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LIVING

The north sky

As with nearly every other aspect of nature, the night sky changes over the course of the four seasons. Each different time of year, therefore, has its representative constellations. Knowing their comings and goings adds a great deal to our enjoyment of nature, especially in winter, when changes in the natural world are fewer.



OUR CHANGING SEASONS

Drew Monkman

As a first step to learning the stars, the winter season provides an excellent opportunity to become familiar with the north sky and the so-called circumpolar constellations. As their name suggests, these constellations appear to circle around the North Star, Polaris. Polaris is located almost exactly at the pole of the sky. These constellations are unique in that they are above the horizon and visible all year long. All of the other constellations disappear below the horizon

for part of the year. For example, there is no use looking for Orion in July or Leo in November. However, like other constellations, the position of the circumpolar constellations in the north sky changes, depending on the time of night and the season.

Because it so easy to see, the first star pattern that most people learn to identify is the Big Dipper, a part of Ursa Major. Technically speaking, the Big Dipper is not a constellation, but rather an asterism. An asterism is a noticeable pattern of stars within a constellation. Right now, the Big Dipper is standing vertically in the sky "on its handle," just above the northern horizon. However, the Little Dipper, an asterism in Ursa Minor, is more difficult to distinguish. This is especially true in urban areas where city lights almost wash out most of its stars. Fortunately, Polaris, located at the end of the Little Dipper's handle, is a little brighter than the others. By using the Big Dipper as a starting point, Polaris can be easily located.

Begin with Dubhe, the highest star in the Big Dipper and the one marking the upper left hand corner of the bowl. Dubhe, along with Merak, the star below and to the right, are called the Pointer Stars, because they always point to Polaris. Starting at Merak in the upper right corner, imagine a line connecting to Dubhe. Now, project the length of this line about five times and you will arrive at Polaris. There are no other bright stars in between or even near Polaris. Remember, however, that despite its notoriety, Polaris is not a particularly bright star. It is only about as bright as the stars of the Big Dipper. Having found Polaris, you should be able to make out the rest of the Little Dipper. You should also be able to imagine the Dippers "pouring" their contents into one another. The technique of using the Pointers works at any time of the night and at any season of the year.

Although Polaris is not particularly bright, it is unique. When you are facing Polaris, you are facing almost due north. South is therefore directly behind you, east is to your right and west is to your left. At our latitude, Polaris is also approximately halfway up the sky. It appears to be stationary, no matter what the time of night or the season.

The other well known circumpolar constellation is Cassiopeia, the Queen. Its five bright stars form an easy-to-remember "M" or "W" shape, depending on when you observe it. To find Cassiopeia, simply keep the line from the Pointer stars to Polaris going until it passes just below a large "M" sitting on its side. Cassiopeia is about the same distance from Polaris as is the Big Dip-



Rick Stankiewicz, special to The Examiner

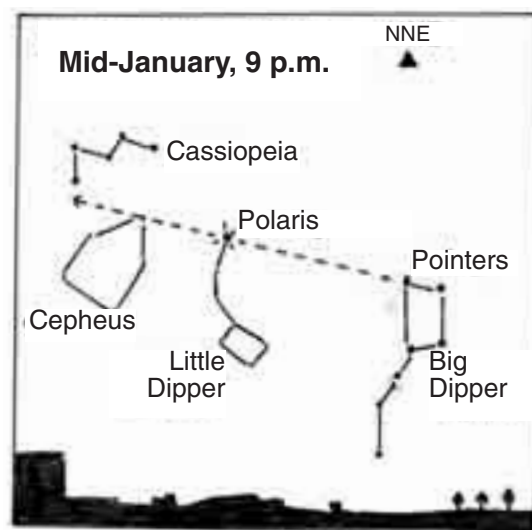
In this time-exposure of the north sky, Polaris (star in middle) appears stationary, while the other stars seem to circle around it.

per. Directly below Cassiopeia at this time of year, you can see a somewhat dim constellation called Cepheus. Its stars form a crude square with a triangle resting on the square. This vaguely suggests a crown.

Half the fun of star gazing is learning the various factual stories and legends associated with the night sky. In native American cultural lore, the bowl of the Big Dipper is a giant bear and the three stars in the handle are hunters in pursuit. Because this asterism is low in the sky in the autumn, it was said that the hunters had injured the bear and that its blood caused the leaves to turn red.

The Big Dipper also has special significance in American history. During the time prior to the Civil War, it played a key role in helping slaves escape to the north along the Underground Railway. There were songs spread among the slave population which made reference to the Drinking Gourd, another name for the Dipper. The songs said that by following the Gourd a better life awaited. This veiled message to follow the Big Dipper to freedom in the North was spread through song, since most slaves were illiterate.

One of the most beautiful legends associated with the Little Dipper has to do with a group of hunters who got lost in the forest. They prayed to the spirits to send them help to find their way home. Their prayers were answered because, a short time later, a small girl appeared who said she was the spirit of North Star. She told them to follow



Drew Monkman sketch

her, and they soon found their way home. When the hunters died, they were transported into the night sky, where they now form the stars of the Little Dipper, and forever follow Polaris.

Many Native American cultures gave Polaris itself special significance. For some, it was called the Home Star, and was seen as being located in the middle of the Campfire of the North, presumably the Little Dipper and other nearby stars. They called Polaris the Home Star because it never moves, and therefore acts as a guide to trav-

ellers. On either side of the Home Star were Revolving Man (Big Dipper) and Revolving Woman (Cassiopeia). The Navajo also called these groups of stars First Man and First Woman, since they were located on either side of the Campfire. They never leave this area of the sky, spending the entire year circling Polaris. No other constellation interferes with their routine. For the Navajo, the arrangement of First Man, First Woman and Campfire of the North established a law that still exists today, namely that only one couple may live by one home fire.

When you feel comfortable sorting out the stars and constellations of the north sky, be sure to turn your attention 180 degrees to the south, where the Winter Six are putting on the most spectacular star show of the year right now. With the help of a good star chart, look for Orion, Taurus, Gemini, Auriga, Canis Major and Canis Minor.

What to watch for this week

Over the next couple of weeks, we will start to become aware of the lengthening days. Most of the daylight is gained at the end of the day in January rather than in the morning. By month's end, sunset is a full 45 minutes later than at the winter solstice on Dec. 21.

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