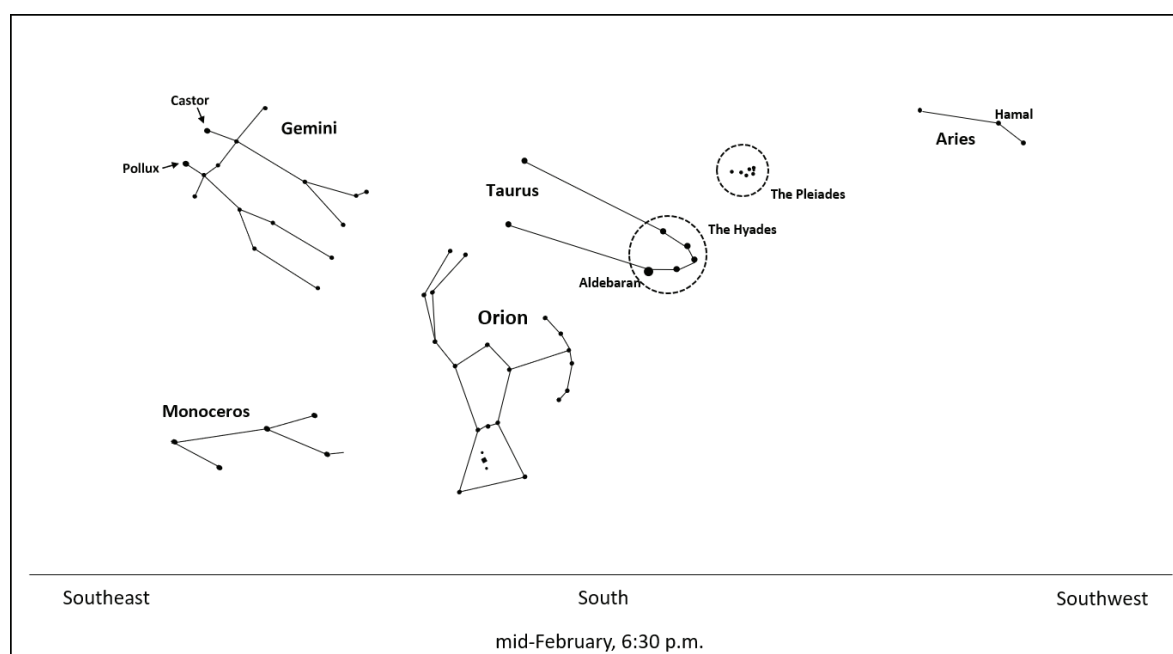


WHAT'S UP?

Hello. I KNOW it's cold out, but I hope you have put on your coat and gone outside for even a short while to wonder under some of these spectacularly clear winter nights. Orion and his entourage now start out the night in the southern sky. Have you seen them? Have you looked for that hazy patch in the middle of Orion's sword and marveled at the glowing gasses lit by the energy from newly-formed stars? If so, you have experienced one of the many sights that has kept me wrapped up in this hobby for so many years.

Again, using Orion as our starting point, let's expand out a bit and look at other nearby constellations. Last time, when I wrote about the hunting dogs Canis Major and Canis Minor, I skipped over the constellation that lies between them. *Monoceros*, the Unicorn, is comprised of relatively dim stars (the brightest is only a 4th magnitude star). In Western culture, it was first named and identified as Monoceros by Petrus Plancius, a Dutch cartographer, in the early 17th century. In ancient Greek astronomy, this area was not associated with a constellation. A much older (13th century) reference to four of the stars in Monoceros exists in a stone engraving in the Wen Miao Temple near Soochow, Kiangsu, China.¹ Part of the Red Bird, these four stars represent the four sources of the water, or the four great rivers – Yangtze, Yellow, Huai, and Si. Two other stars of Monoceros formed *Queqiu*, the gateway to the palace.² Moving to more familiar constellations, just above Orion we can find the first three signs of the Zodiac. From west to east (right to left) are *Aries* the Ram, *Taurus* the Bull and *Gemini* the Twins.

Aries is considered to be the first sign of the Zodiac because, when the Greeks were codifying the names and positions of astronomical objects, the position of the Vernal Equinox (the point in the sky where the Sun crosses the celestial equator on its northward journey through the stars) was in Aries. This is no longer so. The Vernal Equinox is now located in the constellation *Pisces* the Fish. Why it has moved will be the subject of a future article. In a story similar to Abraham bringing his son to be sacrificed, King Athamas was told that his son, Phrixus must be sacrificed to save the wheat harvest. Just in the nick of time the king's wife, Nephele, sent a winged ram with a golden fleece down from the sky. Phrixus climbed on the ram's back and escaped. In our sky, we can pick out Aries as a slightly bent line of three stars. The brightest of the three is the middle star, *Hamal* (Arabic for "lamb").



To the east of Aries is the next sign of the Zodiac, Taurus. One day Europa, daughter of the King of Phoenicia, saw a majestic white bull grazing near her father's herd. The bull was actually Zeus in disguise, trying to win Europa's affections. After allowing her to climb on its back, the Bull swam across the Mediterranean Sea, taking Europa all the way to the island of Crete.³ Only the front half of the bull is depicted in the sky. The face of the bull is formed by a V-shaped star cluster called the *Hyades*. The Hyades cluster consists of hundreds of stars that are about 150 lightyears away. Among this cluster of stars is the brightest star in Taurus – *Aldebaran*. Aldebaran marks the bull's eye and is a red giant star. It is not part of the Hyades cluster. It just happens to be along our line of sight to the Hyades. Aldebaran is only 65 lightyears away. *Pioneer 10*, a planetary probe launched from Earth in 1972, is heading in Aldebaran's direction and should be passing near it in two million years or so. Mark your calendars! To the northeast of the Hyades we can find another star cluster, the *Pleiades*. The Pleiades represent (in western culture) the Seven Sisters. These are all daughters of the god Atlas. This group of one hundred or so stars is about 440 lightyears away from us.

To the east of the Bull are the Twins, *Gemini*. Gemini represents the twins Castor and Pollux. Whether one or both of the twins were sons of Zeus (apparently, the identity of their father was a bit hazy), they grew up as best of friends. One was a famed horseman (Castor) and the other a champion boxer (Pollux). Together, they joined Jason's crew of Argonauts in search of the golden fleece (this was after Aries was done wearing it!). The constellation consists of two lines of stars running southwestward from the two brightest stars, which are named after the twins. Do try to go out and find these constellations. Recognizing patterns in the night sky as we cycle through the year will bring you a bit closer to the universe we live in.

You can reach me at astroblog@comcast.net with any questions and comments you have. This is What's Up? Installment #39.

¹ T'ien-wên, t., et al. (1945). *The Soochow astronomical chart*. Ann Arbor, Univ. of Michigan Press.; ² Ridpath, I. (2018). *Star tales*. Cambridge, The Lutterworth Press.; ³ Smith, B. (2021). *SSAstros Winter Constellations*.

Until next time, Keep looking up!

Barry