MONTHLY OBSERVER'S CHALLENGE

Compiled by:

Roger Ivester, North Carolina

&

Sue French, New York

July 2021

Report #150

NGC 6572, Planetary Nebula in Ophiuchus

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.

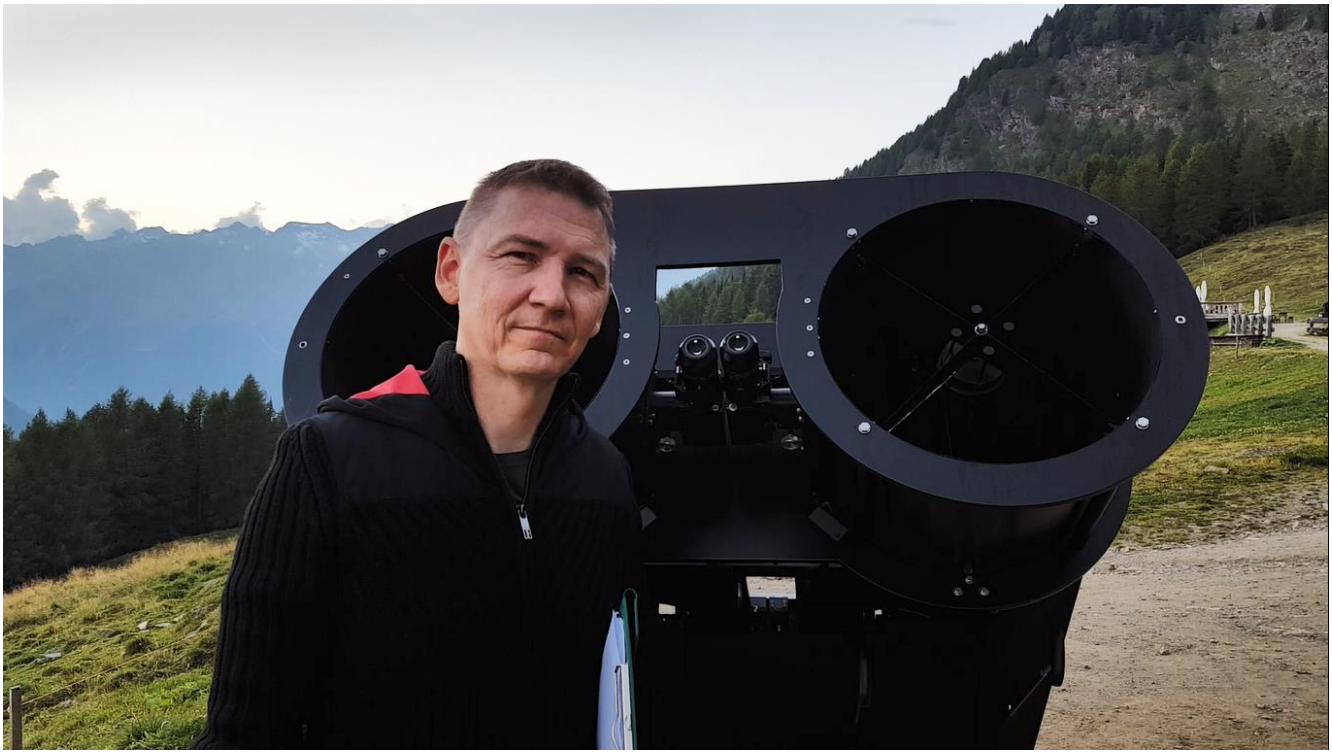
This month's target

Our object for the  150th monthly edition  of the Observer's Challenge is the tiny, but bright, planetary nebula NGC 6572, variously nicknamed the Emerald Nebula, the Blue Racquetball, and the Turquoise Orb. These names highlight the range of hues perceived by different observers. The nebula is young, perhaps only a few thousand years old. Its diminutive size led to its inclusion in some early star catalogs. NGC 6572 has a visual magnitude of 7.3, as determined by Stephen O'Meara, while its central star dimly shines at 13th magnitude. As with many planetary nebulae, published distances vary wildly. Values in the vicinity of 5000 light-years seem most likely. This pretty little gem was discovered in1825 by Wilhelm Struve.

NGC 6572 displays bipolar outflows in deep images. There's evidence of interaction between the collimated outflows and the nebula's elliptical shell. The interaction has broken up the elliptical shell such that parts of the shell have been accelerated, while the outflow has been slowed down and/or deflected. This supports the idea that such outflows are common in planetary nebulae and may play an important role in shaping nebular shells.
https://ui.adsabs.harvard.edu/abs/1999ApJ...520..714M/abstract

Welcome to our new contributor.

Peter Vercauteren: Observer from Italy



NGC 6572, the Blue Racquetball, is a very young planetary nebula, not more than a few thousand years old. You can clearly see the whirling stellar atmosphere that's being blown away.

Canossa, Italy

27 May 2017 - 21:10 UTC

18″ f/5 Otte Binoscope

4.5mm Delos – 505×

No filters

Sketch follows.


NGC6572
"Blue Racquetball"
Canossa (Italy)
27 May 2017 - 21:10UTC
18" f/5 Otte BinoDobson
4.5 mm Delos - 507x
No filters
Peter Vercauteren
www.astronomydrawings.com

Uwe Glahn: Observer from Germany

Object: NGC 6572 "Blue Racquetball"

Telescope: 27" f/4.2 Newton

Magnification: 837×

NELM: 6.5+

Seeing: II

Location: Sudelfeld

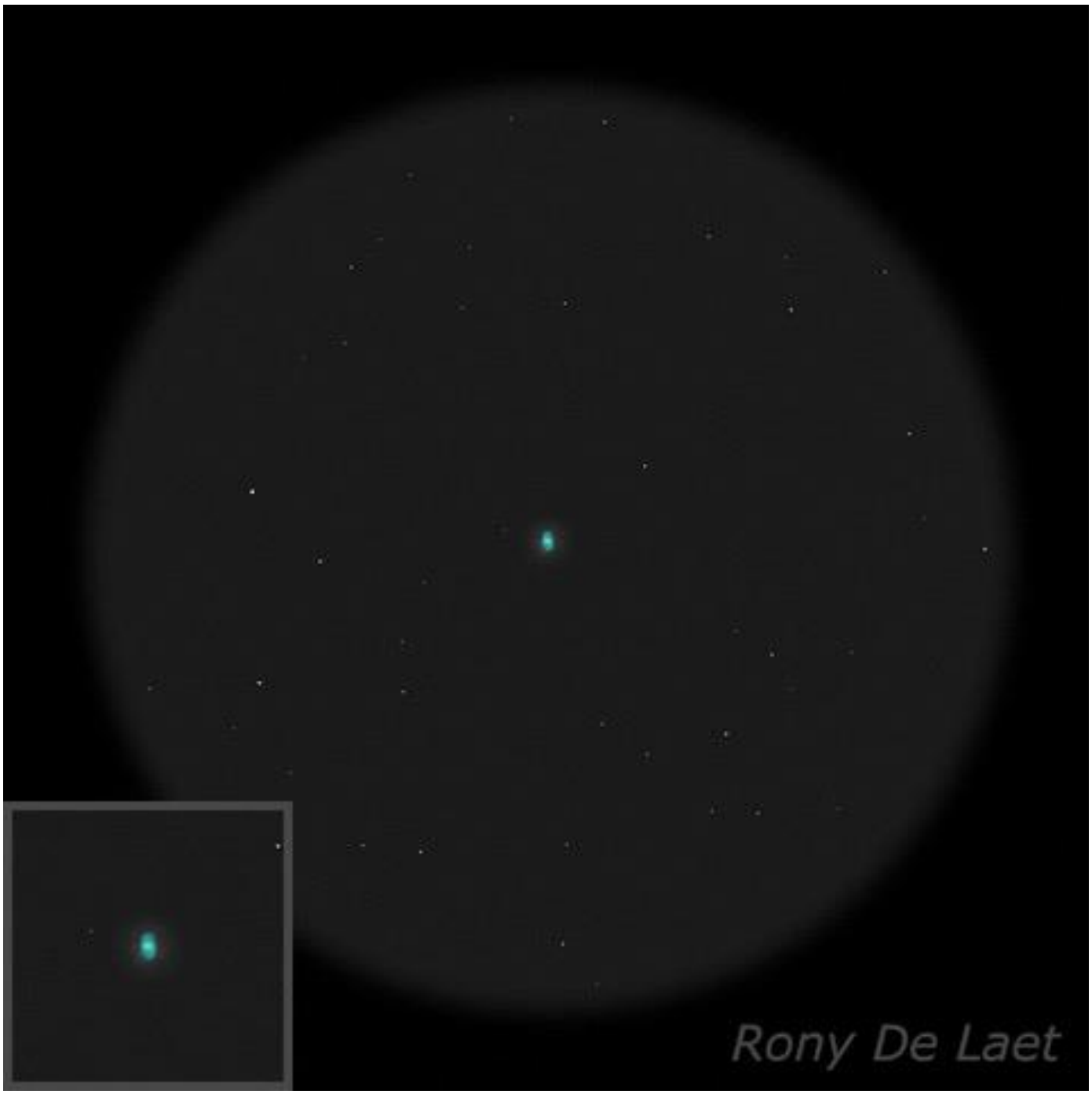
Sketch follows.

Rony De Laet: Observer from Belgium

NGC 6572 is a small but very bright planetary nebula. At 100× it looks like a swollen turquoise star. With each higher magnification, the object's true nature becomes clear. The best views are at 400× and at 600×. No filter is needed. I see a bright elliptical nebula oriented north-south. It features a central disk of an even higher brightness. The eastern and western edges of the central disk are brighter. These edges seem to continue along the border of the elliptical nebula, forming an S-shape. The central star is not visible, but the central spot of the disk seems a little brighter. All these details are very subtle. It takes time and moments of good seeing to see them. Moving my attention from the centre of this planetary to its borders, I can't neglect the outer nebulosity. Many observers consider this extended glow as the unavoidable glare of the bright planetary. I am not convinced. When I repeatedly move the planetary through the field of view, the extended halo becomes a well-defined physical part of the planetary nebula.

Site: Bekkevoort, Belgium (51° N)
Date: July 17, 2021
Time: around 23:50 UT
Telescope: Taurus 16″
EP: Morpheus 9mm 76°, 200× / 6.5mm 76°, 280× / 4.5mm 76°, 400× / Omegon 3mm 55°, 600×
Filter: none
Seeing: 4/5
Sky brightness: 20.2 magnitudes per square arc second near zenith (SQM reading).
Sketch Orientation: N up, W right.
Digital sketch made with Corel Paint Shop Pro X2, based on a raw pencil sketch.

Sketch follows.


Rony De Laet

Jaakko Saloranta: Observer from Finland

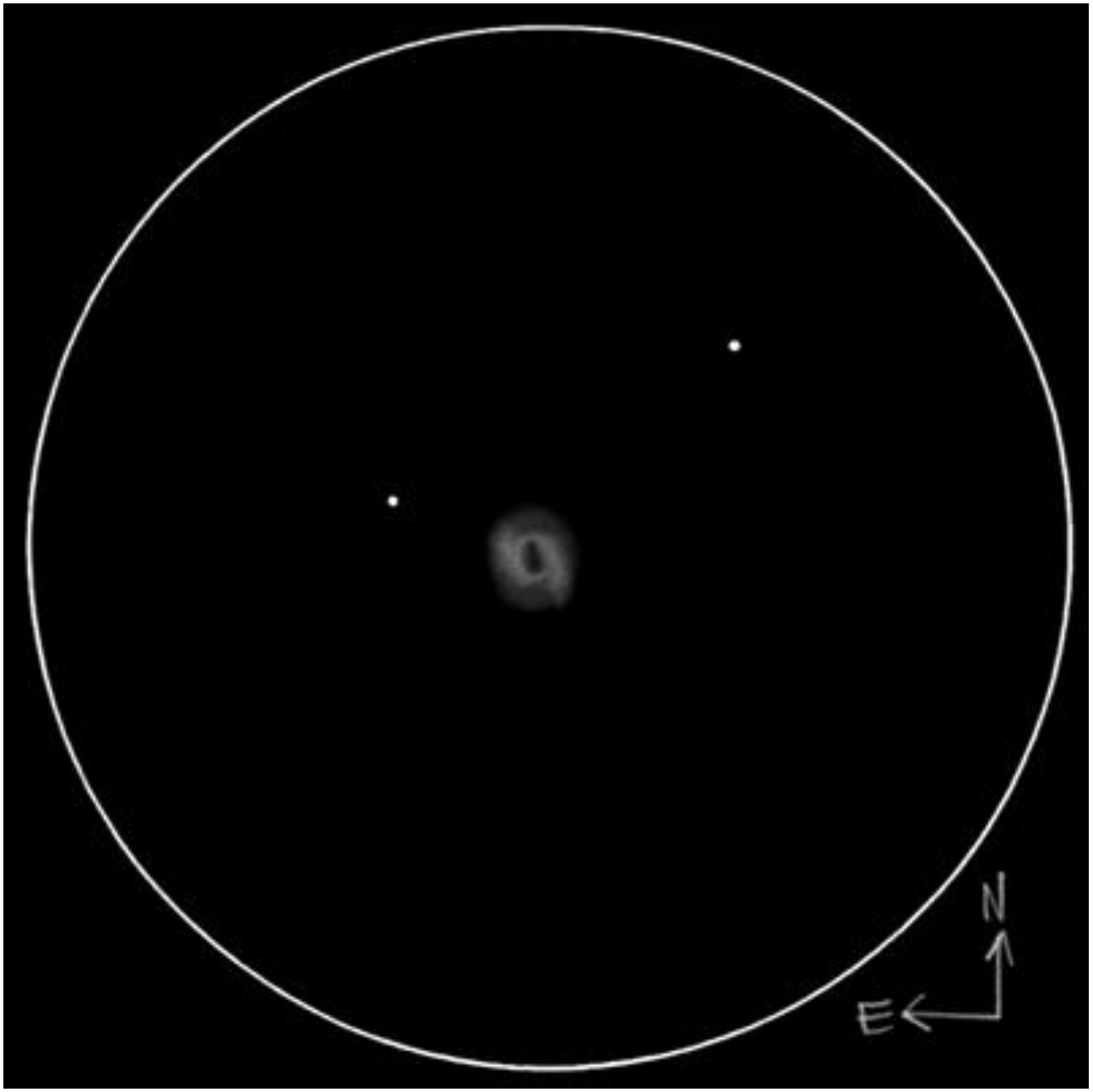
July: NGC 6572 – Planetary Nebula –Ophiuchus

NGC 6572 with 10 inch GSO @ 625× (5′)

The observation and sketch were made from a suburban observing site with a naked-eye limiting magnitude of ~5.8 near zenith and SQM-L reading of 19.80 from the same region. Telescope used was a 10-inch GSO telescope with multiple magnifications. Weather was fairly average: temperature in the low 50s, rising humidity towards midnight and some cirrus clouds starting to emerge at around 11:30 p.m.

I felt I couldn't get a clear view of the object – probably due to the average seeing conditions and somewhat low altitude of the object (32 degrees above the horizon). What I did manage to see was a "barely N-S elongated planetary with some structure in the middle. From time to time ring structure seems visible with some additional detail around it. No central star." I could not discern any color from the object although I am familiar with the several – quite colorful nicknames – for this object.

Sketch follows.


N
E

Chris Elledge: Observer from Massachusetts

On July 10th @10:30pm EDT, I used a 10-inch f/5 reflector to observe NGC 6572 from the ATMoB Clubhouse. Sky conditions were: Bortle Scale 6; NELM 4.5 near NGC 6572; Transparency: Fair; Seeing: Good.

I started at 72 Ophiuchi, hopped to 71 Ophiuchi, passed over a small set of mag. 7 to mag. 9 stars, and arrived in the field of NGC 6572.

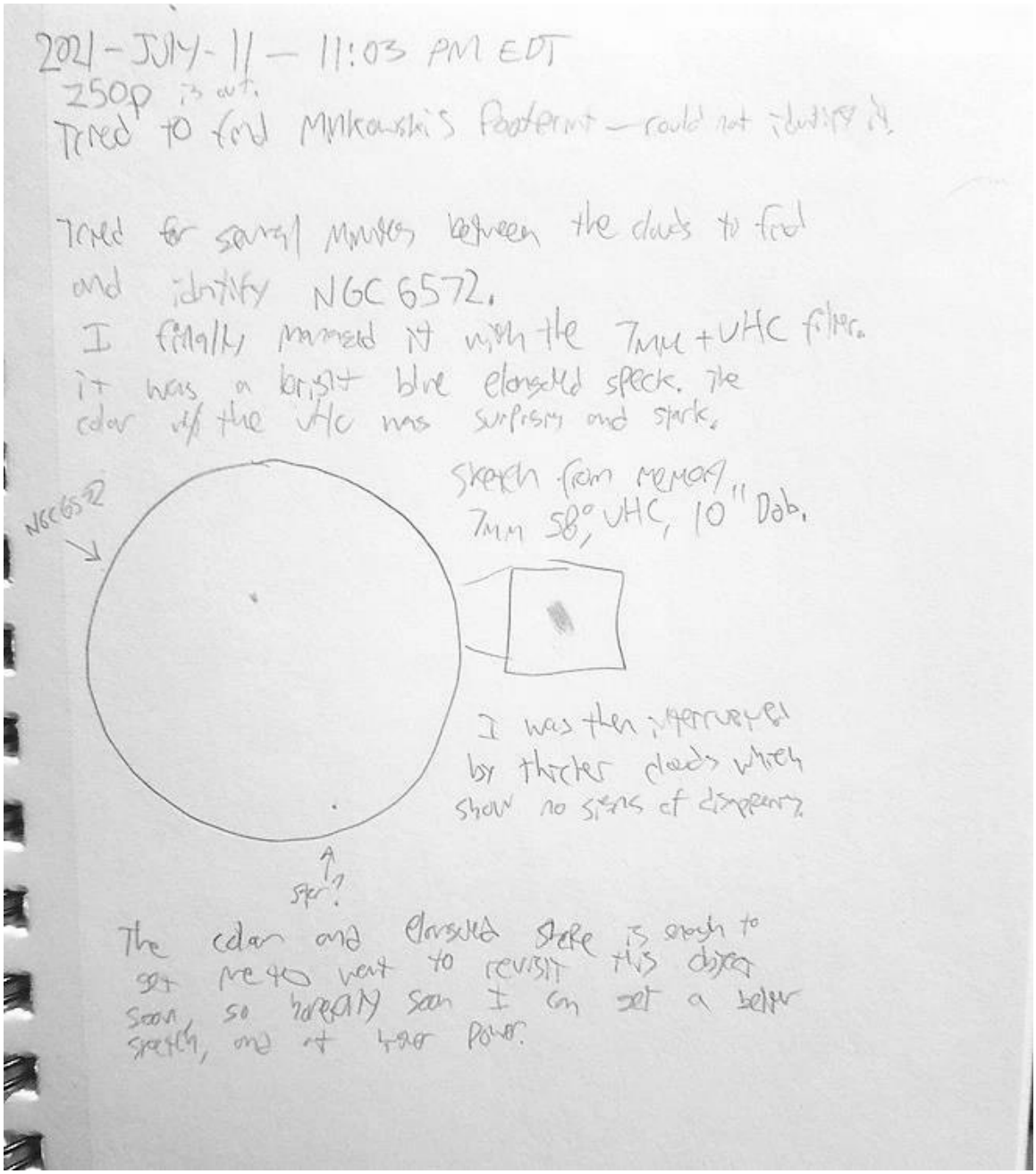
At 115× (11mm, 0.7° FoV) the planetary nebula forms an acute triangle together with two stars about 3′ to its East. The brighter of the two is HD 166872 at mag. 9 with TYC 0443-0638-1 at mag. 11 just to its South. There's another group of mag. 10 to mag. 11 stars a further 5′ East beyond them. At this magnification NGC 6572 resembles a fuzzy star. With averted vision a brighter spot near the center of the nebula winks in and out of view. I suspect this is the central star.

At 270× (4.7mm) the bright spot disappears with direct vision, but immediately reappears when using averted vision. I'm not able to make out the shape of the outer part of the nebula, but the brighter portions are mostly circular with a bluish-white hue.

Gregory Brannon: Observer from North Carolina

I went observing on the 11th. My cousin Quinn was with me, and I showed her M92 and M13, before deciding to try to find two planetary nebulae, Minkowski's Footprint and the Observer's Challenge object for this month, NGC 6572. I was unable to find Minkowski's Footprint after a while of trying, so I gave up for the time being and went for 6572.

By now, the clouds were coming across the sky in bands, obscuring and then revealing the part of the sky I was using in about equal measure. It took some time to star hop, using the screenshot from Stellarium mobile as reference both mirrored and unmirrored. It became easier when I realized there was a dim but visible star right next to the object. At that point it was a race against time as a band of clouds, a band of clear, and a final never-ending haze that was approaching. The nebula appeared as a bright blue star at mid power (80×), nearly a point source, but with the weird averted-vision behavior consistent with my experience of planetary nebulae. I scrambled to put a higher power in (I had already prepared the UHC filter), but in my haste I was a little too greedy with the magnification. At 428× it was not in the field of view. I pulled the Barlow out and put just the 7mm in (171×), and by then the cloud band was coming through. I lost it by the time the cloud band departed. Back at 80×, I located it again, switched to 7mm, and confirmed that it was a nebula. Very surface-bright and very noticeably pale-blue, very elongated (easily 2:1), and very small. I tried to scramble to go to the higher power (at that surface brightness I felt I could), but then the never-ending haze arrived. I settled for a sketch from memory.

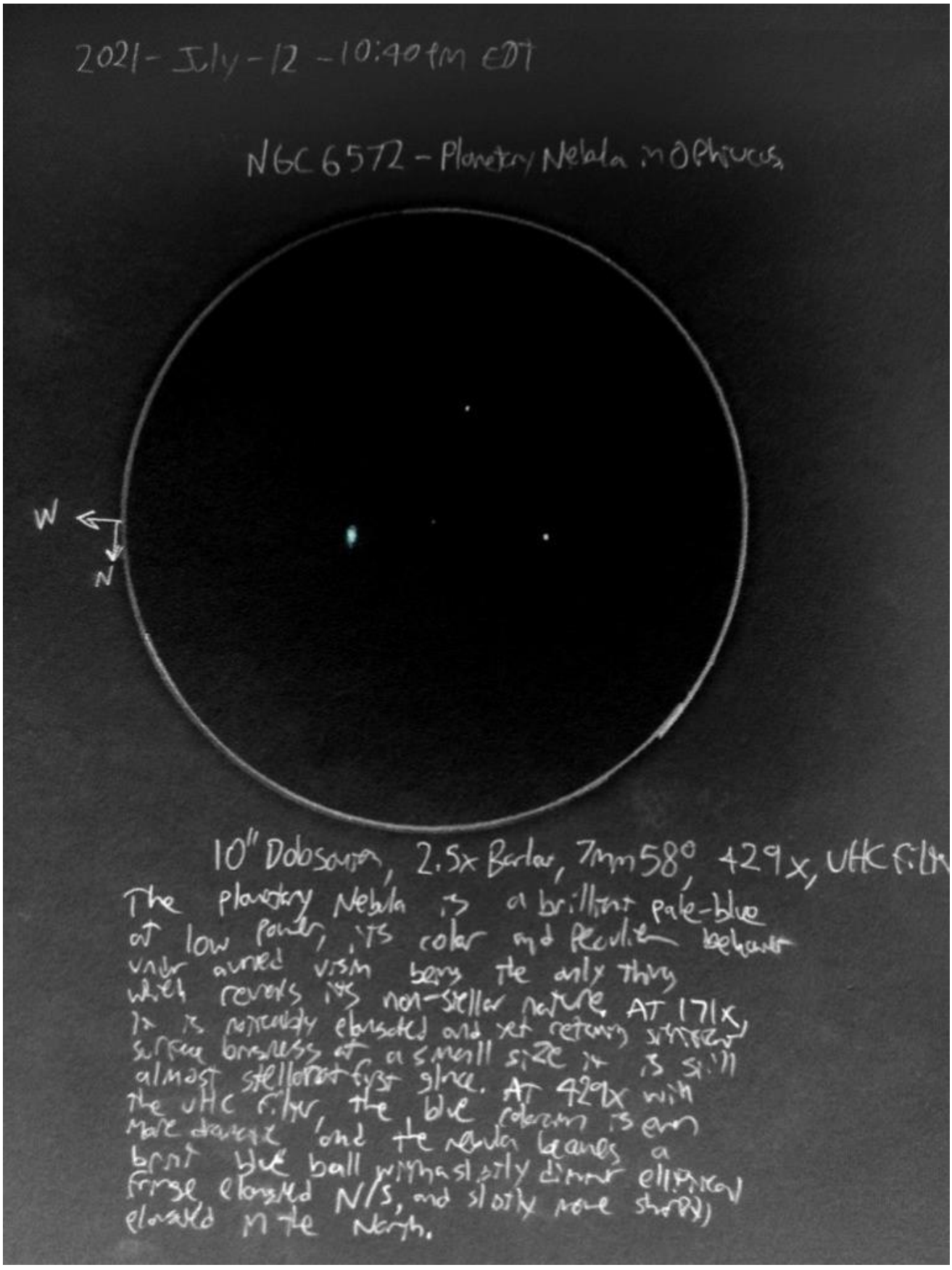


On the 12th, better sky conditions allowed me to return to NGC 6572. (And the unrelated Minkowski's Footprint was seen as well.)

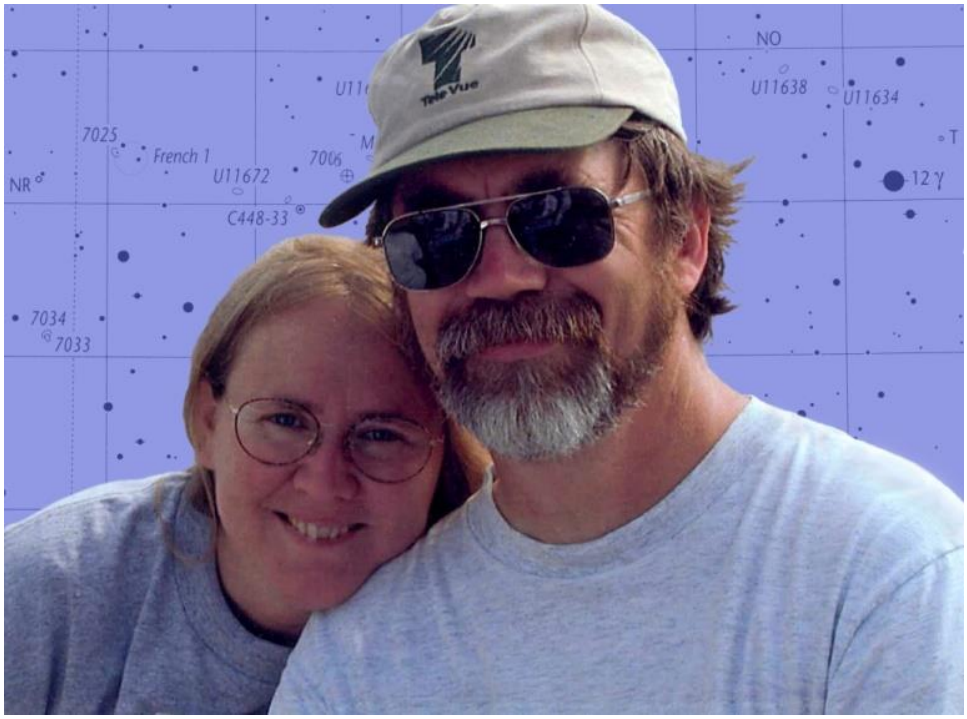
10″ f/5 Dobsonian, 2.5x Barlow, 7mm 58° eyepiece, 429×, UHC filter: The planetary nebula is a brilliant pale-blue at low power, its color and peculiar behavior under averted vision being the only thing which reveals its non-stellar nature. At 171×, it is noticeably elongated and yet retains significant surface brightness at a small size. It is almost stellar at first glance. At 429×, with the UHC filter, the blue coloration is even more dramatic and the nebula becomes a bright blue ball with a slightly dimmer elliptical fringe elongated N/S, and slightly more sharply elongated in the North.

I also observed the object with the CPC800 (8″, 250×, no filter) belonging to the Cline Observatory, during a practice session on the Thursday before our re-opening to the public. It almost seemed to show a little better contrast though less saturation, and I felt it had a bit sharper edges and pointier ends. But this is the sort of thing your brain imagines. I got a brief impression out of observatory

director Tom English–something to the effect of "nice color." (Later: but not large or obvious enough to show during public nights.) Another observatory volunteer mistook it for a star at first.



Sue French: Observer from New York



Although NGC 6572 looks stellar at low powers, it can often be spotted because of its distinctive color. The exact shade depends on the observer, the telescope's aperture, the amount of magnification used, and possibly even the sky conditions. Its diminutive disk marks the pointy end of a westward-pointing isosceles triangle that it forms with 9th- and 11th-magnitude stars.

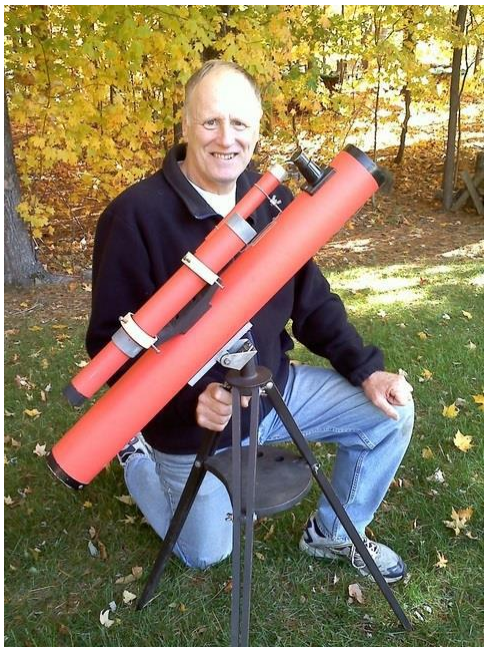
Through my 105mm refractor at 87×, this planetary nebula was very tiny, bluish grey, and barely distinguishable from a star. My husband's 8-inch refractor at 194× showed me a robin's-egg-blue color, and opposite rims of the nebula appeared slightly brighter. There's also a tiny, brighter patch in the core. Fellow observer Ron Barnell thought he saw a very small darker area surrounding this patch.

Turning to a 10-inch reflector, NGC 6572 looked like a bright point enveloped in a robin's-egg-blue fuzz when seen at a mere 43×. At 115× it seemed blue-green. Upping the magnification to 213×, this very bright planetary appeared elongated roughly north-south, wearing thin outer fuzz. It was much brighter inside, with a tiny, slightly brighter point at the center.

In a 14.5-inch reflector at 63×, I logged NGC 6572 as blue-green, but when I boosted the power to 245×, it looked greenish. The nebula showed a bright, roundish center with faint extensions that turned into a nearly north-south oval. At the time, I thought the central star was intermittently visible, but it seems likely that it may merely have been a slight brightness pip.

At 57× my 15-inch reflector shows a starlike point wrapped in a turquoise fringe. This colorful nebula stands out better at 117× and hosts a bright center. Boosting the magnification to 221× the nebula becomes a blue-green oval tipped a tipped a little east of north. I attempted a sketch during a second session with this scope, but seeing was poor and I would have needed higher magnification to check for details in this little guy.

Glenn Chaple: Observer from Massachusetts



NGC 6572 – Planetary Nebula in Ophiuchus (Mag: 8.1, Size: 16″ X 13″)

The visual observer is all too aware that, with the exception of double stars like gold and yellow Albireo and ruby-red carbon stars like R Leporis, the deep sky is a pretty colorless place. Bright planetary nebulae like this month's Observer's Challenge, NGC 6572 in Ophiuchus, are a notable exception.

NGC 6572 was discovered by the Russian-German astronomer Friedrich Georg Wilhelm von Struve in 1825. Struve was in the midst of a survey to catalog double stars when he came upon "a star surrounded by bright green ellipse of fuzzy light." At the time, astronomers were unaware of the true nature of such a curiosity. Today we know that NGC 6572 is a planetary nebula – an expanding luminous shell of gas ejected by an aging star. It's relatively young as planetary nebulae go, perhaps no more than 2600 years.

The 2000.0 coordinates for NGC 5672 are: R.A. $18^h\ 12^m\ 06.6^s$, Dec. +6° 51′ 13″. I star-hopped there by starting at the 5th-magnitude star 71 Ophiuchi, the unlabeled star just south of 72 Ophiuchi on Finder Chart A. Finder Chart B shows an 8th-magnitude star, SAO 123133 just northwest of 71 Ophiuchi. A line from this star through 71 Ophiuchi and extended 1.3° brought me to a triangle of 8th-magnitude stars, NGC 6572 was a little less than a degree SSE of the southernmost star in the triangle.

At 39× in my 10-inch f/5 reflector, NGC 6572 appeared stellar. At 208×, it was definitely non-stellar when compared to a pair of stars immediately to its east, It seemed slightly elongated in a north-south orientation and was decidedly pale blue. I was unable to detect the central star, which is said to be 13th-magnitude.

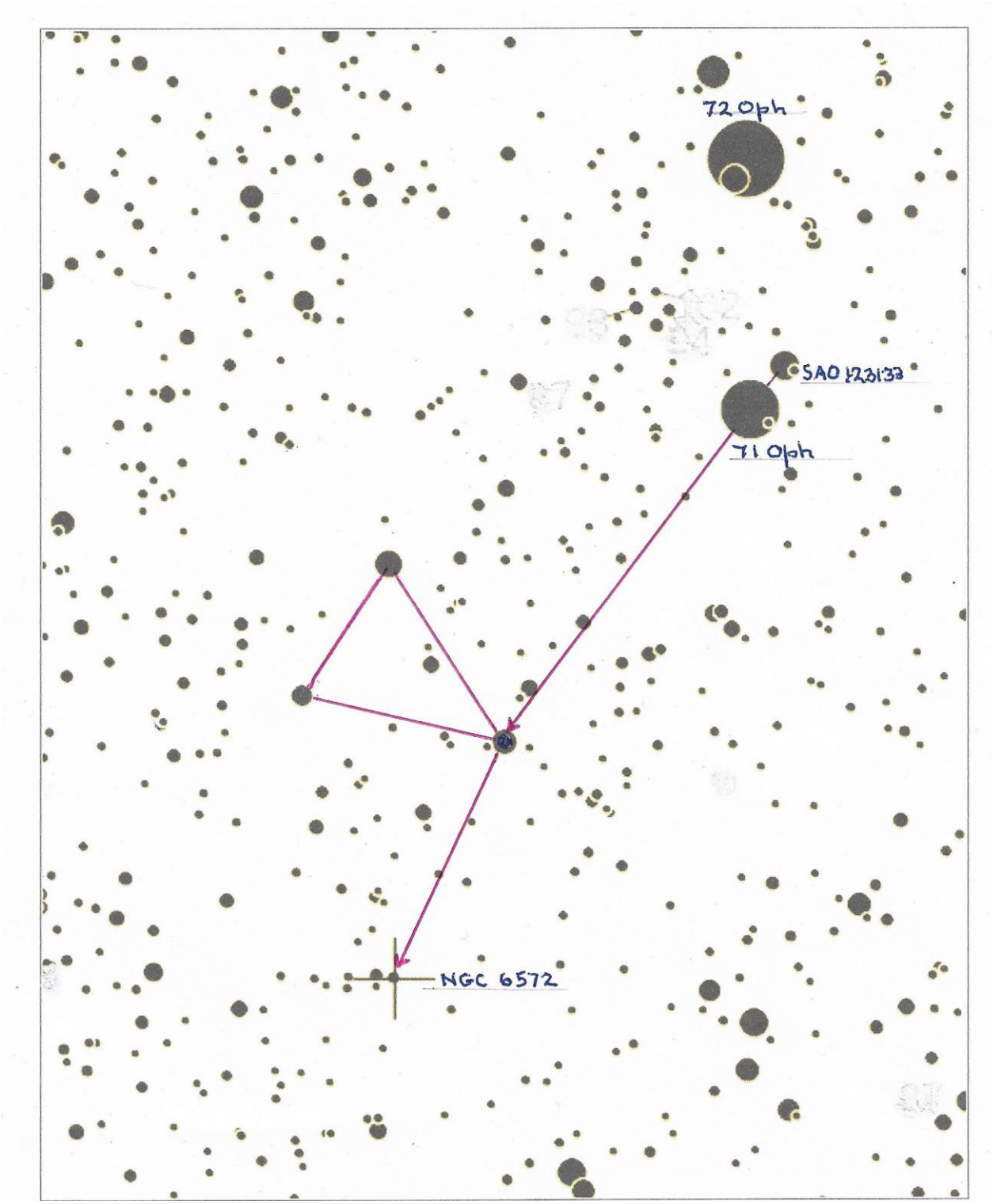
NGC 6572 is approximately 5000 light-years away. This translates to an actual diameter of ⅓ light-year.

Finder Charts for NGC 6572

Chart A

Chart B

From AAVSO's Variable Star Plotter (VSP). Annotations by Glenn Chaple. Field 3° by 4°. Stars plotted to 11th magnitude.



OBSERVING LOG

NAME: Glenn Chaple

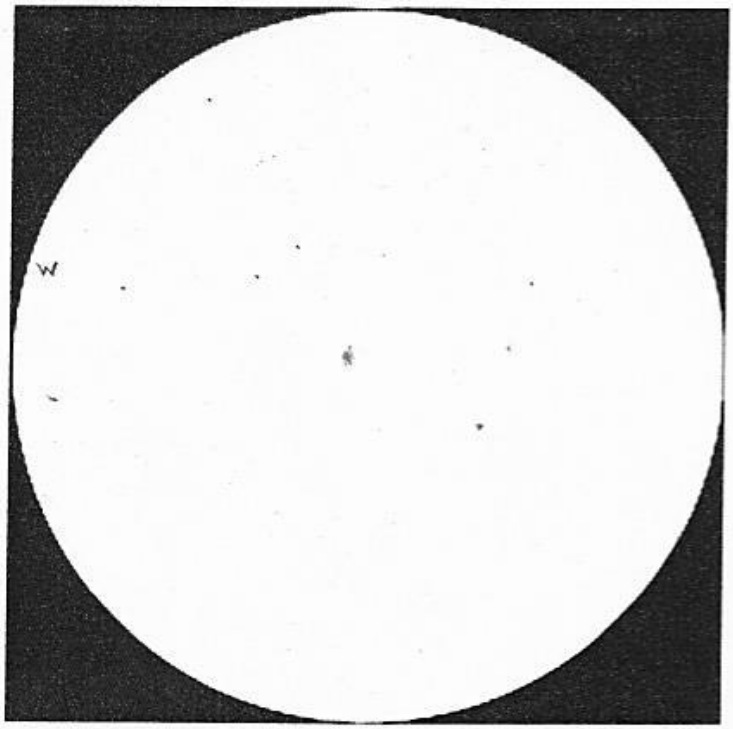
DATE (M/D/Y) 6/17/2021 TIME: 1:15 am EDT

OBSERVING SITE: 82 S. Harbor Rd. Townsend MA

SKY CONDITIONS: Seeing (Antoniadi Scale) bad Limiting Magnitude 5.0

OBJECT: NGC 6572 TYPE: PN CONSTELLATION: Oph

SKETCH (note direction of west)



NOTES:

Slightly elongated N-S.
Light blue color

OBSERVING EQUIPMENT

Binoculars ____X____

Telescope: 10-inch f/5 reflector Eyepiece: 6 mm Radian

Mag: 208X Field Diam: 0.3° Filter (if any): _____

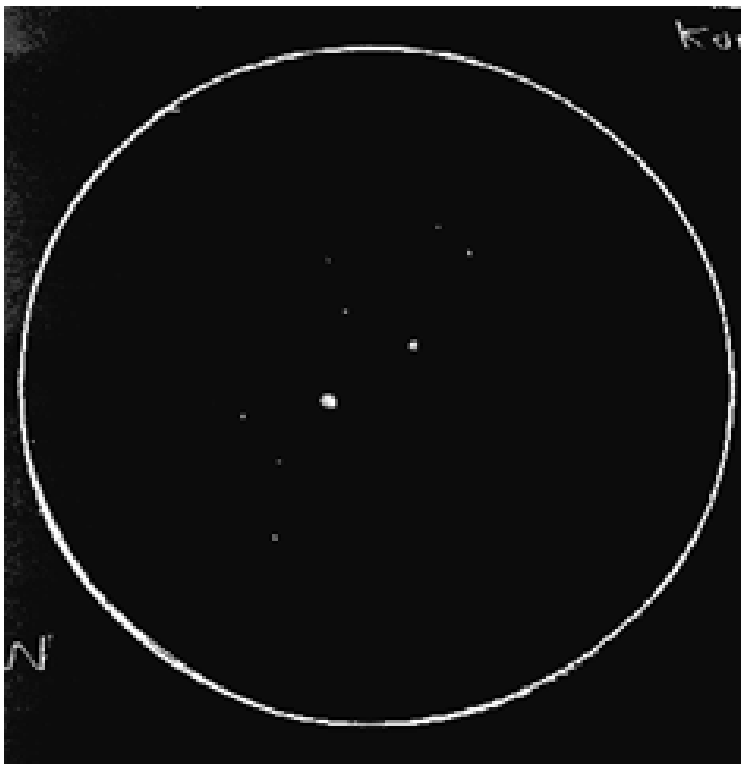
Larry McHenry: Observer from Pittsburg, Pennsylvania

July: NGC 6572 – Planetary Nebula – **Ophiuchus**; Mag. V=8.1; Size 16″ x 13″
RA: 18h 12m Dec. +06º 51′

Discovered in 1825 by the 19th century German double-star observer – Friedrich Struve at the Dorpat Observatory in Estonia. NGC6572 is located in the summer constellation of Ophiuchus, the Serpent Bearer. It is a fairly young planetary nebula estimated to be only a few thousand years old and is around 4900 lights-years distant.

Visually in the telescope, NGC6572 is an easy to find, bright green disk. A UHC filter enhances the view but is not really needed.

Visual Eyepiece Sketch: 06/05/1988 from backyard in Louisville, KY, using an 8″ f/4.5 Dob Reflector and 8mm eyepiece (114×).



Video-Capture: 07/21/2012: from Big Woodchuck Observatory backyard in Pittsburgh, PA, with an 8" SCT @ f6.3 on a Fork-Wedge Mount, using an analog video-camera & IR filter @ 10 seconds, unguided single exposure.

Mike McCabe: Observer from Massachusetts

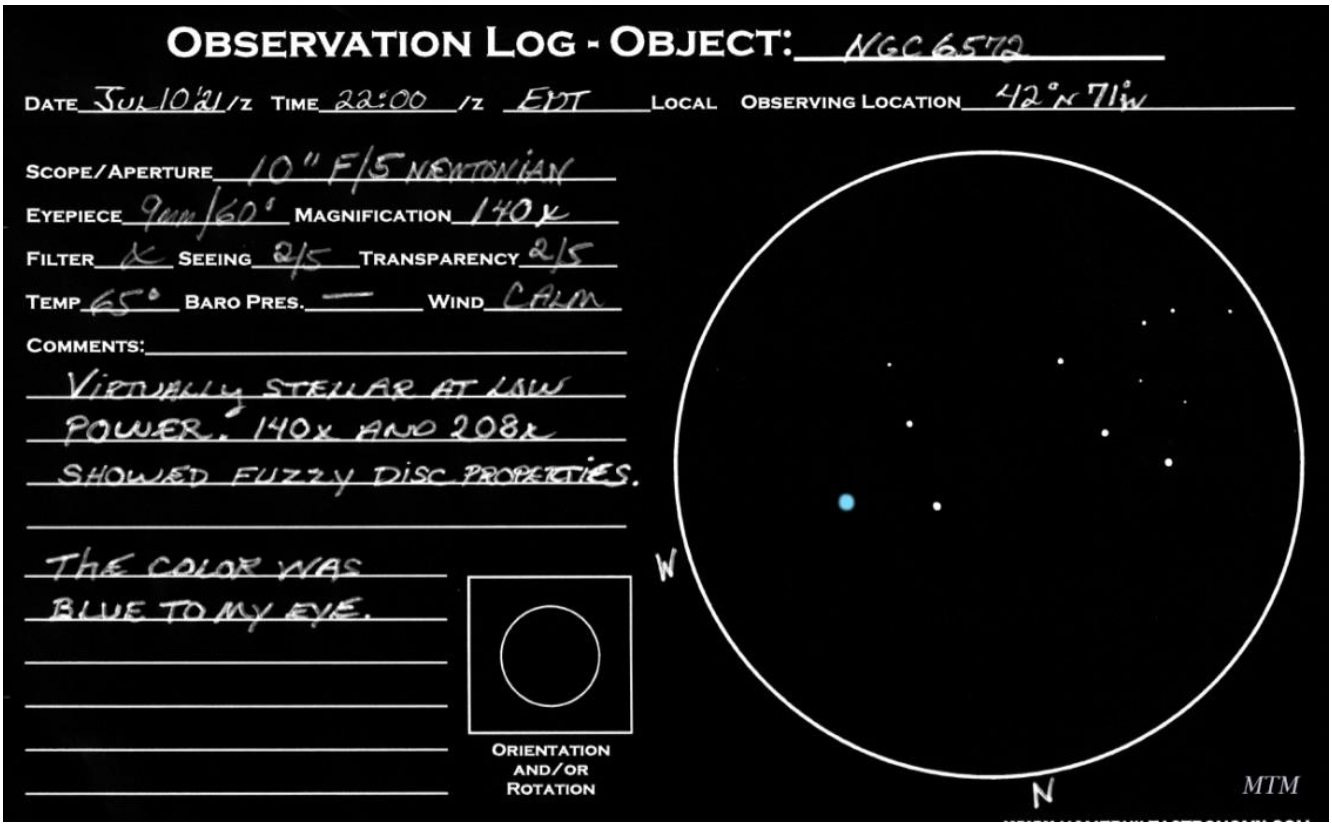
The Observer's Challenge object for July 2021 was NGC 6572, a bright planetary nebula in the constellation Ophiuchus, and I feel lucky to have gotten to have gotten an observation of it at all this month. Here in the northeast U.S. we've been experiencing record rains for this time of year, and clear nights have felt like a precious commodity. As luck would have it, on the exact night of the new moon we got a break and had a clear enough sky to do some observing. I put a scope out before dinner and waited for darkness.

The conditions were fairly typical of an early summer evening, with a high moisture content in the air lending to just fair transparency, but those same conditions also provided a somewhat steady state of seeing. On my sketch I noted the seeing as 2/5 early on, but further assessment as the evening wore on resulted in a rating of at least 3/5. And even though the target was quite bright by the Observer's Challenge standards and I probably could have easily gotten away with a medium sized refractor, I chose the 10″ f/5 Newtonian regardless.

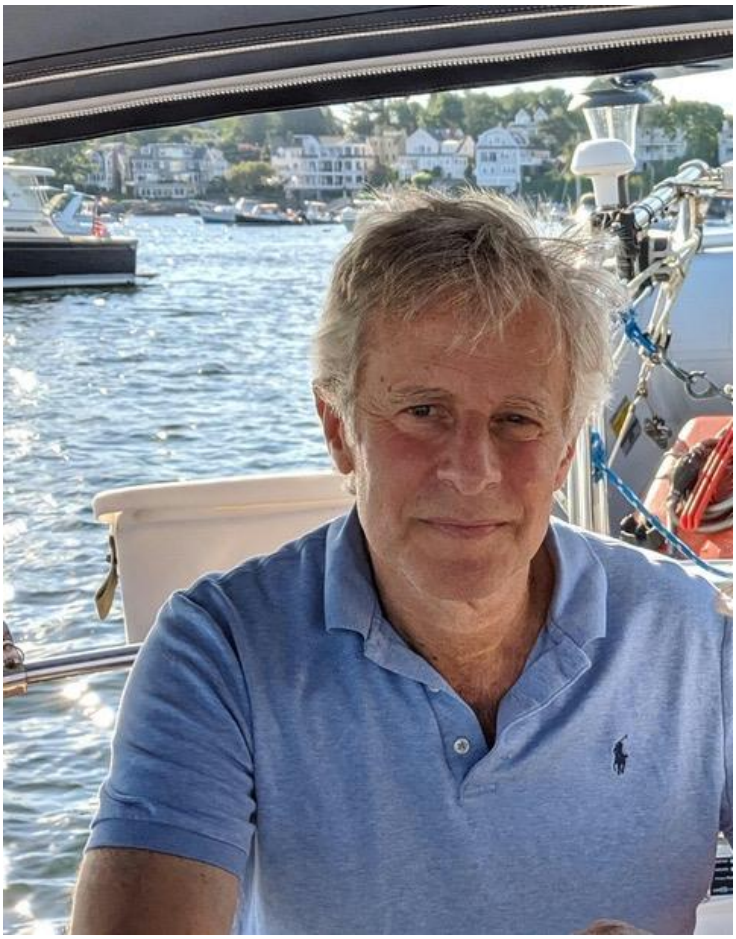
The target was a relatively easy star hop from the 3rd-magnitude star Cebalrai, including a quick drop in on IC 4665, the "Summer Beehive" cluster, just because it was there. At low power the planetary nebula is virtually stellar, with very little evidence that you're not looking at just a plain old star. Boosting the power up, though, begins to reveal the fuzzy discous nature of the object, and true to the form of many planetary nebula, magnification doesn't seem to dim it excessively. Even though the dimensions listed in various resources shows the object to be somewhat elongated, it never appeared anything other than round to me.

With a variety of nicknames, including Blue Racquetball, Emerald Nebula, Green Nebula, and Turquoise Orb, I figured one more couldn't hurt. I hereby dub thee "Fuzzy Blue Star", because that's exactly what it looked like to me. It's well known that color interpretation is a highly individual thing, and greens are my weakest area in color vision. I feel a little like I'm missing out on something in all these astronomy observations, like the green in the coma of a comet, the green flash on the Sun, and now the emerald in this planetary nebula. But I fret not. I'm happy with the colors I see, even if it gives

my wife fits when I tell her something is green, quite to the contrary of popular interpretation. She calls me colorblind. I tell her I see colors just fine. What does she know, anyway?



Barry Yomtov: Observer from Massachusetts



Planetary nebula NGC 6572, in the constellation Ophiuchus, was an interesting experience in collecting the images. I had looked up the nebula online and saw this unique asymmetrical object. When I started to image the subs, I thought that my mount had guided to the wrong object. All I saw was a sea of stars. But, when looking a bit closer I could see a bright blue star.

Obviously my optics could not resolve the details compared to the images seen on the internet. Once I stacked and processed the image, it was a bright and larger blue circular object.

The images (96 total) were taken on June 17, with a 25 second exposure for a total exposure time of 40 minutes. The images were taken with my RASA 11 f/2.2 and the ZWO 183 OSC CMOS camera.

Image follows.

Mario Motta: Observer from Massachusetts

NGC 6572 is a very tiny object (16×12 arc seconds). Got this last week, poor night with some turbulence, with an H alpha, O3 , and S2 filters. Very short exposures as it is very bright. Visually a small “blue spot”.

About 20 minutes each filter, O3 dominated…thus very blue. No detail that I can see. Only good image on line I found is by the Hubble, but can’t match that one! However, a nice object.

Image follows.

Anas Sawallha: Observer from Jordan

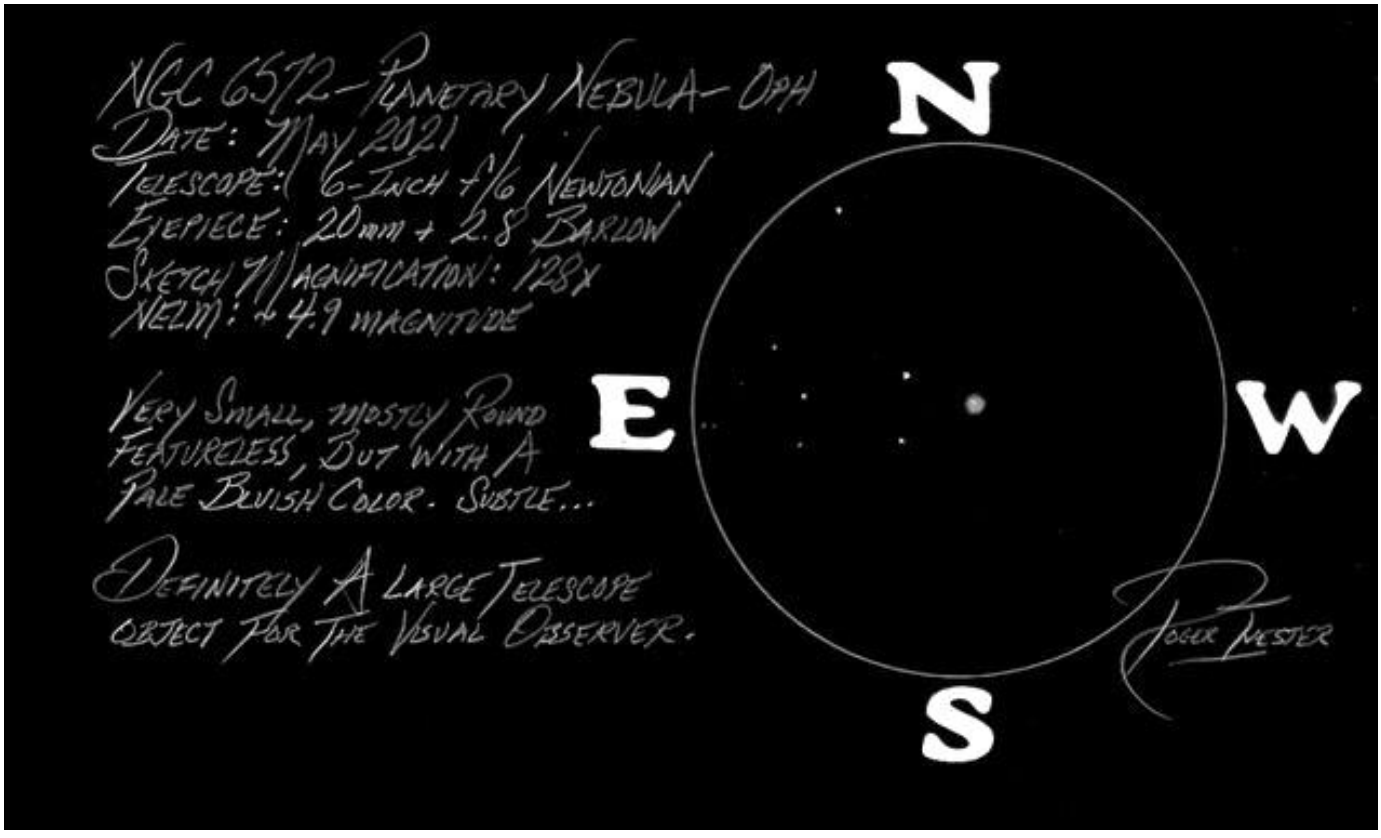
This month's observer challenge object is planetary nebula NGC 6572 in Ophiuchus, at magnitude 8 with high surface brightness. It is very bright despite observing from my home with very bad light pollution.

At low power it appears star-like, however at 161× it reveals its non-stellar appearance. It looked a bit like a triangular fuzzy blue star with a small halo wrapped around it. When using an O III filter it really increased the brightness of this nebula. Not really the best object for a small telescope, and I was not able to achieve further resolution.

Telescope: 5-inch PowerSeeker Newtonian: 1000 mm FL, 12.4mm Plössl EP and 2× Ultrascopic Barlow with a magnification of 161×.

Sketch follows.

Roger Ivester: Observer from North Carolina



Date: May 2021
Telescope: 6-inch f/6 Newtonian Reflector
Eyepiece: 20mm + 2.8× - Barlow Sketch Magnification: 128×
NELM: ~4.9 Magnitude

I knew that fine detail of this planetary would not be possible from my back yard, using a 10-inch reflector. So, I chose to use a 6-inch f/6 reflector, mostly for convenience, but not really expecting much difference from the 10-inch.

With the 6-inch, this planetary is very small, mostly round and featureless, but with a pale bluish color.

This is definitely a large telescope object for the visual observer.

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

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