NATIONAL CATHOLIC REPORTER
Published on *National Catholic Reporter* (http://ncronline.org)

January's night skies

Rich Heffern | Jan. 21, 2011 Eco Catholic

The planet Jupiter is visible in the southwest this month. It is well worth observing with a telescope, as Jupiter has lost its South Equatorial Belt but it now appears to be returning. At the same time, the Great Red Spot has intensified its color so is now standing out. A small telescope or good binoculars will easily pick up Jupiter's four Galilean moons as they weave their way around it.

The brilliant constellation of Orion is seen in the Southeast. I can even see it through bright city light glare rising in the East over my neighborhood at about 8pm. Moving up and to the right - following the line of the three stars of Orion's belt - brings one to Taurus; the head of the bull being outlined by the V-shaped cluster called the Hyades with its eye delineated by the orange red star Aldebaran. Further up to the right lies the Pleaides Cluster. Towards the zenith from Taurus lies the constellation Auriga, whose brightest star Capella will be nearly overhead.

To the upper left of Orion lie the heavenly twins, or Gemini , their heads indicated by the two bright stars Castor and Pollux. Down to the lower left of Orion lies the brightest star in the northern sky, Sirius, in the consteallation Canis Major.

Taurus is one of the most beautiful constellations and you can almost imagine the Bull charging down to the left towards Orion. His face is delineated by the "V" shaped cluster of stars called the Hyades, his eye is the red giant star Aldebaran and the tips of his horns are shown by the stars beta and zeta Tauri. Although Aldebaran appears to lie amongst the stars of the Hyades cluster it is, in fact, less than half their distance lying 68 light years away from us. It is around 40 times the diameter of our Sun and 100 times as bright.

To the upper right of Taurus lies the open star cluster, the Pleiades. Often called the Seven Sisters, it is one of the brightest and closest open star clusters. The Pleiades cluster lies at a distance of 400 light years and contains over 3000 stars. The cluster, which is about 13 light years across, is moving towards the star Betelgeuse in Orion. Surrounding the brightest stars are seen blue reflection nebulae caused by reflected light from many small carbon grains. These relfection nebulae look blue as the dust grains scatter blue light more efficiently than red. The grains form part of a molecular cloud through which the cluster is currently passing. (Or, to be more precise, did 400 years ago!)

Orion is the hunter holding up a club and shield against the charge of Taurus, the Bull up and to his right. One

of Orion's main stars, Betelgeuse, is a red supergiant star varying in size between three and four hundred times that of our Sun. The result is that its brightness varies somewhat. Another of Orion's main stars Rigel, a blue supergiant which, at around 1000 light years distance is about twice as far away as Betelgeuse. It has a 7th magnitude companion. The three stars of Orion's belt lie at a distance of around 1500 light years.

Beneath the central star of the belt lies Orion's sword containing one of the most beautiful sights in the heavens - The Orion Nebula. It is a region of star formation and the reddish color seen in photographs comes from hydrogen excited by ultraviolet emitted from the very hot young stars that make up what is called the Trapesium which is at its heart. The nebula, cradling the trapesium stars, is a beautiful sight in binoculars or, better still, a telescope. To the eye it appears greenish, not red, as the eye is much more sensitive to the green light emitted by ionized oxygen than the reddish glow from the hydrogen atoms.

Source URL (retrieved on *05/01/2016 - 05:59*): http://ncronline.org/blogs/eco-catholic/januarys-night-skies