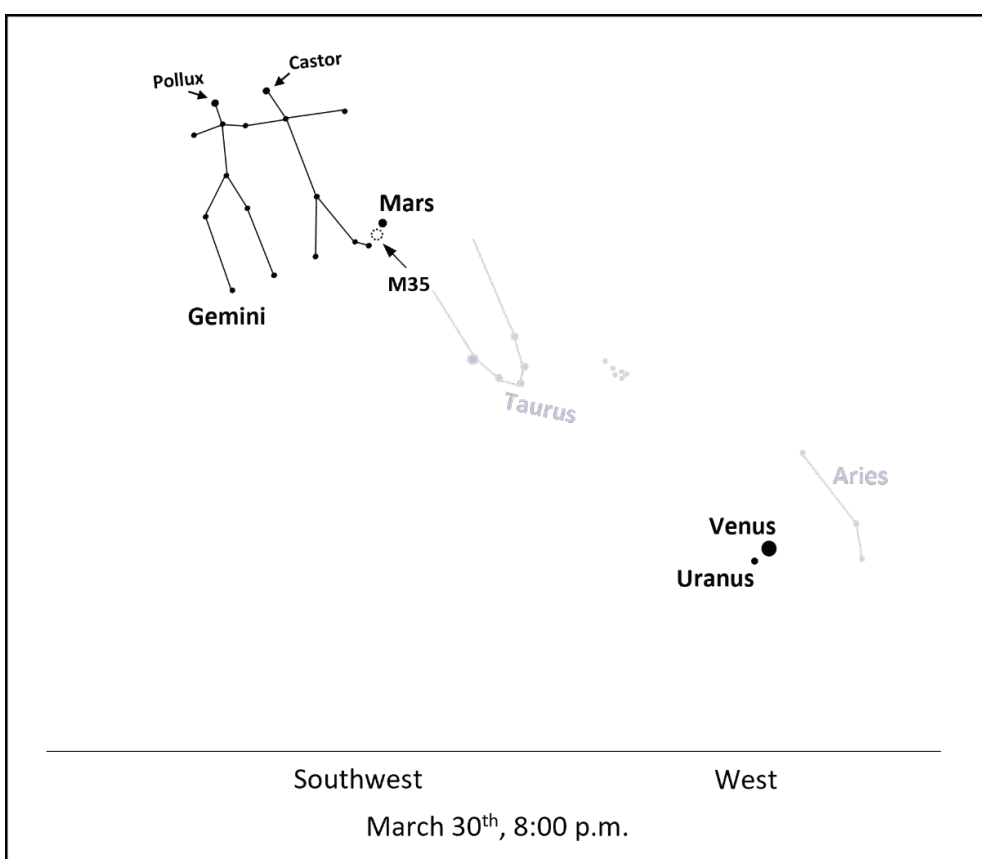


WHAT'S UP?

Happy (almost) Spring! The Sun arrives at the intersection of the Ecliptic and the Celestial Equator just a bit before 5:30 p.m. on the 20th. At that moment, we say that Spring has begun. Also known as the Vernal Equinox (from Latin: *vernus* “of spring”, *aequus* “equal”, and *nox* “night”), we think of an equinox as a time when we have equal lengths of daylight and nighttime. That would indeed be true if a) we marked sunrise and sunset as the moments that the center of the Sun crossed the horizon and b) the Earth had no atmosphere. Because neither of these are true, the day that we have equal amounts of light and darkness, the *equilux* (“equal light”), occurs a few days *before* the equinox. How many days before depends on our latitude. This year, our day of the equilux occurs on the 17th. Since we consider sunrise to be when the edge of the solar disk first peeks above the eastern horizon and sunset to be when the edge of the disk sinks below the western horizon, the sunrise-to-sunset interval is a couple of minutes longer than it would be if we measured it from when the center of the disk crosses each horizon. The second factor is our atmosphere. The layer of air above the Earth’s surface refracts (bends) the Sun’s light so that we can actually see the edge of the Sun when it is a bit below the horizon. Together, these two effects result in us having a few extra minutes of sunlight on the day of the equinox.



This year’s equilux happens also to be St. Patrick’s Day so let’s talk a bit about astronomy in Ireland. Around 3200 B.C.E., *Newgrange* was constructed. 250 feet across and about 40 feet high. The structure appears to have been both a tomb and a monument. Each year for days on either side of the Winter Solstice, light from the rising Sun enters an opening above the entrance opening and illuminates an internal passage and a recess in the western side. We’ve yet to go to Newgrange, but Carolyn and I have visited a similar site on the island of Orkney in Scotland. Smaller (90 feet across and 35 feet high) and about 300 years younger, Maeshowe was aligned so that the setting Sun around the Winter Solstice illuminates a passage inside the structure and reaches to the eastern wall inside. Modern Ireland is rich with astronomical resources. Should you be visiting next week between the 20th and 26th, you can attend some of the 100 events planned for the inaugural Irish Astronomy Week. With events spanning the length and breadth of the Emerald Isle, you’re sure to be close to one of them. One event of particular interest to me is a talk presented by the Galway

Astronomy Club by Dr. Ziri Younsi of the University of London. You can join me in hearing the talk on Zoom (<https://us06web.zoom.us/j/82182534189?pwd=WmVDQlI2RmF4Z2NHS3Q4dWwrYTVBZz09>). Dr. Younsi is a member of the Event Horizon Telescope (EHT) collaboration. This world-wide group of astronomers is the first to successfully image a black hole. The publication of this work in 2019 was nothing short of amazing. Encompassing six scientific papers, the background, methods, and instrumentation used by the teams were painstakingly documented. Closer to home, you can hear a bit about this amazing accomplishment on Saturday, March 25th at the Plympton Public Library. The library will host Carolyn DeCristofano, author of the nationally acclaimed *A Black Hole Is NOT A Hole*, which was expanded in 2021 to include a chapter devoted to the EHT’s imaging project. Her presentation features audience interactions and readings from the book, which is targeted for 5th-8th grade readers—and appealing to anyone curious about the science behind black holes. After the presentation, this and other books by Carolyn will be available for purchase, and she will be happy to sign books for you.

Planet Roundup: Jupiter is now below the western horizon when it gets dark outside and Mercury, though technically in our evening sky is too close to the Sun for us to view easily. We’ll see Mercury make its evening appearance in the first half of April. Venus is still with us and dazzling at -4 magnitude. On the 30th, Uranus can be found 1-¼ degrees to the left and below Venus. Mars is in the south-southwest 25 degrees above the horizon and by the 26th it will have left Taurus and begun its trek through the stars of Gemini. From the 28th through the 31st, Mars will be within 1-½ degrees above the beautiful open star cluster known as M35 or Messier 35. Covering an area about the size of a full Moon, it is comprised of several hundred stars. At a distance from us of 2,800 light years, Newgrange was already well over two thousand years old when the light we see now left the cluster. M35 lies just to the northwest of the left foot of Castor – one of the two Gemini twin brothers. Saturn and Neptune are in the morning sky but too close to the Sun to be viewed. Both Saturn and Mercury rise just before the Sun at dawn and are still too close to the Sun to observe. The next New Moon occurs on the 21st, the 1Q is on the 28th, the Full Moon is on April 6th and the 3Q will be on the 13th. Note on that Full Moon: the moment of the full phase occurs is just after midnight on the 5th.

You can reach me at astroblog@comcast.net with any questions and comments. This is *What’s Up?* installment #68.

Barry