Name of Building or Site

Common: University of Wisconsin Science Hall

Historic: Same

Location

Street Address: 550 North Park Street
Madison, WI 53706

Aldermanic District: Fifth

Classification

Type of Property: Building

Zoning District: R5

Present Use: Educational (classrooms and labs)

Current Owner of Property

Name(s): Board of Regents, University of Wisconsin System

Street Address: 1860 Van Hise Hall
Madison, WI 53706

Telephone Number: (608)262-2324

Legal Description

Parcel Number: 0709-143-0501-0 (part)

Legal Description: See continuation

Condition of Property

Physical Condition: Good

Altered or Unaltered? Altered

Moved or Original Site? Original Site

Wall Construction: Iron- and steel-reinforce rhyolite and brick (central section); load-bearing rhyolite and brick (wings)

Describe Original and Present Physical Appearance and Construction

The University of Wisconsin Science Hall is located on the southwest corner of Park Street and Observatory Drive at the foot of Langdon Street. It sits at the bottom of Bascom Hill on the eastern end of the campus. Science Hall was begun in 1885 and completed in 1887. It is a three story, U-shaped, Romanesque Revival structure with a gable roof. Science Hall was designed by Milwaukee architect Henry C. Koch and altered by Allan D. Conover, Professor of Civil Engineering, while under construction. Science Hall features a rock-faced coursed rhyolite ashlar raised basement and walls of red pressed brick in common bond. In the central part of the structure, the walls are reinforced with iron columns and steel beams and girders. In the wings, the walls are load-bearing. The building is enriched with ornamental brickwork and belt courses of rhyolite and of glazed red terracotta. Distinguishing features include gabled dormers, hip roofed rectangular towers and turrets, round towers with conical roofs and, on the east facade, a broad arched entryway with piston columns and an immense multipaned leaded glass transom.

Science Hall's main (east) facade overlooks Park Street and measures 205 feet. The wings extend 126 feet to the west (rear). There is an asphalt-paved courtyard between the wings. There is a central five-story hip-roofed tower on the main facade. There are four three-story square hip-roofed towers, one on each corner of Science Hall. There is a slim three-story round tower with a conical roof attached to the courtyard side of each west tower. All the sloped roofs are clad with asphalt shingles and decorative red terracotta hip roll and flashing ridge tiles. There are also simple gable finials, and hip finials of molded terracotta in the shape of a wave. The original slate roof was removed in 1992. At sill level on the first floor there is a belt course of molded red terracotta blocks with a stylized floral pattern. At the springing of the arches over both the first and third floor windows, there is a molded terracotta band ornamented with leaves, surmounted by a course of projecting bricks. There is a rock-faced rhyolite string course at the level of the second floor sills. Just below the roof, terracotta brackets support an arcaded cornice of brick. On each tower, between the second and third floors, there is a short brick corbel table surmounted by a pair of recessed panels enriched with a checkerboard pattern. Science Hall has sixteen brick chimneys (vent stacks), each corbelled at the top. The fenestration pattern is regular. Generally, there are segmental-arched openings with stone voussoirs in the raised basement. At the first and third floors, there are round-arched openings with gauged brick arches. A course of projecting headers outlines the arches, forming an extrados archivolt molding. There are flat-arched openings at the second floor and between the towers at the third floor. The sills are of stone at the basement, and glazed

red terracotta tile everywhere else. The flat-arched openings have steel or iron lintels, bolted into the building's iron and steel frame with rosette-shaped nuts. The segmental- and round-arched openings hold either wooden awning windows, or one-over-one double hung sash, both type surmounted by fixed semi-circular transoms. The flat-arched windows have either paired or single one-over-one double hung sash surmounted by fixed transoms. The east towers have one gabled dormer on the east roof slope, and another on the outside roof slope. Each west tower has a gabled dormer on the west roof slope. Each dormer features a round-arched window opening, a brick barge course enriched with leaves and a shouldered parapet with volutes. There is a pair of paneled wood doors at the main entrance, and single paneled wood doors on the north end of the east facade, and in the west entrance porch. There is a pair of paneled metal doors opening into the courtyard in each of the north and south wings.

The north and south facades conform to the general description above. The focus of the east (main) facade is the central five story tower. The tower features a gabled wall dormer flanked with square hip-roofed turrets. The turrets are enriched with brick corbelling and diamondwork. Round-arched openings appear at the fourth and fifth floors; there is a pair of flat-arched openings in the attic. The main entrance is through the base of the central tower. A double flight of stone steps frames a large ventilation tunnel secured with a wrought iron grille. Another flight rises to the round-arched portal. The heavy rock-faced rhyolite arch is set on polished rhyolite piston columns. Deeply recessed with the portal, the doors are flanked by sidelights and surmounted by a large multipaned leaded glass transom.

In the center of the west (rear courtyard) facade there is a four story polygonal bay which contains the main stair. The bay narrows at the top. At its base is an enclosed hip-roofed entrance porch with a brick corbel table. The iron or steel lintel above the single door has rosette-shaped nuts. On either side of the bay at the narrow fourth floor, there is a small flat-roofed room; these are the only exterior additions that have been made to Science Hall. The west facade has little ornamental brick or terracotta.

On the interior, the floor plan generally consists of a central dog-leg stair and a series of classrooms and offices opening off a central corridor (see sketch). Inside the main entrance, a straight stair rises to the first floor. Across the hall is the main stair. Many of the original spaces in the wings have been partitioned; some vertically as well as horizontally: there is a mezzanine between the second and third floors in the central section (pre-1929), and between the third and fourth floors in both wings (part pre-1929, most 1970-72). The 15-foot high ceiling made the mezzanines possible. Science Hall has a variety of interior

finishes. The walls inside the entrance are finished with blocks of cream unglazed terracotta in alternating geometric and organic patterns. Throughout the building, the walls below the window sills are finished with reddish-brown hollow clay tile. Above, the tile walls are cream. The walls surrounding the main stair are pressed brick in the same color scheme. The attics and partitions are plastered wallboard. Original flooring includes ceramic tile, terrazzo and concrete in the central corridors, and narrow wood boards on a base of poured concrete in the classrooms and wings. The mezzanines floors are asphalt tile. Most of the ceilings are exposed, revealing shallow barrel vaults of cream hollow clay tile. Drop ceilings with acoustical tile have been installed in some parts of the building. The main stair is dog-leg, of cast iron, with slate treads and terrazzo landings. The rail is iron, cast in an interlacing geometric pattern, and the hand rail is wood. The stair wraps around an elevator in a lattice iron cage. There is a concrete and steel stair dating from the early 1980s in each of the round towers. The lighting is fluorescent: suspended globes in the central corridor, standard suspended tubes elsewhere.

Science Hall retains a high degree of integrity. Exterior alterations are minimal. In a few places, aluminum storm windows have been added. The skylights and the door in the northeast tower are the only openings that appear to have been added or modified. The interior alterations involved fitting partitions and mezzanines into Science Hall's heavy metal and masonry structure, and did not alter the original fabric of the building.

Science Hall is located at the base of Bascom Hill. Wide sidewalks run along the north, south and east sides of the building. West of the building, beyond the paved courtyard, is Radio Hall, built in 1888. Science Hall is surrounded by other university buildings and spaces, which comprise the original grounds of the University of Wisconsin. This original campus was listed on the National Register of Historic Places in 1974 as the Bascom Hill Historic District (District). The District includes some twenty structures. These span 120 years of the university's history, ranging from the three earliest buildings (built between 1851 and 1857), to Helen C. White Hall (1968). The District represents the development of the University of Wisconsin from a small school with a tiny enrollment in the 1850s, to a world class university with thousands of students. It is an outstanding representative of the development of university education in the United States, and is associated with nationally prominent educators and scholars. Visually, the District is aesthetically pleasing, and conforms to the 1850 campus plan. Science Hall was made a National Historic Landmark in 1993.

Original Owner:	Original Use:
Board of Regents, University of Wisconsin	Educational (class rooms and labs)
Architect: Henry C. Koch, Allan Conover	**Architectural Style:** Romanesque Revival
Dates of Construction: 1885-87	**Indigenous Materials:**

Bibliographic References:

Curti, Merle and Vernon Carstensen. The University of Wisconsin: A History. Two volumes. Madison: University of Wisconsin Press, 1949.

Olmstead, Clarence W. Science Hall: The First Century. Madison: Department of Geography, 1987.

Perspectives of a University. Madison: The University of Wisconsin Department of Planning and Construction, 1978.

Thwaites, Reuben G. The University of Wisconsin: Its History and Alumni. Madison: J.N. Purcell, 1900.

University Catalogue. 1887-88.

Vance, Maurice M. Charles R. Van Hise: Scientist Progressive. Madison: State Historical Society of Wisconsin.

Form Prepared by

Name and Title: Elizabeth L. Miller
Planning Aide

Organization Represented: City of Madison Department of Planning and Development

Address: 215 Martin Luther King Blvd

Telephone Number: 266-6552

Date Nomination was Prepared: September, 1994

Significance of the Nominated Property

Science Hall is eligible for Madison Landmark status under Criteria 1 and 2. It is historically significant in earth science, communications and biological science. In the field of earth science, Science Hall is significant under Criterion 2 ("historic personage") for its association with Charles R. Van Hise (1857-1918), nationally prominent geologist. With his mentor, Roland Irving, Van Hise became the first in the nation to apply microscopic lithology to an extensive study of crystalline rocks, and to use those results in the formulation of geologic principles. His emphasis on the quantitative application of physical and chemical laws to geological problems was one of his greatest contributions to the science of geology. Van Hise taught the first course in the nation in structural and metamorphic geology in 1903. He was an authority on the geology of the Great Lakes region and Pre-Cambrian formations. Van Hise also championed the conservation of natural resources. In 1909, he taught a course in conservation in Science Hall, modifying his lectures in 1910 to form the first textbook in the field, The Conservation of Natural Resources in the United States. As a teacher, Van Hise earned a reputation for training geologists who matched his own high standards for research.

In the field of communications, Science Hall is significant under Criterion 2 ("important event in national . . . history"). It was here that Physics Professors Earle M. Terry and Edward Bennett, along with their students Albert Taylor, C.M. Jansky , Jr., C.R. Greenslade and Malcolm Hanson, carried out research that contributed to the development of radio from wireless telegraphy. Before World War I, wireless stations sent messages by dot-and-dash telegraphic signals. In the basement of Science Hall, Terry and his physics students had been operating a dot-and-dash telegraphic station, 9XM. The group built their own triode tubes and converted 9XM into a telephonic system, beginning voice and music broadcasts in 1917. Later that year, the station moved to Sterling Hall. In January, 1919, 9XM became the first station in the nation to offer a scheduled broadcast service of weather and market forecasts. In 1922, it was renamed WHA. Although there were other experimental stations operating earlier than WHA, WHA is the oldest continuously operating station in the nation.

Science Hall is significant under Criterion 1 ("reflects the broad cultural . . . history of the nation . . ") in the field of biological science. Many of the current science programs at the University of Wisconsin began in Science Hall, including Geology, Geography, Physics, Zoology, Limnology, Botany, Anatomy, Bacteriology and the Medical School. Many contributions to these sciences were made by scholars and educators working in Science Hall. The University of Wisconsin played a leading role in

introducing four major themes to American geology: Pre-Cambrian, structural geology, sedimentation, and mineral resources for human use. By the early part of the twentieth century, Wisconsin was one of the leading institutions in the U.S. for the advanced study of geology. The first courses in sedimentation (1912-13), oceanography (1912-13) and engineering geology (1917) in the U.S. were all taught in Science Hall. Nationally prominent geologists associated with Wisconsin included Roland Irving, Charles R. Van Hise, Charles K. Leith, Eliot Blackwelder, Warren J. Mead and William Twenhofel. The Geography Department, which separated from Geology in 1928, is also eminent, and was associated with nationally prominent geographers Lawrence Martin, Armin K. Lobeck and Vernor C. Finch. Nationally prominent physicists associated with the University included Benjamin W. Snow, Robert W. Wood, Augustus Trowbridge, Charles E. Mendenhall, Earle M. Terry and Edward Bennett. Bennett was also a leading educator in electrical engineering. In the biological sciences, Edwin A. Birge pioneered the science of limnology and helped found the Medical School. Other prominent scholars and educators associated with the Medical School included William Snow Miller (Anatomy) and Charles R. Bardeen (Embryology). Leading agricultural bacteriologist H.L. Russell carried out research in Science Hall which led to the elimination of tuberculosis in dairy cattle across the nation.

Historical Context

The University of Wisconsin was established by the state legislature in 1848. The legislature directed that the University be governed by a board of regents and administered by a chancellor. The original bill establishing the University of Wisconsin provided four departments: Science, Literature and the Arts; Law; Medicine; and Elementary Education. There were six professorships in the Department of Science, Literature and the Arts. One of these was the Chair of Chemistry and Natural History. The professor holding that chair was to be responsible for providing instruction in chemistry, mineralogy, geology, the natural history of plants and animals, and human physiology. The first appointee to that Chair was Stephen P. Lathrop, who arrived in 1854. Unfortunately, he died in December of that year.[1]

In January, 1856, Ezra S. Carr replaced Lathrop. Later that year, Chemistry and Natural History gained departmental status; however,

[1]Regents Annual Report, 1850, page 8; Arthur Hove, The University of Wisconsin: A Pictorial History, (Madison: The University of Wisconsin Press, 1991), p. 7; and Sturgis W. Bailey, ed., History of Geology and Geophysics at the University of Wisconsin-Madison, 1848-1980, (Madison: Department of Geology and Geophysics, 1981), pp. 1-2.

Carr remained the only instructor. Carr taught geology and mineralogy in the fall, chemistry in the winter, botany and zoology in the spring and agricultural chemistry in the summer. Carr had great influence on naturalist John Muir, both as a teacher and a father figure. Muir's letters describing nature in the western states, later widely published, were originally written to Mrs. Carr, who encouraged Muir to publish them.[2]

John E. Davies succeeded Carr as Professor of Chemistry and Natural History in 1868. In 1869, University President Paul Chadbourne reduced Davies' responsibilities by creating a Professorship of Geology, Mining and Metallurgy. Roland D. Irving (1847-1888) was appointed to that post in 1870.[3]

Irving, a graduate of Columbia University, laid the foundation for teaching and research in geology at Wisconsin. In 1871, the Board of Regents created a separate Department of Mining and Metallurgy under Irving. In 1873, he accepted a concurrent appointment as Assistant Geologist on the Wisconsin Geological Survey (WGS), beginning a tradition of close association between the University and the WGS which continues today. In 1878, Irving's department was renamed Mineralogy and Geology, and moved into the newly completed (Old) Science Hall. A separate department of Mining and Metallurgy was created at the same time; Irving's student Charles R. Van Hise was hired to teach courses under Irving's direction in this department. In 1882, Irving was put in charge of the United States Geological Survey (USGS) investigations into the geology of the Lake Superior region. Irving's work with the USGS brought him, and the University, national attention. Geological investigations of Lake Superior carried out since have all built upon Irving's original work. Irving was also the first to accurately map the iron range, and carried out the first systematic study of the great copper bearing formations in the Lake Superior region, initiating a major theme in geology research at Wisconsin: mineral resources for human use. Irving and Van Hise became the first in the nation to apply microscopic lithology, using thin sections of rock, to an extensive study of crystalline rocks, and to use those results in the formulation of geologic principles.[4]

On December 1, 1884, Old Science Hall was destroyed by fire. Completed in 1877 and located on the site of present Science Hall, Old Science Hall was a frame building with a sandstone veneer.

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[2]Bailey, pp. 3-7; and University Catalogue, 1856-57, p. 53.

[3]Bailey, pp. 10-11.

[4]Bailey, pp. 12-16; and Wisconsin Academy Review, 1970, vol. 17, no. 1, p. 16.

When it burned, the University lost its mineralogical and geological museum and library, much geological equipment, the original notes for Irving's, and Thomas C. Chamberlin's, pioneering research with the WGS and USGS, as well as its art collection. Nearly everything was irreplaceable.[5]

In the spring of 1885, the Board of Regents sent Regent George H. Paul and Professor Allan D. Conover to visit eastern colleges to view science buildings. That summer, Henry C. Koch (1841-1910), a German-born Milwaukee architect, furnished detailed plans for the new Science Hall. The building was designed to be substantially fireproof, and Romanesque Revival in style. Romanesque Revival, then popular for public and institutional buildings, was characterized by massive masonry construction with towers and turrets, round-arched doorways and windows, and decorative brickwork. The state legislature would grant only $150,000 to replace the building. Because the building was to be fire proof, these funds, even with $41,000 provided by fire insurance, could not cover contractor bids. The Regents were determined that Science Hall be fire proof, and so decided to proceed without a contractor. Allan D. Conover (1854-1919), then Professor of Civil Engineering (later a partner in the architecture and engineering firm of Conover and Porter), was appointed construction supervisor. He was aided by several part-time student assistants, one of whom was Frank Lloyd Wright.[6]

Construction on Science Hall began in October, 1885. After the building was underway, Conover altered the plans to make the building more fire-proof, using hollow clay tile, additional iron columns and steel. The only earlier known use of steel in building construction was by William LeBaron Jenney in his Home Insurance Building in Chicago (1885, demolished 1930). Cutting the steel was difficult, as steel saws and acetylene torches did not yet exist. This problem was solved by drilling many small holes in each beam, and then bending each until it broke. The resultant jagged edges can still be seen in some of the beams in the attic.[7]

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[5]Bailey, pp. 17-18.

[6] Perspectives of a University, (Madison: University of Wisconsin Department of Planning and Construction, 1978), p. 77; Bailey, pp. 18-20; and Clarence W. Olmstead, Science Hall: The First Century, (Madison: Department of Geography, 1987) p. 2.

[7]Olmstead, pp. 2-5, and 30; and copies of correspondence of researcher Tom Hines with architectural historian Carl Condit, 1966, University Archives.

Conover's alterations increased the expense of the building. In April, 1887, by which time Science Hall and three auxiliary buildings were to have been completed, all the money allocated by the legislature had been spent, the Board of Regents had borrowed an additional $30,000, and yet Science Hall was still unfinished. The legislature was incensed. The Regents asserted that their responsibility was to produce an appropriate building, which the legislature should then pay for. After much discussion, the legislature granted an additional $175,000 to complete the building and liquidate the Regents' debt. The total cost of Science Hall is estimated to have been $285,000.[8]

Science Hall was completed in December, 1887 and opened in January, 1888. Tunnels connected the building to the machine shop and the boiler house (Radio Hall) north and west of Science Hall. In the basement and on the first floor, Engineering (including civil, mining and metallurgical, and mechanical) was given space for lecture rooms, laboratories, a museum and reading room, and an 80-student drafting room on the north side of the building. The Engineering laboratories were fitted with engines for conducting experiments, testing machines, a turbine wheel, lathes and hydraulic apparatus. Physics had laboratories and lecture rooms on the south side, basement and first floor, including a 100-student amphitheater style auditorium with rising tiers of seats. The Department of Mineralogy and Geology was located on the second floor; the biological sciences were on the third floor. Each of these floors was similarly laid out with a museum in the south wing, a main lecture hall for 75 students in the central tower, and smaller 25-student classroom between the lecture hall and the museum. On both floors, laboratories occupied the north wing. On the second floor, besides a petrographical and a mineralogical laboratory, there was a psychology laboratory with apparatus for the study of sensory and mental operations, color vision and other optical phenomena. There were laboratories for zoology, botany, anatomy, histology, bacteriology, physiology and embryology on the third floor. The attics were left unfinished when the building first opened. The fourth floor tower room was plastered, intended for use as an art gallery. The fifth floor tower room was to be used for spectrum analysis. The WGS and USGS both had small offices in the building.[9]

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[8]Olmstead, pp. 4-5; State of Wisconsin, Senate Journal, April 12, 1887, pp. 717-725; and Fact Book, (Madison: University of Wisconsin Department of Planning and Construction, 1978).

[9]Bailey, pp. 19-20; University Catalogue, 1887-1888, pp. 160-170 and Sidney Dean Townley, Diary of a Student of the University of Wisconsin, (mimeograph, Stanford University, Cal) p. 37, February 1888.

Mineralogy and Geology was the first department to move into Science Hall. Shortly after moving in, Roland Irving died. Charles R. Van Hise (1857-1918) was appointed his successor. Van Hise was appointed Chair while Thomas C. Chamberlin was president of the University. Chamberlin (1843-1928), formerly Chief Geologist with the WGS and the USGS, had mapped the extent of Pleistocene glaciation and developed the theory of multiple glaciations. He produced, with the assistance of Irving and Van Hise, four large volumes on the geology of Wisconsin that surpassed in excellence and scope the publications of all other states to that date. This work brought Chamberlin national attention, and recognition as the foremost authority on glacial geology in the nation. In 1887, Chamberlin resigned from the USGS to become president of the University.[10]

Chamberlin encouraged the development and specialization of all the sciences at the University during his five years as president. He recruited outstanding established and potential scholars, doubling the number of faculty. Chamberlin also established fellowships for graduate students in return for teaching and laboratory assistance; Wisconsin was the first state university in the country to do so. In this way, the University was able to encourage graduate study, and to attract top scholars. President Chamberlin also firmly believed, as his predecessor Bascom had suggested, that the scholarship of a state university should benefit all the citizens of the state. This would be nurtured and brought to fruition by later presidents as "the Wisconsin Idea." To this end, Chamberlin encouraged research to exploit natural resources made valuable by advances in industry and engineering. He also established the Extension Division in 1891 to share the university's knowledge with the people of the state. Under Chamberlin's administration, Wisconsin grew from a small college into a true university. In 1886 there were 500 students, administered by the entire faculty. At the time of the departure of Chamberlin's immediate successor, Charles K. Adams, in 1903, there were 3,000 students and four autonomous colleges. Chamberlin left Wisconsin in 1892 to direct the University of Chicago's new Department of Geology. Most of his many contributions to the science of geology were made there.[11]

The changes which took place at Wisconsin under Chamberlin reflected a national trend which took place in the late nineteenth century: the movement away from a classical education for sons of the wealthy and toward a practical technical and scientific

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[10]Bailey, pp. 221-25.

[11]Bailey, pp. 23-27; and Merle Curti and Vernon Carstensen, The University of Wisconsin: A History, (Madison: University of Wisconsin Press, 1949), vol. I, pp. 449 and 501-545.

education for all. The rapid expansion of urban life, increasing material wealth, the development of the railroad and advancement in industry created new demands for technical training. Advances in the natural sciences were instruments of reform in all disciplines. A more democratic philosophy emerged, stressing individual differences and needs and recognizing the right to learning for women, farmers, and the growing middle class. Americans turned to state universities to provide scientific education, especially in agriculture and engineering, to the people at large.[12]

As Chair from 1888 until 1903, Van Hise led the Department of Mineralogy and Geology to national prominence. He accomplished this by expanding the department from a single professor teaching many phases of geology to a faculty of several specialists. By the early 1900s, the eminence of the department, as evidenced by the research articles and textbooks produced by the faculty, was attracting increasing numbers of students. As a scholar, Van Hise earned a national reputation. Born in Wisconsin, Van Hise was the first to receive a B.S. in Geology (1880), the first to receive an M.S. in Geology (1882) and the first to receive a non-honorary Ph.D. from Wisconsin in 1892 (Geology). In his influential monograph, A Treatise on Metamorphism (for the USGS, 1904), Van Hise moved geology out of the science of classification and into formulating principles. Van Hise taught the first course in the nation in structural and metamorphic geology in 1903. From 1900 until 1908, concurrent with his University appointment, he was in charge of the USGS Division of Pre-Cambrian and Metamorphic Geology, fields in which he was recognized as a leading authority. During this time, Wisconsin became the premier institution for advanced students of Pre-Cambrian and metamorphic geology. As a teacher, Van Hise earned a reputation for training geologists who matched his own high standards for research, beginning with thorough observation and then developing principles through careful, independent analysis.[13]

Van Hise served as President of the University from 1903 until his death in 1918. Building upon the work of Presidents Chamberlin and Adams, he brought the University of Wisconsin to national prominence as a teaching and research institution. He believed

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[12]Curti and Carstensen, vol. I, p. 440; and Frederick Rudolph, The American College and University: A History, (NY: Alfred A. Knopf, 1962), pp. 244-286.

[13]Olmstead, p. 12; Bailey, pp. 20-36, and 127; Curti and Carstensen, vol. II, p. 354-55; Maurice M. Vance, Charles R. Van Hise, Scientist Progressive, (Madison: State Historical Society of Wisconsin, 1960), pp. 5 and 40; and Perspectives of a University, pp. 95 and 113.

that to be great, a university must not only teach well, but encourage research that pushed back the frontiers of knowledge. His views attracted research-minded people to the university, and the tradition of creative scholarship that had been growing for two decades flourished. Van Hise instituted an unprecedented program of building and land acquisition in which the area of the university doubled. The number of faculty quadrupled under his tenure, and the number of students more than doubled. Working with his close friend and fellow Progressive, Governor Robert M. LaFollette, Van Hise made the University of Wisconsin a showcase for Progressivism and the Wisconsin Idea. Under Van Hise, service to the state was enacted on a large scale, placing Wisconsin at the forefront of American education. The alliance between the university and the state was so strong that faculty and staff framed and administered legislation for the regulation of corporations, staffed many of the new regulatory commissions, and directed their research toward the solution of state problems. Van Hise himself served on many panels and commissions. Van Hise's philosophy is crystallized in what is probably his best known quote: "The boundaries of the campus are the boundaries of the state." Van Hise also championed the conservation of natural resources. He served on the Wisconsin and National Conservation Commissions from 1908 until 1918. In 1909, he taught a course in conservation in Science Hall, modifying his lectures in 1910 to form the first textbook in the field, The Conservation of Natural Resources in the United States. During his tenure, Wisconsin developed an international reputation, becoming the best known state university in the country, and Van Hise the best known university president.[14]

Meanwhile, the Department of Mineralogy and Geology went on to numerous achievements. The department maintained an association with the Lake Superior Division USGS, and published many noteworthy monographs through that agency. Charles K. Leith (1875-1956) was Chair of the department from 1903 until 1934. By 1910, the Department of Geology became a national leader in graduate geological education and research. In 1911, Mineralogy and Geology separated. In 1913, Leith authored Structural Geology, the first textbook on the subject in the U.S. During World Wars I and II, Leith advised the U.S. government on mineral resources. Among other activities, he helped procure uranium and thorium for the Manhattan Project.[15]

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[14]Bailey, pp.37-39; Rudolph, pp. 362-364; and Vance, pp. 60-64 and 134-146.

[15]Bailey, pp. 40-44, 69 and 74.

Eliot Blackwelder (1880-1969), a professor in the department from 1905 until 1916, taught the first course in sedimentation in the U.S. in 1912-13. He went on to head the Department of Geology at Stanford University. Warren J. Mead, a graduate of Wisconsin, taught at the University from 1908 until 1934. He became a national figure in engineering geology, a field particularly useful in the selection of sites for dams, bridges and roads. His course for civil engineers, first offered in 1917, was one of the first in the nation. Mead became chair of the Department of Geology at M.I.T. in 1934. William Twenhofel, a professor at Wisconsin from 1916-1945, created a vigorous program in sedimentation, stratigraphy and paleontology at the University. By 1926, he was a nationally recognized expert in sedimentation. He served as Chair of the department from 1940 until 1945. Geophysics was incorporated into Geology at the end of World War II, and the department name changed to Geology and Geophysics in 1967. During the period 1920-1966, the University of Wisconsin ranked fourth in the nation in number of earth science Ph.D.s granted. Geology and Geophysics left Science Hall in 1970. The Geological Museum followed in 1980.[16]

Rollin D. Salisbury offered the first professionally taught geography course at Wisconsin in 1891. Salisbury followed Chamberlin to the University of Chicago in 1893. Thereafter, Nevin Fenneman taught geography at the University, first as a visiting professor, and then from 1903 until 1907, as a full professor. In 1907 Fenneman went to the University of Cincinnati, where he founded their Department of Geology and Geography. Both Salisbury and Fenneman became geographers of national stature. Lawrence Martin (1880-?), a professor in the Department of Mineralogy and Geology from 1906 until 1917, specialized in glaciers and their modifying effect on terrain. He stimulated the study of geography at Wisconsin. While at Wisconsin, he came to be recognized as one of the country's outstanding physical geographers. In 1912-13, he taught the first course in oceanography in the U.S. After World War I he served as Chief of the Map Division in the Library of Congress for 22 years. Armin K. Lobeck was a professor in Geology from 1919 until 1929, when he went to Columbia University. Lobeck was best known for his outstanding physiographic diagrams and accompanying texts. The department name was changed to Geology and Geography in 1920, reflecting the rising importance of geography in the curriculum. In 1928, Geography became a separate department. Vernor C. Finch, a national leader in economic geography and the first to receive a Ph.D in geography from Wisconsin (1916), served as the first chair of the new department. Today, Geography is the only department remaining in Science Hall; the Cartography and Historical Geography programs are of particular note. The

[16]Ibid., pp. 40-54, 121 and 127.

influence of the teaching, research and publications in geography and cartography which have emanated from Science Hall is immeasurable. As of 1987, Wisconsin had awarded more than 200 Ph.D and 500 Masters in geography and cartography. Few institutions in the world teaching these subjects have not been influenced by the University of Wisconsin.[17]

Courses in atmospheric science were first taught in the Department of Mineralogy and Geology in 1904-05. In 1948, the Department of Meteorology was formed. Meteorology moved to its own building in 1968.[18]

The Department of Physics was located in Science Hall from 1888 until 1917. Although the study of modern physics at Wisconsin began with the appointment of John E. Davies in 1868, it was not until about 1900 that Wisconsin established a reputation as a center for applied and theoretical physics research. This was due to research and training carried out by Benjamin W. Snow, Chair of the Physics Department from 1893 until 1925, and his colleagues Robert W. Wood (investigations in light), Augustus Trowbridge (electrical and mathematical physics), and Charles E. Mendenhall (gravity measurements, galvanometer design, melting point determination, radiation and pyrometry). During World War I, Snow's group developed a submarine detector which played a major role in the battle against submarines. In addition, Edward Bennett (1876-1951) pioneered the teaching of electrical engineering using theoretical physics and applied calculus. His laboratory courses using this method, and electrodynamics, were widely imitated. Research done in Science Hall by Bennett and another physics professor, Earle M. Terry, with students Albert Taylor, C.M. Jansky, Jr., C.R. Greenslade and Malcolm Hanson contributed to the development of radio from wireless telegraphy. Before World War I, wireless stations sent messages by dot-and-dash telegraphic signals. Around 1915, the possibility of a new system of telephonic broadcasting was proposed. This system would send voice and music over the air and was called the "triode tube." In the basement of Science Hall, Terry and his physics students had been operating a dot-and-dash telegraphic station, 9XM. The station had been designated "9" for the region, "X" for experimental, and "M" for Madison. The group decided to build a telephonic broadcasting system. Triode tubes were not yet available, so the experimenters built their own triode tubes and converted 9XM into a telephonic

[17]Ibid., pp. 44-44; Olmstead, pp. 17-18; Glenn T. Trewartha, Geography at the University of Wisconsin-Madison, (Madison: Department of Geography, 1978), pp. 3-33; and Curti and Carstensen, vol. II, p. 354.

[18]Trewartha, p. 13; Perspectives of a University, p. 116.

system, beginning voice and music broadcasts in 1917 with 500 watts of power. Later that year, the station moved to Sterling Hall. In January, 1919, 9XM became the first station in the nation to offer a scheduled broadcast service of weather and market forecasts. In 1922, it was renamed WHA. Although there were other experimental stations operating earlier than WHA, WHA is the oldest continuously operating station in the nation.[19]

Wisconsin's Medical School and several science programs in the College of Letters and Science and in the College of Agricultural and Life Sciences sprang from the biological sciences which originally occupied the third floor Science Hall--anatomy, physiology, bacteriology, zoology and botany. Professor Edwin A. Birge (1851-1950) initiated many of these programs. Birge, who began at Wisconsin as an instructor in 1875, taught the first course in the medical field offered at the university in 1881: zoology with an emphasis on histology and embryology. The precursor to the Medical School was a two-year pre-medical program begun in 1887. Birge taught zoology, vertebrate anatomy, histology, physiology, embryology and bacteriology. Birge also developed the concept of the lake as an environmental unit of life, pioneering with Chauncey Juday the science of limnology. In 1910, Botany and Zoology moved to Biology (now Birge) Hall.[20]

By 1904, Anatomy was its own department, with quarters in the attic and the fifth floor of the tower. William Snow Miller (1858-1939) came to teach anatomy at Wisconsin in 1895. A Yale graduate, Miller developed an international reputation for his studies of the microscopic structure of the lung in men and animals. His seminar in the history of medicine in 1909 pioneered that field in the U.S. and led to the creation, at Wisconsin, of the second Chair of Medical History in 1946.[21]

The Medical School was established in 1913, and began as a two-year program. Charles R. Bardeen (1871-1935) was made the first dean of the school. A graduate of both Harvard and Johns Hopkins, Bardeen came to Wisconsin in 1904. His contributions to descriptive embryology, experimental embryology and anthropometry were

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[19]Bailey, p. 70; Curti and Carstensen, vol. I, p. 355 and vol. II, pp. 346-47 and 470; Harold A. Engel, "WHA, The Oldest Station in the Nation?", Wisconsin Alumnus, October 1950, pp. 12-13; and "40th Birthday for the Oldest Station," Wisconsin Alumnus, June 1959, p. 24.

[20]Olmstead, p. 13; Hove, p. 82; and Curti and Carstensen, vol. II, pp. 356 and 481.

[21]Curti and Carstensen, vol. II, p. 482.

considerable. He was the first to show that x-rays affect the cell nucleus. His studies on the development of the skeleton and musculature have appeared in every textbook of anatomy and embryology published since Bardeen completed the studies. In 1925, Wisconsin instituted a four-year course, and began to award the M.D. degree. Specialized medical programs that developed in Science Hall include Physiology, Pathology, Pharmacology and Medical Microbiology. All the departments associated with the Medical School except for Anatomy moved out of Science Hall in 1928. In 1957, Anatomy moved to the new Bardeen Memorial Laboratories.[22]

Bacteriology research, conducted in Science Hall beginning in 1888, brought developments in the agricultural, as well as the medical, sciences before the agricultural sciences moved to Agriculture Hall in 1903. In Science Hall in 1894, H.L. Russell initiated the program of testing for cattle tuberculosis that led to the eradication of that disease in dairy cattle across the nation.[23]

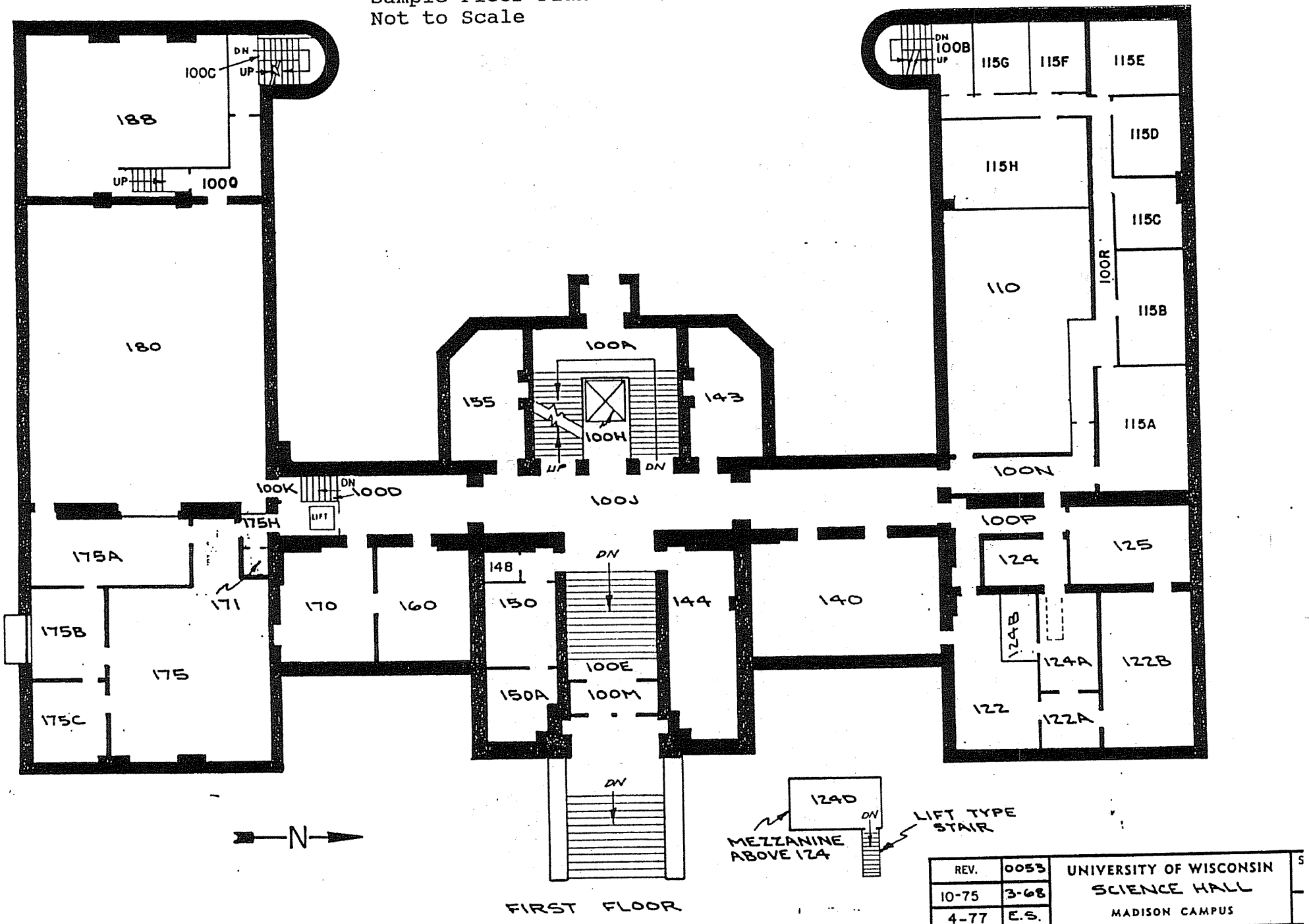
Legal Description

University of Wisconsin Science Hall is located on a parcel more particularly described as follows: beginning on the west right-of-way line of North Park Street at the intersection of the north right-of-way line of Langdon Street extended; thence north 85.0 feet along the west right-of-way line of North Park Street; thence west 195.0 feet; thence south 240.0 feet; thence east 195.0 feet to the west right-of-way line of North Park Street; thence north 155.0 feetalong the west right-of-way line of North Park Street to the point of beginning. All of the parcel is in the SW 1/4 of the SW 1/4, Section 14, T7N R9E, City of Madison, County of Dane, Wisconsin.

[22]Ibid., vol. II, pp. 482-84.

[23]Olmstead, p. 13.

University of Wisconsin Science Hall
Madison, Dane County, WI
Sample Floor Plan
Not to Scale



FIRST FLOOR

REV.	0053	UNIVERSITY OF WISCONSIN SCIENCE HALL MADISON CAMPUS
10-75	3-68	
4-77	E.S.	
9-77		SPACE MANAGEMENT OFFI

9-78

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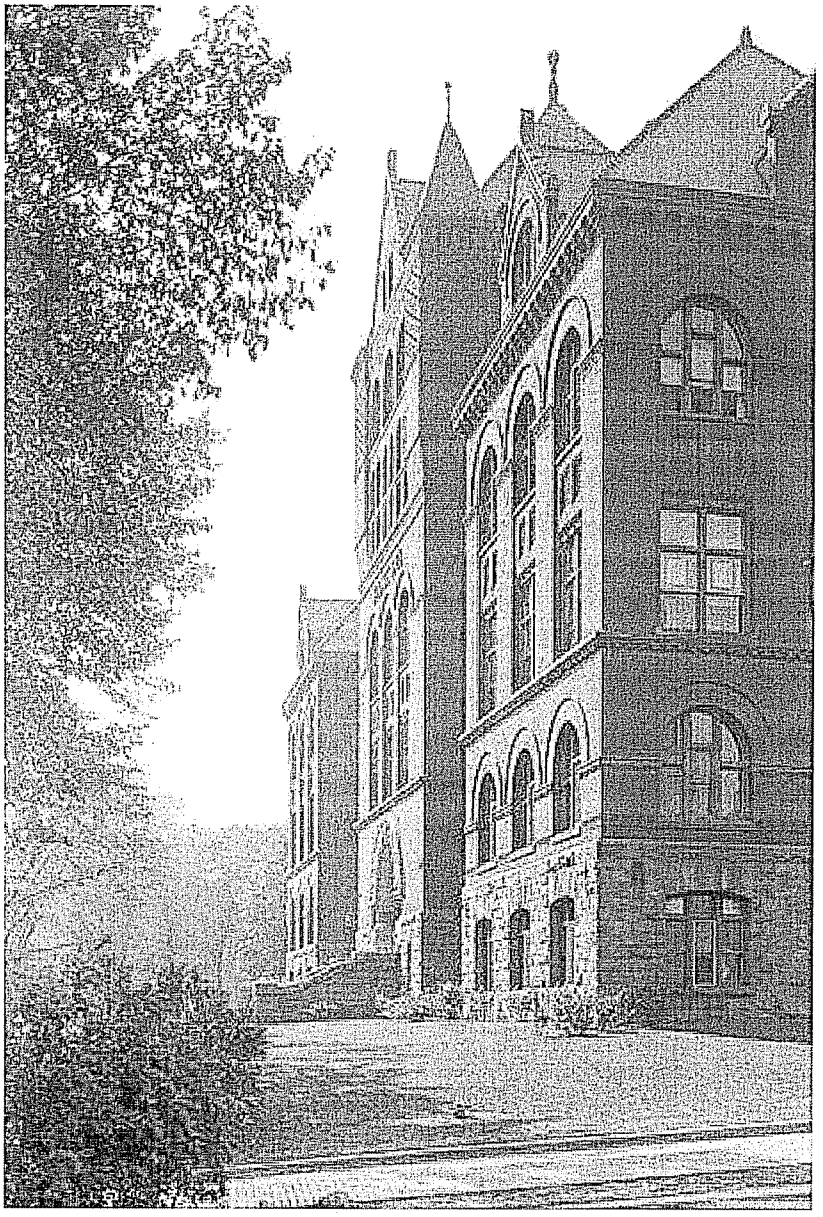

UW Madison Science Hall
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City of Madison

550 North Park Street