

# SCIENCE HALL



Fig. 1. Science Hall at Observatory Drive and Park Street 1890. Note the board sidewalks that extend clear across the unpaved streets, and the original window in the north wing where a door was later cut. [Series 9/1, Science Hall #1, x25-312]

*Erected in 1887 at a cost of about \$290,000, Science Hall replaced the original Science Hall, destroyed by fire at the same location. Science Hall was the first completely fireproof building at the University. Its cost and length of construction caused a scandal that was investigated by the state legislature. Science Hall was the original home of nearly every scientific discipline taught at the University. It was added to the National Register of Historic Places in 1974.*

The begetting of Science Hall took place within weeks of the fire that destroyed the original Science Hall. The gestation and birth of the new Hall were difficult, slow, dangerous and painful. The regents' decisions to act as their own contractor, and to make the building fireproof to an extraordinary degree, caused cost and authority overruns that resulted in a state investigation and legal changes that resonate down to the present day.<sup>1</sup>

On April 7th, 1885 the legislature appropriated a total of \$190,000, for a group of four buildings (a Machine Shop, a Heating Plant, a Chemistry Building and a Science Hall) intended to

replace the original Science Hall destroyed by fire.<sup>2</sup> When civil engineering Professor Allan Conover returned from an inspection tour of the science facilities of eastern colleges in May of 1885<sup>3</sup>, the plans for the other, smaller buildings of the group were already done. Conover and Milwaukee architect H. C. Koch developed the plans for Science Hall. These original plans were evidently for a "slow-burn mill construction" building, the style of the smaller buildings.<sup>4</sup>

When the regents called for bids on Science Hall, they had already spent about \$61,000 of the \$190,000 total appropriation. When bids from contractors for Science Hall ranged from \$179,000 to \$229,000<sup>5</sup>, the response of the regent's building committee was to reject all bids and to employ Professor Conover as contractor and superintendent of the building, with authority to hire the workers, direct their work, and make alterations to the plans. The decision of the regents to act as their own contractor made reasonable sense in light of the facts that Conover had been involved in planning the building, was a professional architect and now had a captive machine shop available to him.<sup>6</sup> As was made clear in the later investigations, no one believed that the building could be built for the appropriation. The building was erected during the next two and a half years, but the constant changes in planning, intended to increase the fire resistance, were so costly and difficult that the appropriation and other monies (the insurance from the old building, and loans from local banks) was exhausted long before Science Hall was completed or furnished. When the regents applied to the legislature for further funds, they were met with an outraged investigative committee who asked some difficult and revealing questions before the needed funds were forthcoming (See Appendix A). When finally completed Science Hall had cost an estimated \$285,000.

The task of actually erecting the building was begun in the fall of 1885 and the foundation was finished up to the water table during that fall and winter.<sup>7</sup> All through 1886 the work was pushed with the greatest possible speed. There were labor difficulties and constant alterations to the plans as Conover and the regents increased their resolve to make the building as fireproof as possible. In October 1886 the *Aegis* reported: "The outside walls of Science Hall are completed except the tower", and in June 1887, they report: "They have commenced slating the Science Hall roof."<sup>8</sup> The work was finished late in 1887. The *Aegis* of January 6, 1888 says that "Professor Davies has removed from North Hall to his new rooms on the first floor of the north wing of Science Hall. So he is the first Professor to have the pleasure of occupying the new building."<sup>9</sup> In June of 1888 the board of visitors announced that all buildings in the science group were "living monuments to the wisdom and courage of the Board of Regents."<sup>10</sup>

The finished building has a 205 foot facade on Park Street and two 126 foot wings projecting west. The central tower is five stories high and the wings are three stories above a finished basement. The foundation is of Berlin, Wisconsin, rhyolite. The superstructure is of red brick, with rhyolite and terra-cotta decoration. The hipped roofs and gabled dormers were finished off with a slate roof (replaced with asphalt shingles in 1992).<sup>11</sup>

The large lecture room on the first floor seated a hundred students (total university enrollment in 1888 was about five hundred). Because of the small enrollment and the rise of scientific study, the building held an astonishing array of departments, almost all of which now (1993) have buildings of their own larger than the whole of Science Hall. These include engineering, physics, geology, psychology, zoology, anatomy, botany and biology. Most of the faculty offices were here too. It did not take long for some of the departments to run out of room. Engineering left in 1900. Botany left for Birge Hall in 1910. Geology was the longest tenant and the last to leave (1888-1974). Anatomy had a place from the beginning and as other tenants left, it expanded into the newly developed space in the upper floors, where it stayed until 1957. The major tenants of the building now are geography, cartography, The Institute for Environmental Studies, and Chicano Studies.

The efforts to produce a fireproof building were entirely successful. A contemporary descrip-

tion says: "The building is entirely fireproof. No wood is used except for the floors, doors and window frames. The floor beams are of steel, filled in with arches of hollow tile. The staircase is of iron with slate treads ... The walls are so made as to leave two air spaces between the room and the outer wall."<sup>12</sup> The fireproofing led to the use of steel beams in the framing. Science Hall is among the first buildings in the world to use structural steel in quantity.<sup>13</sup> It is said that the attic beams show the practice (in the days before the invention of the cutting torch) of cutting by drilling a row of holes, then bending until the beam fractured!<sup>14</sup> Presumably, most beams were ordered to size.

Because of the highly engineered nature of the structure, with steel beams, and masonry load-bearing walls, the interior of the building has not been heavily modified. The building's upper spaces, including the tower's fourth and fifth floors and the attic areas of the two wings were finished off for use by the medical school about 1904. Subdivision of the original large spaces, and the construction of mezzanines above several of the twenty foot high floors accounts for most interior modifications. Two exceptions are the addition of an elevator around 1924 and the opening of a wall to extend the map library (rooms 384 and 380) on the north wing's third floor. The exterior of the building has been altered only by the addition on the back (west) facade, where two flat-roofed rooms (443 and 455) were added on the fourth floor sometime before 1924. Skylights were added in the south wing, and a window was converted to a door at first-floor level in the Park Street face of the north wing. The south rear tower originally held a spiral fire escape slide tube, which was entertainment for many students, town children, and the staff of the geography department who ceremonially sent each outgoing chairman down the slide with his successor. The north rear tower held the cadaver winch. Both towers now hold fire escape staircases, added around 1980.<sup>15</sup>

The legends about Science Hall being haunted appeared very early and persist even now. This is entirely understandable using almost any definition of haunted. A man was killed and several maimed during construction.<sup>16</sup> The presence of looming towers, huge creaking doors, long twisted hallways complete with flying bats, a morgue in the basement, tunnels under the building, dead bodies delivered by hearse at the back door and winched up to the attic lend a gloomy and mysterious air to the old building. A mystery novel, "Don't Look Behind You", by French professor Samuel Rogers was set in Science Hall.<sup>17</sup> As recently as 1974 geography students were still finding body parts in the attic.<sup>18</sup> Haunted it was, haunted it remains.

The men who designed and built Science Hall would be surprised at little if they returned today (except perhaps that the building was ever completed). The appearance of the building has always been a point of contention. For every one who views it as a beautiful example of the Richardson Romanesque style with its dramatic massing and use of masonry elements, there is another like historian J. F. A. Pyre who said: "The largest, most useful, most expensive, and easily the ugliest building ... Science Hall will doubtlessly stand indefinitely a monument to the prosperity, progressiveness, bad taste and good intentions of the late eighties."<sup>19</sup> Both the fact that the building is now on the National Register of Historic Places, and that it is so durable that it would cost nearly as much to tear it down as to replace it, should assure Science Hall of a safe place on campus for another 110 years.

- 1) Part of the legislation that followed the hearings regarding Science Hall created a requirement that all contracts entered into by the regents had to be signed by the governor. This sometimes caused costly delays, as in the case of Sterling Hall and the Wisconsin General Hospital, and other times simply annoyance, when donors were surprised to discover that the state had control over building projects that are entirely funded by the University itself, as in the Alumni House, and the Memorial Union.
- 2) *Laws of Wisconsin*, Chapter 332, 1885.
- 3) Conover visited Princeton, Columbia, Yale, Harvard, MIT, and others. He returned to Madison with plans of some of those buildings.
- 4) A copy of the original specifications are in the Science Hall subject file in the University Archives. Slow burn mill construction used heavy wooden beams and joists with brick walls, and included thick steel-sheathed fire doors to limit the spread of fire in a building. It was later brought out by Koch in the legislative hearings that slow burn mill construction was what was ordinarily meant by the words "substantially fireproof", as used in the act funding the construction.
- 5) Olmstead, Clarence W., *Science Hall, the First Century* p. 2. This pamphlet is a detailed history of the building and highly entertaining reading. Copies are available in the Memorial Archives (Science Hall subject folder), the Historical Society Library, and the Geography Library.
- 6) *University Press and Badger*, May 21, 1886 p. 9. The shop building was the first of the smaller buildings completed, in May 1886. .
- 7) *University Press and Badger*, October 9, 1885, October 30, 1885, December 11, 1885.
- 8) *Aegis*, June 10, 1887.
- 9) *Aegis*, January 6, 1888.
- 10) *Report of the Regents*, 1887-8 p. 59.
- 11) *National Register of Historic Places Registration Form*, State Historical Society Historic Preservation Office.
- 12) *University Catalogue* of 1887-1888 p. 161.
- 13) There is some confusion regarding this claim, due to the distinction necessary between iron and steel. The regents financial statements show checks written for iron girders and steel beams (*regents report* 1886 p. 32). Frank Lloyd Wright, who claimed to have worked on the building (*An Autobiography* p. 57), further confuses the issue by referring to iron beams and steel beams in the same paragraph. No independent evidence to support Wright's claim is known to exist. Structural authority Carl Condit of Northwestern agrees that Science Hall is among the first steel framed buildings (correspondence, Memorial Archives, Science Hall subject folder). A research project carried out by the author and student Shawn Rediske, obtained samples of the metal from the attic and floor joists and demonstrated conclusively that the material is steel. Science Hall is now (because of the destruction of earlier examples) the oldest building in the world to use significant amounts of steel in its frame. The vertical supports are entirely masonry. (A report of this project is in the Archives Science Hall subject file.) No original plans for the building as modified by Conover have survived, if they ever existed at all. The legislative committee concluded that the alterations were generally improvised.
- 14) Olmstead op. cit. (fn. 5) p. 41 note 83, the steel does indeed show those marks, but only in places where they needed trimming to fit together. This drilling was done by engineering students in the new machine shops.
- 15) Olmstead op. cit. (fn. 5) pp. 22-29; *Daily Cardinal*, December 17, 1895.
- 16) On November 11, 1885 local mason Henry Hoven was fatally injured by falling equipment in the basement. *The Wisconsin State Journal*, with the delicacy known to the press in all ages, headlines the story "Done by a Derrick". The regents settled in those days before workman's comp, with Henry's widow Wilhelmina for \$1350 on April 18, 1887; according to the regents minutes (vol.C p. 488), they would have gone as high as \$2000. Eight workman were injured (some losing fingers) when a lift fell from the third floor (*Aegis* June 17,1887).
- 17) Rogers, Samuel, *Don't Look Behind You* (Harper 1944). Memorial Library.
- 18) *Capital Times*, August 14, 1974.
- 19) Pyre, J. F. A., *Wisconsin*, p. 217