

DARK SKIES for May 2019:

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|----------------|--------------|-------------------|---|------------------|
| W/T May | 1/2 | 9:52 p.m. | - | 4:01 a.m. |
| T/F May | 2/3 | 9:54 p.m. | - | 3:59 a.m. |
| F/S May | 3/4 | 9:55 p.m. | - | 3:57 a.m. |
| S/S May | 4/5 | 9:57 p.m. | - | 3:55 a.m. |
| S/M May | 5/6 | 9:59 p.m. | - | 3:54 a.m. |
| M/T May | 6/7 | 10:06 p.m. | - | 3:52 a.m. |
| T/W May | 7/8 | 11:11 p.m. | - | 3:50 a.m. |
| W/T May | 8/9 | 12:12 a.m. | - | 3:48 a.m. |
| T/F May | 9/10 | 1:07 a.m. | - | 3:46 a.m. |
| F/S May | 10/11 | 1:54 a.m. | - | 3:44 a.m. |
| S/S May | 11/12 | 2:35 a.m. | - | 3:42 a.m. |
| S/M May | 12/13 | 3:10 a.m. | - | 3:41 a.m. |
| M/T May | 13/14 | none | | |
| T/W May | 14/15 | none | | |
| W/T May | 15/16 | none | | |
| T/F May | 16/17 | none | | |
| F/S May | 17/18 | none | | |
| S/S May | 18/19 | none | | |
| S/M May | 19/20 | none | | |
| M/T May | 20/21 | none | | |
| T/W May | 21/22 | 10:27 p.m. | - | 11:20 p.m. |
| W/T May | 22/23 | 10:29 p.m. | - | 12:09 a.m. |
| T/F May | 23/24 | 10:30 p.m. | - | 12:50 a.m. |
| F/S May | 24/25 | 10:32 p.m. | - | 1:26 a.m. |
| S/S May | 25/26 | 10:34 p.m. | - | 1:57 a.m. |
| S/M May | 26/27 | 10:35 p.m. | - | 2:25 a.m. |
| M/T May | 27/28 | 10:37 p.m. | - | 2:50 a.m. |
| T/W May | 28/29 | 10:38 p.m. | - | 3:15 a.m. |
| W/T May | 29/30 | 10:40 p.m. | - | 3:15 a.m. |
| T/F May | 30/31 | 10:41 p.m. | - | 3:13 a.m. |
| F/S May | 31/1 | 10:43 p.m. | - | 3:12 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

PUPIL. I confess, I should have thought with Ptolemy, that the earth was in the center, and that the sun moved round it.

TUTOR. You must at present content yourself with knowing that it is not so; and it shall be my business to prove it.

PUPIL. May I beg the favour of the information you intended respecting the planets?

TUTOR. I will grant it with pleasure. The planets are spherical bodies, which appear like stars, but are not luminous; that is, they have no light in themselves; though they give us light; for they shine by reflecting the light of the sun.

PUPIL. You say, Sir, that they appear like stars; if so, how am I to know them from stars?

TUTOR. Very easily: for the stars, or as they are more properly called fixed stars, always keep the same situation with respect to each other; whereas the planets, as they move round the sun, must be continually changing their places among the fixed stars, and with one another.

PUPIL. Is there any other method of distinguishing them besides what you have mentioned?

TUTOR. Yes. The planets never twinkle like the fixed stars, and are seen earliest in the evening and latest in the morning.

PUPIL. How is the twinkling of the stars in a clear night accounted for?

TUTOR. It arises from the continual agitation of the air or atmosphere through which we view them; the particles of air being always in motion, will cause a twinkling in any distant luminous body, which shines with a strong light.

PUPIL. Then, I suppose, the planets not being luminous, is the reason why they do not twinkle.

TUTOR. Most certainly. The feeble light with which they shine is not sufficient to cause such an appearance.

PUPIL. Have the stars then light in themselves?

TUTOR. They undoubtedly shine with their own native light, or we should not see even the nearest of them: the distance being so immensely great, that if a cannon-ball were to travel from it to the sun, with the same velocity with which it left the cannon, it would be more than 1 million, 868 thousand years, before it reached it.^[9]

PUPIL. This is wonderful indeed! what then are they supposed to be?

TUTOR. Suns.

PUPIL. Suns! the fixed stars suns!

TUTOR. Yes, suns.

“One sun by day, by night ten thousand shine.”

And what will increase your astonishment, each of them is the center of a system of planets, which move round him.

9. The distance of Sirius is 18,717,442,690,526 miles. A cannon-ball going at the rate of 1143 miles an hour, would only reach the sun in about 1,868,307 years, 88 days.

The Study of Astronomy, by John Stedman (1796)

To be continued next month...