Try taking a color tour of the nighttime sky

SKY WATCH

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This past August's Perseid meteor shower was not a major disappointment for everyone: Area Skywatcher Dori Davenport called to report that the display she observed was quite impressive. She was watching from a location 90 miles west of Dallas (as in Texas), and although she saw only 10 to 12 meteors per hour (50 are normally expected), many of them left glowing tails (known as "trains") across the sky. In addition, different colors were visible as the meteors vaporized. Now that's a sky show!

In the ancient Roman calendar, October was the eighth month of the year, hence the prefix "octo." Julius Caesar's calendar reform resulted in October becoming the 10th month, but the prefix was not changed because there already was a December with which to contend, and one December in a year is more than enough!

There will be very slim pickings among the planets in October; only Venus and Saturn will be visible, the former in the predawn sky, and the latter after sunset. Mercury, Mars and Jupiter will be too close to the sun to be seen easily.

There is one thing upon which we can depend every October: when it comes to the colors of our autumn foliage, this month is never a disappointment. Just as there are a variety of colors in the leaves, there is a great variety of color in the sky, and this month is a great time to take a celestial color tour.

Consider the color of the sky itself. The sky is not blue, nor, contrary to what your eyes tell you at dawn and dusk, is it red. Depending on how sunlight is scattered by our atmosphere, the sky just "appears" to take on different colors. Were it not for the atmosphere scattering sunlight, the sky would be black.

If you face due east about 30 minutes before sunrise this month, you will see an extremely bright "star." This will be Venus, the brightest planet in the sky. There will be a fairly bright star above and to the right of Venus; this is Regulus, and it represents the "heart" of Leo the lion. As the month progresses, Regulus will climb higher in the morning sky, and Venus will get lower as it approaches the sun. This will result in the apparent distance between Venus and Regulus nearly quadrupling. (An extremely rare event occurred more than a generation ago when Venus occulted (covered) Regulus on July 7, 1959.)

This is a good place to begin our color tour of the sky. The best way to compare the color differences between Venus and Regulus will be with binoculars; adjust the binoculars so they are slightly out of focus. This will spread out the light and make their color more apparent. Venus is bright because its thick atmosphere reflects the light of the sun, so that planet's color appears much the same as sunlight.

Regulus, however, is a star, so it produces its own light. The color of the light tells us something about the star: a blue- white star, like Regulus, is young (as far as stellar ages go) and very hot; the surface temperature of Regulus is about 13,000 degrees Kelvin. (The sun's surface temperature is a mere 5,800 degrees Kelvin.) Regulus is 160 times more luminous than the sun and five times larger, but it's only the 21st brightest star in the sky. It doesn't look very impressive because is about 85 light-years away from us. (The light we see this morning left Regulus in 1908.)

Face the southwest around 6:45 a.m. on Oct. 5 and find the moon. It will be located between the Pleiades (PLEE a dees) star cluster and Aldebaran (al DEB a ran). The Pleiades, to the right of the moon, looks like a tiny dipper and represents the "shoulder" of Taurus the bull. Aldebaran, located to the left of the moon, is the bull's "eye."

Aldebaran is a star like Regulus, but that's where the similarity ends. Even without using out-of-focus binoculars, Aldebaran's red color is very obvious. Red stars are ancient and fairly cool (by stellar standards). Aldebaran's surface temperature is around 3,400 degrees Kelvin. That's much cooler than the sun, but Aldebaran is still 125 times more luminous. The brightness is due to Aldebaran's size; it is a giant star, 40 times the diameter of the sun. Aldebaran, the 13 brightest star, is about 68 light-years away.

The moon will drift through the stars of Taurus and, on the morning of the 7th, be located above the "club" of Orion (oh RYE an) the hunter. Drop a line from the moon to the southern horizon and you'll go right past another bright orange-red star. The star is named Betelgeuse ("Beetlejuice"), and its name means "armpit of the giant;" a rather unromantic name for one of the largest stars in the sky! (The name refers to Orion's right arm pi . . . er, shoulder.)

Betelgeuse is the 11th brightest star in the sky and is around 520 light-years away. It is 14,000 times more luminous than the sun and about 920 times larger. (If placed where the sun is, the outer layers of this supergiant star would extend as far as the orbit of Jupiter!)