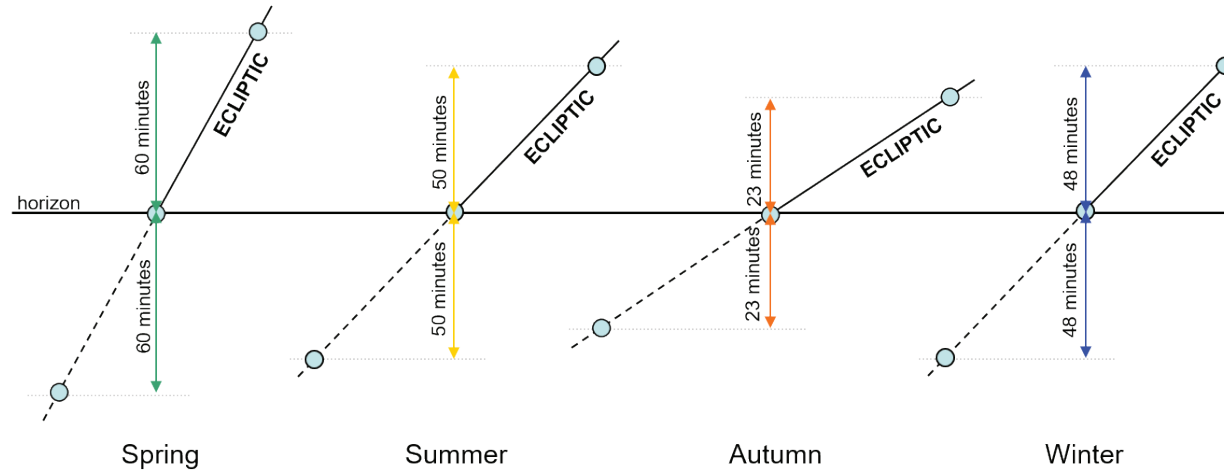


What's Up?

BY BARRY DECRISTOFANO



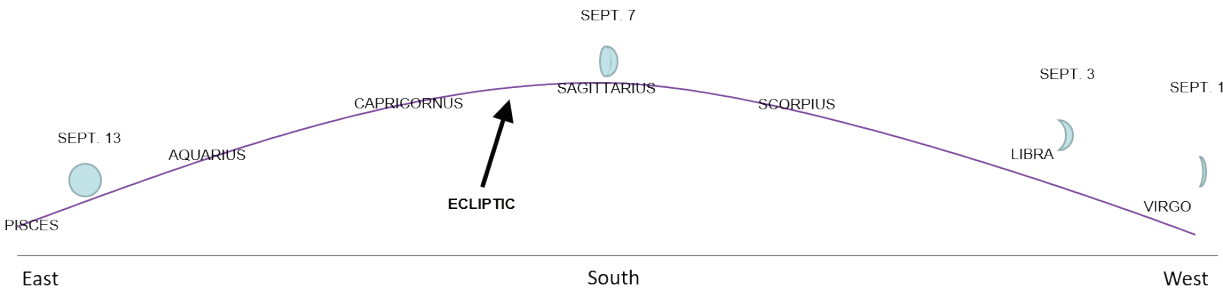
We’re moving into Fall! September brings two good things (at least): the beginning of cool, comfortable nights and earlier darkness. I know that the shorter days are not generally a popular thing to call “good”, but it means that there are more awake-hours to spend out under the night sky. Two more things of interest are the Harvest Moon and the Autumnal Equinox. First, the Harvest Moon. The Harvest Moon, besides just being a great excuse to dance with someone special out under the Moon and stars, is the full moon that occurs closest to the Autumnal Equinox, which heralds the beginning of autumn. For example, this year, the Equinox occurs on the 23rd. The dates of the full



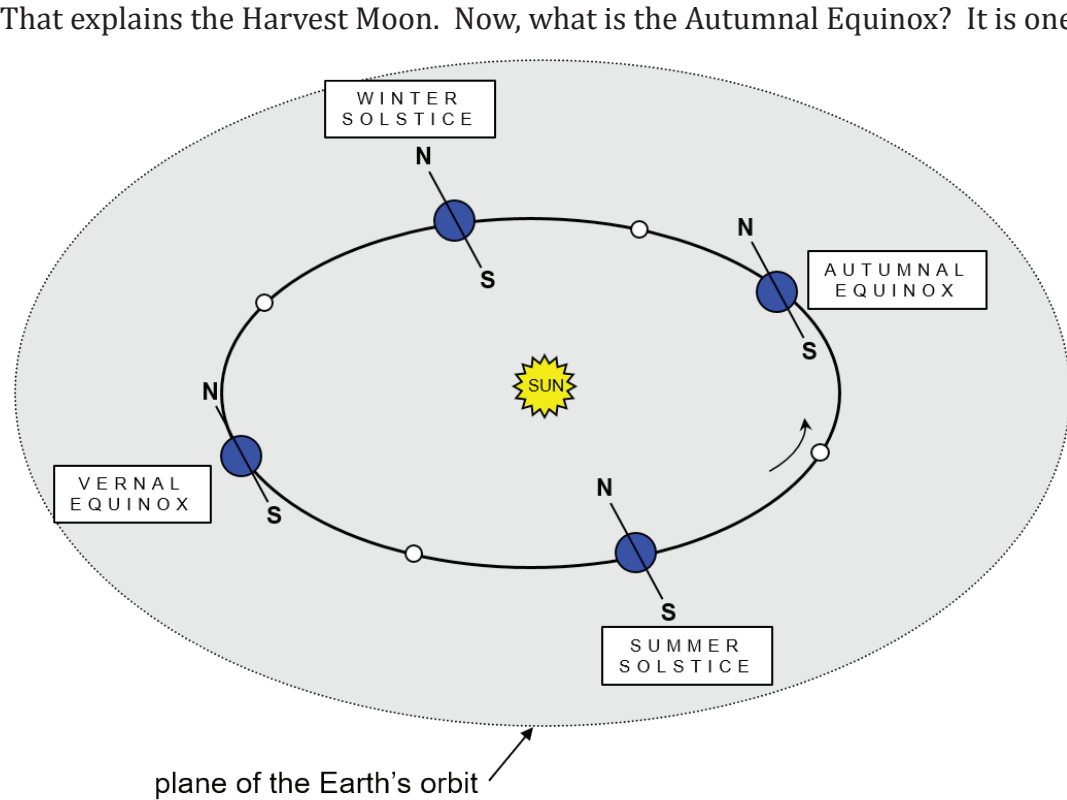
moon that fall on either side of it are September 14th (9 days before the Equinox) and October 13th (20 days after the Equinox). So, the Harvest Moon is (was!) on September 14th. What makes the Harvest Moon special? Well, for a few days in a row, that big, bright, nearly full moon is in the sky and ready to take over lighting fields by the time the Sun has completely done its job for the day, giving farmers more time to bring in their crops. Why is this full moon different than those in the other months? The answer is that at sunset, the Ecliptic makes a shallow angle with the Eastern horizon at this

time of year. (As I’ve noted in prior columns, the Ecliptic is the path that the Moon, Sun, and planets appear to follow across our Earthly sky over the course of the year.)

As the Moon orbits the Earth, it moves along the Ecliptic from West to East (right to left as we see it in the sky). It takes the Moon about 30 days to move from one full moon to another. In other words, it moves 1/30 of the way along in its orbit each day. The illustration below shows how the Ecliptic runs across our southern sky from East to West at sunset at this time of year. The Moon is shown where it can be found against the background of stars each day, just after sunset.



When the Ecliptic is at its steepest angle, the daily rising of the Moon differs the most from day to day (about 60 minutes). When the Ecliptic is at its shallowest angle to the horizon, the time between moonrise each day changes the least (about 23 minutes). So, for successive days, the full moon begins to brighten the landscape before the evening twilight fully ends.



That explains the Harvest Moon. Now, what is the Autumnal Equinox? It is one of the eight points along the Earth’s orbit that we mark in relation to the seasons. The eight points are the equinoxes (two of them), the solstices (two of them), and the cross-quarter points (four of them). You may know that the Earth’s axis (the line from the South Pole to the North Pole) is tilted in relation to the Ecliptic. When the north pole of the Earth is tilted as far as it can be *towards* the Sun, we are at the Summer Solstice. When the north pole of the Earth is tilted as far as it can be *away* from the Sun, we are at the Winter Solstice. In between these extremes, the times when the Earth’s poles are at equal distances from the Sun, we are at one of the equinoxes – either the Vernal Equinox (Spring) or the Autumnal Equinox (Fall). The cross-quarter points are in between the solstices and equinoxes. In the diagram below, the cross-quarter points are marked with white circles. These eight points all mark different parts of our year. More on each of these in a future installment of *What’s Up?*.

Keep looking up!
Barry