MONTHLY OBSERVER'S CHALLENGE

Las Vegas Astronomical Society

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&

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NGC-1579 Diffuse Nebula in Perseus (The Northern Trifid)

Introduction

The purpose of the observer's challenge is to encourage the pursuit of visual observing. It is open to everyone that is interested, and if you are able to contribute notes, drawings, or photographs, we will be happy to include them in our monthly summary. Observing is not only a pleasure, but an art. With the main focus of amateur astronomy on astrophotography, many times people tend to forget how it was in the days before cameras, clock drives, and GOTO. Astronomy depended on what was seen through the eyepiece. Not only did it satisfy an innate curiosity, but it allowed the first astronomers to discover the beauty and the wonderment of the night sky.

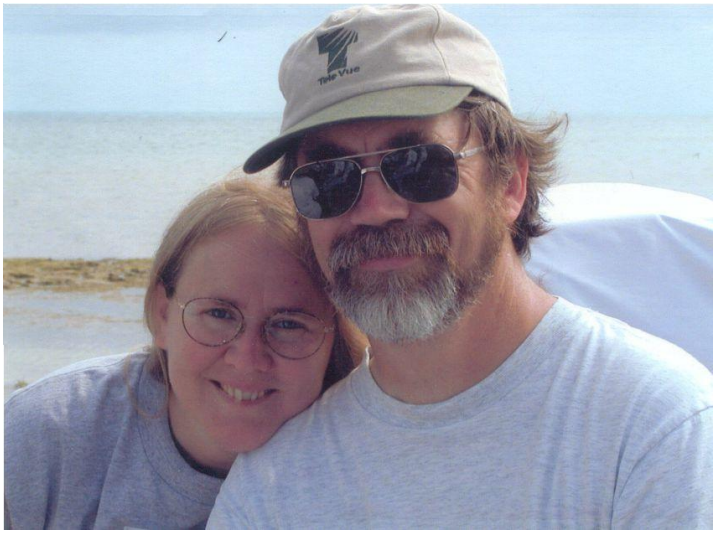
Before photography, all observations depended on what the astronomer saw in the eyepiece, and how they recorded their observations. This was done through notes and drawings and that is the tradition we are stressing in the observers challenge. By combining our visual observations with our drawings, and sometimes, astrophotography (from those with the equipment and talent to do so), we get a unique understanding of what it is like to look through an eyepiece, and to see what is really there. The hope is that you will read through these notes and become inspired to take more time at the eyepiece studying each object, and looking for those subtle details that you might never have noticed before. Each new discovery increases one's appreciation of the skies above us. It is our firm belief that careful observing can improve your visual acuity to a much higher level that just might allow you to add inches to your telescope. Please consider this at your next observing session, as you can learn to make details jump out. It is also a thrill to point out details a new observer wouldn't even know to look for in that very faint galaxy, star cluster, nebula, or planet.

NGC-1579 Diffuse Nebula in Perseus (The Northern Trifid)

NGC-1579, also known as SH2-222 has picked up the moniker "The Northern Trifid" or "The Trifid of the North." It's a diffuse nebula located in southern Perseus. It lies approximately 2,100 light years away and is about 3 light years across. As with most diffuse nebulae, it does not carry a listed magnitude. It's not particularly bright, but can be seen with modest instruments. The Trifid description comes from the distinctive dark lane features at the core. Unfortunately, these dark features tend to be quite difficult, though not impossible to distinguish in the average backyard telescope. They're more suited for images. However, under the right seeing conditions and good magnification, you might be able to eke them out, once again, putting the challenge in the Challenge!

Observations/Drawings/Photos

Sue French: Observer from New York



On February 22, 2006, at the Winter Star Party, 10:30 PM EST, seeing was excellent and transparency was fair. Using a 10-inch f/6 Newtonian I easily spotted the nebula at 44X. At 118X, several stars in edges. Brighter in center. Irregular shape. About 6'. Try when higher. Quite nice now even in glow.

Rob Lambert: Observer from Nevada

From the image of NGC-1579 below, it is easy to see why this diffuse nebula can be referred to as the Northern Trifid. However, unlike M-20, the true Trifid Nebula, NGC-1579 is not an emission nebula. The reddish-orange color of the nebula is not the result of glowing ionized hydrogen gas (according to various descriptions of the nebula), but is the result of the nebula's dust absorbing most the blue reflected light and scattering the red hydrogen alpha light from the massive young star embedded in the center of the nebula.

Unfortunately, this was a quick image that didn't capture the full extent of the nebula. A longer integration time of more than 10 seconds may have provided more detail of the swirling dust.

Because I'm unsure of the directional orientation, I'm going to assume it is oriented like a map with north being up and west being left. With that in mind, the large dust lane prominent in NGC-1579 runs southwest to northeast near the southern extremity. Several stars appear to be still embedded in the nebula's dust. Two of these are at the eastern end of the dust lane, and two others, slightly more separated, are at the western end. Between these pairs of stars, in the center of the nebula and behind the dust lane, is the massive young bright star. It causes the center of the nebula to be much brighter than the surrounding areas and belies its presence in the dust.

Visually, and not really captured by my image, there were two chains of stars to the southeast of the nebula. One chain of three stars ran almost directly west to east below the nebula and the other began at the eastern-most star and proceeded in a more southwestward direction away from the nebula. A number of other bright stars surrounded the central area and may have actually been still somewhat embedded in the portions of the nebula not captured by this short exposure.

Jay and Liz Thompson: Observers from Nevada

We observed NGC-1579 from our back yard in Henderson, NV on January 16, 2013 with a 14-inch f/11 SCT. With a 40mm eyepiece (98X), it appeared as a soft glow south of 2 stars. With a 14mm eyepiece (279X), some east-west elongation was seen in a soft glow around a round brighter central area. It was easier to see than NGC-2024, but less evident than M-78 and M-1. The moon was high in the western sky and about two days before first quarter.

Roger Ivester: Observer from North Carolina

I observed NGC-1579 on January 31, 2013 from my backyard in Boiling Springs, North Carolina. The temperature was 35º with calm winds, seeing and transparency were excellent. The telescope was a 10-inch f/4.5 reflector with an 11 mm 82º AF eyepiece for a magnification of 104X and a true FOV of - 0.79º.

The nebula was faint and very diffuse with a brighter oval-shaped middle. The texture was somewhat mottled and uneven, and at least two dark lanes could be seen with averted vision (see sketch). The nebula had very uneven edges which faded very gradually outward. A mag. 12 star lay just to the NE, and a group of four stars to the south made the shape of a dipper. This is a most interesting object which seems to be overlooked by many amateurs.


NGC 1579 "Northern Trifid" Reflection Nebula
Constellation: Perseus
Date: January 31st 2013
Seeing And Transparancy: Excellent
Temperature: 35° Wind: Calm
Description:
10-Inch Reflector With
11mm 82° AF - 104x
Faint, And Difficult
From my Backyard @
4.8 NELM. Bright Central
Region, Spreading Out In
A very Irregular Shape. Dark
Bands And Lanes With Averted
Vision. Fades Very Gradually
Outwards. Very Irregular Texture.
N
E
W
S
Roger Ivester

Debbie Ivester: Observer from North Carolina

I observed NGC-1579 on January 31, 2013 from my backyard in Boiling Springs, North Carolina. The temperature was 35º with calm winds, seeing and transparency were excellent. The telescope was a 10-inch f/4.5 reflector with an 11 mm 82º AF eyepiece for a magnification of 104X and a true FOV of - 0.79º.

The night was cold and it was pretty difficult for me to spot this nebula. The object appeared very faint, situated SW of a faint star. I'm beginning to be able to recognize the cardinal points relatively easy. I'm pretty proud of myself for this. I just center the object and when new stars enter the eyepiece field, I know this is east. I then move the scope north and then south, lifting my eye to look over the tube on the declination axis.

It took me several minutes to see the nebula, which appeared as a faint cloud with a very irregular shape. I tried my best to see the lanes and irregular texture that Roger talked about, but these features completely evaded me. I would call this a very faint object, and it was difficult for me.

Jim Gianoualakis: Observer from Nevada

NGC-1579 is also known as the Northern Trifid because of its resemblance to the Trifid Nebula. It lies much further north in the Earth's skies. It resides in the constellation of Perseus, approximately 2,100 light years from Earth. The nebula itself is about 3 light years across. While this photo doesn't bring it out very well, it's a contrast of blue and red nebula similar to the Trifid. Darker skies and additional time will bring out that contrast. Dark dust lanes are prominent in the central region. The blue in both the Trifid nebula and NGC-1579 are the result of starlight reflecting off gas and dust creating the blue reflection nebula, but the red portion of the two nebulas are formed very differently. The source of the Triffiid's red is traditional reflection nebula-based, but NGC-1579's red nebula is actually caused by a young, massive star that is emitting red hydrogen alpha light. A similar result, but very different ways to get there.

The photo was taken in my backyard using an 8-inch Ritchey–Chrétien. The camera used was a QSI 583 WSG utilizing Astrodon RGB filters. Each channel consists of 12, fifteen minute exposures guided with a Starlight Express loadstar guide camera.

Fred Rayworth: Observer from Nevada

I've been able to observe this rather obscure reflection nebula twice, so far. The first time was on December 3, 2005 from the Sunset Overview at Lake Mead, NV. At an altitude of 1,375 feet, it used to be a decent quick-and-dirty observing site away from town. However, now, eight years later, it's so light-polluted not only from the encroaching Las Vegas light dome, but from the dredging barges on the lake that one might as well be in town. However, back then the weather and sky conditions were as follows: "Cold with a gusty cold breeze. Actually, temp was around 50º but it sure felt colder! Looks very clear and skyglow is minimal to the east. However, seeing was not that great and resolution was pretty bad." I was using my home-built 16-inch f/6.4 and standard 70X eyepiece. My view and notes were rather obscure and disappointing. "Very faint haze next to a star." I noticed no dark lanes or much other detail, probably because the sky wasn't really that dark, the seeing wasn't that great, and the magnification wasn't high enough to see it with any detail.

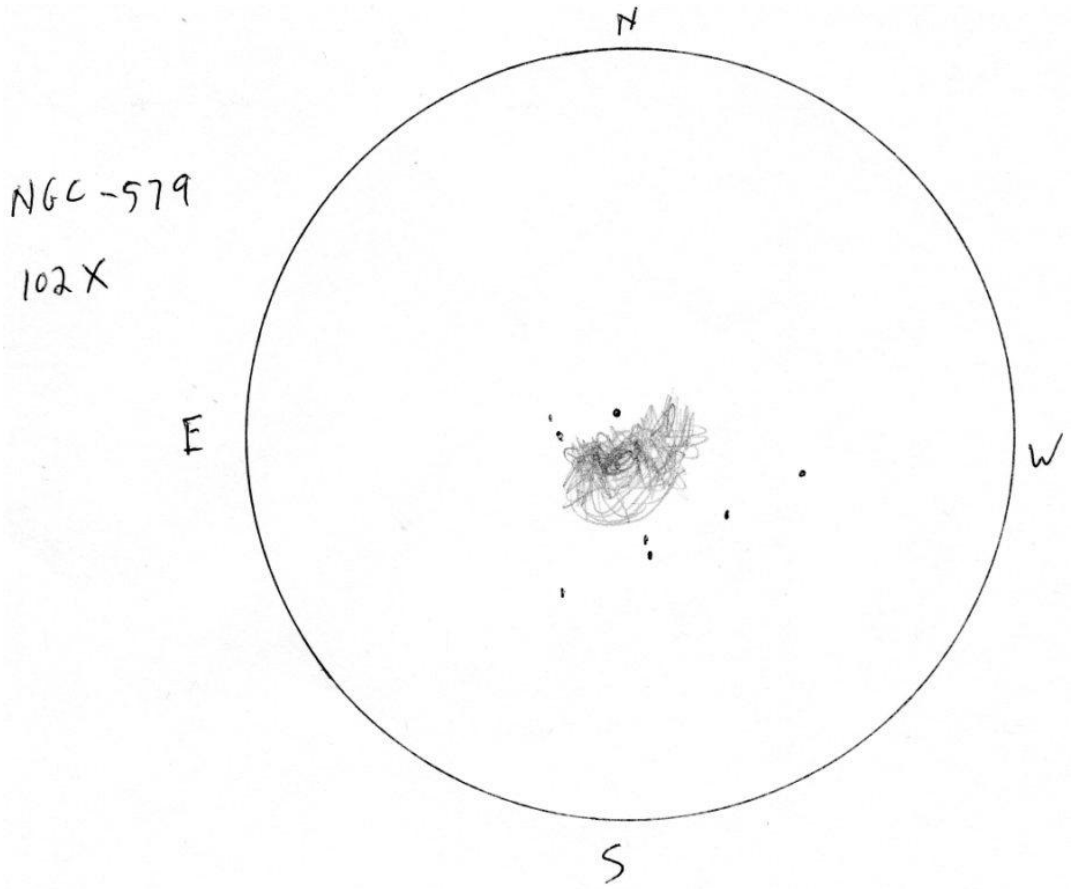
I was able to check it out again for the Observer's Challenge, though a few weeks late due to lousy weather and missed opportunities in January. This time I was at our favorite site at the airport at Furnace Creek in Death Valley at -190 feet. Though that sounds counter-intuitive for good viewing, I've always had great luck with deep sky from there. This location is also now listed as one of the dark sky parks in the U.S.

On February 8, 2013, the sky was a mess and we looked through cloud gaps. Because this object is in such an obscure location (besides being obscure itself), by the time I actually located it with the laser, when I got to the eyepiece, it was gone. I gave up and tried the next night when the skies opened up for us. On February 9, 2013, as with the night before, I was using my 16-inch f/4.5 and a variety of magnifications from 102X to 220X. The sky conditions were as follows: "Could've been pristine. Cold, clear but seeing was pretty bad at first. Stars were twinkling and as the sun set, there was a haze lying on the valley where I couldn't see any details in the surrounding valley. However, it cleared out nice. Problem was that by the time the huge crowd finally died down and I was able to get to some serious observing, an annoying breeze came up that was just unbearable. The temperature wasn't that bad, around 49-50º, but the icy breeze that gusted at times made it feel far worse. I finally gave up at 11:30. Too bad, as the skies were pretty dark and settled by then."

As you can tell, I had a breeze to deal with which with the scope aiming almost straight up, not only tended to bob the tube around a bit, but also made my eyes water. However, I still got what I wanted, but I think I could've done better still. As Roger's sketch above testifies, he saw more details within the nebula than I did.

I saw a faint fuzzy spot, round on one side and ragged on the other, closest to the bright, nearby star at 102X. The nebula seemed to spread almost in a kidney bean shape but distorted on the north side. Below it, or to the west was a ragged line of four stars. I never saw the dark lanes in the middle. I tried my O-III filter and it blocked the nebula completely except for a small segment of the core toward the bright star. When I tried 220X, I couldn't see any more detail than at 102X, though I tried looking with the more darkened background. By then, my eye was watering pretty bad, and the scope would lurch once in a while making it hard to keep the higher magnified object in the view.

Overall, I'm glad I observed this object. I think I can do better, but it will have to wait for another time. Maybe next month. I was not surprised to see all that detail in the images but was surprised to see how much bigger it appeared to be because it looked rather small, even at 220X.



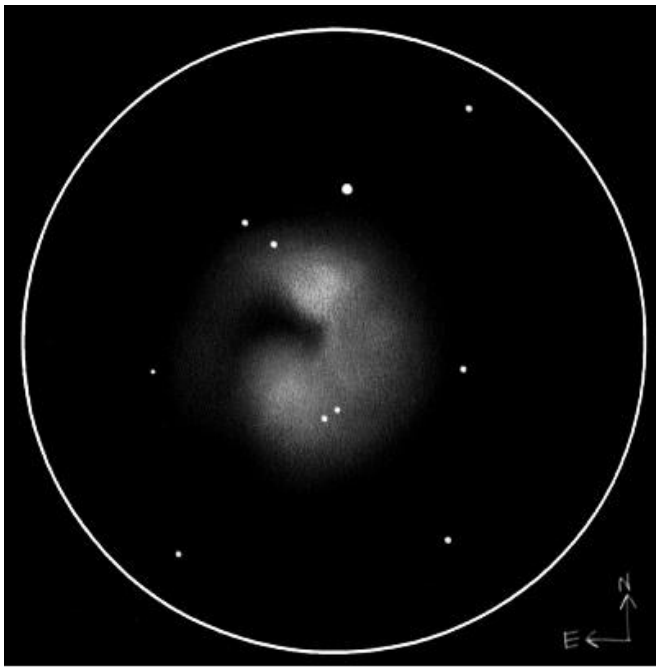
Jaakko Saloranta: Observer from Finland

Reflection nebula NGC-1579 in Perseus is quite a delight but is in the empty, SW part of Perseus that doesn't harbor many bright objects. In a way, it can also be overshadowed by NGC-1499 – the California Nebula. In an older sketch of the object, I wrote that: "[NGC-1579] looks somewhat like a spiral galaxy" and that it is "pretty faint under urban sky conditions".

9 years later, on the January 17, 2013, I got to re-sketch this object again. Using several different magnifications on my 8 inch Dobsonian (200X for the actual sketch), I described the nebula as follows: "Easily picked out @ 50X (60'). Fairly bright, somewhat irregular, mottled nebulosity 5' in size. Dark lane visible E from the center. Bright concentration visible in the northern part of the nebula. 3 stars involved. Diffuse edges and outer parts extremely faint. IC-2067 not looked for." While scanning the area with low power a small concentration of stars becomes apparent. This scattered cluster of stars – known as the PPM 69512 group – is visible at 04 34 16 +34 14 26 and contains at least 70 stars within 16'. Another good group of stars is Teutsch J0443.8+3603 to the east.

The observing conditions were fairly good: NELM 6.9 and SQM-L reading 21.02 near the zenith with snow-covered ground. Some faint, greenish aurora borealis was visible in the northern sky so background brightness was only around average that night. Temperature was typical of a Finnish winter: 0°F (-18°C).

Looking at my sketch of NGC-1579, I don't see much resemblance to the famous Trifid Nebula (Messier 20), but what comes to mind is a human fetus - of sorts - and looking a bit like the "true" Fetus Nebula – NGC-7008.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