The Observer's Challenge Objects

Submitted by Larry McHenry, Pittsburgh, PA.

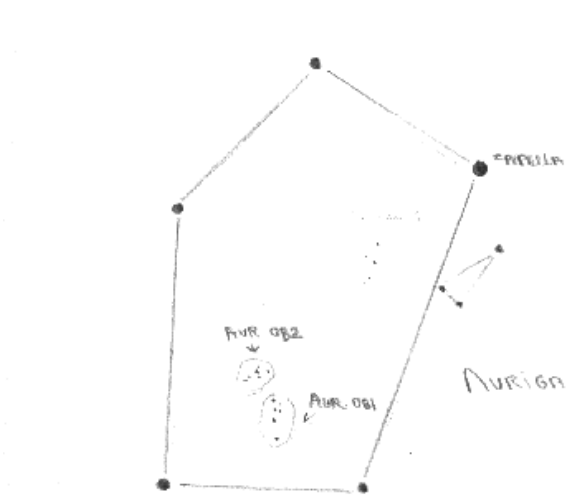
February: NGC 1893 & IC 410 – Cluster & Refection Nebula – **Auriga**; Mag. V= 7.5; Size 25'
RA: 05h 23m Dec. +33° 25'

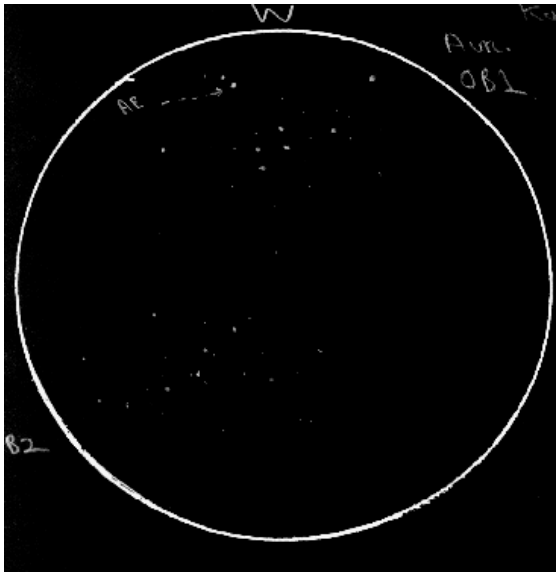
NGC1893/IC410 is located in the winter constellation of Auriga - 'The Charioteer'.
This 7.5 magnitude deep-sky object is a moderate-rich open star cluster embedded within a faint ionized HII emission nebula making up the core of the **Auriga OB1 & OB2** associations. An OB association is a large, very loose form of an open star cluster consisting of young spectral type "O" and "B" stars. They cover large volumes of space, are loosely held together by gravity and have short lifetimes (a few million years) as a distinct object. While OB associations are considered a separate Deep-Sky category from open clusters, both types can be found together, with an open cluster forming the core region of a larger OB association. In time, the outlying OB association will drift apart, merging with the other field stars in the region, leaving the more gravitationally bound open cluster as a still observable object. Visually, OB associations are great binocular and rich-field telescope objects. In addition to the below entry for this month's challenge object, you can find more finder charts and sketches on my webpage: http://www.stellar-journeys.org/OB-Tour.htm

Within Auriga OB2, the star cluster **NGC1893**, also cataloged as Collinder-63 and Melotte-33, contains a visually elongated mix of around two dozen medium-brightness stars and another several dozen fainter stars, with many more visible in images. It is about 12,400 light years distant with a diameter of around 70 Ly, and around 3 million years old.

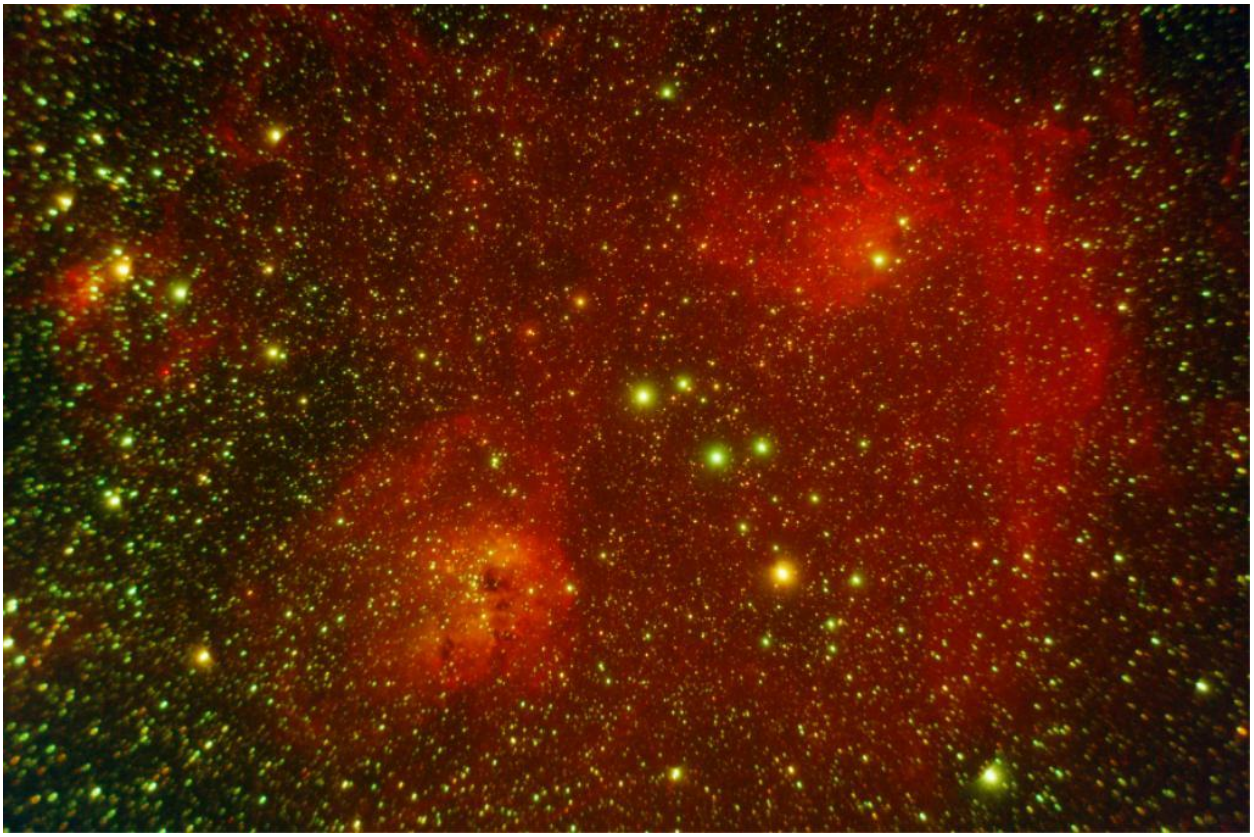
The nebula, **IC410**, (also cataloged as SH2-236), nicknamed the "Tadpole" covers around 100 light-years in diameter. It is faint visually, though enhanced by UHC filters, but prominent in narrowband imaging. The two bright cometary nebula globules that give IC410 its name, located to the north of the cluster center, are Simeis-129 and 130 (the brighter of the two). Both are about 10 Ly in length with their shapes eroded from the main nebula by stellar winds and radiation from the nearby young star cluster.

Visual Finder / Sketch: Auriga OB1 & OB2: 01/23/1990 - 80mm f3 Refractor & 32mm eyepiece, (10x)

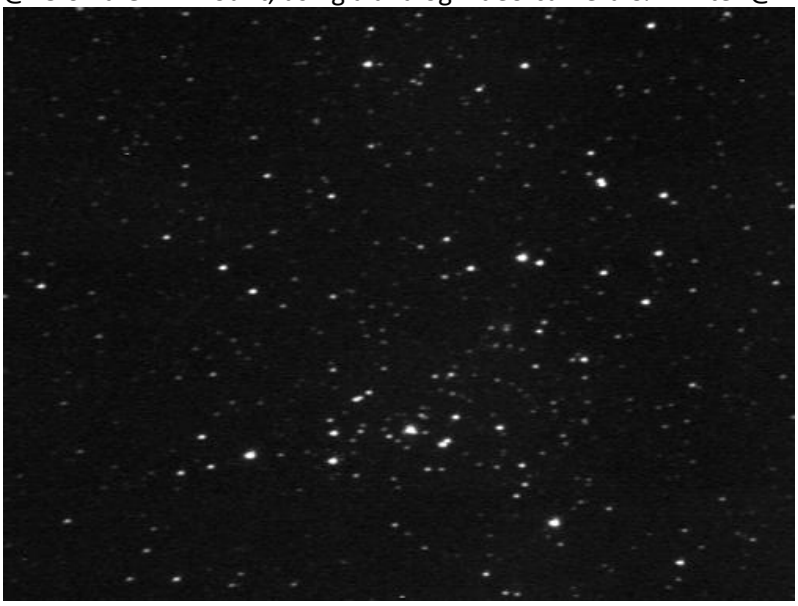




Wide-field Image: Auriga OB1 & OB2: (including IC405 “Flaming Star Nebula” to the upper right, and **NGC 1893 & IC410** “Tadpole Nebula” left of center)
11/12/2020 from the ORAS Observatory near Clarion, PA.
Using a 60mm f4 Refractor piggybacked on a 14” SCT mount, with a CMOS/USB color camera and Ha/OIII/H-beta narrowband filter @ 60-second guided exposure livestacked for 30 minutes.



Video-Capture: ***NGC1893***
09/05/2013 from Cherry Springs State Park, Pa. at the Black Forest Star Party, using a 6" RC optical tube @ f5 on a GEM mount, using a analog video-camera & IR filter @ 15 seconds, unguided single exposure.



Visual Screen Sketch: ***NGC1893/IC410*** 01/09/2021 - 8" SCT f6.3 GEM mount, CMOS/USB color camera & Ha/OIII/H-beta narrowband filter, 60 second exposure. Open cluster and emission nebula.

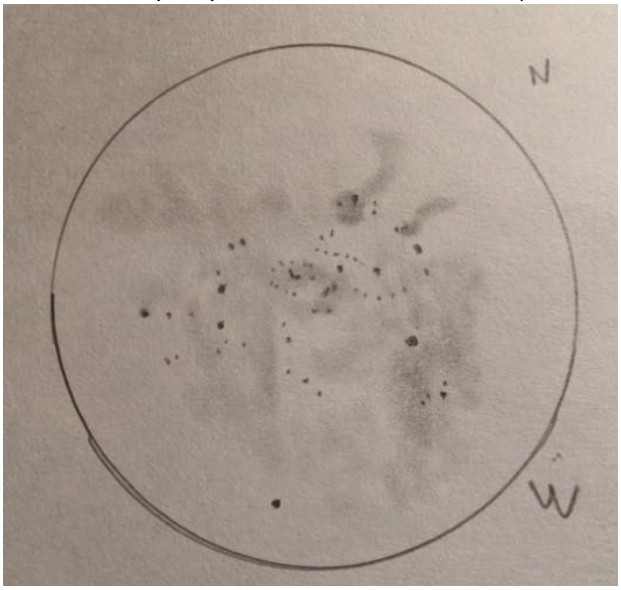


Image: ***NGC1893/IC410***

01/09/2021 from Big Woodchuck Observatory backyard in Pittsburgh, PA.
Using a 8" SCT optical tube @ f6.3 on a GEM mount, with a CMOS/USB color camera and Ha/OIII/H-beta narrowband filter @ 60-second guided exposure livestacked for 30 minutes