

DARK SKIES for April 2017:

S/S Apr.	1/2	12:57 a.m.	-	5:03 a.m.
S/M Apr.	2/3	1:58 a.m.	-	5:01 a.m.
M/T Apr.	3/4	2:52 a.m.	-	4:59 a.m.
T/W Apr.	4/5	3:39 a.m.	-	4:57 a.m.
W/T Apr.	5/6	4:20 a.m.	-	4:55 a.m.
T/F Apr.	6/7	none		
F/S Apr.	7/8	none		
S/S Apr.	8/9	none		
S/M Apr.	9/10	none		
M/T Apr.	10/11	none		
T/W Apr.	11/12	none		
W/T Apr.	12/13	none		
T/F Apr.	13/14	9:22 p.m.	-	10:08 p.m.
F/S Apr.	14/15	9:24 p.m.	-	11:03 p.m.
S/S Apr.	15/16	9:25 p.m.	-	11:57 p.m.
S/M Apr.	16/17	9:27 p.m.	-	12:48 a.m.
M/T Apr.	17/18	9:28 p.m.	-	1:35 a.m.
T/W Apr.	18/19	9:30 p.m.	-	2:19 a.m.
W/T Apr.	19/20	9:32 p.m.	-	2:59 a.m.
T/F Apr.	20/21	9:33 p.m.	-	3:36 a.m.
F/S Apr.	21/22	9:35 p.m.	-	4:11 a.m.
S/S Apr.	22/23	9:37 p.m.	-	4:20 a.m.
S/M Apr.	23/24	9:38 p.m.	-	4:17 a.m.
M/T Apr.	24/25	9:40 p.m.	-	4:15 a.m.
T/W Apr.	25/26	9:42 p.m.	-	4:13 a.m.
W/T Apr.	26/27	9:43 p.m.	-	4:11 a.m.
T/F Apr.	27/28	9:45 p.m.	-	4:09 a.m.
F/S Apr.	28/29	10:43 p.m.	-	4:07 a.m.
S/S Apr.	29/30	11:49 p.m.	-	4:05 a.m.
S/M Apr.	30/1	12:48 a.m.	-	4:03 a.m.

Times listed are for Dodgeville, Wisconsin when

(1) Moon is below the horizon

(2) Sun is > 18° below the horizon

(astronomical twilight)

Time Travel

conducted by David Oesper

THE BEGINNINGS OF AMERICAN ASTRONOMY

It is impossible, even in the briefest sketch, not to emphasize the debt of American science and learning to the intelligent interest and patronage of our early Presidents—Washington, John Adams, Jefferson, Madison, Monroe, John Quincy Adams. The powerful impetus given by them and through them has shaped the liberal policy of our Governments, national and State, toward education and toward science. Sir Lyon Playfair, in his address to the British Association for the Advancement of Science (1885), has recognised this influence in the truest and most graceful way. He said: “In the United Kingdom we are just beginning to understand the wisdom of Washington’s ‘Farewell Address to his Countrymen’ (1796) when he said: ‘Promote, as an object of primary importance, institutions for the increase and diffusion of knowledge; in proportion

as the structure of a government gives force to public opinion, it is essential that public opinion should be enlightened.”

Until the Revolution (1776) American science was but English science transplanted, and it looked to the Royal Society of London as its censor and patron. Winthrop, Franklin, and Rittenhouse were, more or less, English astronomers. Franklin was the sturdiest American of the three. As early as 1743 he suggested the formation of the American Philosophical Society of Philadelphia. John Adams founded the American Academy of Arts and Sciences in Boston in 1780. These two societies, together with Harvard College (founded in 1636), Yale College (1701), the University of Virginia (founded by Jefferson in 1825), and the United States Military Academy at West Point (1801), were the chief foci from which the light of learning spread. Other colleges were formed or forming all over the Eastern and Middle States during the early years of the century.

The leading school of pure science was the Military Academy at West Point, and it continued to hold this place until the civil war of 1861. From its corps of professors and students it gave two chiefs to the United States Coast Survey; and the army, particularly the corps of engineers, provided many observers to that scientific establishment, besides furnishing a large number of professors and teachers of science to the colleges of the country. The observatory of the academy was founded by Bartlett in 1841, and much work was done there, only a small part of which is published. The Coast Survey was a school of practice for army officers, and their experience was utilized in numerous boundary surveys during the period 1830-‘50. Colonel J. D. Graham, for example, was astronomer of the survey of the boundary between Texas and the United States in 1839-‘40; commissioner of the Northeast boundary survey, 1840-‘43; astronomer of the Northwest boundary survey, 1843-‘47; of the boundary between the United States and Canada, 1848-‘50; of the survey of the boundary between Pennsylvania and Virginia, 1849-‘50; of the boundary survey between Mexico and the United States, 1850-‘51. The names of Bonneville, Talcott, Cram, Emory, and other army officers are familiar in this connection, and their work was generally of a high order. It was in such service that Talcott invented or re-invented the Zenith Telescope, now universally employed for all delicate determinations of latitude. The mechanical tact of Americans has served astronomy well. The sextant was invented by Thomas Godfrey, of Philadelphia, in 1730, a year before Hadley brought forward his proposal for such an instrument.²

² In 1700 Sir Isaac Newton sent drawings and descriptions of a reflecting sextant to Halley for his advice. At Halley’s death these were found among his papers. Hadley’s device (1731) was undoubtedly derived from Newton’s manuscripts. The Royal Society of London granted two hundred pounds to Godfrey for his invention, which his brother, Captain Godfrey, had previously put into practical use in the West Indies.

[Edward S. Holden](#), *Science*, June 18, 1897