

Reflector

Published by the Astronomical League

Vol. 70, No. 3

June 2018



Astronomy Day in the Rocket City

Tallahassee Astronomical Society

Flying High in the Night Sky

Adventures of a Starlight Detective

Deep-Sky Objects

The Eagle Nebula

By James R. Dire

Kauai Educational Association for
Science and Astronomy

The Eagle Nebula (M16 or IC 4703) is perhaps the best deep-space object located in the constellation Serpens. The nebula is located approximately 15 degrees north of the Teapot asterism in Sagittarius and 2.5 degrees north of the Swan Nebula (M17). Both M16 and M17 are located near the boundaries of the constellations Sagittarius, Scutum, and Serpens. Both also lie on the west edge of the summer Milky Way. There are no bright stars in the vicinity of M16. However, the 4th magnitude optical double star Gamma Scuti forms an equilateral triangle with M16 and M17. Star-hopping to M16 can be accomplished starting at Altair. Follow a line through Delta Aquilae and Lambda Aquilae to Gamma Scuti and then jump 2.5 degrees west to M16.

The Swiss astronomer Philippe Loys de Chéseaux recorded seeing M16 in the year 1746. He is thought to be the first astronomer to have found the object. Charles Messier recorded it in June 1764. He described it as a small cluster enmeshed in a "faint light." Edward Emerson Barnard gets credit for being the first to photograph the nebula, in 1895 from the Yerkes Observatory.

The Eagle Nebula gets its name from the eagle shape of the nebula. Although it's not known who first used the name, Robert Burnham Jr. called it the Star Queen Nebula. The nebula is roughly 35 by 28 arcminutes in size and can be seen in small telescopes. Through an 8-inch telescope, the nebula is an impressive object and its namesake eagle shape becomes apparent.

The Eagle Nebula is a massive star-forming region. Embedded within the nebula is the open star cluster NGC 6611. With an overall magnitude of 6.4 and a diameter of 7 arcminutes, NGC 6611 contains scores of stars brighter than 12th magnitude. Most of the brighter stars are hot, massive O and B stars that are blue to white in color. The brightest star is SAO 106303, which shines at magnitude 8.24. The star cluster, like the Eagle Nebula, is approximately 7,000 light-years away.

My image of M16 was taken with a William Optics Fluorostar 132 mm f/7 refractor using a 0.8x focal reducer/field flattener. The effective focal length was 740



mm at f/5.6 and the exposure was two hours. In the image, north is up and east is to the left. The red color in the nebula comes from hydrogen gas emissions at 656.3 nm. Although the camera picks up the color, our eyes only see gray tones through a telescope.

In the center of the image lies a trio of huge clouds dubbed the Pillars of Creation after the famous Hubble Space Telescope image of that region. These trunks of interstellar gas and dust appear in silhouette against the brighter emission nebulae surrounding them. The gas and dust are in the process of creating new stars.

M16's star cluster NGC 6611 lies chiefly in the northwest portion of the nebula, or to the upper right of the center on the accompanying image. The southernmost of the two brightest stars near the center of

the cluster is the aforementioned SAO 161303. The other star in the pair is magnitude 8.75 SAO 161302, the second brightest star in NGC 6611. These stars are easily resolved in 7x50 binoculars under dark, steady skies.

The brightest star in the image, near the top center, is a magnitude 8.00 star of spectral classification K. Near the bottom center of the nebula is the second brightest star in the image, a magnitude 8.23 yellow star; a white star to the east (left) of it shines at magnitude 8.25. These three stars are foreground objects not associated with M16 or NGC 6611.

The Eagle Nebula is a splendid summer Milky Way object to explore in any sized telescope. Its emission nebulae, dark nebulae, and myriad stars provide fascinating variety for deep-space exploration. ☼

