MONTHLY OBSERVER'S CHALLENGE

Compiled by:

Roger Ivester, North Carolina

&

Sue French, New York

August 2022

Report #163

NGC 6772, Planetary Nebula in Aquila

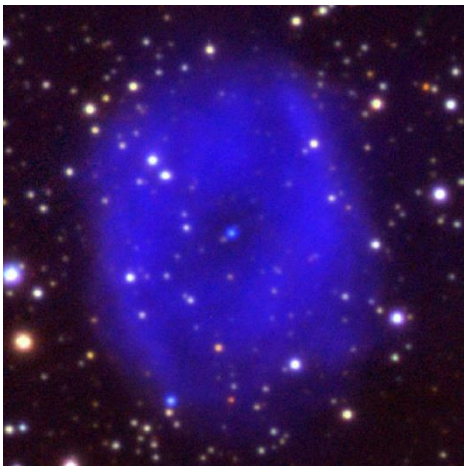
Sharing Observations and Bringing Amateur Astronomers Together

Introduction

The purpose of the Observer's Challenge is to encourage the pursuit of visual observing. It's open to everyone who's interested, and if you're able to contribute notes and/or drawings, we'll be happy to include them in our monthly summary. Visual astronomy depends on what's seen through the eyepiece. Not only does it satisfy an innate curiosity, but it allows the visual observer to discover the beauty and the wonderment of the night sky. Before photography, all observations depended on what astronomers saw in the eyepiece, and how they recorded their observations. This was done through notes and drawings, and that's the tradition we're stressing in the Observer's Challenge. And for folks with an interest in astrophotography, your digital images and notes are just as welcome. The hope is that you'll read through these reports and become inspired to take more time at the eyepiece, study each object, and look for those subtle details that you might never have noticed before.

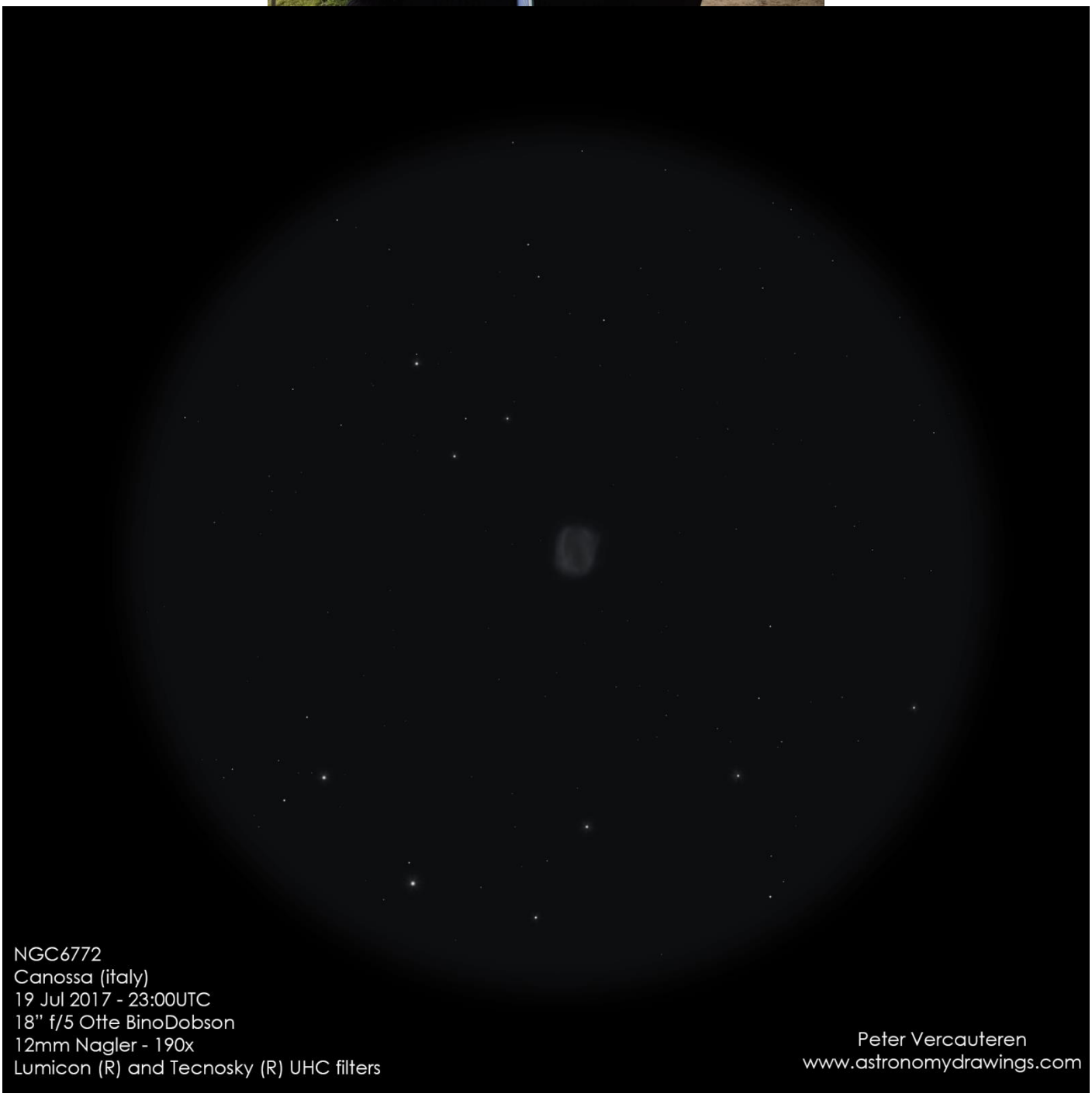
This month's target:

William Herschel discovered NGC 6772 on 21 July, 1784 with his 18.7-inch speculum-metal reflector. Decrypted, his hand-written journal reads: *A very faint resolvable nebula; about 1′ in diameter. In the midst of a number of stars of the Milky Way. It precedes 36 Aquilae 16.5′ in time and is 11′ more north.*



PanSTARRS image
Courtesy of Courtney Seligman

Peter Vercauteren: Observer from Italy



Bertrand Laville: Observer from France

Date of sighting: Sep 27, 2011 7:30 PM UT

Duration of observation: 78 mins

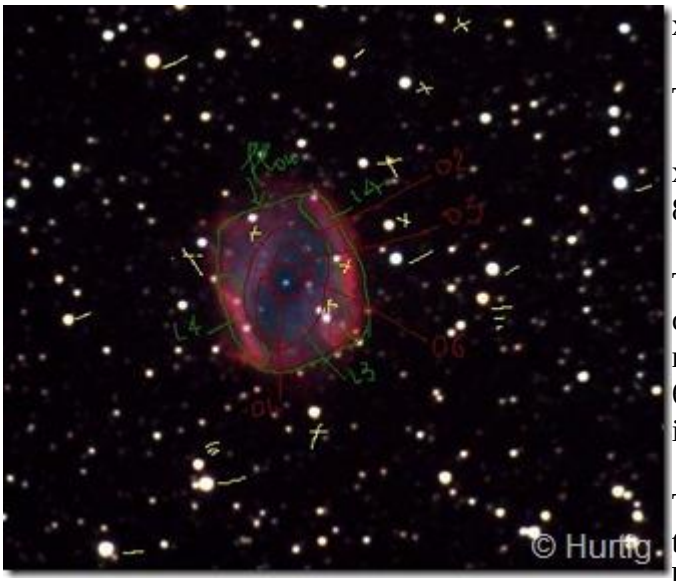
Object position:	Alt: 40.9°, Az: 200.6°
Observation conditions:	SQMZ 21.36(MWCyg) SQML(60°N) 21.28 FWMH 1.5” mvIonUMi 5.8/VI5! T3 P3 S3-4/520
Viewing location:	Observatory of the Baronnies Provençales
Instrument :	TN 635 Dobsonian Obsession
Main eyepiece:	Televue Ethos 6mm
Magnification:	519x

x101 Nagler 31mm without filter

NP is evident, as a broad spot is slightly elongated; a/b ~ 1.10, oriented NS. The annularity is already seen. But the spot is pale and low in contrast. It will be necessary to magnify, and to use a filter.

x520 Ethos 6mm

Turbulence is very good, but nearby stars are faint. It takes a good adaptation, and I stayed on the field for a long time, but I could not exceed m16.5v, see the stars highlighted in yellow on the Hurtig image. No stars were seen on the halo.



x240 Ethos 13mm/OIII-5nm

The filter is too selective, and the image is too dark.

x240 Ethos 13mm/OIII-12nm, and x390 Ethos 8mm/OIII-12nm

The two magnifications are equivalent; we lose in contrast what we gain in dimension. The planetary nebula is bright. The rectangular shape is well seen, D ~ 65" x 50". The S edge is more blurred than the N edge, itself more blurred than the E and W edges.

The W banana is visible only on the 2/3 N of the W side, the E banana is visible on the whole of the E side. Both bananas are Luminosity 4, the internal halo is

Luminosity 3 on a scale of 1 to 10.

But it is especially the dark areas that are interesting. The central hole is very round, very small, d ~ 15", and very black, opacity 5 to 6 *(nearly total). Two "propeller blades" start from this center, that of the North is opacity 4, more elongated and more concentrated than that of the South , more rounded and opacity 3.The whole is bathed in an opacity 2 entourage, a little more extensive.

You'll find more detailed descriptions of Bertrand's sketches at: http://www.deepsky-drawings.com/

Uwe Glahn: Observer from Germany

Sketch 1

Object: NGC 6772

Telescope: 27″ f/4.2 Newton

Magnification: 113× - 172×

Filter: [OIII]

NELM: fst 6m5+

Seeing: III

Location: Rossfeld

Sketch 2

Object: NGC 6772

Telescope: 27″ f/4.2 Newton

Magnification: 419×

NELM: fst 6m5+

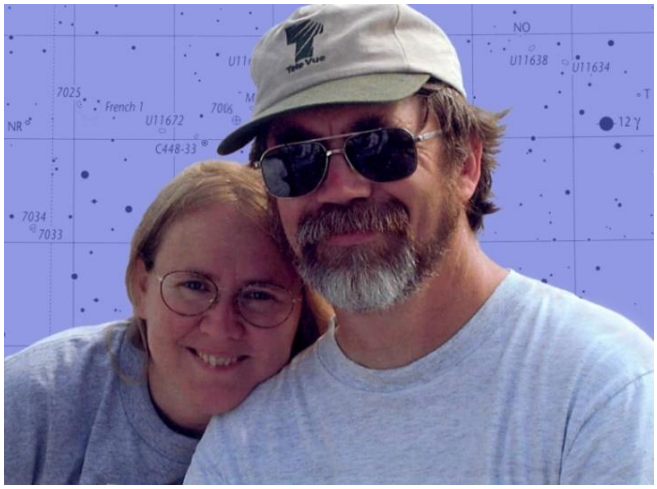
Seeing: II

Location: Sudelfeld

Sketches follow.

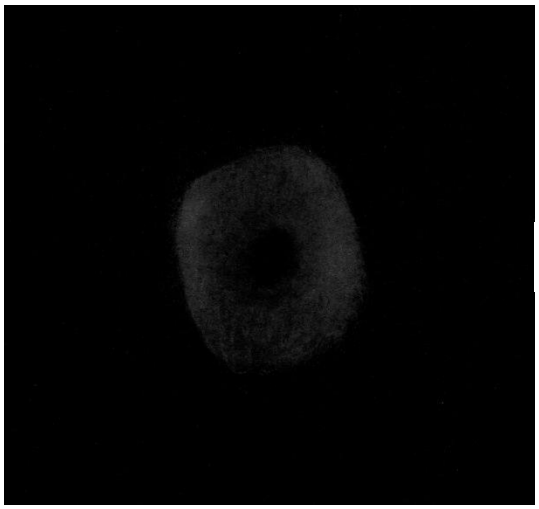
You can see more of Uwe's sketches at: http://www.deepsky-visuell.de/

Sue French: Observer from New York



Nobody loves NGC 6772, as evidenced by the scarcity of press it receives. I'm not sure why. I think it's a pretty little thing. This sketch was made with the aid of my 15-inch f/4.5 reflector. I know it appears different than the efforts many other sketchers, but this was my impression.

N



E

At 79× the nebula was easily seen and appeared oddly squarish with a small dimmer center. As sketched 133×, NGC 6772 stood out better, spanning about 1 arcminute and revealing a rim of uneven brightness.

This planetary is also catchable in small scopes. It can be held steadily in view at 47× through my 105mm refractor when using averted vision and an O III filter. With the filter at 87×., I could only spot it with the filter and averted vision. Once found, it showed a moderate-size, faint roundish disk and was seen with direct vision. On a night of variable transparency, a 130mm refractor at 102× showed a very faint glow. It appeared sizeable with the addition of a UHC filter, which made it easier to view, although it was still rather faint. With an O III filter NGC 7662 stood out fairly well, but the view was dark and the guide stars were tough to see. At 117× it is faint without a filter but easier than the 102× view The view at 164**×** was better still, and I put the size at about 1 arcminute.

The 10-inch f/5.9 reflector at 115× made the planetary readily visible as a fairly large glow with a slightly darker center. It looked squarish with one diagonal running south-southeast to west-northwest. It stands out even more with an OIII filter, but details seem more difficult. An Hβ filter was worthless. At 187×, I put the size at about 1 arcminute.

Glenn Chaple: Observer from Massachusetts

NGC 6772 Planetary Nebula in Aquila (Magnitude 12.7; Size 70″ X 56″)

The July Observer's Challenge featured the bright planetary nebula NGC 6210 in Hercules. This month, we visit another planetary nebula- one that, to put it bluntly, isn't so bright. NGC 6772 is about the same size as M57, the Ring Nebula (70″ × 56″ to 86″ × 62″), but is 4 magnitudes fainter (12.7 to 8.8). To see it visually, you'll need a dark sky, reasonably large aperture scope, and (highly recommended) a nebula filter.

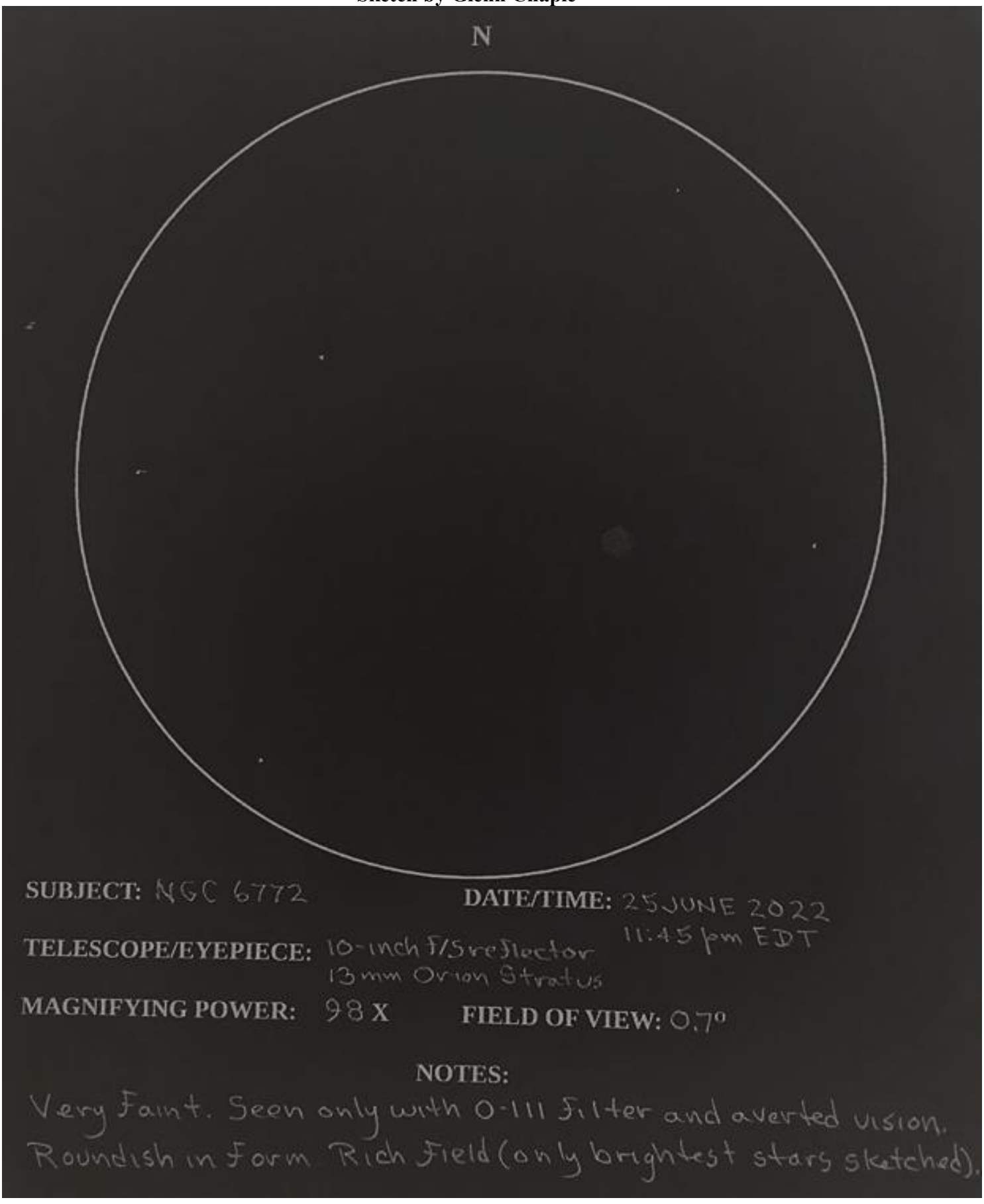
NGC 6772 is located in the southwest corner of Aquila at 2000.0 coordinates RA $19^{h}14^{m}36.4^{s}$, Dec -2°42′25.0″. Star-hoppers can find their way here by beginning 3 degrees southwest at 3^{rd}-magnitude lambda (λ) Aquilae (see Finder Chart B).

William Herschel may have overlooked NGC 6210, but his capable eye spotted NGC 6772 on the night of July 21, 1784. He described it as "very faint, round, nearly of equal light throughout, about 1′ in diameter, In the midst of numberless stars of the Milky Way,"

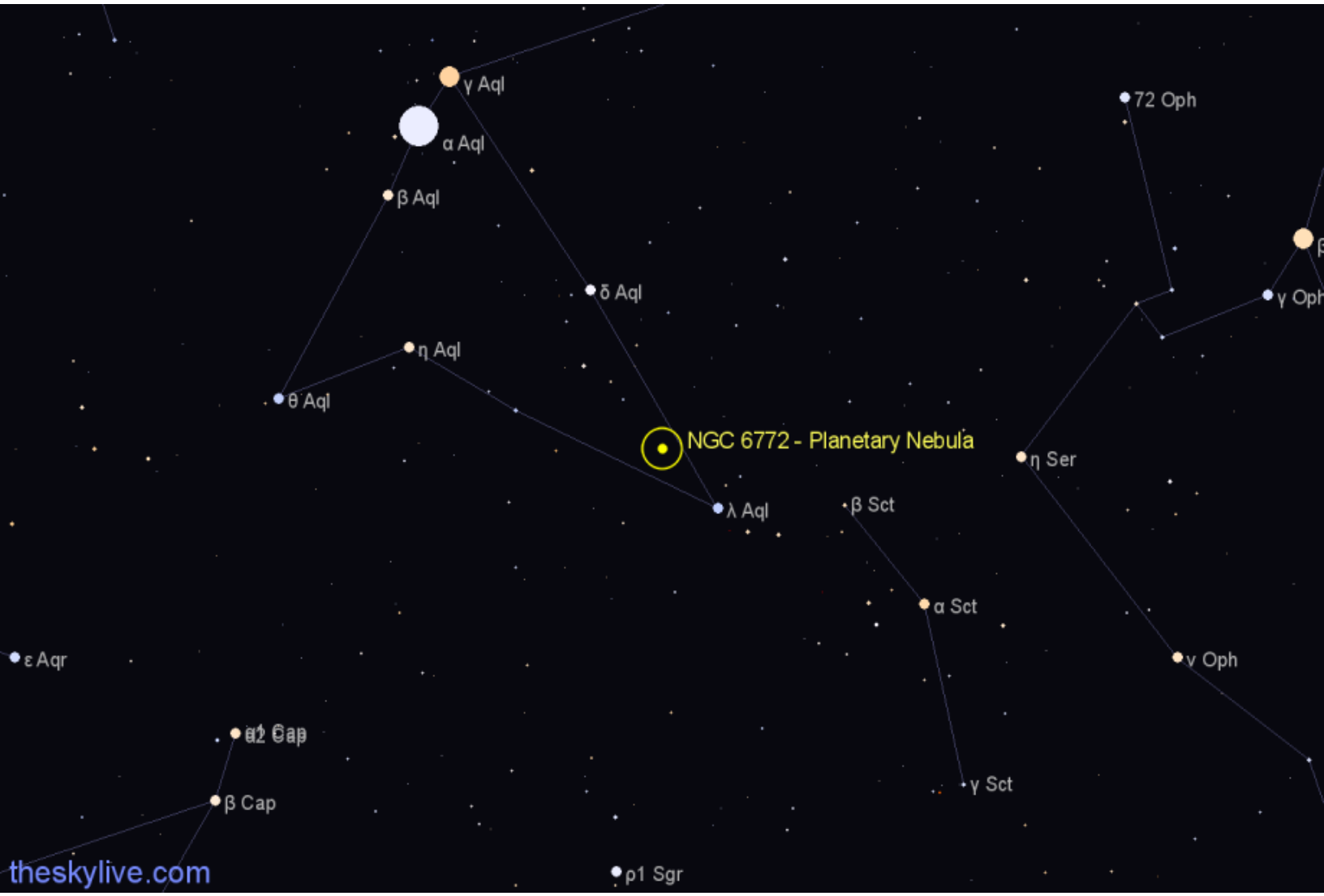
This planetary nebula proved to be a challenge when I tackled it on the night of June 25, 2022, with a 10-inch f/5 reflector. A limiting naked eye magnitude of 5 didn't help. I was unable to see anything with an unfiltered view. Placing an O III filter into a 13mm eyepiece brought out an extremely elusive roundish glow that I could only detect with averted vision. As Herschel had noted 238 years earlier, it was immersed in a field littered with faint stars

Sources ascribe a distance of 4000-4200 light years to this planetary. Its true diameter may be on the order of 1.5 light-years.

Sketch by Glenn Chaple

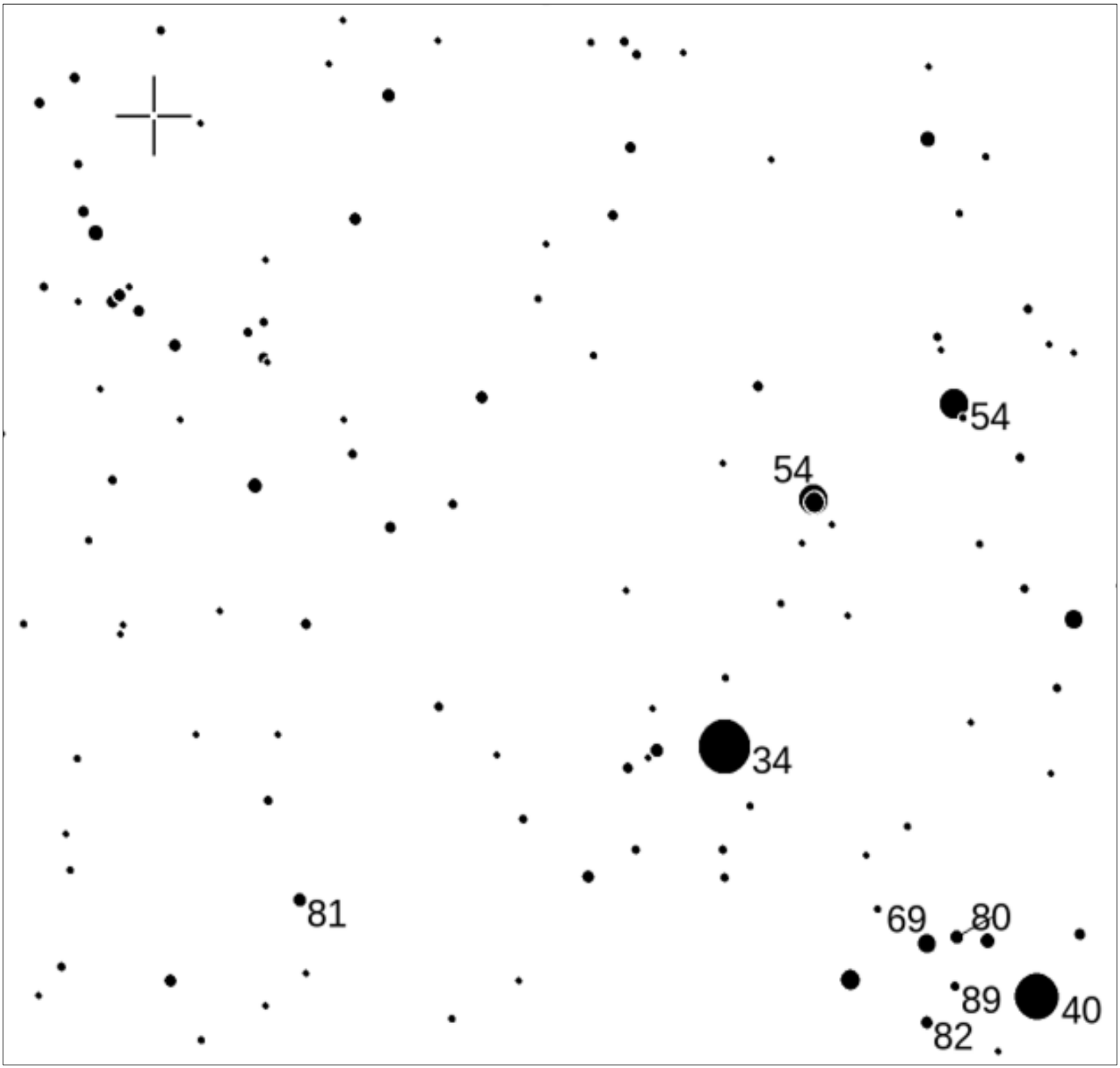


NGC 6772 Finder Chart A



NGC 6772 Finder Chart B

Chart created using the AAVSO's Variable Star Plotter (VSP). The location of NGC 6772 is marked with a crosshair. Numbers are stellar magnitudes, decimals omitted. The 3.4 magnitude star is lambda (λ) Aquilae. Stars plotted to 10th magnitude. North is up in this 3.5 X 3.5 degree field.



Mike McCabe: Observer from Massachusetts

OBSERVATION LOG - OBJECT: NGC 6772

DATE 8/19/22 /z TIME 22:30 /z EDT LOCAL OBSERVING LOCATION 44.8°N, 72.5°W

SCOPE/APERTURE 20" F4.5 NEWTONIAN

EYEPIECE 14mm/82° MAGNIFICATION 164x/.5°

FILTER — SEEING 2.5/5 TRANSPARENCY 3/5

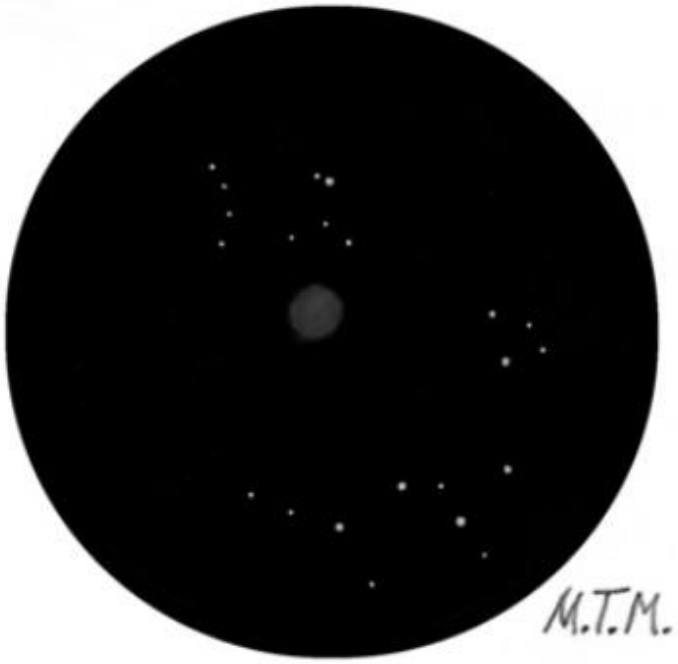
TEMP 65°F BARO PRES. — WIND CALM

COMMENTS:

THE BIG SCOPE UNDER A BORTLE 3 SKY SHOWED THE 13th MAGNITUDE PLANETARY NEBULA QUITE NICELY.

NO MOTTLING OR SURFACE TEXTURE VARIATIONS WERE NOTED DURING THE OBSERVATION.

ORIENTATION AND/OR ROTATION



M.T.M.

August 19th, 2022 – 22:30 EDT

Several members from my astronomy club try to make an annual pilgrimage each summer to one of the darker sites in New England for some deep sky observing. Hazen's Notch campground in Lowell, VT is located just ten miles shy of the Canadian border, and there we can find a Bortle 3 sky that on a good night rivals the darkness of the sky at the Texas Star Party. The folks at the campground are super accommodating to us and they do their level best to contain any light pollution that they might be producing, and many of them stop by in the night to take in some views of the cosmos with us. It was here that I would be making my observation for the August Observer's Challenge, and we were fortunate enough to get some clear skies under which to do it.

I had another fortuitous thing going for me in that earlier this year our club received a donation of a 20-inch Newtonian reflector telescope, and I happened to be the one to take it to get it up and running for club use. I had that scope with me at Hazen's Notch.

After about an hour of outreach at the beginning of darkness for the campground folks, I finally got the chance to do a little personal observing and NGC 6772 was one of the targets on my list. The seeing was just OK on this night with a rating of 2/5, but the transparency was decent, which I rated at 3.5/5. The 20-inch was performing nicely, and after steering the red dot to Al Thalimain Prior (16 Aql, Lambda Aql), I climbed the ladder to start my star hop to NGC 6772.

At a visual magnitude of 12.7, this 1′-sized planetary nebula showed up readily in the big optics. Like a lot of PN's it appeared to respond favorably to magnification, but I think I stopped short of what it could've handled. In some reports that I've read, observers using large telescopes have discerned variations in the brightness and shape of the nebula, but in my case it was seen as an even, spherical glow. I found that making my sketch while on the ladder was more daunting than I'd have liked, so that possibly could've contributed to my decision to just get it done, as opposed to trying more power.

Larry McHenry: Observer from Pittsburgh, Pennsylvania

NGC 6772 Planetary Nebula in Aquila:

The 13th-magnitude planetary is about 4,000 light years distant, and spans a size of about 1.5 light-years.

William Herschel discovered this object on July 21st, 1784 from his home in Datchet, near Windsor during his nightly 'sweep' observing using his 20-foot reflector (18.7″ speculum metal mirror).

Herschel described the nebula as "*Very faint of equal light, resolvable 1' in diameter in the midst of numberless stars of the Milky-Way*". He entered the nebula as the 14th object under class – IV 'Planetary Nebula.'

Video-Capture/EAA:

06/28/2022: from the ORAS Observatory, PA, using an 8-inch SCT optical tube @ f/6.3 on a GEM mount, with a CMOS color camera and narrowband filter, 180-second guided exposure, live-stacked for 15 minutes.

Using EAA techniques, NGC 6772 displays as a bright, colorful, eye-shaped oval, with a hint of the central star being visible.

Image follows.

Mario Motta: Observer from Massachusetts

The August Observer's Challenge object is planetary nebula NGC 6772, in the constellation Aquila. The image as following, was taken two years ago, and presents nice detail, taken with H alpha, S2, and O3 filters 1 hour each, using a 32-inch scope, and an ASI 6200 camera.

It was processed in Pixinsight, using the "Hubble Palette" for color. It is an easy visual object as well.

Phil Orbanes: Observer from Massachusetts

NGC 6772 is a planetary nebula, about 1.0 arc minute in diameter, located in Aquila, just south of the celestial equator.

It lies about 4000 light years away, is bipolar and shines at approximately magnitude 14. The interior is mainly energized oxygen while its outer shell is composed of excited hydrogen.

I used a 14-inch Planewave reflector and FLI 16803 CCD camera. This one needed a lot of exposure time because of the object's small size and dimness.

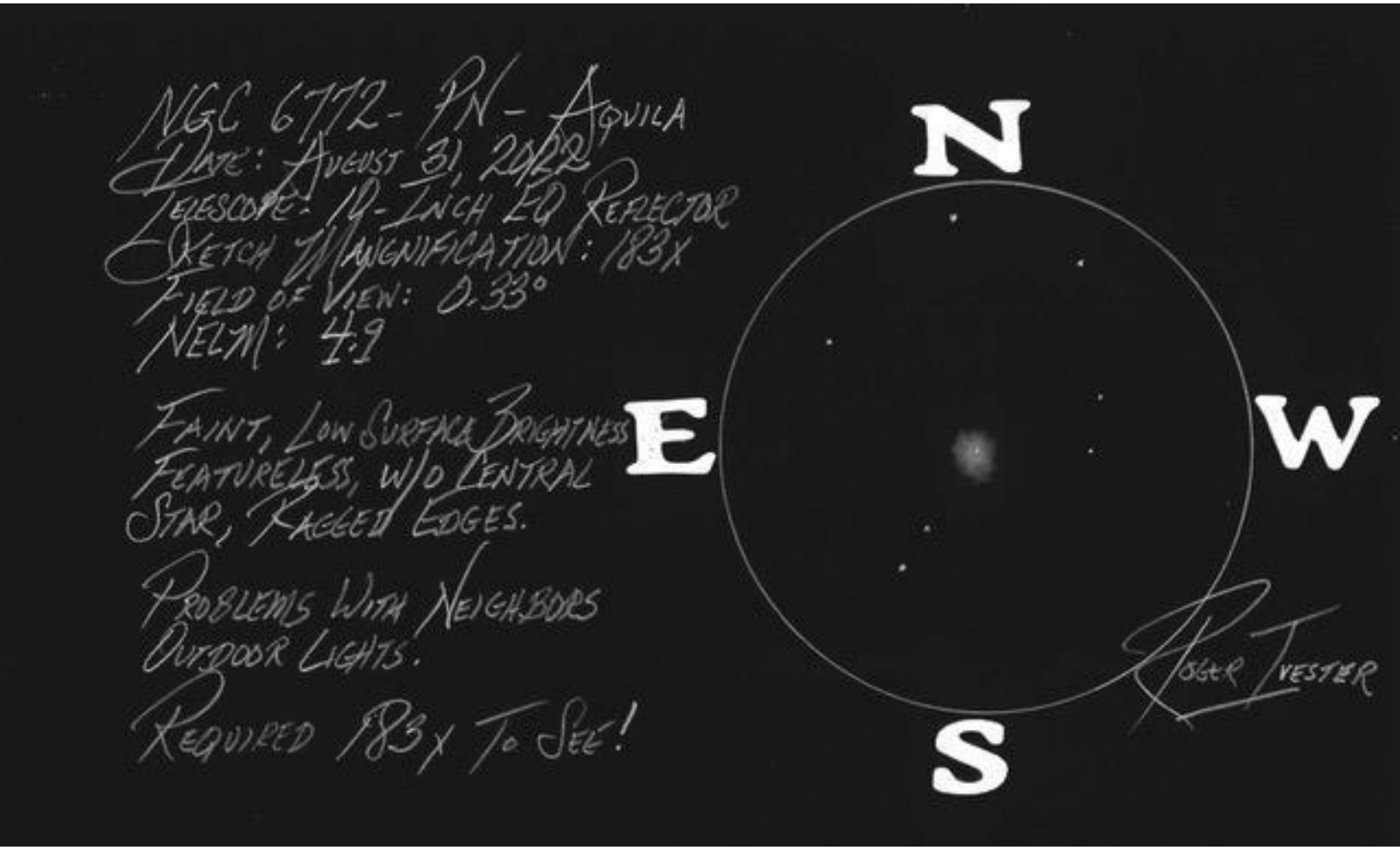
The image was enlarged to improve its visibility. The 18 hours of exposure time was divided between R, G and B, O3, and Ha filters.

Roger Ivester: Observer from North Carolina

NGC 6772 - Planetary Nebula in Aquila
Date: August 31, 2022
Telescope: 10-inch f/4.5 Equatorial Newtonian
Sketch Magnification: 183×
Field of View: 0.33º NELM: 4.9

Faint with low surface brightness, featureless without a central star, but with very ragged edges.

Sketch follows.



The following is the complete listing of all Observer's Challenge reports to-date.

https://rogerivester.com/category/observers-challenge-reports-complete/