

ELIAS LOOMIS AND THE LOOMIS OBSERVATORY

ARTHUR J. STOKES
Stokes Lane (Box 398)
Hudson, OH 44236

Abstract

The history and present state of the Loomis Observatory, built in 1838, is described.

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The village of Hudson, Ohio, located about twenty-five miles southeast of Cleveland, has the distinction of having contributed to the early history of astronomy in the United States. Here, situated on the campus of the Western Reserve Academy, is the Loomis Observatory, built in 1838 by Professor Elias Loomis. This campus was the original location of Western Reserve University now in Cleveland.

The Loomis Observatory is unique in having the original three pieces of equipment still in place. From a historical viewpoint, it is interesting to note that this observatory was built before those of the older established Eastern colleges such as Harvard, Yale, and William and Mary.

The building is thirty-seven feet long and sixteen feet wide. It is constructed of red brick with three separate rooms. The center room with a raised circular platform and nine-foot dome houses the equatorial refractor. An office is located on the West side and a transit room on the East side. Piers for both telescopes are set six feet deep in the ground and are independent of the building. The piers are of cut sandstone.

The equatorial telescope is five and one-half feet in focal length and 3.3 inches clear aperture. The transit telescope is thirty inches in focal length and 2.7 inches clear aperture. The circle is eighteen inches in diameter and graduated to five minutes of arc. Both telescopes were made by Troughton and Simms of London. The third piece of equipment is the pendulum clock made by Molyneux of London with an accuracy of about three seconds a month.

Professor Loomis left Western Reserve College in 1844 to teach at New York University, then at Princeton, and finally at Yale, where he spent the last twenty-nine years of his life.

In 1856 Charles A. Young came to Western Reserve, where he taught for nine years using the observatory extensively. It is interesting to note that his niece, Anne S. Young, joined the astronomy department of Mount Holyoke College in 1899. She later became a president of the AAVSO.

Another interesting historical fact concerns Maria Mitchell. About 1837 or 1838, William C. Bond, Director of Harvard College Observatory, and the greatest American astronomer of the time, and Elias Loomis, who came all the way from Ohio, built an enclosure for Maria Mitchell's telescope above the Pacific Bank building at the head of the square on Nantucket. Dr. Loomis wrote in a letter, "I have got Mr. Mitchell's instrument well adjusted... we have got the stump of a ship's mast mounted on top of Mr. Mitchell's house and I am now getting the circle adjusted."

Today the little observatory which he built still stands as a monument to the scientific spirit of the man who first labored in it.

LETTER TO THE EDITOR**"T Coronae Borealis: the Less Well-Known Outbursts"**

Understandably, the two bright outbursts of the brightest recurrent nova T Crb, those of 1866 and 1946, have drawn most of the attention. The minor outbursts, nevertheless, are also a source of great interest.

Based on the ephemeris (Peel 1985)

$$JD(\text{MinII}) = 2400194 + 227.52 E, \quad (1)$$

the orbital phase of the broad 1938 photographic outburst (peak at phase 0.76) is near that of the broad post-nova secondary maxima of 1866 and 1946 (peaks at 0.86 and 0.84, respectively).

The orbital phases of the 1936 (Hachenberg and Wellmann 1939) and 1937 photographic outbursts (Payne-Gaposchkin and Wright 1946) (0.62 and 0.20, respectively) are near those of the 1913 and 1914 photographic outbursts (Anon. 1920) (0.66 and 0.23, respectively).

The 1944 visual minimum near JD 2431247 observed by Leslie Peltier (Campbell 1947) precedes by about 1.5 orbits the prominent 1945 minimum near JD 2431600. Webbink (1976) ascribed the latter to mass ejection from the red giant secondary component leading to mass arrival at the hot primary at the 1946 post-nova secondary maximum. The 1944 minimum, if it can be ascribed to mass ejection also, seems to have its own arrival event in the shape of the visual maximum near JD 2431640. This maximum has an orbital phase (0.21) virtually the same as that of the 1937 photographic maximum.

Between these arguably similar sets of events in 1937/1938 and 1945/1946 there were 13 orbits of the binary system. The earlier set was barely perceptible visually, and an annual gap in the data prevents us from saying whether or not there was any photographic forerunner of the very brief primary nova outburst itself. It is interesting that the isolated naked eye observation of the star in 1842 by Sir John Herschel (1866) came 39.10 orbits before the peak of the 1866 secondary maximum, a nearly integral multiple of the interval above.

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Michael Peel
 17 Manor Close
 Hoghton
 Preston PR5 0EN
 England