrew D. White—Educator, Historian, Diplomat* (Ithaca, NY, 1979). In addition to White's voluminous correspondence which is housed at Cornell, the diary he kept for much of his life was edited by Robert Morris Ogden as *The Diaries of Andrew D. White* (Ithaca, NY, 1959). White's original diaries can be found in Boxes 149-150 in his papers. Carl Becker and Morris Bishop each provide thumb nail sketches of White's life in their respective works: Becker, *Cornell University*, 66-89, and Morris, *A History of Cornell*, 29-49. Gilman's career is traced in Francesco Cordasco, *The Shaping of American Graduate Education: Daniel Coit Gilman and the Protean Ph.D.* (Totowa, NJ, 1973). For an assessment of Gilman and White, see Earle D. Ross, "The Great Triumvirate of Land-

Grant Educators: Gilman, White, and Walker,” *The Journal of Higher Education* 323 (1961), 480-488. The Yale curriculum is described in John C. Schwab, “The Yale College Curriculum, 1701-1901,” *Educational Review* 22 (1901), 1-17. For more on Yale during the nineteenth century, see Louise L. Stevenson, *Scholarly Means to Evangelical Ends: The New Haven Scholars and the Transformation of Higher Learning in America, 1830-1890* (Baltimore, MD, 1986).

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75. White recounts his Michigan days in his *Autobiography* vol. 1, 257-283. His teaching career is surveyed by Ruth Bordin, “Andrew Dickson White: Teacher of History,” *Michigan Historical Collections Bulletin* no. 8 (August 1958), 3-19. On his youthful appearance, see George Lincoln Burr, “White, Andrew Dickson,” *Dictionary of American Biography* 20 (1936), 88.

76. Henry P. Tappan, *University Education* (New York, 1851), 68. Emphasis in original. On Tappan, see Charles M. Perry, *Henry Philip Tappan: Philosopher and University President* (Ann Arbor, 1933). For a summary of his presidency, see Howard H. Peckham, *The Making of the University of Michigan, 1817-1967* (Ann Arbor, MI, 1967), 31-52, and Wilfred B. Shaw, ed., *The University of Michigan: An Encyclopedic Survey* (Ann Arbor, 1942), vol. 1, 39-53. Also valuable is Charles Kendall Adams, *Historical Sketch of the University of Michigan* (Ann Arbor, 1876). For more on the German influence on Michigan's curriculum, see James Turner and Paul Bernard, "The German Model and the Graduate School: The University of Michigan and the Origin Myth of the American University," *History of Higher Education Annual* 13 (1993), 69-98, and Brian M. Ingrassia, "From the New World to the Old, and Back Again: Whig University Leaders and Trans-Atlantic Nationalism in the Era of 1848," *Journal of the Early Republic* 32 (2012), 667-692.
77. White, *Autobiography*, vo. 1, 288-290. As a student at Geneva College White was strongly influenced by two books: Francis W. Newman, ed., *The English Universities from the German of V. A. Huber* (London, 1843), and Charles Astor Bristed, *Five Years in an English University* 2<sup>nd</sup> ed. (London, 1843).
78. White to Gerrit Smith, September 1, 1862, Gerrit Smith Papers, Box 39, Folder "White, Andrew", Special Collections Research Center, Syracuse University Library. Gerrit's September 3<sup>rd</sup> reply is in ADWMC, Reel 4. Earlier drafts of White's letter from August 12 and 19 are also found in Reel 4. Becker reproduces White's letter in *Cornell University*, 154-158. Smith's biography is by Ralph Volney Harlow, *Gerrit Smith: Philanthropist and Reformer* (New York, 1939).

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*Passed at the Eighty-Sixth Session of the Legislature Begun January Sixth and Ended April Twenty-Fifth, 1863, in the City of Albany* (Albany, 1863), Chapter 511.

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83. On Cook, see *History of Tioga, Chemung, Tompkins, and Schuylers Counties, New York with Illustrations and Biographical Sketches* (Philadelphia, PA, 1879), 657-659.
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86. Cyphering book, August 29, 1864, Box 83, Cornell Papers.
87. White, *Autobiography*, vol. 1, 296. See also, Dorf, *The Builder*, 280-281.
88. White, *Autobiography*, vol. 1, 298. See also, Andrew Dickson White, *My Reminiscences of Ezra Cornell* (Ithaca, NY, 1890), 7-8.
89. White to Gilman, January 4, 1864[5], Reel 4, ADWMC.
90. Cornell to Francis Miles Finch, January 27, 1865, Box 25, Folder 12, Cornell Papers;  
Cornell to Alonzo Cornell, January 25, 1865, Box 25, Folder 12, Cornell Papers.
91. *Journal of the Senate of the State of New York at their Eighty-Eighth Session, Begun and Held at the Capitol, in the City of Albany, on the Third Day of January, 1865* (Albany, NY, 1865), 155.
92. White, *Autobiography*, vol. 1, 300.
93. White's account of the legislative battle is found in his *Autobiography*, vol. 1, 300-305. Other accounts are in Bishop, *A History of Cornell*, 64-68; Dorf, *The Builder*, 288-302. White's speech in the Senate is: "The Cornell University: Speech of Hon. Andrew D. White in Senate, March 1865" Reel 148, ADWMC. In a letter to George L. Burr and Ernest W. Huffcut, dated September 8, 1893, White provides a lengthy summary of his involvement in the founding of Cornell, Reel 60, ADWMC. This letter is reprinted in Becker, *Cornell University*, 173-180.
94. For the Board's actions, see *Proceedings of the Board of Trustees of Cornell University, including the Minutes of the Executive Committee, April 1865-July 1885* (Ithaca, NY, 1940) for April 28, 1865, September 5, 1865, November 21, 1866. The original minutes are located in Cornell University Trustees Records, 1865-1991,

- Collection 2-5-5, Box 1, Division of Rare and Manuscript Collections, Cornell University. White's account of his nomination for president is in his *Autobiography*, vol. 1, 307. His diary entry is for November 21, 1866, Box 149, White Papers.
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98. "Address by President Welch" in *Annual Report of the Iowa State Horticultural Society for 1874, Being the Proceedings of the Ninth Annual Meeting, Held at Burlington, January 19, 20, and 22, 1875* (Des Moines, IA, 1875), 154.

99. Welch to Gue, September 15, 1868, Benjamin Gue Papers, Folder “G935, Correspondence 1836-1901” Box 1, N15/7/1-2, Archives, State Historical Society of Iowa, Des Moines, Iowa.
100. Welch’s grammar text is *Analysis of the English Sentence, Designed for Advanced Classes in English Grammar* (New York, 1855). For the quotes, see Welch, *Plan of Organization of the Iowa State Agricultural College, Ames, Story County, Presented by A.S. Welch, President Elect, to the Board of Trustees, October 21, 1868. Adopted by the Committee on Organization* (Des Moines, IA, 1868), 1-2, Welch Papers, Box 1, File folder 1/11”Plan of Organization of the Iowa State Agricultural College”. Hereafter cited as Welch, “Plan of Organization”.
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102. Welch, *Plan of Organization*, 5-6. This curriculum is reprinted in *Third Biennial Report of the Board of Trustees of the State Agricultural College and Farm to the Governor of Iowa and the Thirteenth General Assembly, January 1870* (Des Moines, IA, 1870), 10-11. For a summary of Welch’s educational philosophy, see his address to the Iowa State Horticultural Society in January 1875 in *Annual Report of the Iowa State*

- Horticultural Society for 1874, Being the Proceedings of the Ninth Annual Meeting, Held at Burlington, January 19, 20, and 22, 1875* (Des Moines, IA, 1875), 148-160.
103. Welch, *The Teachers' Psychology: A Treatise on the Intellectual Faculties, the Order of Their Growth, and the Corresponding Series of Studies by Which They Are Educated* (New York, NY, 1889). A year earlier Welch published a shorter work called *Talks on Psychology Applied to Teaching: For Teachers and Normal Institutes* (New York, NY, 1888). For the quote, see William Duane Wilson, *A Description of Iowa and its Resources in Which Every County in the State Has Separate Mention* (Des Moines, IA, 1865), 96.
104. For the curriculum of the New York State Agricultural College, see its *Charter, Ordinances and Regulations*, 1853 (Albany, NY, 1853). The charter for Cornell University is reproduced in *Laws and Documents Relating to Cornell University, 1862-1892* (Ithaca, NY, 1892), 23-29.
105. *Report of the Committee on Organization Presented to the Trustees of the Cornell University, October 21<sup>st</sup>, 1866* (Albany, NY, 1867). Quote is from page 11. To see the plan's implementation, see Cornell University, *First General Announcement* (Ithaca, NY, 1867). An excellent overview of White and his philosophy of higher education can be found in Walter P. Rogers, *Andrew D. White and the Modern University* (Ithaca, NY, 1942). White would flesh out his thoughts on Cornell's academic mission in *The Cornell University: What It Is and What It Is Not* (Ithaca, NY, 1972). For more on White's vision, see Donald E. Williams, "Andrew D. White: Spokesman for the Free University," *The Quarterly Journal of Speech* 47 (1961), 133-142.

106. White, *Autobiography*, v. 1, 308. See also, Bishop, *A History of Cornell*, 84, and Dorf, *The Builder*, 341-344. For more on Goldwin Smith, see Paul T. Phillips, *The Controversialist: An Intellectual Life of Goldwin Smith* (Westport, CT, 2002). Bishop provides brief descriptions of Cornell's first faculty members in his *A History of Cornell*, 99-120.
107. Ross, *A History of Iowa State College*, 61; "Plan of Organization, 15-17.
108. Roberts provides an account of his life in his *Autobiography of a Farm Boy* (Albany, NY, 1916). His time at IAC appears is covered in pages 152-172; the quote comes from page 160. For Roberts' career at Cornell, see Gould P. Colman, *Education & Agriculture: A History of the New York State College of Agriculture at Cornell University* (Ithaca, NY, 1963), 44-170.
109. Cornell's inaugural address is printed in *The Inauguration of Cornell University: Reprinted from the Account of the Proceedings at the Inauguration, October 7, 1868* (Ithaca, NY, 1921), 6-8. Cornell to Eunice Cornell, February 17, 1867, Box 29, File: "Correspondence: January 28, 1867-June 11, 1867", Cornell Papers. For a contemporary account of the inaugural proceedings, see *The Ithaca Journal*, October 13, 1868, p.1. For an analysis of White's inaugural address, see Philip Andre Fisher, "Emerson's Vision in *The American Scholar* as Recapitulated in the Inaugural Addresses of Andrew D. White and Charles W. Eliot," (Ph.D. Dissertation, University of Southern California, 1977).
110. White, *A History of the Warfare of Science with Theology in Christendom* 2 vols. (New York, NY, 1896). This book expanded on White's earlier work, *The Warfare of Science* (New York, NY, 1876).

111. White to Mrs. Daniel Gilman, May 3, 1909, Reel 105, ADWMC.
112. Andrew D. White, *Address on Agriculture Education Delivered before the N.Y State Agricultural Society at Albany, February 10, 1869* (Albany, NY, 1869), 35.
113. For more on White and Cornell student experiences, see William David Zimmerman, “Andrew D. White and the Role of the University Concerning Student Life,” (Ph.D. Dissertation, Cornell University, 1959).
114. Gue’s speech is printed in *Addresses Delivered at the Opening of the Iowa State Agricultural College, March 17, 1869* (Davenport, IA, 1869), 5-15. Gue’s criticism of Cornell’s Trustees is printed in *Iowa North West*, April 22, 1869, p. 4. A contemporary account of the IAC inauguration can be found in the *Iowa Homestead*, March 26, 1869, p.92.
115. Welch’s inaugural address is printed in *Addresses Delivered at the Opening of the Iowa State Agricultural College, March 17, 1869* (Davenport, IA, 1869), 22-40. The quotes are from pages 25 and 27. [Hereafter cited as *Addresses Delivered at the Opening*]
116. William H. Wynn, “Hon. Adonijah Strong Welch, L.L.D., First President of Iowa State College of Agriculture and the Mechanic Arts—An Estimate” (undated), Box 1, Folder 1 “Biographical Information, Welch Papers. For more on the curricular debate, see Edward Goedeken, "An Academic Controversy at Iowa State Agricultural College, 1890-1891," *Annals of Iowa* 45 (1979), 110-122. See also Welch’s comments in “The True Work of National Industrial Schools,” *Proceedings of the Fifth Annual Session of the National Agricultural Congress, at Philadelphia, PA., September 12<sup>th</sup>, 13<sup>th</sup>, and 14<sup>th</sup>, 1876* (Chicago, IL, 1877), 38-41.
117. *Addresses Delivered at the Opening*, 37-39.