

# Reconstructing A

## Founding Members Build Campuses and the Profession

By Peggy Ann Brown, Ph.D.

**M**arch 23, 1914 shone cold and clear as nearly a dozen university representatives gathered at the University of Chicago for the organizational meeting of what would become APPA. **John M. Fisk**, superintendent of grounds and buildings at the University of Iowa, convened the meeting, having written his Midwestern colleagues in late January to suggest the benefits of such a gathering.<sup>1</sup>

Fisk's proposal had met with "hearty approval" from his peers. Ohio State College (now University) Superintendent **William C. McCracken**'s response was typical:

. . . while we are all trying to do practically the same kind of work, we are probably each one doing it in a different way and by . . . exchanging our views, it may be possible . . . to gather information which will be of great value to our institutions and help solve problems which are continually arising, probably finding a more economical way than if we solved the problems ourselves.

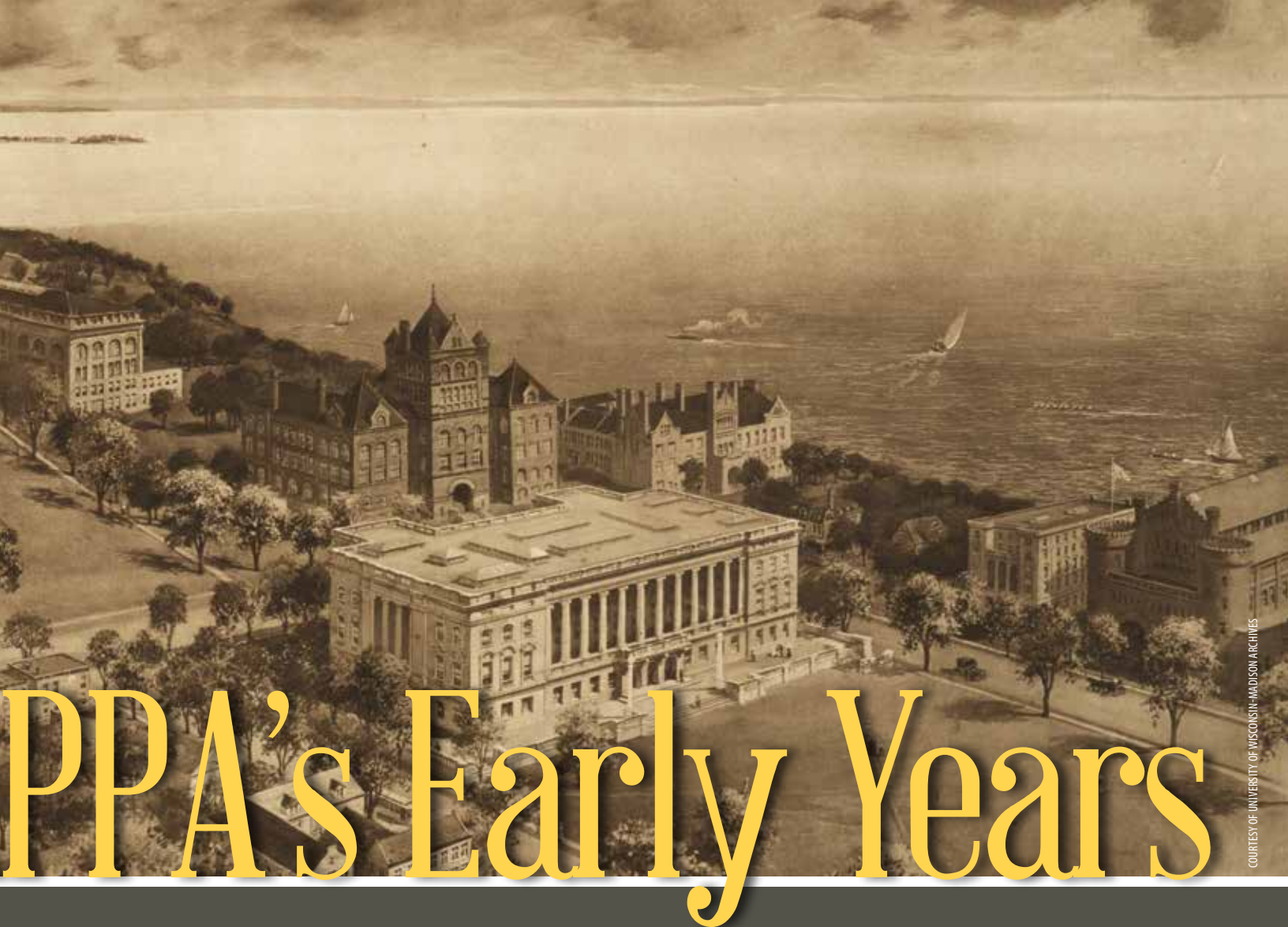
Others were enthusiastic about an organization directed at

university superintendents, finding the newly established Building Owners and Managers Association too focused on skyscrapers and offices.

**Clyde M. Douglas**, of the University of Chicago, volunteered to host the meeting, suggesting the group stay at the Sherman House. His recommendation suited men knowledgeable with the inner workings of power plants and intrigued with engineering advances. Opened in 1911, the luxury 15-story hotel boasted the latest in fireproofing, mechanical equipment, and plumbing systems.<sup>2</sup>

The 12-year-old University of Chicago itself may have been a draw. Founded by the American Baptist Society with generous funding from John D. Rockefeller, the campus featured collegiate gothic architecture, reported in 1910 to be "superior to that of any university."<sup>3</sup>

APPA Emeritus Member John M. Casey described the years from 1914 to 1926 as APPA's "hidden beginnings," in his 1994 dissertation on the association. Prior to 1926, the association did not maintain formal records. Details of the association's



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# PPA's Early Years

origins come from later reports (including a 1934 report that transcribed the responses to Fisk's 1914 letter) and members' reminiscences. Recently discovered 1916 and 1917 articles on the association's meetings may more accurately report attendance than interviews conducted with members decades later and provide new information for this article.<sup>4</sup>

Additional universities represented at the 1914 meeting likely included the Universities of Nebraska, Kansas, and Wisconsin; Purdue University; Iowa State Teachers College (now University of Northern Iowa); and Northwestern University.

Reporting on the 1917 meeting, *Buildings and Building Management* commented that because superintendents "have big problems on their hands of both construction and maintenance the advantages of finding out how the other fellow is doing his work is beneficial to all of them. Improvements and remodeling is going on constantly in almost every group of college buildings in the country."

## THE 1914 COLLEGE CAMPUS

In 1914 the average campus had seven buildings averaging 131,200 square feet.<sup>5</sup> Professors and students were beginning to outgrow the lecture halls and laboratories that had defined colleges for decades. Expanded curricula would soon necessitate

more sophisticated research facilities, buildings dedicated to specific disciplines, and office space for faculty and student services.

Along with the demand for improved facilities was an increase in the number of college students. In 1893, 595 U.S. colleges and universities enrolled 110,545 students; the number of institutions increased to 662 by 1916, while enrollments jumped to 329,387. That same year, the U.S. Education Bureau reported that "enormous expansion of State universities and state colleges of agriculture and mechanic arts [was] one of the outstanding features of the recent history of higher education."<sup>6</sup>

As representatives of major state universities, the founding APPA members' oversaw campuses at the forefront of this educational expansion. In 1914, the University of Iowa's 2,700 students could choose from ten colleges and four schools, located on a 50-acre campus boasting more than 30 buildings. Enrollment at the University of Wisconsin had nearly doubled between 1904 and 1914, reaching 3,830 undergraduates and 608 graduate students. To accommodate this growth, the university had expanded the campus to "36 large buildings, 43 of moderate size, and numerous small buildings."<sup>7</sup>

Purdue University's 2,399 undergraduate and graduate stu-

Above: Aerial view (artist rendition) of the University of Wisconsin ca. 1916.



dents had access to 29 buildings, on 279 acres of campus and farm. Iowa State Teachers College's 40-acre campus served 1,297 students, with 15 major buildings as well as a number of smaller structures such as stables, shops, and garages.<sup>8</sup>

Overseeing campus expansion were departments of superintendent of buildings and grounds, a "more or less recent development," according to a 1910 Carnegie Foundation for the Advancement of Teaching bulletin.<sup>9</sup>

That the superintendent profession was still in its infancy can be seen in a 1917 Association of American Colleges' treatise on the efficient college. The author reported that the average college staff—based on a study of 16 campuses averaging 165 students—included a head janitor, an assistant janitor, an engineer, and a fireman. In contrast, he described the "efficient college" of 500 students, in which "all forces of the institution are working adequately and with the least possible waste to accomplish its chief ends," and would include a superintendent of buildings and grounds, an engineer, two firemen, a head janitor, and four assistant janitors.<sup>10</sup>

The construction and maintenance needs of growing universities led APPA's founders to recognize the importance of professional leadership and oversight of their facilities and grounds. At the same time, the term "superintendent of buildings and grounds" had only been adopted around the turn of the century at many of the member schools. In 1904, for example, Northwestern University appointed **Gleason F. Starkweather** superintendent of its new Department of Uni-

Conference attendees at 1926 annual conference. Taken May 10, 1926 in front of the University of Michigan's south wing of the University Hospital; building is now known as North Hall and houses the U of M ROTC program. First occasion found in archives of a group photo and a record of conference proceedings; 11 of the 20 attendees are past APPA presidents.

*From left:*

- August E. Wennerstrom, Culver Military Academy
- A.H. Lavers, Michigan State College
- C.D. Bushnell, Purdue University\*
- M.J. Miller, Michigan State College
- J.J. Crutcher, University of Kentucky\*
- A.L. Wescott, University of Missouri
- H.L. Garwood, Northwestern University
- John M. Fisk, University of Iowa
- C.A. Livingston, University of Rochester\*
- Charles E. Curtis, Cornell University\*

- E.C. Pardon, University of Michigan\*
- D.J. Griffiths, University of Pittsburgh
- W.E. Brockway, University of Colorado\*
- Irving Truettner, University of Michigan
- W.M. Hand, Culver Military Academy
- A.F. Gallistel, University of Wisconsin\*
- Thomas Sloss, Iowa State College\*
- H.A. Hildebrandt, University of Minnesota\*
- Lyman R. Flook, University of Chicago\*
- W.A. Davenport, University of Michigan\*

*\* Identifies those who had or would serve as APPA President*

versity Grounds and Buildings. The University of Illinois Board of Trustees established the superintendent position in 1895, placing all university janitors under his direction.<sup>11</sup>

APPAs pioneers implemented the technological innovations that were making life easier on campus and off. In 1893, Ohio State's McCracken helped replace gas lights with electricity in classrooms and laboratories.<sup>12</sup> Over careers that stretched from the late 1800s into the 1920s and '30s, the founding members witnessed the introduction of telephones, automobiles, and electric street lights.

## CAMPUS CONCERNS

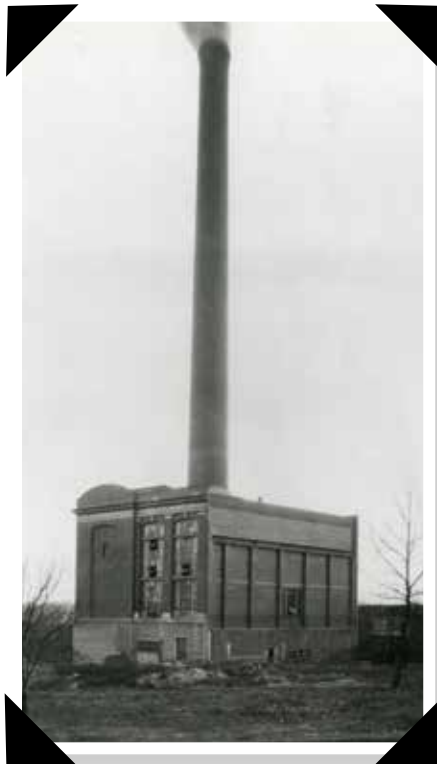
No specific details have been located on the early association meetings. Returning from the three-day 1916 meeting at the University of Wisconsin, Northwestern University Superintendent Starkweather told the campus newspaper that mornings featured tours of university and state buildings, while afternoons were devoted to discussions of common interests.

The one-day 1914 meeting may have centered on the association's establishment. The following year, **James H. Marks**, University of Michigan superintendent, would serve as APPA's first president. The initial meeting opened the lines of communication between the campuses. Seven months after the meeting, the University of Illinois architect wrote members to ask about their janitorial procedures, "not with the idea of standardizing the practices . . . but to bring out the methods employed by different institutions to accomplish the same purpose."<sup>13</sup>

Beginning in 1926, the association—then called the Association of Superintendents of Buildings and Grounds of the Central Western Colleges and Universities—published its first meeting minutes. Topics ranged from power plant operation and the percentage of maintenance budgets used for grounds upkeep to campus parking and a comparison of maintenance costs for various types of flooring.<sup>14</sup>

Given Fisk's rationale for founding the association, such practical subjects were likely on the 1914 agenda. For instance, fireproofing would have been a topic of mutual concern. That year Iowa's Fisk warned the State Board of Education that the Old Capitol Building—the first campus building—was vulnerable to summer lightning storms. In 1911, University of Kansas Superintendent **Eben F. Crocker** had supervised the construction of a lake and pump house aimed at protecting new campus construction. Marks later recalled that during his tenure at Michigan a high-pressure fire protection system was installed although horse drawn trucks were still used to fight fires.<sup>15</sup>

Articles and advertisements in *Buildings and Building Management* during APPA's early years also may offer clues to members' interests. The magazine covered fireproofing, fire insurance, and fire



Ohio State College (now University) power plant, 1917. The plant was expanded several times and renamed McCracken Power Plant for APPA's 1924 president William C. McCracken.

OHIO STATE UNIVERSITY PHOTO ARCHIVES

codes and ran ads for fire retardants and fireproof doors, windows, and roofing. Writers also discussed efficient construction, exterior lighting, boiler room waste, and workmen's compensation. Advertisements promoted the latest in cleaning supplies and ventilation, plumbing, and lighting equipment.

## 1914 APPA MEMBERS

The men who gathered for the 1914 meeting held valued positions on their campuses (see the sidebar for details on APPA's earliest members). Responsible for much of their institutions' early twentieth century growth, they appreciated that there was much to learn by studying how their peers approached comparable challenges.

Other campus administrators drew similar conclusions on the benefits of professional affiliations. In 1916, the U.S. Bureau of Education reported on the increase in national or regional groups dealing with "college and university problems." The bureau listed 18 groups, including college registrars and business

officers (but no APPA).<sup>16</sup>

APPA's earliest members reveal the range of education and experience of campus facilities officers in 1914. None of the participants over age 50 had formal education past high school, while most of the younger men had earned engineering degrees.

Prior to 1893, when the leading engineering societies met at



Bentley Image Bank, Bentley Historical Library, University of Michigan

James H. Marks, APPA's first president, supervised construction of the University of Michigan's Alumni Memorial Hall before he left the university to join the Packard Motor Company.

the World's Columbian Exposition to discuss engineering education, "a 'self-made' practical man was still considered more useful to industry than a college-educated engineer." Their efforts, along with increased industrialization and mechanical complexity, increased the popularity of engineering education, which tripled between 1890 and 1910. At the 1913 meeting of the Land Grant College Engineering Association, members debated the merits of relying on engineering faculty to oversee the physical plant.<sup>17</sup>

Fisk and **Arthur Dufty**, Purdue University superintendent, graduated from Purdue's engineering programs. Similarly, Marks became superintendent of his alma mater, the University of Michigan, where he earned an engineering degree and had spent several years helping to design and construct the campus's 37-inch reflecting telescope.<sup>18</sup>

The lack of a college degree did not deter Northwestern's Starkweather, at 71 the oldest 1914 attendee. A high school graduate, he had gained mechanical and managerial experience

working for a railroad, foundry, and iron works over the course of 30 years. A letter of recommendation confirmed the breadth of Starkweather's background:

. . . a man who can run whatever of steam engines, dynamos, elevators and so on, with gumption about gas pipes and water ditto. . . he can make an engine, a dynamo, mend an air pump, run an electric circuit, lead a prayer meeting, play an organ, put up a lightning rod, mind his business, or make other people mind theirs.<sup>19</sup>

**James E. Robinson**, of Iowa State Teachers College, came from a family of building contractors. Both his father and son had helped erect campus buildings, and he oversaw his first college project in 1890. Additional work led to his appointment in 1901 as superintendent. In this capacity, he assessed architectural plans and managed the construction of the campus's large brick and limestone buildings; designed and built smaller struc-

## APPA's Earliest Members

Although it is difficult to identify who attended the initial 1914 association meeting, the following individuals most likely participated (\*) or were reported at the time to have attended a meeting in 1916(#) or 1917 (+). The information below was compiled from the author's research and the kind assistance of university archivists.

### Cornell University

+Charles E. Curtis (1862-1958). Education: BS in civil engineering, Cornell University, 1885. Prior experience: engineering positions for mines, steel company, railroad. Superintendent of Buildings and Grounds, 1915-1931, Cornell University. APPA: President, 1928. Supervised more than \$12 million in construction at Cornell.

### DePauw University

#Hubert Webster (1872-?) Education: AB, sociology, DePauw, 1913. Business Manager, DePauw, 1913-1918; minister, 1918-?

### Iowa State College of Agricultural and Mechanic Arts (now Iowa State University)

[\*?]+Thomas Sloss (1859-1937). Education: Trained by his father, a master builder, emigrated from Scotland in 1884. Prior experience: building contractor; Iowa Railway and Light Co., 1890-1910. Superintendent of Buildings and Grounds, 1910-1936, Iowa State College. APPA: President, 1917, 1923, 1931. As superintendent, Sloss was said to personally respond to emergency calls day or night "just as the old family physician did."

### Iowa State Teachers College (now University of Northern Iowa)

\*+James E. Robinson (1857-1934). Prior experience: building contractor, including work on campus. Superintendent of Buildings and Grounds, 1901-1931, superintendent of maintenance, 1931-1935, Iowa State Teachers College. Praising his abilities as an architect, mechanic, and contractor, the college president said "he is competent to discover errors and correct them. . . (and) ingenious in devising the necessary construction in any problem, having due regard to the appearance and also to the function."

### Northwestern University

Gleason F. Starkweather (1843-1926). Education: High School. Prior experience: Railroad mechanic; iron works manager; held two patents. Hired 1901 as university engineer and shop class instructor; Superintendent of Buildings and Grounds, Northwestern, 1904-1925. One of his responsibilities "was to stand behind the president on commencement days and deliver the graduates' diplomas."

### Ohio State University

\*#+William C. McCracken (1863-1959). Education: 2 years of high school. Prior experience: Railroad fireman. Hired as chief engineer and head janitor, position evolved into Superintendent of Buildings and Grounds, Ohio State University, 1886-1938; part-time, wrote four-volume History of the Physical Plant, Ohio State University, 1938-1946. APPA: President, 1924, Vice President, 1937. Honored at APPA's 23<sup>rd</sup> annual meeting, held in Columbus in 1937, for 50 years' service as a superintendent.

### Purdue University

+Arthur Dufty (1874-1937). Education: BS in mechanical engineering, Purdue University, 1899. Prior experience: Machine shop apprentice; conducted experiments in the university's railroad shop. Superintendent of Buildings, Purdue, 1904-1919; Superintendent of Buildings and Grounds, Oberlin College, 1919-1921; engineer, private industry, 1921-?. APPA: Secretary-Treasurer, 1917; President, 1919. Wrote his college thesis on "tests to determine the relative strength of large and small bolt heads."

tures, such as shops and garages; and supervised the college's maintenance and janitorial staffs.

Likewise, **Charles E. Chowins**, University of Nebraska superintendent, served as architect for many of the utilitarian structures on campus, such as the machinery hall, tractor test lab, and barns constructed during his 21-year tenure. A tribute to three-time APPA President **Thomas Sloss**, of Iowa State College of Agricultural and Mechanic Arts (now Iowa State University), declared that "monuments to his skill and thoroughness are all over the campus."<sup>20</sup>

APPA founders, such as Ohio State's McCracken, were said to be familiar with "every pipe, conduit, tunnel, and power line" on campus. Hired in 1886 to make "ordinary repairs" and oversee the gas, water, and heating systems, McCracken would eventually preside over a physical plant that had grown from four buildings to more than seventy.<sup>21</sup>



The first annual conference of the newly formed Association of Superintendents of Buildings and Grounds of the Central Western Colleges and Universities met in Chicago in spring 1914. Attendees stayed at the Sherman House, left, and met on the campus of the University of Chicago, where construction of a new classics building, right, was underway.

UNIVERSITY OF CHICAGO PHOTOGRAPHIC ARCHIVE APFZ-01655. SPECIAL COLLECTIONS RESEARCH CENTER, UNIVERSITY OF CHICAGO LIBRARY

#### **State University of Iowa (now University of Iowa)**

\*#+John Meeker Fisk (1875-1931). Education: BS, electrical engineering, Purdue University. Prior experience: electric company manager. Superintendent of Buildings and Grounds, State University of Iowa, 1910-1931. In January 1914, wrote building superintendents of Midwestern colleges to propose meeting and forming an association. Despite being the catalyst for APPA's founding, Fisk never served as president.

#### **University of Chicago**

\*Clyde M. Douglas (1882-1919). Prior experience: Draftsman, 1908-1910; Superintendent of Buildings and Grounds, University of Chicago, 1910-1915. APPA: hosted first association meeting.  
+C.C. Anderson. No information was located on Anderson.

#### **University of Illinois**

#+Joseph A. Morrow (1870-1932). Superintendent of Central Heating Plant, ?-1902, Superintendent of Buildings, 1902-1932. Died in a car accident on the way to buy coal for the university.

#### **University of Kansas**

\*Eben F. Crocker (1850-1928). Superintendent of Buildings and Grounds, University of Kansas, 1903-1915; Supervisor of Public Schools, Lawrence, Kansas, 1915-? An unnamed KU

representative attended the 1916 meeting at the University of Wisconsin.

#### **University of Michigan**

\*#James H. Marks (1887-1979). Education: BS in engineering, University of Michigan, 1909. Prior experience: Draftsman, automobile plant; design and construction, University of Michigan telescope. Constructing Architect, University of Michigan, 1910-1911; Superintendent of Buildings and Grounds, University of Michigan, 1911-1916; Industrial Engineer, Vice President of Purchasing, Packard Motor Co., 1916-1946; management consultant, 1946-1965. APPA: First president, 1915. Provided a tour of the Detroit Packard Plant for attendees at 1926 meeting.

+Lyman R. Flook (1889-1969). Born in Canada, emigrated to the U.S. in 1893. Education: BS in engineering and architecture, University of Michigan, 1913. Chief draftsman, University of Michigan, 1913; Assistant Superintendent, Superintendent, University of Michigan, 1914-1917; First Lieutenant, U.S. Ordinance Department, 1917-1919; Superintendent of Buildings and Grounds, 1919-1953, University of Chicago. APPA: President, 1921, 1922, 1934. University of Chicago physical plant grew from 17 to 70 million cubic feet during his tenure.

#### **University of Minnesota**

[\*?]+Henry A. Hildebrandt (?) Education: BS in electrical engineering, University of Minnesota.

1898. Prior experience: in charge of electrical lighting of St. Peter, Minn., 1898-?; New York railroad; Superintendent of Buildings and Grounds, 1910-1928, University of Minnesota. APPA: President, 1927. Received permission from Minnesota Board of Regents to attend 1923 APPA meeting with expenses not to exceed \$55.

#### **University of Nebraska**

\*+Charles E. Chowins (1856-1922). Education: Probably trained by his father, a cabinet maker, emigrated to the U.S. from England in 1878. Hired 1896 as assistant, engineering laboratory and wood shops; construction supervisor, 1899-1904; superintendent of construction, grounds, and buildings, 1905-1921, University of Nebraska. His design masterpiece, the Plant Industry Building, was dedicated in 1913 and was the university's fourth largest permanent structure.

#### **University of Wisconsin**

\*#+Albert W. McConnell (1867-1953). Superintendent of Buildings and Grounds, University of Wisconsin, 1906-1919; government mail contractor in Madison, 1920-?. Superintendent of grounds APPA: President, 1916, 1918. The 1930 U.S. Census lists him as living in Los Angeles and working as the superintendent of grounds at an unidentified university.

## THE FIRST APPA MEETINGS

The men who gathered in Chicago in 1914 ranged in age from 71 (Starkweather) to 27 (Marks); their average age was just under 50. Their personal stories attest to the time span represented that day. Starkweather registered for the draft at the outset of the Civil War and recalled casting his first vote for Lincoln as president in 1864. Marks would later help retrofit the Packard Motor Company for production of Liberty airplane engines during World War I, and consulted with the War Production Board during World War II.<sup>22</sup>

Along with the campus superintendents, representatives from Indianapolis Public Schools attended the 1916 meeting, joined by Culver Military Academy in 1917. (Culver's **August Wennerstrom** attended many early APPA conferences and was a survivor of the Titanic disaster.) By 1926, other institutions had begun to recognize the association's value, including several outside its self-designated "central western" borders, including Cornell University, University of Rochester, University of Colorado, and the University of Pittsburgh.

As the United States prepared to enter World War I to "make the world safe for democracy," higher education opened campuses for military drills and government research. Schools faced budget deficits as young men left to join the fight, while the increase in women necessitated new female dormitories.<sup>23</sup>

Coursework and extracurricular activities reflected Progressivism's belief in the value of scientific research, service, and government responsibility. Students chose from an increasing array of electives and attended classes year-round.

Through these changing times, APPA's founding members ensured that facilities and grounds were ready to meet the new challenges. The "Mr. Mac" and "Hurry Up" of campus lore (Ohio State and Northwestern, respectively) would never be completely replaced but would be joined by a professional staff of architects, engineers, and planners.<sup>24</sup> Since 1914, APPA has continued to bring together these facilities professionals to share expertise, discuss best practices, and take their place as indispensable, forward-thinking campus leaders.

The good which has come to me, and I hope to others as well, is the real comradeship, one with the other, to be able to put aside all details of the job at home and to meet for a few days with those with whom I could sit and visit and confer with on some particular subject in which I was especially concerned and get some real good advice and information.<sup>25</sup>

—John M. Fisk, *University of Iowa, 1930* (S)



J.E. Robinson oversaw construction on many of the early buildings at Iowa State Teachers College (now University of Northern Iowa).

University of Northern Iowa Archives

## END NOTES

1. APPA did not keep minutes of its meetings until 1926. Information on the 1914 meeting is drawn from later reports. Of particular interest are the 1934 minutes, which reprinted letters responding to Fisk's 1914 proposal. See *Minutes of the Annual Meeting of the Association of Superintendents of Buildings and Grounds of the Universities and Colleges, 1934*, 14-17.
2. "The New Sherman Hotel," *Construction News*, 6 August 1910.
3. Edwin E. Slosson, *Great American Universities* (New York City: Macmillan, 1910), 427, quoted in John Michael Casey, "The Association of Higher Education Facilities Officers: An Historical Evaluation of its Contributions to the Academy 1914 to 1990." Ph.D. diss., University of Georgia, 1994, 23.
4. Ibid.; "Superintendent is Back from Meeting," *Daily Northwestern*, 12 May 1916; "College Building Superintendents Meet," *Buildings and Building Management*, June 1917.
5. Casey, 207.
6. Samuel Capen and Walter John, *Higher education before and after the war*. U.S. Bureau of Education Bulletin, 1919, no. 88 (Washington, D.C. U.S. Bureau of Education, 1921), 6-7.
7. "On the Campus," *Bulletin of the State University of Iowa*, 7 February 1914; David Null, Director, University Archives, University of Wisconsin, E-mail to author, 16 July 2013.
8. Jonnie McConnell, Graduate Assistant, Karnes Archives and Special Collections, E-mail to author, Purdue University, 18 July 2013; Gerry Peterson, University Archivist, University of Northern Iowa, Email to author, 17 July 2013.
9. Morris Llewellyn Cooke, *Academic and Industrial Efficiency*. The Carnegie Foundation for the Advancement of Teaching, Bulletin 5. 1910, 42-43.
10. Calvin H. French, "The Efficient College," *Association of American Colleges Bulletin* 3 (March 1917), 19-36.
11. "Organize New Department," *The Northwestern*, 30 September 1904; *Statutes of the University of Illinois*. Urbana, Ill.: University of Illinois, 1896, 16.
12. "William C. McCracken" The Ohio State University Archives, Biographical Files, William C. McCracken [hereafter cited as OSU Bio Files, McCracken].
13. 1914 October 12 Letter from James M. White, Supervising Architect, University of Illinois, to Superintendent of Buildings, Northwestern, quoted in *Minutes of the Annual Meeting, 1934*, 18-19.
14. See *Minutes of the Annual Meeting of the Association of Superintendents*

of Buildings and Grounds of the Central Western Colleges & Universities, 1926.

15. John M. Fisk, [Superintendent's Report], *Biennial Report of the State Board of Education to the Governor* 3 (June 30, 1914), 88; Douglas Harvey, "A Lake's Progress," [kuhistory.com](http://kuhistory.com/articles/a-lakes-progress/). <http://kuhistory.com/articles/a-lakes-progress/> (accessed July 17, 2013); James H. Marks, *Challenges! Challenges!* Ann Arbor, Mich.: James Harmon Marks, 1976, 46.
16. Samuel Paul Capen, *Recent Movements in College and University Administration*. Department of the Interior, Bureau of Education Bulletin, 1916, no. 46 (Washington: GPO, 1917), 7.
17. Lawrence P. Grayson, *The Making of an Engineer. An Illustrated History of Engineering Education in the United States and Canada* (New York: John Wiley & Sons, 1993), 67-77; A. Marston, "Engineering of the College Plant," *Proceedings of the Organization Meeting of the Land Grant College Engineering Association*, 1913, 72-73.
18. Marks, *Challenges*, 1-11.
19. 1897 March 30 Letter from Arthur Edwards to [Frank] Crandon, Northwestern University Archives Biographical Files Collection, Gleason F. Starkweather.
20. "Charles Chowins, Architect," [historicbuildings.unl.edu](http://historicbuildings.unl.edu/people.php?peopleID=22&cid=14). <http://historicbuildings.unl.edu/people.php?peopleID=22&cid=14> (accessed July 16, 2013); W.R. Boyd, "Thomas Sloss - A Tribute," Iowa State University, University Archives Record Series Number 4/8/2, Facilities Planning and Management Personnel Files, Box 2, Thomas Sloss file.
21. "William C. McCracken," "From Ohio State University News Bureau for Sunday Dispatch," OSU Bio File, McCracken.
22. National Archives and Records Administration, Washington, D.C., Consolidated Lists of Civil War Draft Registration Records; Consolidated Enrollment Lists, 1863-1865; Record Group 11, Records of the Provost Marshal General's Bureau, Record For G.F. Starkweather, Columbia, Wisc.; "Starkweather Cast His First Ballot For 'Honest Abe,'" *Daily Northwestern*, 13 February 1923; Marks, *Challenges*, 47-72.
23. Capen, *Higher Education before and after the war; The Work of American Colleges and Universities During the War. Report on the Contributions of Higher Institutions to the National Service*. Department of the Interior, U.S. Bureau of Education, Higher Education Circular no. 6, January 1918; *The Work of American Colleges and Universities During the War. Report of the Work of the University Section of the Committee on Engineering and Education of the Advisory Commission of the Council of National Defense*. Department of the Interior, Bureau of Education, Higher Education Circular no. 5, December 15, 1917.
24. "Former OSU Official Called By Death," *Hamilton [Ohio] Journal*, 27 August 1959;

"Milwaukee Limited Strikes and Kills School Caretaker," *Daily Northwestern*, 5 January 1926.

25. *Minutes of the Annual Meeting of the Association of Superintendents of Buildings and Grounds of the Central Western Colleges and Universities*, 1930, 111-112.

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