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Amateur astronomer debuts new DN feature

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The Horsehead Nebula is a birthplace of stars some 1,400 light years from Earth.

Dr. Carlos Rotellar

When we go out at night and look at the sky, we see both darkness and thousands of small dots we call stars; but the night sky is full of wonders that we cannot see with the naked eye.

Every third Sunday of the month, we will present an image of the universe as we observe our galaxy and beyond.

This month we present the Horsehead (Barnard 33) and Flame Nebula (NGC 2024).

A nebula (Latin word for cloud) is a giant cloud of dust and gas, mostly hydrogen and helium. They are located in interstellar space, which is the space between the stars. Nebulae are formed when interstellar medium collapses by gravity, creating areas of more density. Eventually, some of those clouds form stars and the radiation from those stars makes the gases around them visible. Astronomical objects have both nicknames and catalogue numbers.

The iconic Horsehead Nebula was first recorded in 1888 by astronomer Williamina Fleming. In 1913, E.E. Barnard described this object in more detail and was able to photograph it showing the shape of a horse head. It is located next to the star Alnitak, which is the easternmost star of the Orion (Hunter) belt in the Orion constellation.

The bright red color seen in the image is a giant cloud of ionized hydrogen illuminated from the inside by young hot stars. In front of this red area, we can see the silhouette of a horse head caused by a thick cloud of dust blocking the light behind it. The horse head is classified as a dark nebula. This nebula is found 1,400 light years away.

The Flaming Nebula seen on the left corner of the image was discovered in the late 1900's by William Herschel. It is classified as an emission nebula, which means it is forming new stars. The cluster of young stars in the center emits high levels of radiation that illuminate the gas around. It has been nickname "Orion's Fireplace."

If we wanted to visit this nebula, it would take us 1,400 years to reach it traveling at the speed of light, which is 186,000 miles/second. Therefore this also means that this image is 1,400 years old!

– Dr. Carlos Rotellar is a Bowling Green nephrologist who has had an interest in astrophotography and has been taking images of the universe from his driveway for several years. Website: Skyastrophotos.com