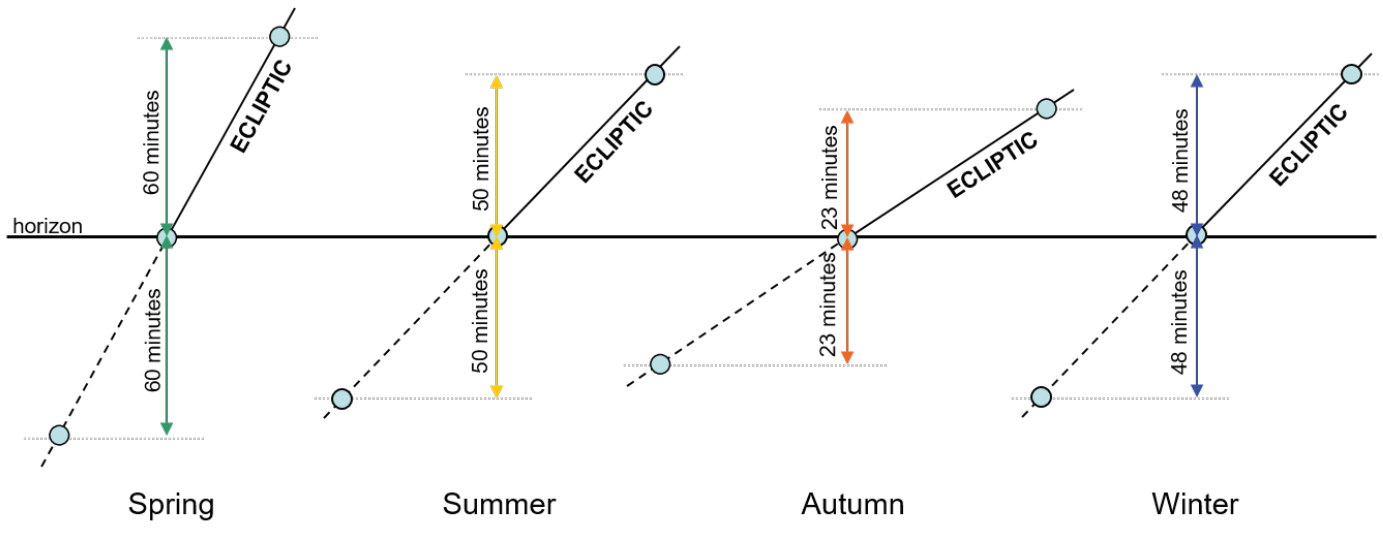
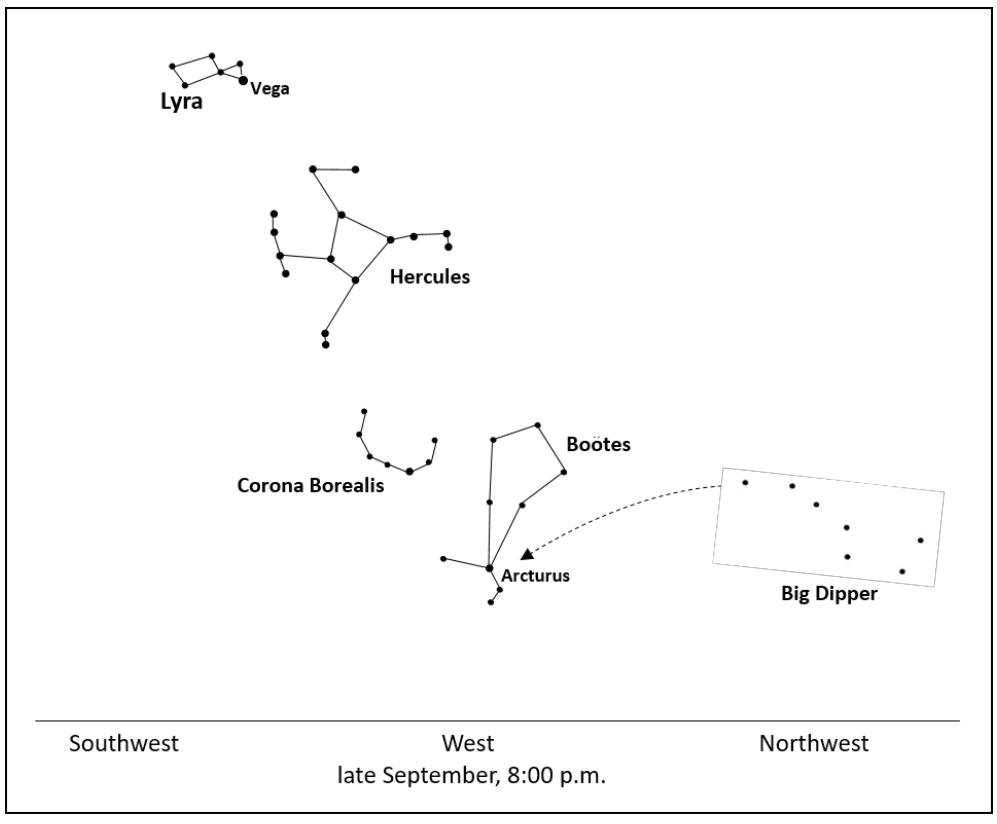
WHAT'S UP?

Hi, there. I do hope that you've managed to get outside at least once in the last couple of weeks to identify Mars. As I wrote last time, we now have a great opportunity to view the Red Planet. By now, Mars is above the eastern horizon by 9:00 p.m. A caveat that I didn't mention last time is the possibility of dust storms. Mars has been known to have huge, planet-wide storms that obscure all surface detail for weeks at a time. This was the case two years ago when Mars was last near us. As of now, its atmosphere is clear and viewing is good. On October 2nd, a just-past-Full Moon will be very close to Mars (about 1 ½ degrees away). It's worth a look. Speaking of the Moon, it will be full on the 1st. This will be the Harvest Moon because it is the full moon that is closest to the Autumnal Equinox. The equinox (the moment when the Sun crosses the celestial equator) occurs this year on the morning of September 22nd. While we usually think of the September Full Moon as being the Harvest Moon, this year, although the Moon was full on September 2, that was 20 days before the equinox. The upcoming Full Moon on October 1st is 9 days after the equinox and so is closer to it. That makes the October 1st Full Moon the Harvest Moon. As I wrote last year, in the Autumn for a few days in a row just before and after the Moon is full, 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. This is because at sunset in the Autumn, the Ecliptic makes a shallow angle with the eastern horizon at this time of year. *What's Up?* #5 (September 20, 2019) included the diagram shown here to help you see what I'm talking about. 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.



When the Full Moon is not in sky, it's time to look at constellations. When learning to recognize new constellations, it helps to start at a spot that you are already familiar with and work from there. Here, we'll use our knowledge of where the Big Dipper and Lyra are located (from past *What's Up?* articles) and investigate what's in between. Once it's dark, turn towards the Northwest and find the Big Dipper about 30 degrees above the horizon. We know that we can follow the Dipper's handle and "arc to Arcturus". Arcturus is the brightest star in the constellation *Boötes* (the Herdsman). Boötes is shaped sort of like a kite. The figure of a man in this grouping of stars has been variously referred to in Western cultures as a herdsman, an ox-driver, and a bear watcher. The name, *Arcturus*, means "bear guard" in Greek. With *Ursa Major* (the Great Bear) right next-door, we can see where it got its name. Above and a bit to the left of Boötes is *Corona Borealis*, the Northern Crown. This semicircle of stars is a wedding crown made by Hephaestus (the god of fire) and worn by a princess from the island of Crete when she married the god, Dionysus. Next in our line comes *Hercules*, the greatest of the heroes. The figure is depicted as a kneeling man. In our sky at this time of year, our hero is a bit upside-down. His torso is the keystone-shaped group of stars in the middle of the group and his legs are sticking up from it. Above Hercules is a constellation that we learned last month, *Lyra* the lyre. Lyra contains the bright star Vega, which forms one corner of the Summer Triangle. If you go outside with the diagram I've drawn here, remember that the sky is not two-dimensional like the drawing. To find Vega, you'll need to look almost straight overhead. This chain of constellations from Boötes to Lyra will arch backwards over you as you look upwards from the horizon. Combined with the star maps from the previous two *What's Up?* articles, you can trace the constellations that are now visible starting from the western horizon with Boötes, curving up and overhead to Lyra, and then down to the eastern horizon to Pisces. Good luck! For more detail on the stories behind these constellations, I recommend that you look at Ian Ridpath's *Star Tales* (www.ianridpath.com/startales/contents.htm). It's a great resource and the main one that I use for sky lore. As always, you can reach me at **astroblog@comcast.net** with any questions and comments you have. This is *What's Up?* Installment #30.



Until next time, Keep looking up! *Barry*