

SOLAR OBSERVATORY



Fig. 1. The Watson Solar Observatory c. 1920. Below the building was a twenty foot deep cellar, and a 55 foot horizontal shaft through the hill to a reflector at the surface on the north side. This building was erected by Professor James C. Watson using his own money and labor. Because of the stone reading "Watson Solar Observatory", the building became known as the Watson Mystery House. [series 9/1 Solar Observatory folder, jf-4]

The Solar Observatory was built by astronomer James Watson, with his own funds and labor for the purpose of looking for a hypothetical planet near the sun. The experiment did not reveal the planet, and the building was used for storage until its demolition in 1949.

When C. C. Washburn agreed to build an observatory for the University in 1876, the legislature appropriated \$3000 per year to fund the staffing and operation of the observatory. The person hired for this job by President Bascom was James Craig Watson, the director of the observatory at Ann Arbor, Michigan. Watson had been a prodigy in astronomy, and was published at 19. His major professor Brunnow, when reproached for the small size of his teaching load exclaimed, "Yes I have only one student, but that one is Watson!"¹ Watson became director of Michigan's observatory at age 25 in 1863. Within a year he had discovered the first of what are called Watson's family of asteroids.

In July of 1878 Watson went to Separation, Wyoming to observe a solar eclipse. During the darkness of totality he swept the sky around the sun. What he saw convinced him that there was at least one planet inside the orbit of Mercury the innermost known planet. He named this possible planet Vulcan.² Coming on top of his other remarkable achievements, this event made Watson the subject of a bidding war between his employer and alma mater, Michigan, and Wisconsin, which was developing a first class astronomy department. Late in 1878, Wisconsin prevailed, with an offer that included better instruments, a significant salary, and a house on Observatory Hill (now the Observatory Office building).³

When Watson came to Wisconsin, he began to build an observatory to look for Vulcan. On the principal that you can see the stars at midday from the bottom of a well, Watson dug a 20 foot deep cellar under a 16 by 20 foot stone building. He then drove a twelve inch tiled shaft from the cellar 55 feet through



Fig. 2. This picture shows the relationship between the positions of the Solar Observatory and Washburn Observatory. The solar observatory is in the foreground, with Washburn observatory in the background. The shaft from the cellar of the solar observatory went north through the brow of the hill and emerged at the surface just to the west (left) of the Washburn Observatory. [series 9/1 Solar Observatory folder, x25-2882]

the crest of Observatory Hill, to a pier on the surface on the north side of the hill where a mirror could reflect any part of the sky down the tube to a six inch telescope in the cellar of the observatory.⁴ Watson had not completed this project when he contracted pneumonia and died in November 1880 at age 42.

C. C. Washburn agreed to fund the completion of Watson's projects, including the solar and student observatories. Because Watson's work was highly regarded and widely published it was decided that his successor, Edward Holden, should attempt to complete Watson's search for Vulcan. Holden reports in detail his experiments with the solar observatory. After reporting the entirely negative results of his experiments in detail he concludes, "I am satisfied that there is no use in prosecuting this particular experiment further ... No evidence has been collected in regard to the existence or non-existence of Vulcan. It has simply been demonstrated that this particular device is not suitable for detecting such a planet."⁵ The most plausible theory is that Watson had sighted an unknown comet, since comets increase greatly in brightness as they approach the sun, and having moved off would no longer appear when checked for later.⁶

After the abandonment of the experiment for which it was built, the solar observatory was used by Holden and later directors as housing for observatory assistants, and later for storage of unused books and equipment. In 1940 it was decided to demolish it to make way for a new home economics cottage.⁸ It was not however, until November 23, 1949 that the University got around to it. In the process of tearing it down a fire started and engulfed the building drawing four fire engines and a crowd of 250 students who then as now will use any excuse to avoid going to class.⁹ Thus ended one of the brilliant J. C. Watson's many projects, leaving standing only the student observatory.

1) Heber, Curtis T., *James Craig Watson 1838-1880*. In Biographical Memoirs of the National Academy of Sciences Vol. 3 pp. 45-57, 1895.

2) Heber, Curtis T., *James Craig Watson 1838-1880*, Michigan Alumnus July, 1938. University Archives biographical file, Watson, James Craig.

3) Bless, R. C. *Washburn Observatory 1878-1978*. p. 2. University Archives, subject file, Washburn Observatory.

4) Holden, Edward S., *Publications of the Washburn Observatory* Volume 1 p. 36, University Archives, 7/4/1 box 1.

5) Report of the Regents, 1882, pp. 34-37. This is not only a good scientific statement, but a diplomatic one considering Watson's reputation and certainty regarding his observations.

6) See Heber fn. 2 p. 312. One reason that so many astronomers were looking for a planet near the sun was to explain observed anomalies of the orbit of Mercury. The anomalies were later a successful test case for the predictive value of Einstein's theory of special relativity.

8) *Wisconsin Alumni Magazine*, July 1940 p. 341.

9) *Daily Cardinal*, November 23, 1924 p. 1