## DARK SKIES for February 2018:

| | | |
|---|---|---|
| T/F Feb. 1/2 | 6:50 p.m. - | 6:52 p.m. |
| F/S Feb. 2/3 | 6:51 p.m. - | 8:03 p.m. |
| S/S Feb. 3/4 | 6:52 p.m. - | 9:13 p.m. |
| S/M Feb. 4/5 | 6:53 p.m. - | 10:20 p.m. |
| M/T Feb. 5/6 | 6:55 p.m. - | 11:24 p.m. |
| T/W Feb. 6/7 | 6:56 p.m. - | 12:26 a.m. |
| W/T Feb. 7/8 | 6:57 p.m. - | 1:26 a.m. |
| T/F Feb. 8/9 | 6:58 p.m. - | 2:23 a.m. |
| F/S Feb. 9/10 | 6:59 p.m. - | 3:18 a.m. |
| S/S Feb. 10/11 | 7:01 p.m. - | 4:10 a.m. |
| S/M Feb. 11/12 | 7:02 p.m. - | 4:58 a.m. |
| **M/T Feb. 12/13** | **7:03 p.m. -** | **5:25 a.m.** |
| **T/W Feb. 13/14** | **7:04 p.m. -** | **5:24 a.m.** |
| **W/T Feb. 14/15** | **7:05 p.m. -** | **5:23 a.m.** |
| **T/F Feb. 15/16** | **7:06 p.m. -** | **5:21 a.m.** |
| **F/S Feb. 16/17** | **7:08 p.m. -** | **5:20 a.m.** |
| S/S Feb. 17/18 | 7:33 p.m. - | 5:19 a.m. |
| S/M Feb. 18/19 | 8:36 p.m. - | 5:17 a.m. |
| M/T Feb. 19/20 | 9:41 p.m. - | 5:16 a.m. |
| T/W Feb. 20/21 | 10:46 p.m. - | 5:15 a.m. |
| W/T Feb. 21/22 | 11:54 p.m. - | 5:13 a.m. |
| T/F Feb. 22/23 | 1:02 a.m. - | 5:12 a.m. |
| F/S Feb. 23/24 | 2:09 a.m. - | 5:10 a.m. |
| S/S Feb. 24/25 | 3:14 a.m. - | 5:09 a.m. |
| S/M Feb. 25/26 | 4:14 a.m. - | 5:07 a.m. |
| M/T Feb. 26/27 | none | |
| T/W Feb. 27/28 | none | |
| W/T Feb. 28/1 | none | |

Times listed are for Dodgeville, Wisconsin when
(1) Moon is below the horizon
(2) Sun is > 18° below the horizon
(astronomical twilight)

Please minimize your use of outdoor lighting during these times to give everyone the best possible view of the night sky.

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# Time Travel

**conducted by David Oesper**

### THE RISE AND FALL OF EDWARD S. HOLDEN: PART 1

DONALD E. OSTERBROCK, University of California

Towards the end of 1880, James C. Watson, director of the new Washburn Observatory of the University of Wisconsin, died unexpectedly in Madison. In his will he left most of his estate to the National Academy of Sciences to continue work on the asteroids he had discovered, and as trustees he named Newcomb and two other scientists, all three of them residents of Washington. Newcomb hurried to Madison to inventory the estate, a complicated business as Watson's personal property was intermingled with the university's throughout the observatory. There was also a question as to which of the improvements that Watson had been having made at the observatory were to be paid for by the university, and which were his own responsibility. While he was in Madison, Newcomb must have discussed these matters with President John Bascom and some of the Wisconsin regents; no doubt he also took the opportunity to recommend his friend Holden for the post as Watson's successor.

At any rate, Holden was offered the job as professor of astronomy and director of Washburn Observatory soon after Newcomb's visit to Madison, and he accepted it at once. He notified Captain Richard S. Floyd, the president of the Lick Trust who was responsible for building the new observatory, that he had taken the position in Madison, but assured him that he regarded it only as a preparation for his future work at Lick Observatory, at which construction had barely started. During his five years in Madison, Holden continued as a very active adviser of the Lick Trust, exchanging literally hundreds of letters with Floyd. He sent the captain copious advice on many of the details of the observatory, some of it in response to requests, much of it on his own initiative. Several of Holden's letters contained warnings against letting other astronomers come to Mount Hamilton for various special observing projects; he wanted no rivals on the ground before his appointment as the Lick director was signed, sealed, and delivered. On more than one occasion he urged the Lick trustees to make it possible for him to come out and take over immediately, but the captain jealously guarded their prerogative to complete the observatory and turn it over to the University of California before any astronomers were appointed.

Holden enjoyed his years in Madison. He threw himself into faculty affairs, and became acquainted with several of the regents, particularly George H. Paul, their chairman, and William F. Vilas, the conservative Democrat who became postmaster general and later senator from Wisconsin. As a physical scientist, Holden also played a rôle in persuading the noted geologist Thomas C. Chamberlin to accept the presidency of the University of Wisconsin in succession to Bascom.

Holden continued his rather pedestrian research at Washburn Observatory. His most important paper during this period was another long treatise, this one a compilation of all previous accurate measurements of the rings of Saturn, together with his own measurements made at the Naval Observatory and with the 15-inch refractor at Madison. More exciting, although of little scientific interest, was the expedition he led to tiny Caroline Island, an atoll in the Pacific Ocean between Tahiti and Hawaii, to observe the solar eclipse of May 1883. This involved a journey of over 12,000 miles by sea, part of it on the USS *Hartford*, taking almost three months in all to complete. As at the earlier 1878 eclipse in Colorado, Holden searched visually with a small telescope for an intra-Mercurian planet at the Caroline Island eclipse. He did not find one, and concluded that none as bright as magnitude 5·5 could exist, or he would have seen it.

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