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The Delights of the Winter Sky

It comes as a surprise to many people, including many naturalists, that the night sky changes dramatically from one season to the next. Like hummingbirds migrating south in September or trilliums blooming in May, the various stars and constellations come and go according to the time of year. Because each season has its representative constellations, knowing them adds a great deal to our “sense of season” and hence, our enjoyment of nature. For example, I always associate the spring peeper chorus of a late April evening with Orion looming low in the western sky.

Winter is a wonderful time to start learning the night sky. There are lots of bright stars and easy-to-recognize constellations. It gets dark early, too, which means even young children can participate. The only equipment you really need is a star chart and flashlight. Because it's best to dim down the glare of the light - a coating of red nail polish works well -, you may wish to buy an inexpensive penlight for this purpose. The red coating will help your eyes stay properly attuned to the darkness. Binoculars, too, can be helpful. Any size will do, as long as you are able to focus them properly and can hold them steady. I usually lean against a tree or prop up my elbows on the roof of the car. If you want to make yourself really comfortable, you might even wish to stretch out on a reclining lawn chair.

The starting point to discovering the winter sky is Orion. With more bright stars than any other constellation, Orion is both conspicuous and easy to remember. It is one constellation that actually looks like its namesake. Towering over the southern horizon throughout the winter months, its shape does indeed resemble the famous hunter of Greek mythology. The two pairs of stars representing the shoulders and knees are particularly easy to see. Betelgeuse, which forms the left shoulder, is a reddish supergiant, 800 times the diameter of the sun. In fact, it is one of the largest stars known. The star's name is a distortion of the Arabic word for “Armpit of the Central One.” The lower right corner, representing the hunter's right knee, is occupied by Rigel, a magnificent bluish-white star 50,000 times as luminous as our sun. It is interesting to note that Rigel was an occasional destination of the starship Enterprise in the television series “Star Trek.”

The most fascinating aspect of this huge constellation, however, is the Orion Nebula, the brightest of all the nebulae in the night sky. To see it, you must first of all find the diagonal line of three stars forming Orion's belt. Then, look for a string of faint stars below the belt that represent Orion's sword. In the middle of the sword, you will notice a fuzzy patch. This is the Nebula. Its indistinct, cloud-like appearance is visible through binoculars but becomes spectacular in even a small telescope. On a dark, clear night, a scope will allow you to see “bays and rifts” of stellar material, intertwining themselves around four stars. Parts of this greenish cloud of gas and dust are actually contracting to form new stars. In fact, nebulae are often referred to as star nurseries. The Orion Nebulae is about 26 light years across and is located about 1,500 light years from Earth.

Orion's belt also serves as a reference point to other nearby constellations. To the right, it points to the reddish star Aldebaran, located in the constellation Taurus, the Bull. If you continue a short distance past Aldebaran, you will find a beautiful cluster of stars known as the Pleiades, or Seven Sisters. Viewed from the city, at least six stars are visible to the naked eye. Many more can be seen through binoculars. The stars form a pattern quite similar to the Little Dipper. Like many stars and constellations, the Pleiades were of special significance to different cultures all over the world. For instance, people used the presence or absence of the Pleiades in the night sky as a

seasonal marker, signaling the time to plant or harvest.

Following Orion's belt to the left, it points to Sirius, the Dog Star. Sirius is the brightest star in the night sky and the principal star of the constellation Canis Major, the Great Dog. The legs, back and tail of the dog are all easy to imagine, although the head is a bit more problematic. In early August, Sirius rises in the southeast just before the sun. Because the star is so bright and its appearance often coincides with the hottest weather of the summer, this period became known as the "Dog Days" of summer.

Continuing the journey with Orion as our guide, imagine a line running from the right-hand end of the belt, through Betelgeuse, and carrying on to a pair of bright stars, situated almost above your head. These are Pollux (on the left) and Castor, the brightest stars of the constellation Gemini, the Twins. They mark the twin's heads. Gemini, of course, is part of the zodiac. Between Gemini and Sirius lies another bright star, Procyon. It is the alpha star of Canis Minor, the Little Dog. It takes a great deal of imagination to see a dog here!

The presence of a planet adds additional interest to this section of the winter sky this year. Just below Pollux, you will see a bright object that doesn't twinkle as stars do. This is Saturn, the famous planet of rings. According to John Crossen of the Buckhorn Observatory, any astronomer will tell you that the most stirring view to be had through a telescope is Saturn and its magnificent rings. The rings are visible through a scope of 50 power and above. They are composed of trillions of pieces of ice of varying sizes. Some are as large as boulders while others are comparable to ice fog. Because Saturn's orbit around the sun is so long (about 30 Earth years!), it will remain visible in the Gemini constellation until the middle of 2005.

Titan, the largest of Saturn's 33 moons, is in the news these days. The Huygens probe reached the surface of Titan in mid-January after being launched from the Cassini spacecraft. The first pictures taken show what appear to be drainage channels and a plain strewn with large boulders of ice. The data also confirms that it actually rains methane on Titan.

So, take some time to start familiarizing yourself with the winter sky. Before long, Orion and its neighboring constellations will become as much a part of winter nature as chickadees at the feeder and snow-covered conifers. If you want to learn more about astronomy and get out to see the night sky through a large telescope, contact John Crossen at the Buckhorn Observatory at 657-7718. You can also contact him by email at www.buckhornobservatory.com

What to watch for this week:

Mating time has arrived for gray squirrels. Watch for them streaming by in noisy treetop chases. Typically, one or more males can be seen hot on the pursuit of a terrified female. Usually, the dominant male in the neighbourhood mates with the female. The pair then separates with the female having the full responsibility for raising the young.

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