

TODAY AND THE DAY AFTER TOMORROW

February 18, 2015

Some notes about today and the day after tomorrow

TODAY

Did you look at a calendar today, Wednesday, 2015 February 18? Today is the first day of Lent in Western Christianity (*Ash Wednesday*), and a day of fasting for some.

But today was also astronomically significant.

Probably most people do not know that today was also the 85th anniversary of the discovery of Pluto at Lowell Observatory by Clyde Tombaugh in 1930. In fact, Lowell Observatory has declared 2015 to be the “Year of Pluto.”

Furthermore, the **New Horizons Spacecraft** remains on course for Pluto and its close encounter with this distant object on July 14, a date now only 145 days away. Recently, this spacecraft took a series of images (January 27–February 8) of Pluto’s small moons, *Nix* and *Hydra*. (The **Pluto-Charon System** has four known small moons besides the larger worlds of Pluto and Charon.) These recently released images offer the best views yet of these two small moons clearly circling Pluto.

These pictures are tantalizing and offer hope that ultimately this historic space mission will reveal thrilling new secrets of these Kuiper belt worlds. Recall I gave an AAC talk last November on the discovery of this “planet.” I hope to give its sequel (“The Enigma of Pluto”) this coming November that can include new details about this class of planet.

New Horizon is now 32.4 AUs from Earth and 1.16 AUs from Pluto. Therefore, light needs 4h29m to reach Earth from the spacecraft. (Recall that one AU is the average Earth-Sun distance, about 93 million miles, a light-time of about 8.3 minutes.) Hence, New Horizons is now almost the same distance from Pluto as the Earth is from the Sun.

I was also surprised to discover that the first cow to fly on an airplane also happened on February 18 thirty years ago! (Did the cow fly over the moon?) Was this astronomically significant?

Closer to astronomy, Jacques Cassini, a French astronomer was born on this day in 1756. No, he is not the Cassini who discovered the division in Saturn’s rings, but the son of the famous Italian astronomer who did (Giovanni Domenico Cassini, d. 1712). And, on February 18, Henry Norris Russell, one of America’s greatest astronomers died (1957). If you know anything about astronomy, you know that the **Hertzsprung-Russell Diagram** is probably astronomy’s most important diagram.

A new moon also occurred today. About one-third of a day later the moon reaches perigee making this the closest new moon of the year. Some might call this new moon a

“super new moon.” But, of course, it is invisible! Furthermore, this new moon is the third new moon of four in the current season. Such a moon is sometimes also called a “black moon.”

Finally, earlier this evening I noticed bright Venus and dimmer Mars only 1-1/2 degrees apart in the southwestern sky (7:00 p.m. EST). **See photo below.** (A helicopter trail is also visible near a tree limb.)



But it gets better. ***Read on.***

THE DAY AFTER TOMORROW

Looking ahead, I noticed you should mark your calendars for early this Friday evening. Gaze toward the west southwest horizon and see a beautiful, close gathering of a two-day-old waxing crescent moon with Venus and Mars low in the western sky after sunset. Venus and Mars will also be half as close as it was this Wednesday evening.

See diagram on next page.

Moon-Venus separation: 1.9 degrees
Moon- Mars separation: 1.8 degrees
Venus-Mars separation: 0.7 degrees

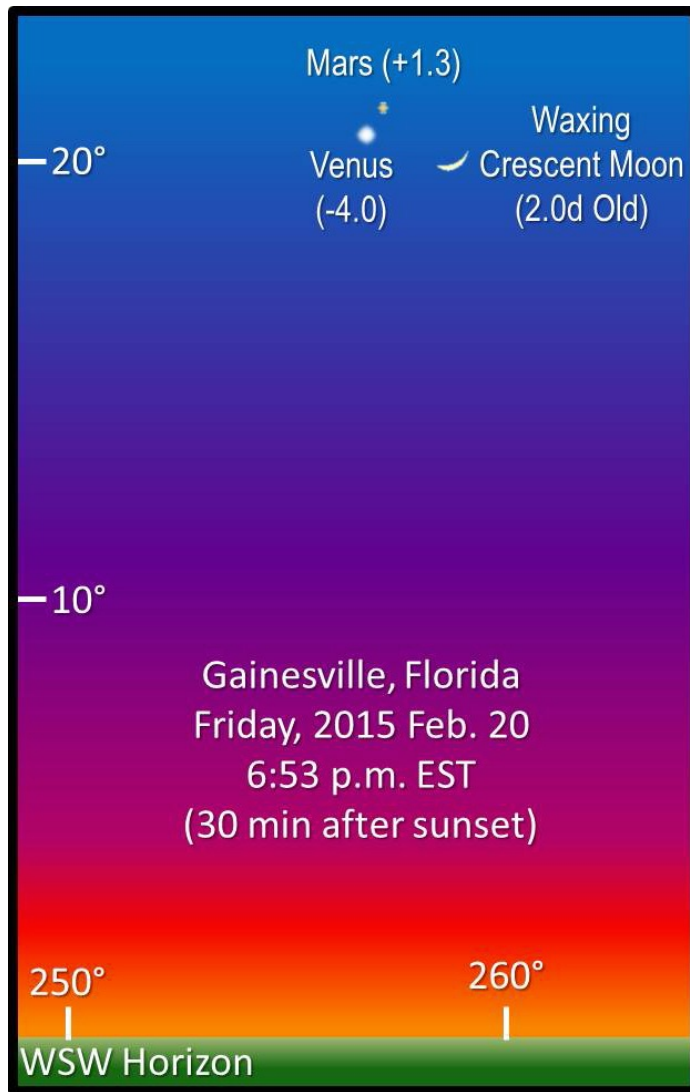
And this Saturday come to AAC's Rosemary Hill Observatory (RHO) Star Party and see Venus and Mars only 0.4 degrees apart! This is about one-quarter of the separation in my photo, or less than one moon diameter!

The Moon will sit about 13 degrees above the planet pair.

Details about the RHO star party are on the club's website:

<http://www.alachuaastronomyclub.org/event-1793457>

Mars is now far from Earth (2.2 AU compared with 0.62 AU last spring) and shines at only magnitude +1.3. Still, this sky view should still make a pretty picture with nearby Venus (and Moon).



Venus is also not near Earth (1.4 AU) but the larger size and reflectivity of Venus make this planet appear much brighter than Mars. (Venus shines at mag. -3.9 or about 120 times the brightness of Mars!)

It should be possible to view both planets simultaneously through a telescope's eyepiece Saturday evening!

However, prepare for disappointment. The disk of Mars is only 4.2 arc seconds across, barely larger than the disk of Uranus (3.4 arc seconds)! Venus also shows only a 11.6 arc second disk and has but a slight gibbous phase (88%).

By the end of July, however, when its elongation from the Sun is similar (28 degrees), the disk of Venus will have grown to 48 arc seconds appearing as a beautiful, large waning crescent.

Still, Saturday night's view should be a treat!

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