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Mountain Skies **September 4, 2017**

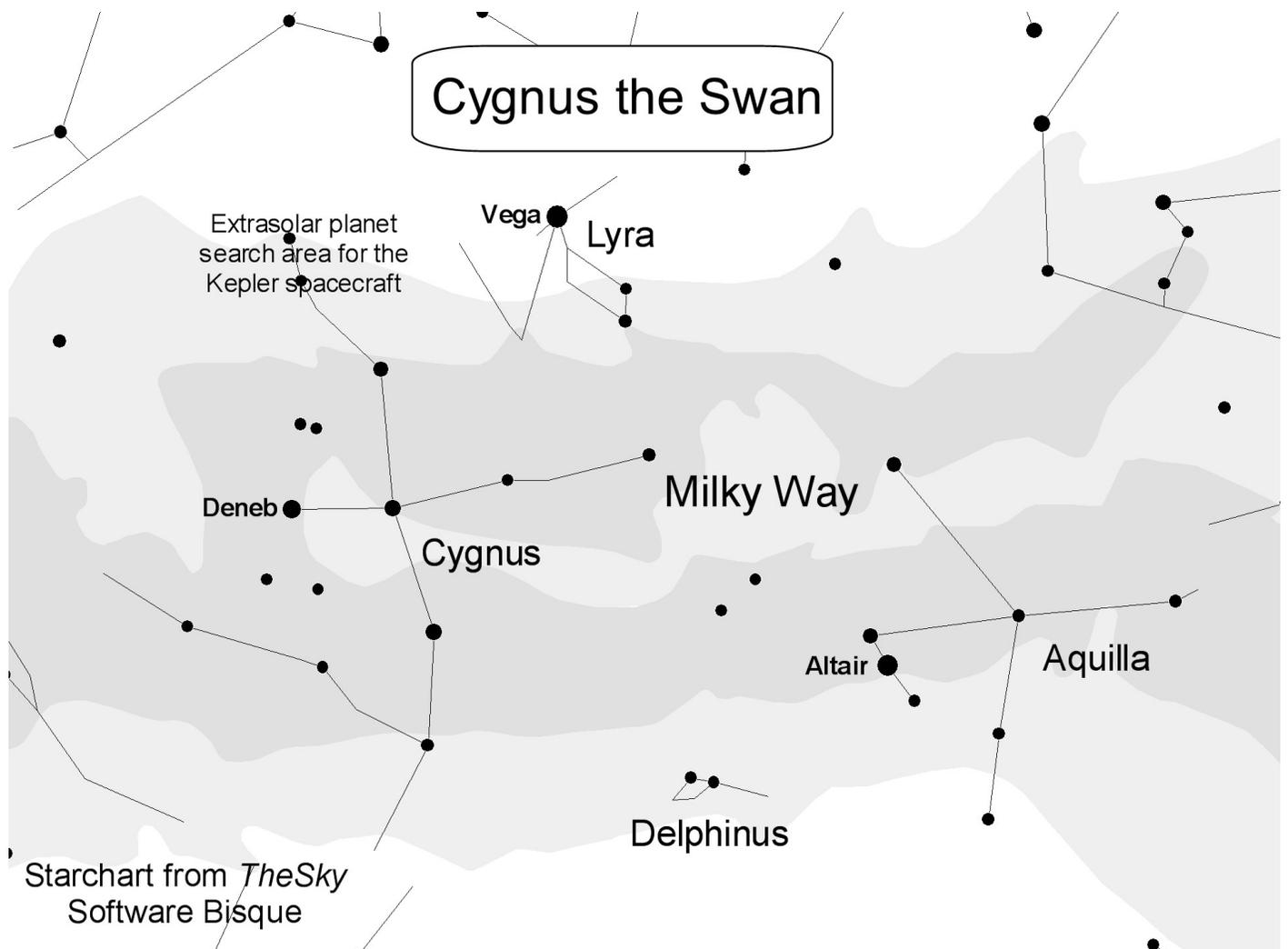
The planets: Well, the *Eclipse of a Lifetime* is history. No more observing the planets during the daytime . . . at least until the next total solar eclipse in Transylvania County on October 17, 2153. Actually, we really don't have to wait that long since Venus is so bright that it is possible under good conditions to spot it during daytime. Usually, that involves using the pointing system of a computerized telescope to locate it and then looking along the side of the telescope to spot a little speck of white in the blue sky. Try it sometime. In the meantime, Venus remains our "Morning Star" in the east before sunrise. Over the next few months the queen of the planets will gradually sink lower until it is lost in the evening twilight in late December. It then passes behind the sun in *superior conjunction* on January 9. By next week the planet Mercury will lie below Venus. Mercury will lie at its greatest *elongation* (18°) from the sun a week from tomorrow morning. Because of the configuration of the *ecliptic*, this is the best time this year to spot Mercury in the morning sky. This geometry also contributes to the visibility of a close *conjunction* of Mercury and Mars in morning twilight on the 16th.

Jupiter and Saturn are still in the evening sky but Jupiter is getting very low in the southwest. For months, we've been watching the king of the planets moving westward, i.e., *retrograde*, in front of the stars of Virgo the maiden. On June 11, it turned around and headed back eastward, i.e., *prograde*, and tomorrow it will pass just 3° above the bright star Spica. Saturn, in the meantime, is also moving westward in the evening sky and is now setting just before 1 a.m. EDT. That means the evenings of the beautiful rings viewed open to their maximum will be gone by Thanksgiving.

The stars: The summertime Milky Way is now high overhead just after sunset! While this beautiful veil in the sky may have been obvious to the casual observer in years gone by, nowadays it takes some planning and effort to enjoy it. However, all you really need is a dark night with a clear view of the sky; some of the overlooks on the Blue Ridge Parkway and the campus at PARI provide gorgeous views not only of the mountains during the day but also the stars at night. Start by looking a little to the west of due south. Here you will find our old friends Scorpius and Sagittarius. The center of our Milky Way is in the direction of Sagittarius and, for this reason, this area of the sky is rich in the nebulae and star clusters so popular with astronomers. If you have a pair of binoculars handy, lean back, perhaps in a lawn chair, and enjoy this rich area of the sky.

Now follow the band of the Milky Way upward until you are looking straight overhead. Notice a pattern of six stars that looks like a large cross in the sky. While some people call this pattern *The Northern Cross*, it is officially the constellation of *Cygnus the swan*. In Greek mythology Cygnus was the friend of Phaeton, the son of Helios, god of the Sun. Helios had the job of driving the sun chariot, pulled by four spirited horses, across the sky each day. One day, Phaeton "borrowed" his father's chariot and tried to drive it himself. But he could

not control the horses and soon fell out of the chariot landing in the river Eridanus. Cygnus saw this and time and again dove into the river until he had recovered the mortal remains of his friend. Jupiter rewarded this act of friendship and loyalty by turning Cygnus into a beautiful swan and placing him in the sky. We find Cygnus with his tail and long neck stretching along the Milky Way which represents the river Eridanus. By the way, it is in a small select section of this area of the sky that the Kepler satellite started its search for extrasolar (not in our solar system) planets. As of August 26, Kepler had discovered 5017 planet candidates and 2494 confirmed extrasolar planets. (Visit NASA's site <https://www.nasa.gov/kepler/discoveries> for the latest numbers.)



Celestial Calendar:

September 6, 3:03 a.m. EDT – Full Moon

September 13, 2:25 a.m. EDT – Last Quarter Moon

September 16 -The Sun, in its apparent path around the sky, moves from Leo the lion into Virgo the maiden. Virgo personifies Ceres the ancient goddess of the harvest and we derive our English word “cereal” from her ancient name. Virgo is the longest of the zodiac constellations; thus, the Sun will remain in front of the stars of Virgo all the way until October 31.

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PARI is a public not-for-profit public organization established in 1998. Located in the Pisgah National Forest southwest of Asheville, NC, PARI offers STEM educational programs at all levels, from K-12 through post-graduate research. For more information about PARI and its programs, visit www.pari.edu.

For further information or questions about this *Mountain Skies* column, contact Dr. Bob Hayward at rbhayward@pari.edu. Graphics produced with *TheSky* Astronomical Software, Software Bisque.