

MONTHLY OBSERVER'S CHALLENGE

Compiled by:

Roger Ivester, North Carolina

&

Sue French, New York

October 2023

Report #177

NGC 7027, Planetary Nebula in Cygnus

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:

NGC 7017 was discovered by Jean-Marie-Édouard Stephan, the director of the Observatory of Marseilles, with the observatory's 31-inch reflector.

Physical information courtesy of [Courtney Seligman](#) :

NGC 7027 is thought to be about 3000 light-years away. Given that and its apparent size of about 1.1 by 1.0 arcmin for the outermost 'shells', about 0.3 by 0.25 arcmin for the most recent event and only about 0.2 arcmin for the central dust cloud, the largest and oldest shell is about a light-year across, while the newest one is only about a quarter of a light-year in diameter, and the dust cloud spans less than a fifth of a light-year (which is unusually small for any part of a planetary nebula, but is hardly surprising, since it is so "young" that it hasn't had enough time to expand to a larger size). Its small size and age makes this planetary exceptionally bright, for as they expand the gases in such nebulae become less dense and are also further from the source of their energy (namely, high-energy radiation from the central star(s), each of which facts reduces the gas' brightness.

Further details can be found at:

<https://cseligman.com/text/atlas/ngc70.htm#7027>

Uwe Glahn: Observer from Germany



Object: NGC 7027

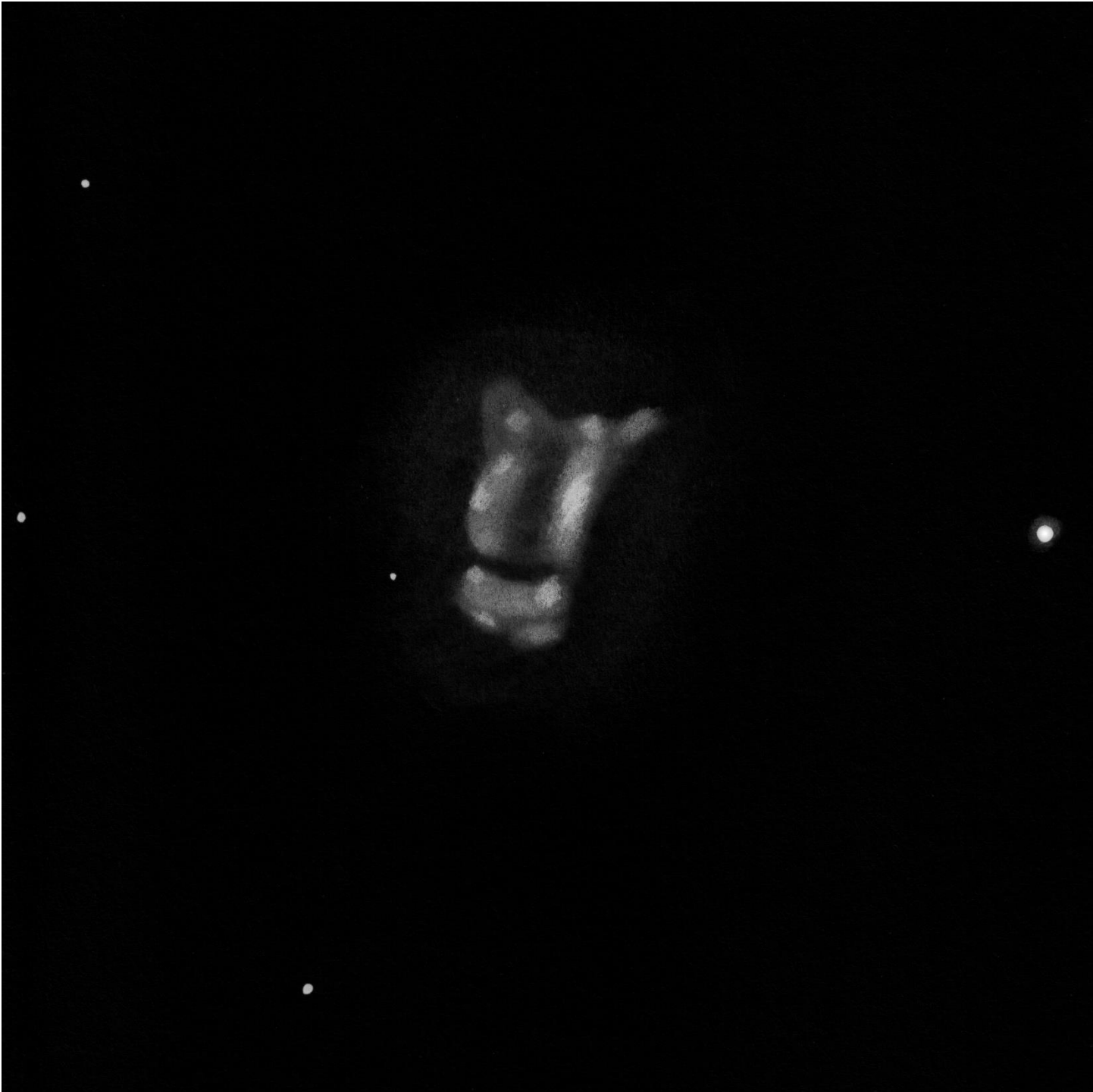
Telescope: 16" f/4.5 Newton

Magnification: 450×

Filter: UHC

NELM: fst 6m8





Object: NGC 7027

Telescope: 27" Newtonian

Magnification: 977×

NELM: fst 7m0+

Seeing: II

Location: Edelweißspitze



Object: NGC 7027 with halo

Telescope: 27" f/4.2 Newton

Magnification: 293×

Filter: [OIII]

NELM: fst 7m0+

Seeing: III

Location: Edelweißspitze

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

Bertrand Laville: Observer from France



Date of observation: Sep 08, 2015 00:45 UT
Duration of observation: 44 mins
Object position: Alt: 56.5°, Az: 283.1°
Observation location: Baronnies Provençales Observatory
Instrument: TN 635 Dobsonian Obsession
Main eyepiece: TeleVue Nagler 3.5mm Type 6
Magnification: 890×



Observation from 2015 06 17:

x890 Nagler 3.5mm

The seeing was very good, 1.2", in the middle of the night. I therefore decided to observe this NP, which was quite difficult. Unfortunately the seeing deteriorated, and the observation took place in average turbulence conditions. The NP is extremely luminous; NGC 7027 is one of the brightest objects in the sky. The bluish color is confirmed, C130/S50. The NP is analyzable, but the brightness makes analysis difficult. The dark E/W band is good seen and analyzable; the central hole is not seen.

x890 Nagler 3.5mm/OIII-5!!!

The saturation of the image is almost the same as without the filter, and even higher! The dark band is no longer seen; however central weakening is suspected.

Observation from 2015 09 08:

x890 Nagler 3.5mm without filter.

The seeing is very good, and I decide to resume my observation from June 2015 which had left me a little unsatisfied. The NP is very bright, very concentrated, and ultimately very small.

Sketches follow.



You'll find further details and more of Bertrand's sketches at: <http://www.deepsky-drawings.com/>

Larry McHenry: Observer from Pittsburgh, Pennsylvania

<http://stellar-journeys.org>



Planetary Nebula NGC 7027 is located in the summer constellation of **Cygnus** – ‘The Swan’, about 5.5 deg from the bright star Deneb near NGC 7000 – the “North America Nebula.” It is one of the brightest planetary nebulae in the night sky and is about 2,870 light years distant, and is estimated to be only about 600 years old. It is also one of the smallest planetary nebula known with a diameter of only about 0.1 x 0.2 of a light-year across.

NGC 7027 was first discovered in 1878 by French astronomer Edward Stephan with the Marseille Observatory’s 31-inch reflector, but was not widely reported at the time in the astronomical world.

In November of 1879, the planetary nebula was then independently re-discovered by the English amateur astronomer Reverend Thomas W. Webb, (author of the 19th century guidebook “Celestial Objects for Common Telescopes”), using his 3.7-inch refractor.

NGC 7027 was described by Webb as: “*Planetary, like a [magnitude] 8.5 star, about 4.*” Webb promptly communicated his new object to the astronomical community, where the nebula was widely studied and reported upon. It was not until later in the spring of 1890, and was determined that this nebula had actually been discovered a year earlier by Stephan. For some years afterwards this object was credited to both, but eventually Webb’s name was dropped from use.

Video-Capture/EAA: 08/04/2019, from ORAs Observatory in Western Pennsylvania.



Using a 14-SCT @ f/10 on a fork/wedge mount, with a CMOS color camera and IR filter, 15-second unguided exposure, live-stacked for 3 minutes. Visually, this planetary appeared as a bright, double-lobed object.

Mike McCabe: Observer from Massachusetts



Our family had recently spent the second week of October vacationing at one of our favorite spots on this fair planet. The Gurnet, located in hometown U.S.A. (aka Plymouth, MA) on a rocky knob of land jutting into the Atlantic Ocean at the opening of Plymouth Bay.

I always bring some astronomy equipment along, and so I had my “truck scope” with me for exploring the night sky if the conditions warranted it. I also brought my finder charts for the October Observer’s Challenge, just in case.

The 120 mm “truck scope” set up in front of the Lighthouse Keeper’s Cottage on the Gurnet, waiting for night.



On the afternoon of October 11th, I set up the 120 mm refractor in anticipation of a clear sky in the evening. About an hour after sunset it was anything but, and improvements were slow in coming. While waiting out the clearing overhead we gazed at Saturn at 150×. It was really the only clear section of sky at that time and I began to wonder if I'd get the sky I needed to tackle the Observer's Challenge.

Around 7:50 pm, I decided to have a go at it regardless of the compromised transparency. I wasn't sure it would get better so I figured it would be better to try it then, rather than waiting and having full cloud cover leave me with nothing. I left the 150× setup in the eyepiece holder and got down to the star hop.

The target surprised me with its visibility in the relatively small glass of the medium sized refractor, and in technicolor and everything! If nothing else, participation in the Observer's Challenge has introduced me to many, many objects that I might not otherwise get exposed to. It's one of the things that I truly enjoy and look forward to each and every month.

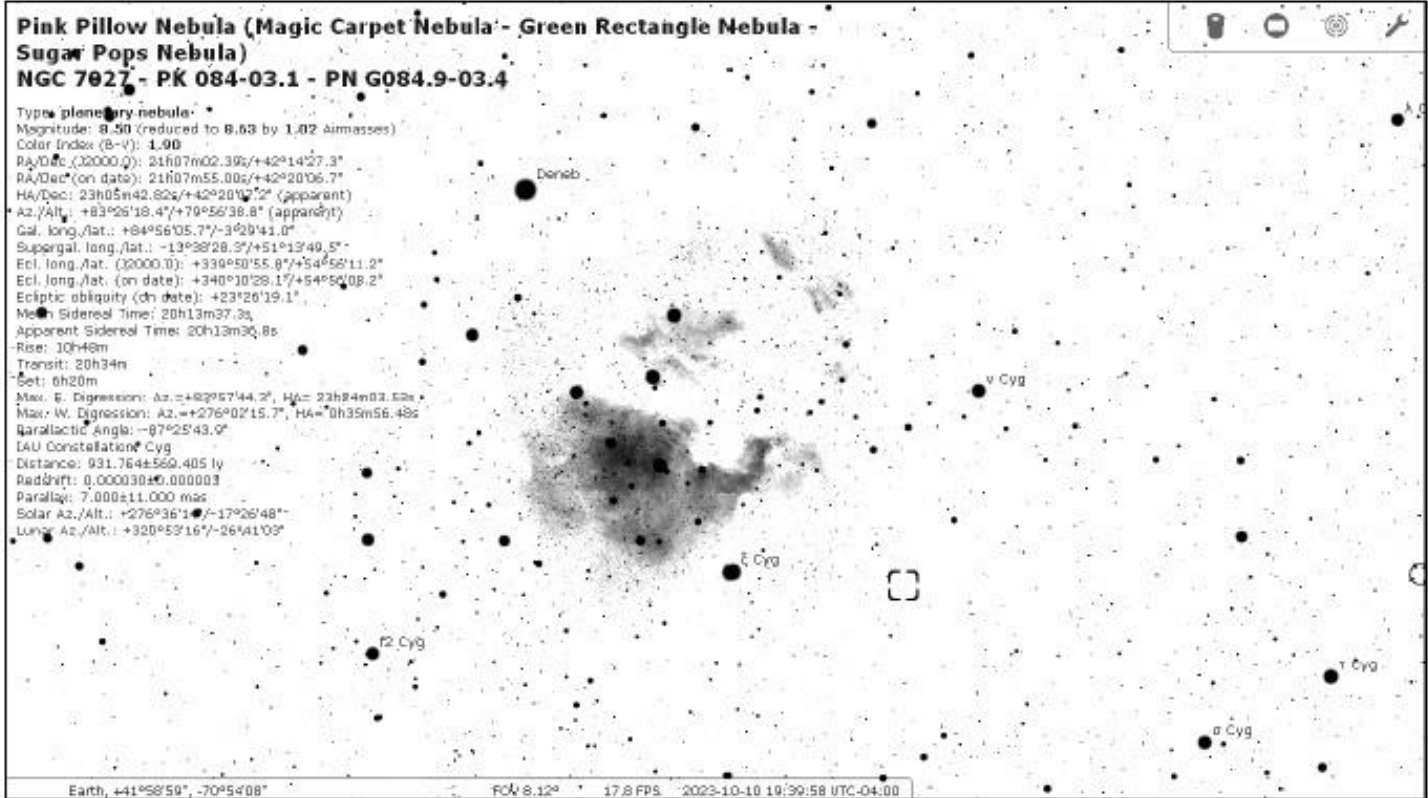
According to multiple sources the Jewel Bug Nebula (apparently, just one of many nicknames assigned to this particular object) shines at a visual magnitude of 8.5, but none of the sources offered a surface brightness estimate. I'll say this about that...it has a bright surface brightness

Charts follow.

NGC 7027, Planetary Nebula in Cygnus Finder Charts

Pink Pillow Nebula (Magic Carpet Nebula - Green Rectangle Nebula - Sugar Pops Nebula)
NGC 7027 - PK 084-03.1 - PN G084.9-03.4

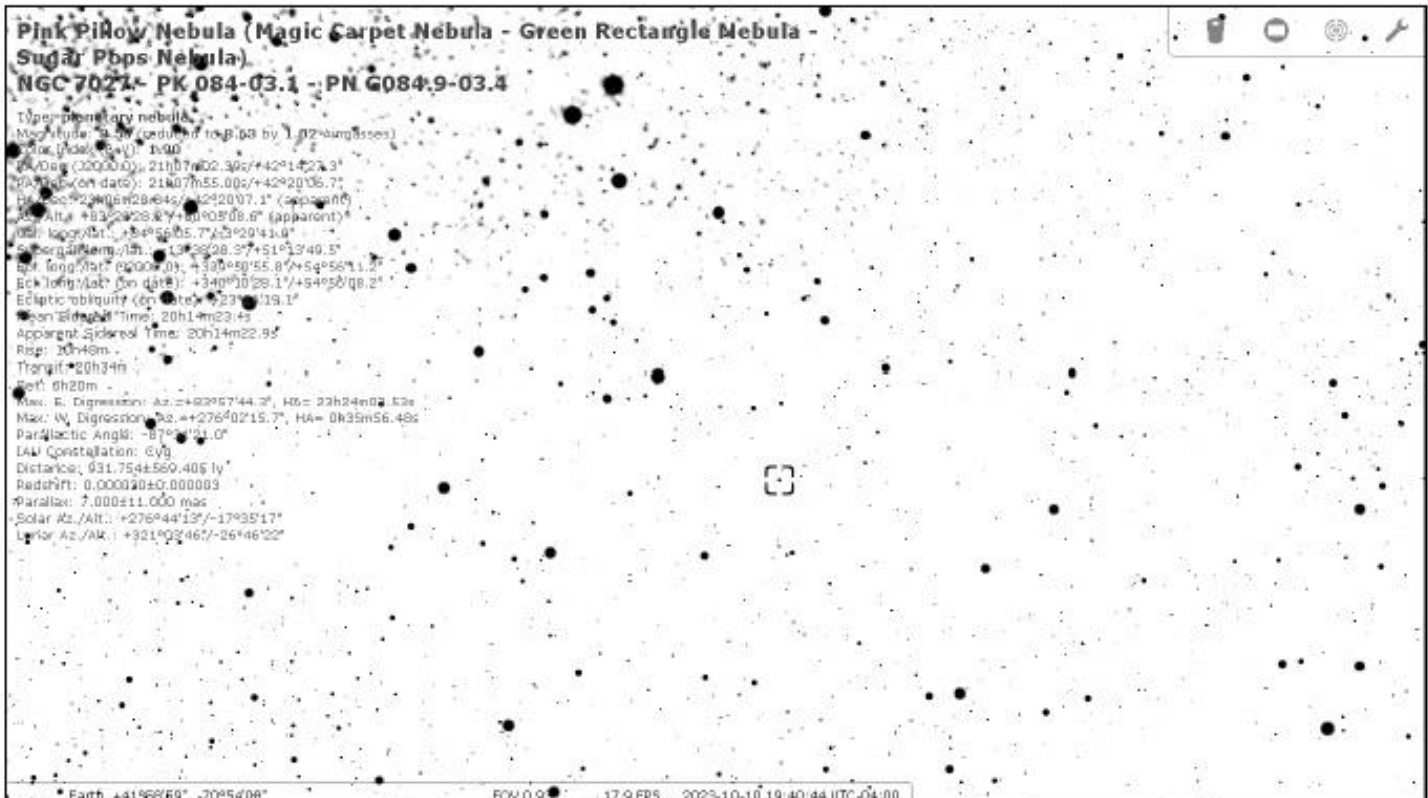
Type: planetary nebula
 Magnitude: 8.50 (reduced to 8.68 by 1.02 Airmasses)
 Color Index (B-V): 1.90
 RA/Dec (J2000.0): 21h07m02.39s/+42°14'27.3"
 RA/Dec (on date): 21h07m55.00s/+42°20'06.7"
 HA/Dec: 23h05m42.82s/+42°20'07.1" (apparent)
 Az./Alt.: +83°26'18.4"/+79°56'38.8" (apparent)
 Gal. long./lat.: +84°56'05.7"/-3°29'41.0"
 Supergal. long./lat.: -13°28'28.3"/+51°13'40.5"
 Ecl. long./lat. (J2000.0): +339°50'55.8"/+54°56'11.2"
 Ecl. long./lat. (on date): +340°10'28.1"/+54°56'08.2"
 Ecliptic obliquity (on date): +23°26'19.1"
 Mean Sidereal Time: 20h13m37.3s
 Apparent Sidereal Time: 20h13m30.8s
 Rise: 10h48m
 Transit: 20h34m
 Set: 6h20m
 Max. E. Digression: Az.=+82°57'44.2", Hc= 22h24m02.52s
 Max. W. Digression: Az.=+276°02'15.7", HA= 0h35m56.48s
 Parallax Angle: -87°25'43.0"
 IAU Constellation: Cyg
 Distance: 931.764±560.405 ly
 Redshift: 0.000030±0.000003
 Parallax: 7.000±11.000 mas
 Solar Az./Alt.: +276°36'11"/-17°28'48"
 Lunar Az./Alt.: +320°53'16"/-26°41'03"



Finder Field From Deneb

Pink Pillow Nebula (Magic Carpet Nebula - Green Rectangle Nebula - Sugar Pops Nebula)
NGC 7027 - PK 084-03.1 - PN G084.9-03.4

Type: planetary nebula
 Magnitude: 8.50 (reduced to 8.68 by 1.02 Airmasses)
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 Ecl. long./lat. (on date): +340°10'28.1"/+54°56'08.2"
 Ecliptic obliquity (on date): +23°26'19.1"
 Mean Sidereal Time: 20h14m23.4s
 Apparent Sidereal Time: 20h14m22.9s
 Rise: 10h48m
 Transit: 20h34m
 Set: 6h20m
 Max. E. Digression: Az.=+82°57'44.2", Hc= 22h24m02.52s
 Max. W. Digression: Az.=+276°02'15.7", HA= 0h35m56.48s
 Parallax Angle: -87°25'43.0"
 IAU Constellation: Cyg
 Distance: 931.754±560.405 ly
 Redshift: 0.000030±0.000003
 Parallax: 7.000±11.000 mas
 Solar Az./Alt.: +276°44'13"/-17°35'17"
 Lunar Az./Alt.: +321°02'46"/-26°46'22"



1° Eyepiece Field

This simple pair of charts, made using the free desktop planetarium program Stellarium and printed on a single piece of paper were all that was needed to land on our target in short order. The area around Deneb is a busy one, where star hopping can be a challenge because there are **so** many stars. One little trick that I learned a long time ago when using a direct-view chart while working through a diagonal in a refractor/SCT/Maksutov-Cassegrain setup, to turn the page over and shine the red light through from the back (the side the stars are printed on.) Now the stars on the paper appear reversed left to right, just like they look in the eyepiece.

OBSERVATION LOG - OBJECT: NGC 7027

DATE OCT 11, '23 /z TIME 20:00 /z EDT LOCAL OBSERVING LOCATION THE GURNET
42° N, -70.6° (W)

SCOPE/APERTURE 120mm F/8.3 REFRACTOR

EYEPIECE 6.7mm MAGNIFICATION 150x (0.35° FOV)

FILTER — SEEING 2/5 TRANSPARENCY 2/5

TEMP — BARO PRES. — WIND SW 8

COMMENTS: _____

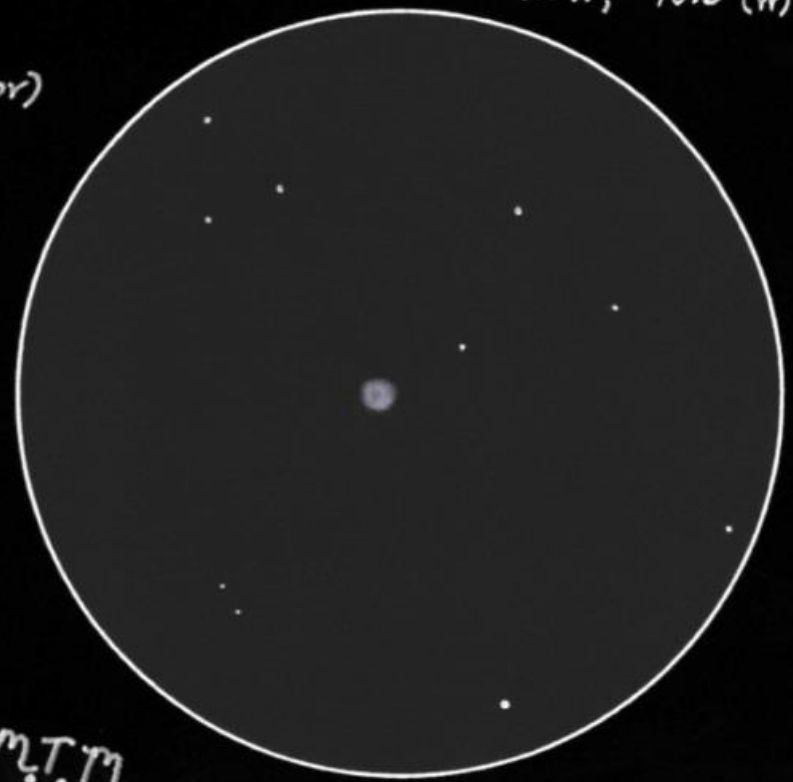
PLANETARY NEBULA READILY
SHOWED UP AS A NON-STELLAR
OBJECT IN A RELATIVELY DIM FIELD.
THE NEBULOSITY HAD A BLuish HUE.

THIS WAS A SURPRISINGLY
GOOD OBSERVATION THRU
A SMALL SCOPE UNDER A
CLOUD-COMPROMISED SKY.

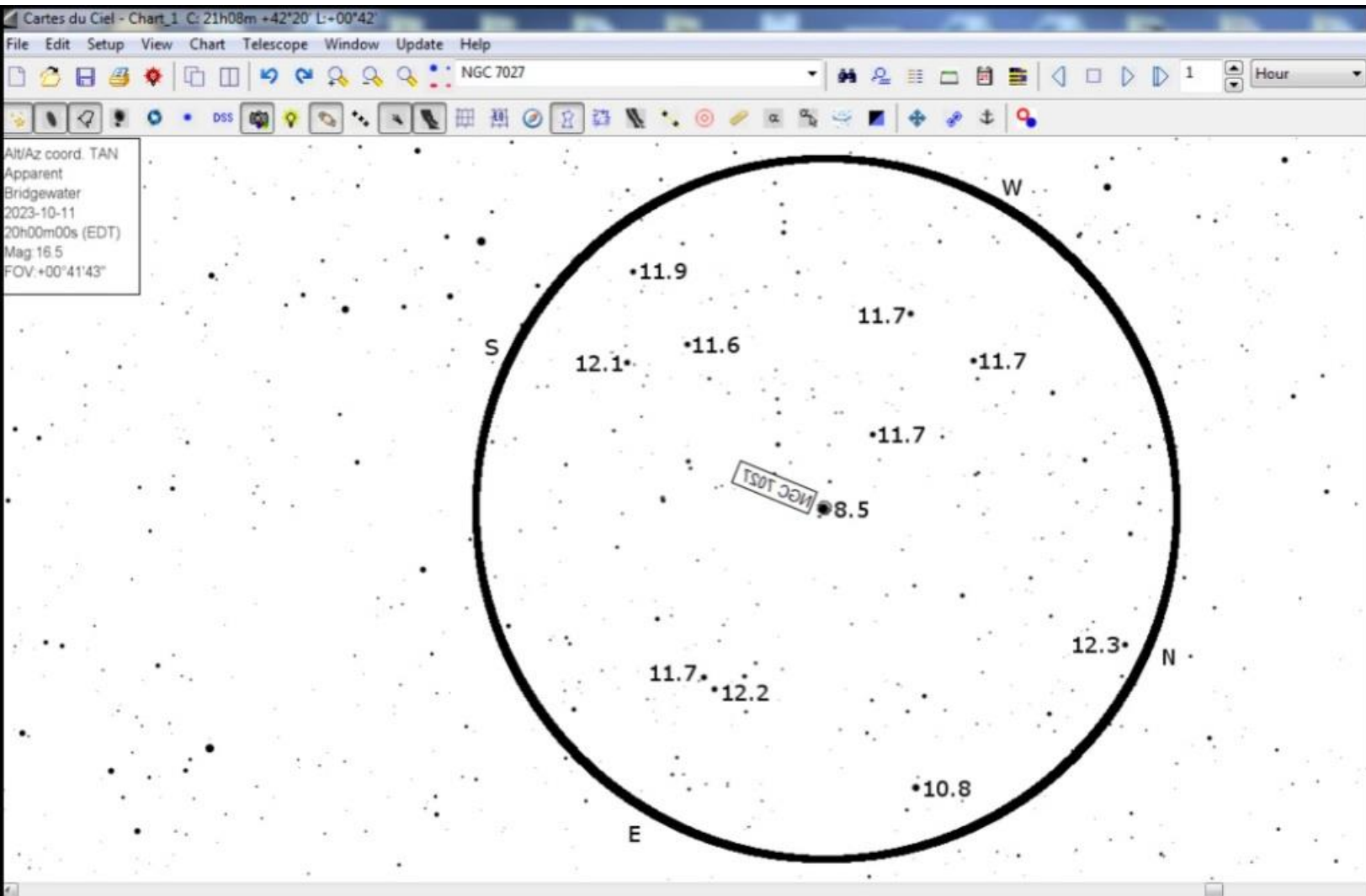


ORIENTATION
AND/OR
ROTATION

M.T.M.



There weren't a lot of stars shining in the 0.35° true field of view, in the eyepiece. But the planetary was vividly visible and such a pleasant surprise given the scope size being used and sky-quality at the time.



I mentioned the relative dimness of the field in my notes, and this Cartes du Ciel chart, the circle in which shows the same FOV and orientation as my drawing, reveals that the brightest star plotted by me at the eyepiece was a meager 10.8m, with all the rest significantly dimmer. Working near the zenith is a little uncomfortable with a low mounted refractor, but surely helps with seeing stars near the scope's limit.

Next up, IC 10 in Cassiopeia, and from what I've been hearing in these e-mails, it might be time to drag out the big gun for the November challenge!

Joseph Rothchild: Observer from Massachusetts



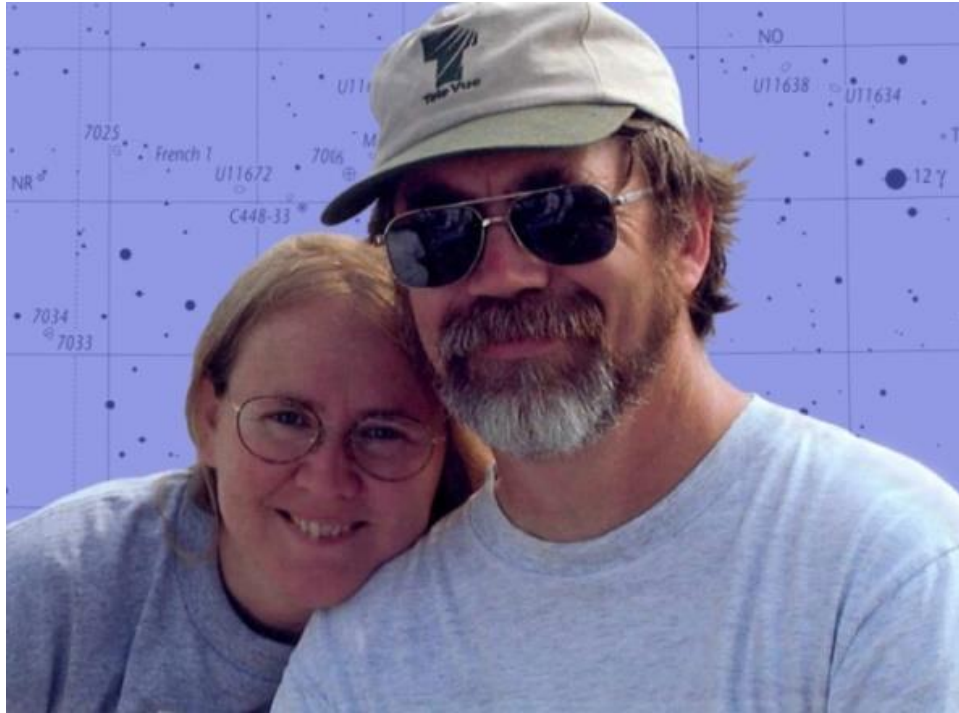
I observed planetary nebula NGC 7027 with my 10-inch reflector under dark skies on Cape Cod. This was my first observation of this object.

I star hopped from the North America Nebula. Near the midpoint of Nu (ν) Cygni and Xi (ξ) Cygni there was a triangular asterism of 3 stars that pointed to the nebula.

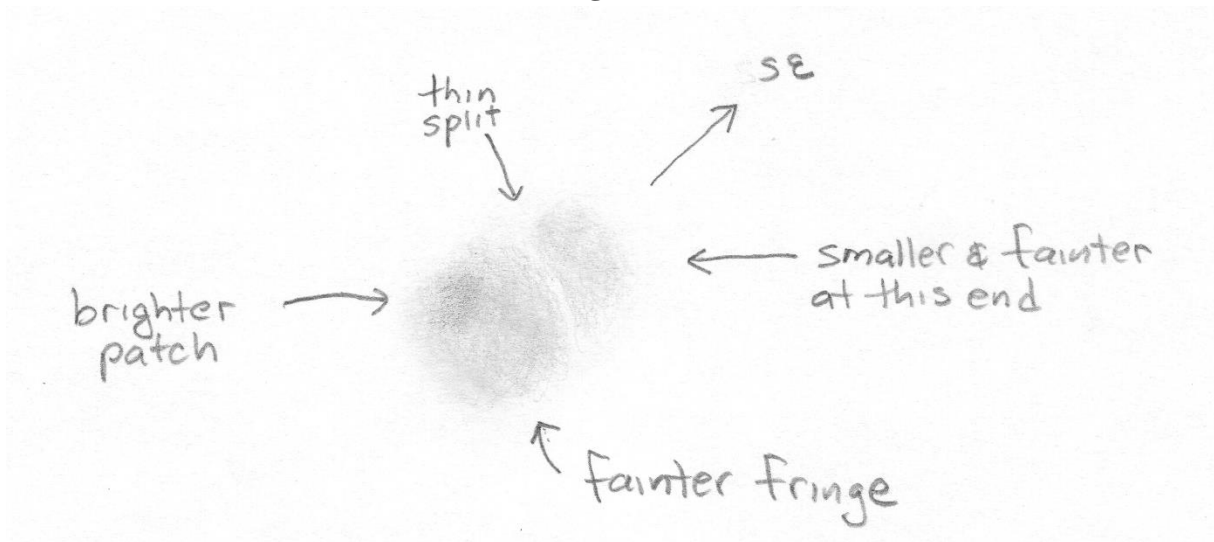
I did not use a nebulae filter. At $53\times$ the PN was identified by its slightly green hue and being non-stellar. At $102\times$ the PN showed a clear disc, and at $179\times$ the disc was large and bright, but without any internal detail. It was reminiscent of IC 418.

After seeing the PN in my 10-inch reflector, I was also able to see it with my 16×70 binoculars, identified by its slightly green hue.

Sue French: Observer from New York



Sketch as seen through the 15-inch reflector.



NGC 7027 is an aqua nebula with a tiny bright center in my 105-mm scope at 47 \times , while at 127 \times with an OIII filter, I see it as an oval tipped northwest.

The nebula is a bright, aqua, starlike spot with a halo when seen through the 130-mm scope at 37 \times , and a small disk blossoms at 102 \times . The planetary appears oblong northwest-southeast at 164 \times and flaunts its color even better, while at 234 \times its southeastern end appears narrower and not quite as bright. The color morphs in into a deep sky-blue and is still surprisingly bright.

Through my 10-inch scope at 213 \times , the nebula has a striking bluish green color. It shows two distinct lobes separated by a narrow lane and surrounded by a faint halo. The northwestern lobe is larger with a minute bright spot in its western edge. The southeastern lobe is a bit dimmer and elongated east-northeast to west-southwest. At 299 \times the color is not as strong, but the nebula appears wonderfully complex. The halo

becomes prominent and the division between the lobes even more distinct. The area surrounding the intense spot is quite bright. The spot itself is non-stellar and remains bright when viewed through an OIII or a narrowband filter, attesting to its nebular nature.

NGC 7027 is intriguing through the 15-inch scope. My sketch was made at 345×, and the features to search for are labeled.

The nebula is also known as the Green Rectangle and the Magic Carpet Nebula. These nicknames are the brainchildren of Kent Wallace, the first for its appearance through his 20-inch scope. He coined the second name after reading about a Hubble image of the nebula being described as a hot coal on a carpet.

Glenn Chaple: Observer from Massachusetts



OBSERVER'S CHALLENGE* – October, 2023

by Glenn Chaple

NGC 7027 Planetary Nebula in Cygnus (Magnitude 8.5, Size 16" X 12")

NGC 7027, a planetary nebula in Cygnus, is a true hidden treasure. Don't take my word for it. Just ask Stephen O'Meara, who devoted 5 pages to it in his Deep-sky Companion book *Hidden Treasures*. He writes, "NGC 7027 is one of the brightest, smallest, most unusual, and arguably the most fascinating planetary nebula in the night sky. It is, hands down, *the* most extensively studied – both observationally and theoretically."

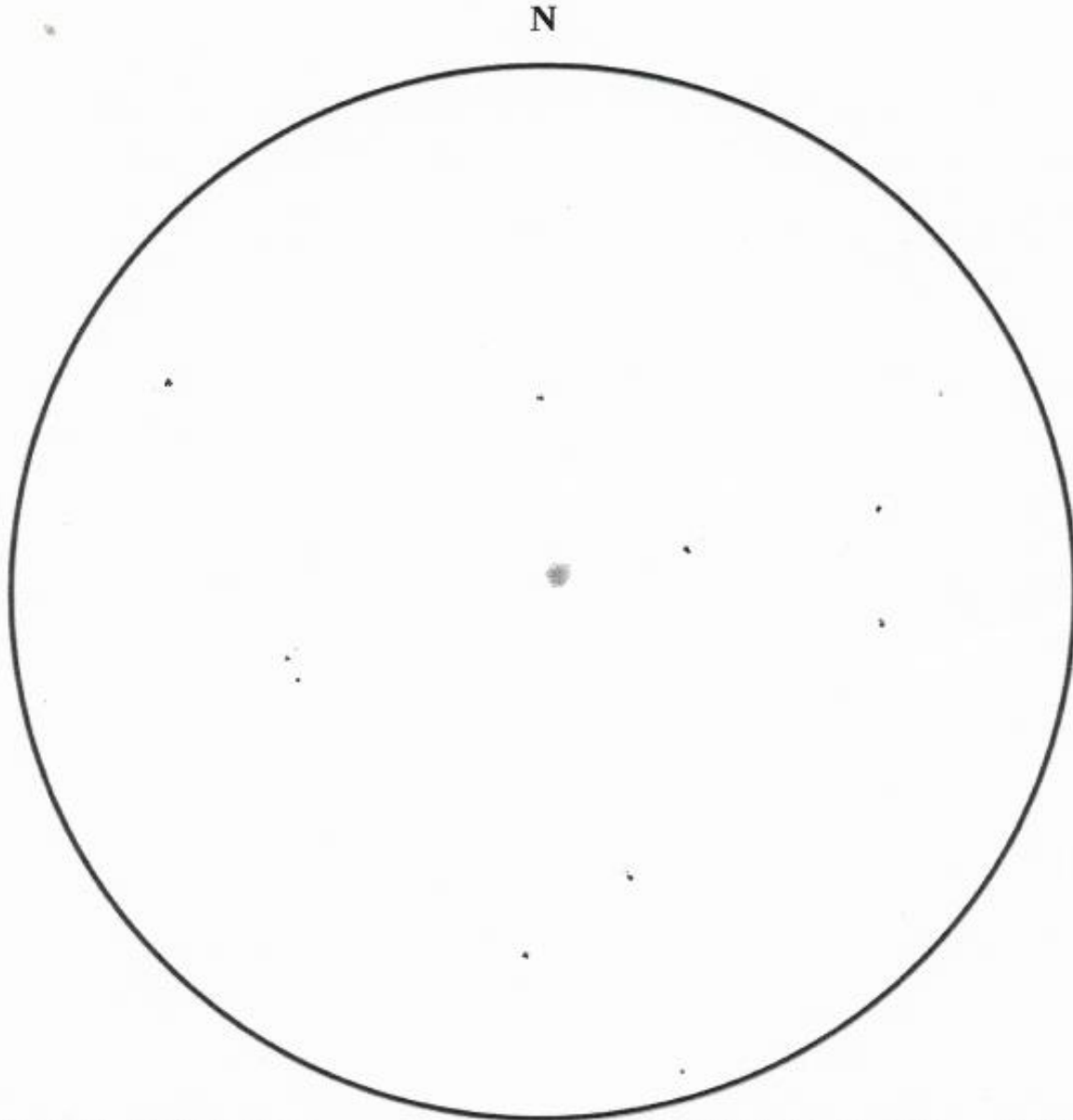
NGC 7027 (aka the "Jewel Bug Nebula") merits "hidden" status because its relatively small size (just 16 by 12 arc-seconds) and location in a rich Milky Way field allowed it to avoid discovery until late in the 19th century. It eluded the watchful eye of William Herschel when he conducted his celestial surveys of the late 18th and early 19th centuries and remained "hidden" until spotted by the French astronomer Edouard Stephan with a 31-inch reflector in 1878. Now that we know of its existence and location, we can capture NGC 7027 with a 6-inch scope.

The 2000.0 coordinates for the Jewel Bug are: RA 21^h07^m1.7^s, Dec +42°14'11.0". To get there, star-hoppers will have to navigate 2-degree-long star-strewn paths either SSE from the 4th magnitude star xi (ξ) Cygni or ENE of 4th-magnitude nu (ν) Cygni.

I used the latter route in tracking down NGC 7027 with a 10-inch f/5 reflector. At 40×, it looked like a slightly out-of-focus 8th-magnitude star. To confirm that I was looking at a planetary nebula, I boosted the magnification to 208×. What I saw was a beautiful light blue, slightly oval patch of light – a definite treasure! It was bright and easy even without the aid of an OIII filter.

The reason NGC 7027 has drawn so much scrutiny from professional astronomers is that it's a planetary nebula in an early stage of development. The Jewel Bug may be as little as 600 years old. At such a young age, it's small as planetary nebulae go – perhaps just 0.1 or 0.2 light-years in diameter. Studies indicate a distance of some 3000 light-years.

Sketch



SUBJECT: NGC 7027

DATE/TIME: 9/3/2023 9:20pm EDT

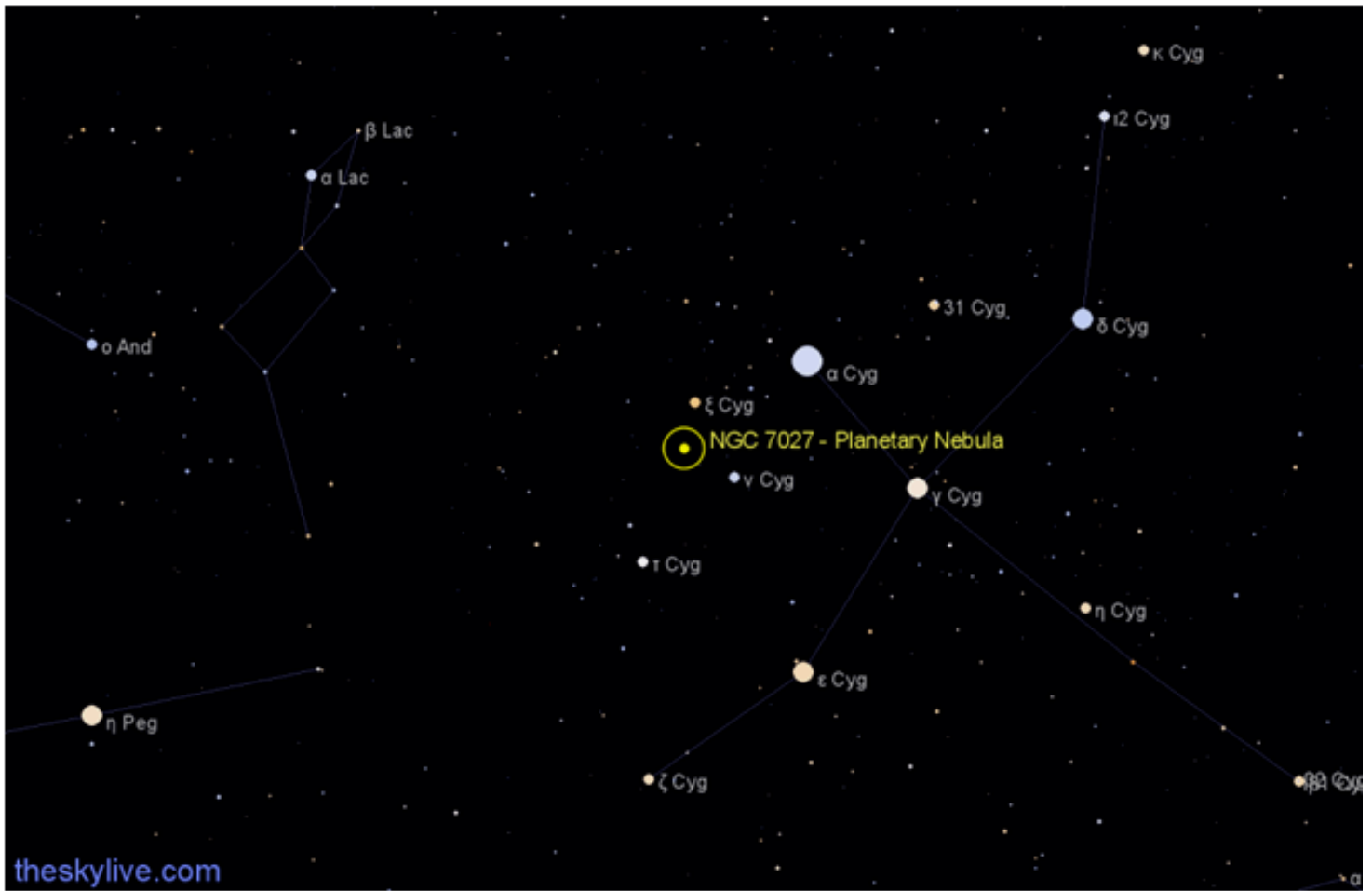
TELESCOPE/EYEPIECE: 10-inch f/5 reflector
6 mm Radian

MAGNIFYING POWER: 208 X **FIELD OF VIEW:** 0.3°

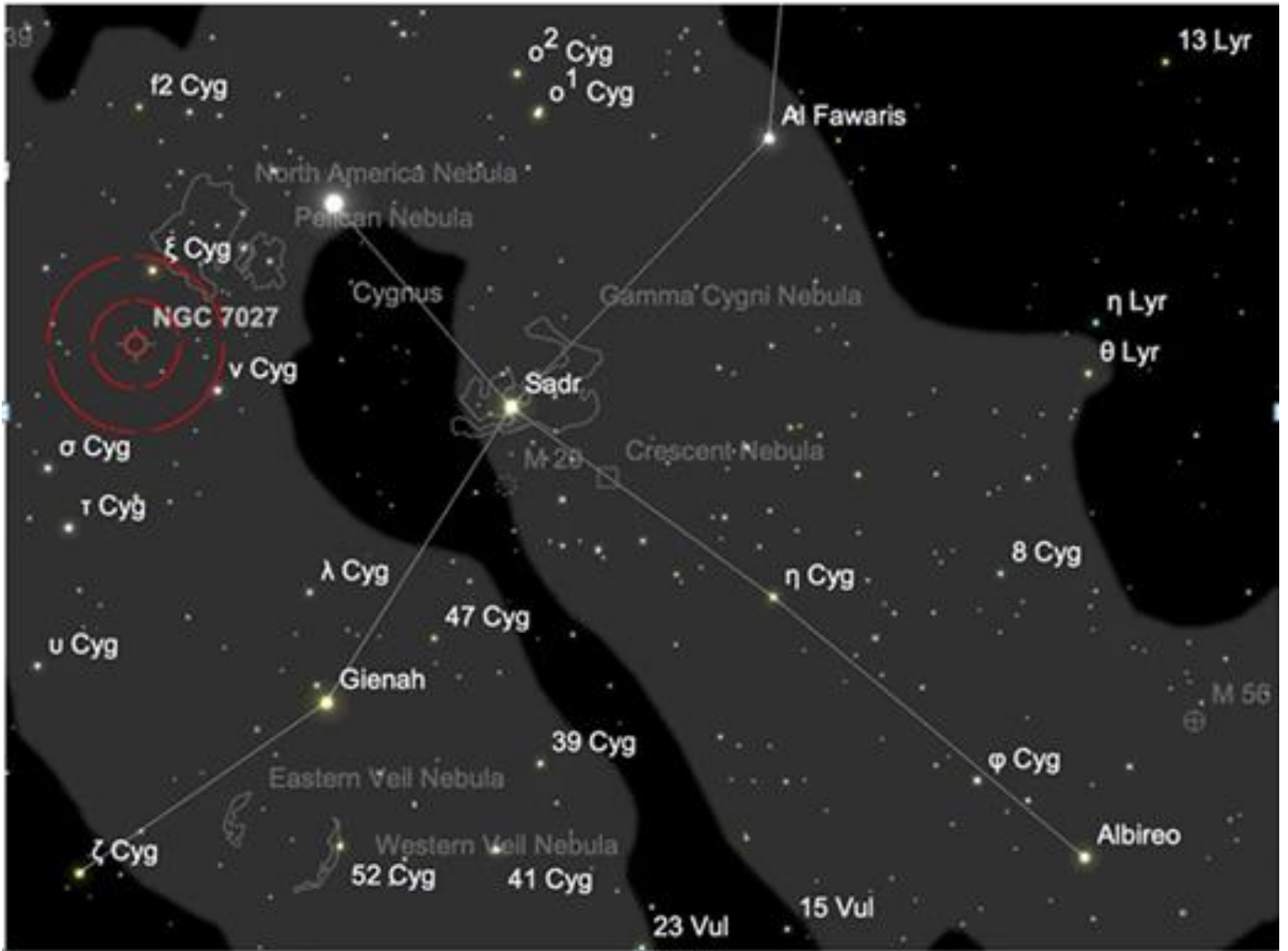
NOTES:

Surprisingly bright - beautiful light blue color.
No sign of central star. Found after a somewhat
challenging star hop from γ Cygni.

NGC 7027 Finder Chart A



NGC 7027 Finder Chart B (from www.deepskycorner.ch)



Mario Motta: Observer from Massachusetts



Image and details follow.

I took an image of this planetary three times which is a difficult object as it is easily overexposed. On the third try, I took 15 second subs to be sure it was well below saturation in an attempt to get some inner detail. I saw hints of detail previously. The central star is so bright compared to the surrounding planetary it's very hard to process.

See the attached image as following. There is some inner rectangular shape, but cannot cleanly separate that from the bright central star.

Taken with my 32-inch telescope, NB filters Ha, O3, and S2 about 30 min total imaging time, and with my BishopZWO ASI 6200 camera.



John Bishop: Observer from Massachusetts



On October 11, 2023, I observed NGC 7027, a planetary nebula in Cygnus. I used my usual 8.25-inch f/11.5 Dall-Kirkham reflector, which is a portable setup on a motor driven equatorial mount, without go-to. Observations were made from the ATMoB Clubhouse in Westford, Massachusetts. The sky was clear for about three hours after sunset (6:11 pm), before intermittent thin clouds moved in. Seeing was steady. Transparency was fair until the clouds rolled in. The air temperature was about 50 degrees F. at sunset, dropping to 41 degrees F. by 11:00 pm. The combination of still air, dropping temperature and relatively high humidity produced a lot of dew on my equipment, and my dew heater strips could barely keep up.

This object was new to me. Luginbuhl and Skiff classify it as magnitude 8.5, so it is not especially faint. In theory, locating it by starhopping would be straightforward. In practice, it was a little more challenging than I expected. For one thing, Cygnus was more or less directly overhead, near the zenith. With the eyepiece on my Cassegrain system at the low end of the OTA, the observing position (often on my knees) was very awkward for my aging joints, especially when moving between my Telrad finder, and main eyepiece. And, NGC 7027 is not immediately evident at low power. It is a small planetary nebula located in a rich Milky Way star-field. Locating it required carefully scanning the FOV and distinguishing this star-like object from the background stars. This was more difficult from my contorted viewing position.

I began by locating Nu Cygni in my 7 x 50 finder. From there the finder FOV included a field star lying about two thirds of the way from Nu Cygni to NGC 7027. That field star is identified as O(σ)(σ)214 in the Interstellarum Deep Sky Atlas (more on this below). From there I estimated NGC 7027's expected position, centered it in the finder and scanned the FOV in the main eyepiece at 48x.

Eventually I saw a star that looked a little out of focus. Increasing power to 100x, I saw a small, bluish disc, which was NGC 7027. The object clearly needed more power. At a magnification of 268x (through a Barlow), NGC 7027 was small and bright, with an oblong, peanut-shape that suggested the lobes seen in

astro-photos. At times the edges of the object were soft, suggesting a halo. With a UHC filter, the object had more sharply defined edges against a dark background.

Later in the evening, several other observers stopped by to look at NGC 7027 in my scope. As we discussed...the view of the nebula, when we looked up and saw that thin clouds had drifted in, and that for a short time, we had been observing NGC 7027 through clouds! This was quite surprising, as clouds and haze are usually death to DSOs. This a small, but bright planetary.

I was unfamiliar with the designation of the field star, mentioned above, in the Interstellarum Deep Sky Atlas. A little digging disclosed some interesting background. The index of abbreviations revealed that this designation indicates that the star was a Struve multiple – but which Struve?

There were two Struves...father and son. They were both professional astronomers specializing in double stars and each compiled a catalogue. Double stars catalogued by the father, Friedrich Wilhelm Struve, are designated by the upper case Greek letter sigma (which looks like a distorted capital “E”, or a capital “M” on its side; which I can’t reproduce it on my keyboard). The stars catalogued by the son, Otto Wilhelm Struve, are designated by a capital “O”, followed by upper case sigma. In this case, it appears that the field star has both designations. I haven’t uncovered yet what this means. The star could be in both catalogues (but why the same number)? Or possibly the son found another component in the multiple system.

Dr. James R Dire: Observer from Texas



NGC 7027
By Dr. James. R. Dire

NGC 7027 is a magnitude 8.5 planetary nebula in Cygnus. The nebula is approximately 18×12 arc minutes in size. At first appearance to the eye using a small telescope, the nebula appears to be a round blue star. Finer examination at high magnifications shows that it is definitely elongated in the northwest to southeast direction. Thus it cannot be a star!

NGC 7027 lies approximately 3000 light-years away. The central star is beyond reach visually with amateur telescopes. NGC 7027 is a very young nebula, perhaps a mere 600 years old (as we see it). The gases haven't had much time to spread out from the central star. This accounts for its high gas density and the obscuration of the central star. Like most planetary nebulae, the central star is a main sequence star at the end of its lifetime of nuclear fusion in its core. The star will eventually (if not already) end up as a white dwarf.

I have attached a finder chart for NGC 7027. As can be seen, the nebula is southeast of the bright star Deneb. It also is southeast of the North America Nebula (NGC 7000). The white rectangle on the chart is the field of view of the image I took of the nebula.

My image of NGC 7027 was taken with a Stellarvue 70mm f/6 apochromatic refractor using an SBIG STF-8300C CCD camera. I used an Orion Skyglow light pollution filter, which blocks all but wavelengths around H-alpha, H-beta and OIII. The exposure was 40 minutes.

I framed the image to capture both NGC 2027 and nearby NGC 7044. NGC 7044 is a 12th-magnitude open star cluster. The cluster is approximately 6 arcminutes in diameter and lies 11,000 light-years away.





Joseph Rothchild: Observer from Massachusetts



I observed planetary nebula NGC 7027 with my 10" reflector under dark skies on Cape Cod. This was my first observation of this object.

I star hopped from the North America Nebula. Near the midpoint of Nu (ν) Cygni and Xi (ξ) Cygni there was a triangular asterism of 3 stars that pointed to the nebula.

I did not use a nebular filter. At 53 \times the PN was identified by its slightly green hue and being non-stellar. At 102 \times the PN showed a clear disc, and at 179 \times the disc was large and bright, but without any internal detail. It was reminiscent of IC 418.

After seeing the PN in my 10" reflector, I was also able to see it with my 16 \times 70 binoculars, identified by its slightly green hue.

NGC 7027 – Planetary nebula in Cygnus



Mircea Pteancu of Arad, Romania
affiliated to Hungarian Astronomical Assoc., Romanian Society for Cultural Astronomy,
“Galaxis” Astronomy Club, moderator on *astronomy.ro* forum.

<https://observoergosum.blogspot.com/>

<https://www.astronomy.ro/forum>

The inclement weather gave me a last chance to observe the planetary nebula NGC 7027 on November 5, in a short spell, between two huge mass of clouds replacing each other.

I made the observations from home, on a Bortle 6 sky, using my Sky Watcher Classic 250P Dobsonian. It was easy to find the planetary nebula at 171× but higher magnifications were required to see some details.

At 400×, obtained with a recently acquired Radian 3mm eyepiece, NGC 7027 was visible as a rectangular hazy object. I estimated the long sides of the nebula to be equal to the twentieth part of the radius of the actual visual field. Namely, this mean 14". The larger sides are oriented toward PA = 340°.

The short sides are about half that long, so 7", oriented toward PA= 250°.

The mass of the nebula is divided on the short sides direction in two about equal parts, a northern respectively a southern half. The northern half, or rectangle, as a whole is brighter than the southern one.

The brightness of the nebula is non-uniform. It is increasing in the inverse trigonometric sense, starting from the SW corner, the dimmest, to the NW corner, the brightest.

Except for the NW corner, I did not notice a brighter core or nucleus, neither a central star. However, the edges of the nebula are hazy.

I added the Sv Bony UHC to the Radian 3mm eyepiece and I carefully gauged the image on Blinking Nebula/ NGC 6826 to see the most details and the central star. I locked the focuser, then moved back to NGC 7027.

The UHC filter made all the things described above visibly better and added one new detail. Outside the edges of the nebula, with averted vision, there was a very weak halo, extending possibly twice the area of the nebula.

I spent the last quarter hour of the observation in a severe crisis of, what I would call, "delirium observationibus." As I said, I gauged the focuser in such a way to have the best image of the central star of "Blinking Nebula." While studying the faint extensions of NGC 7027, the inner part of the nebula naturally fell toward the periphery of my retina. Then it was like glimpsing a starlike ghost around the center of the brighter northern half of the nebula.

Latter, when preparing this report, I learned the central star of NGC 7027 is not brighter than magnitude 17. Not visible in a ten inch reflector. The most probable reason for this "delirium observationibus" is a bouncing reflection of the bright nebula between the eye and the eyepiece. But the ghost star did not seem to be moving in the reverse sense of the diurnal movement as reflections do. It appeared every time close to the center of the northern, or brighter half of NGC 7027.

But what if the dying central star of NGC 7027 had an outburst ?

Sketch Follows.

NGC 7027 / CYG
SW Classic 250P
Dobsonian



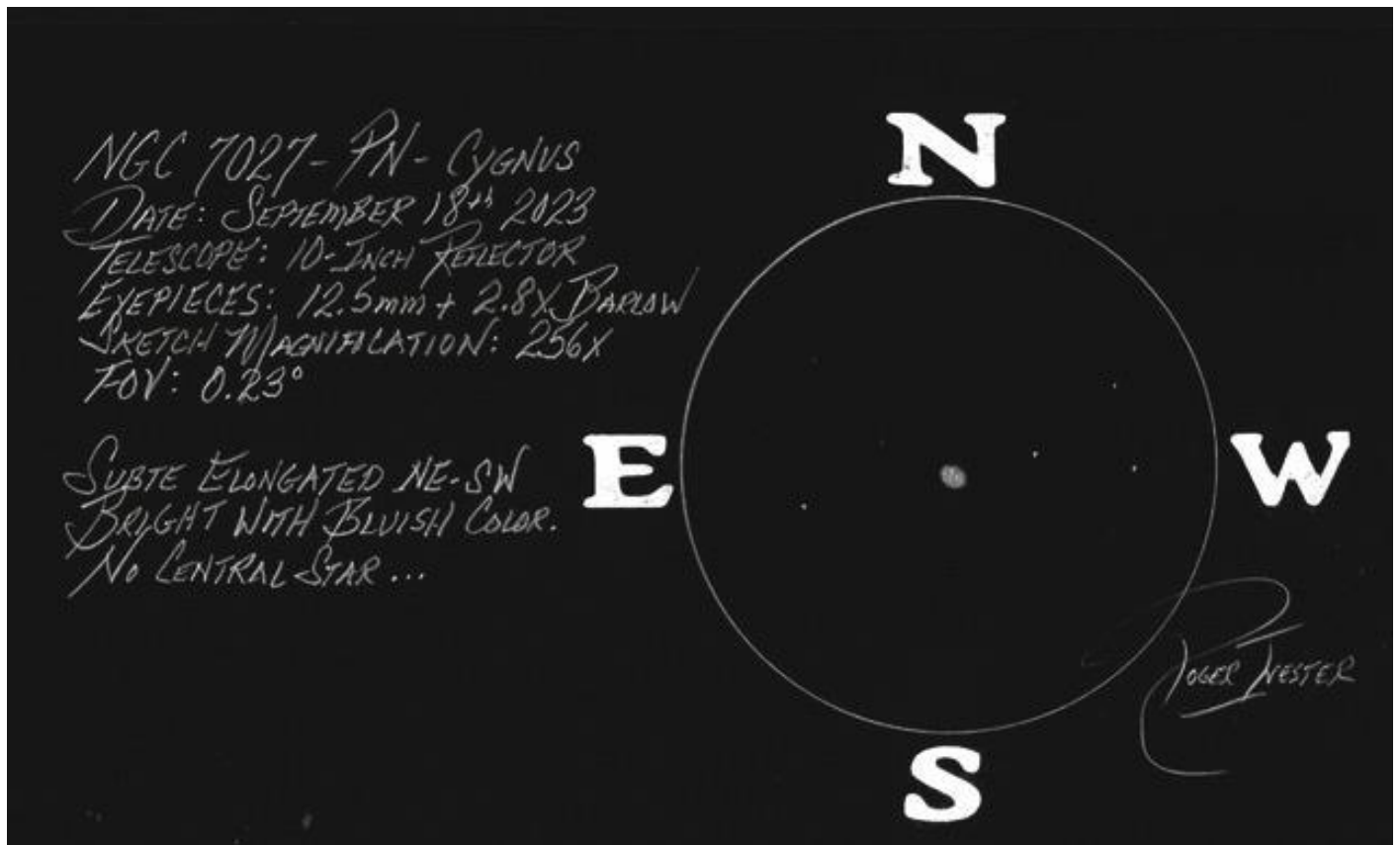
November 5, 2023
Urban sky, Bortle 6.
Bright, hazy object.
Rectangular shape.
Size : 14" @ PA = 340°
7" @ PA = 250°
Uneven brightness.
NW corner is the
brightest.

— W

400x/
Radian 3mm +
Sv Bony UHC
Field 9'

Mircea Pteancu
Galaxis, SRPAC,
MCSE
Arad/Romania

Roger Ivester: Observer from North Carolina



Details follow.

NGC 7027 Planetary Nebula in Cygnus; Date: September 18th 2023

Telescope: 10-inch f/4.5 Newtonian; Eyepieces Used: 12.5mm + 2.8 Barlow

Sketch Magnification: 256×; FOV: 0.23°

Very bright, subtle elongation NE-SW and bluish in color.

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

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