

MONTHLY OBSERVER'S CHALLENGE

Las Vegas Astronomical Society

Compiled by:

Roger Ivester, Boiling Springs, North Carolina

&

Fred Rayworth, Las Vegas, Nevada

With special assistance from:

Rob Lambert, Alabama

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NGC-1624/SH2-212 Cluster/Nebula In Perseus

“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 that's interested, and if you're able to contribute notes, and/or drawings, we'll be happy to include them in our monthly summary. We also accept digital imaging. 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 the astronomer 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 Observers Challenge. We're not excluding those with an interest in astrophotography, either. Your 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.

NGC-1624/SH2-212 Cluster/Nebula In Perseus

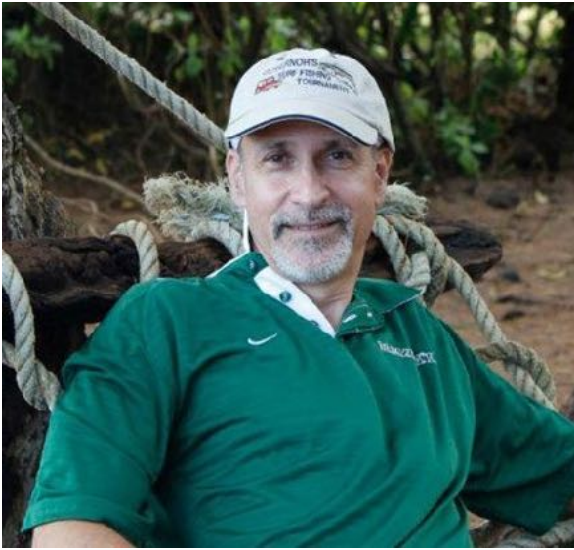
NGC-1624, also known as Collinder 53, is an open cluster located inside an emission nebula, SH2-212, located in the constellation of Perseus. It was discovered by William Herschel in 1790, yet strangely enough, it never made his list of 2,500 objects or obtained a Herschel numbered designation.

It lies about 20,000 light-years away and shines at a modest mag 11.8, or thereabouts, depending on the source. It contains around 40+ stars. The cluster has an apparent diameter of about 3 arc-minutes.

The nebula is known as SH2-212 and the cluster is within the nebula. It's thought that the nebula is part of a much larger though mostly (visually) invisible cloud complex that includes nearby nebula SH2-211. Both NGC-1624 and SH2-212 are a great Challenge treat!

Observations/Drawings/Photos

(Contributors are presented alphabetically.)



Dr. James Dire: LVAS Friend From Hawaii

NGC-1624 is a small open star cluster in the northeast corner of the constellation Perseus. The cluster lies in a region of Perseus devoid of bright naked-eye stars. The cluster is 12° due east of Mirfak, 5.5° east of Lambda Persei (mag. 4.3) and 3.5° east of the optical double β Persei (mag. 4.6). The cluster is 7.3° northwest of Capella.

It shines at mag. 11.8, making it very faint. The diameter is a mere 3 arcminutes. The cluster contains one star brighter than mag. 12. Overall, it contains about 50 stars embedded inside an emission nebula (SH2-212). These stars are very young, their age estimated to be 4 million years. The nebula is left over from the gases that formed the stars. William Herschel discovered this cluster in 1790.

In the eyepiece of a 6-8 inch telescope, the cluster appears as a very faint smudge with 2-3 stars resolved. In a 14-inch telescope, a dozen stars can be resolved, the brighter ones possibly being foreground objects. The background glow is probably more from the dozens of unresolved stars than from the nebula.

My image of NGC-1624 was taken with a 10-inch f/6 Newtonian with a coma corrector, using an SBIG ST-2000XCM CCD camera. The exposure was 80 minutes. The image captures the faint, red HII emissions from the nebula and resolves a majority of the stars embedded therein. The brightest star in the field, near the lower left edge, is mag. 10.6.





Chris Elledge: LVAS Friend from Massachusetts

On January 13, 2017 @9:45pm, EDT, I used a 10-inch f/5 reflector to observe NGC-1624 from the ATMoB Clubhouse. Sky conditions were: Bortle Scale 6. NELM 5.0. Transparency good. Seeing poor.

With the temperature rapidly dropping from 50°F in the morning to 10°F by night, the seeing conditions were terrible, but the sky was otherwise clear and beautiful. I started my search for NGC-1624 at β Persei with a 35mm eyepiece. I followed a line of mag. 8 and 9 stars from nearby HR 1333 toward the east. A trio of mag. 7 and 8 stars (HD 28794, HD 28771, and HD 28618) provided a quick reference point before heading ESE to mag. 6

HR1493.

With a 25mm eyepiece (51X 1.4° FOV), I was able to see two nested arcs of mag. 8 to 10 stars that headed NW from HR1493. NGC-1624 looked like a faint fuzzy star at the end of the northern arc. With a 10mm eyepiece (127X), I could see 6 faint stars with averted vision that formed two triangles side-by-side. I estimate that these stars in the cluster are mag. 13. There was no apparent nebulosity. At 270X, there continued to be no nebulosity and the 6 stars would flicker in and out of view as my eye searched the field.

Adding an O-III filter to the 51X view revealed a nebula around the fuzzy star cluster. It had a slightly elongated round shape. The elongation was in the east-west axis. Upping the power to 127X with the filter resulted in a faint circular nebulosity that continued to stand out from the background, but it was impossible to resolve any stars in the cluster. Switching to a CLS filter at 127X provided the best view of the cluster as the 6 stars I previously saw were visible, and I could also faintly see the nebulosity surrounding the stars. The nebulosity was slightly offset from the stars toward the east.



Sue French: LVAS Friend and Author from New York

I observed NGC-1624 with a 10-inch f/6 Newtonian reflector at various magnifications.

68X: Easily visible as a scattering of faint stars enveloped in nebulosity.

115X: A UHC filter makes the nebulosity stand out a little better; however, all but the three brightest stars disappeared. There are eight stars without the filter.

NGC-1624, an emission nebula and open cluster lying 3.1° east of NGC-1545. Through my 105mm (4.1-inch) scope at 28X, it's an obvious little fuzzlet centered on one faint star. A magnification of 127X unveils five faint stars caught in a filmy net about 4' across. A sixth star is perched on the nebula's west-northwest rim. Sue French *Deep-Sky Wonder's - A Tour of the Universe*

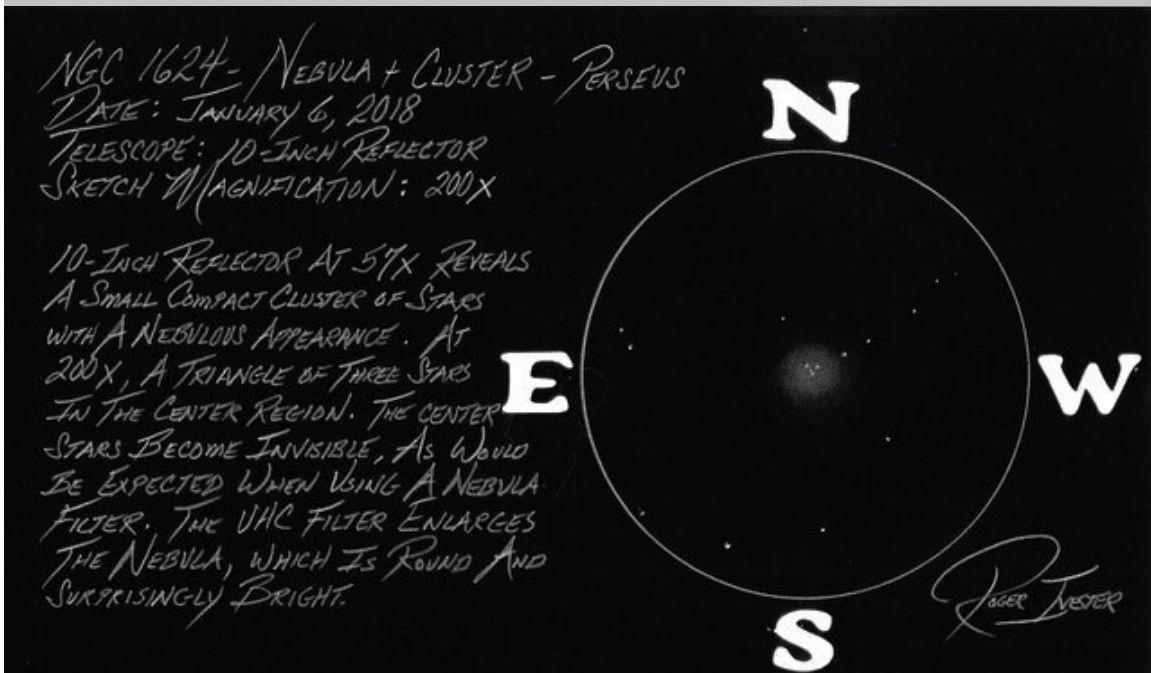
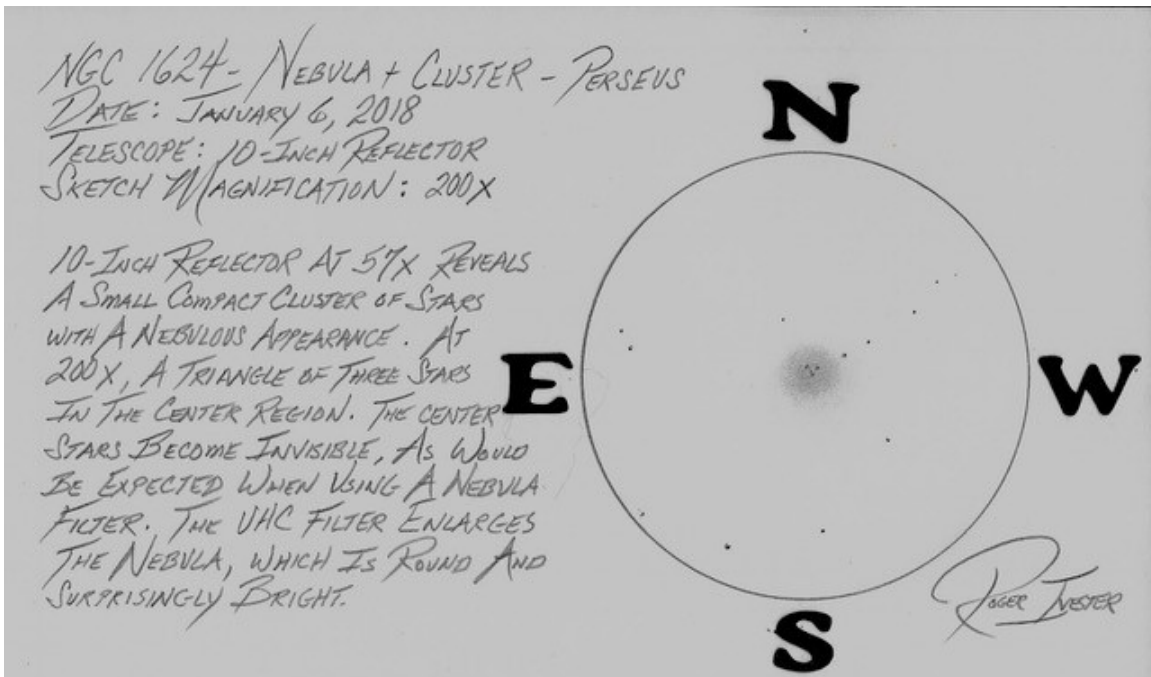


Roger Ivester: LVAS Member from North Carolina

My 10-inch reflector at 57X revealed a small, compact cluster of stars with a nebulous appearance. When increasing the magnification to 200X, I saw a triangle of three brighter stars in the center of the cluster. A chain of four stars led off from the cluster toward the NW.

With the addition of a UHC filter, the nebula expanded, was circular in shape, and fairly bright. The three-most central grouping of stars became almost invisible, as expected when using a broadband nebula filter.

A beautiful and interesting object which is seemingly seldom observed by the amateur astronomy community.



Rob Lambert: LVAS Webmaster from Hokes Bluff, Alabama



I've been anxious to rejoin the Observer's Challenge. This is the first time I've had a chance to observe at night since returning to Alabama in January of 2017. I had a semi-clear night on Sunday evening January 21, 2018. Since it was the first time I've set up my scope for night time observing since leaving Las Vegas, I didn't have much time to experiment and try different magnifications. Like always, I try to provide an image that's

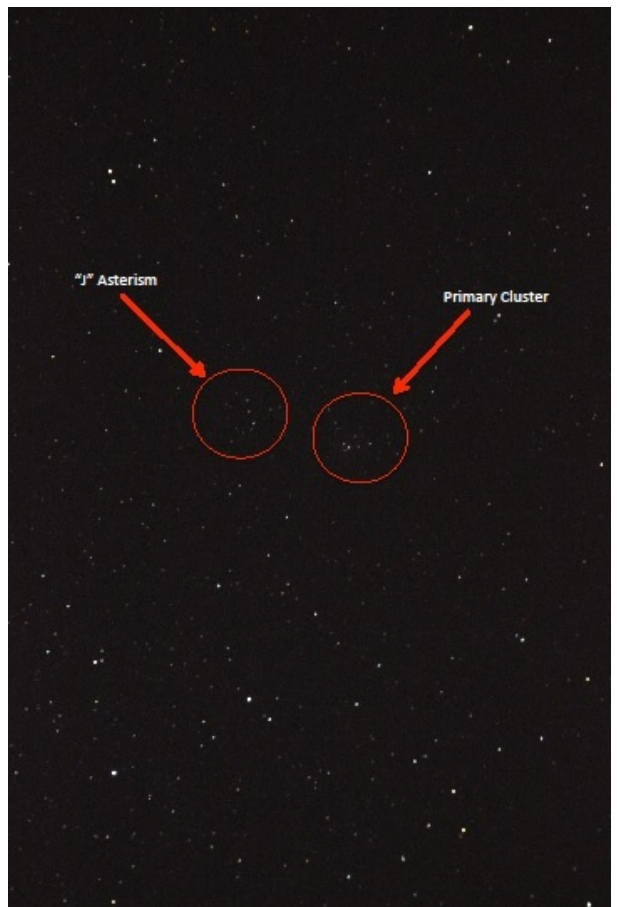
close to what a visual observer might see at the eyepiece. The photo provided is a 30-second single-frame image with no processing of the image whatsoever. It was taken through my ED127mm refractor using no filters with an unmodified Canon T3i at prime focus at 3,200 ISO. The resulting magnification is 952mm/50mm for 19X - not much at all. I've rotated the image to match some of those provided by other observers. The primary cluster is just above and right of center in the image.

I was not able to see any nebulosity at the eyepiece, so I didn't try to pull any out with the camera. I was able to identify the primary cluster of NGC-1624 and an interesting asterism to the left of the primary cluster. At this magnification, I was able to see three relatively bright stars forming a triangle with some dimmer stars trailing off to the right. The top star in the triangle appeared to be red. The brighter white star on the right of the triangle appeared to be white, while the third star of the triangle on the bottom was a dimmer white.

The asterism I found to be interesting is almost immediately to the left of the primary cluster. In the orientation of the image, the asterism is almost a perfect letter "J". There are a number of brighter stars scattered in the field below NGC-1624 with many dimmer stars throughout the field of view.

I have a 10-inch Schmidt-Newtonian I'm anxious to get set up and to view this object. It has yet to have first light and it'll be interesting to see what I'll be able to capture with it. I'll be starting the construction of my roll-off roof observatory to maximize the few clear nights that we have here in Alabama.

I'm glad to be back with the Observer's Challenge. Until next month, clear skies.





Mike McCabe: LVAS Friend from Massachusetts

For the LVAS January, 2018 Observer's Challenge, I was able to observe the open cluster NGC-1624 three times. I viewed it with three different telescopes, including 4.5-inch, 8-inch, and 12.5-inch Newtonian reflectors.

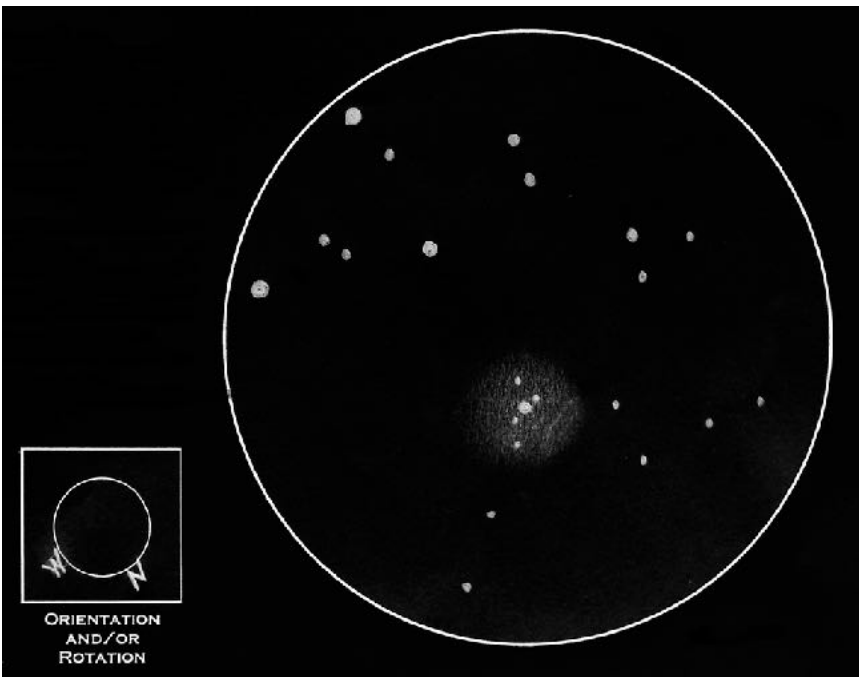
My best observation of this little gem came on Christmas night, 2017. It was on that night that I got out under a frosty sky with my 8-inch F5.9 reflector. Even with the presence of a 46% waxing crescent moon in the SSW sky, the view of the cluster in the eyepiece was very rewarding.

NGC-1624 is a pleasant star hop from Capella, with two mag. 5.6 and one mag. 5.8 stars making for convenient stepping stones along the way. Once in the vicinity though, it's good to have a

narrow-field chart, perhaps showing about $.6^\circ$, to home in on the cluster.

When I first found it, the word "boomerang" immediately came to mind. The sight of the asterism kind of surprised me, because there's only one star in this cluster that's brighter than mag. 12. That meant I was fairly easily picking up on the mag. 13 to 15 members of the cluster. I have to admit that I wasn't expecting much from this object, particularly considering that its overall mag. is generally listed at 11.85. What a difference point-source light can be from extended-source light!

So, it was cool enough to be able to see some of the members of this cluster directly. However, the real surprise came when I scanned the field of view for whatever else might be hanging around there. All of a sudden, I noticed a brightening around the area of the cluster! I said to myself, "gadzoos, there's the nebulosity!" It was then that I realized that this little open cluster was acting much like a blinking planetary nebula. Looking directly at it, all I saw was stars, but looking at it with averted vision made the nebulosity pop out! Cool!



I went back to the cluster and nebula on two more occasions – January 5, and January 9, 2018. On the 5th, I tried looking at it with my 4.5-inch reflector, and realizing that most of the stars were beyond the grasp of the little mirror, I still wanted to see if the nebulosity would show. The answer was "no", and all I saw was the single mag. 11.3 component of the group. On the 9th, I returned with the 12.5-inch reflector, but poor transparency conditions prevented any improvement over my original observation with the 8-inch.

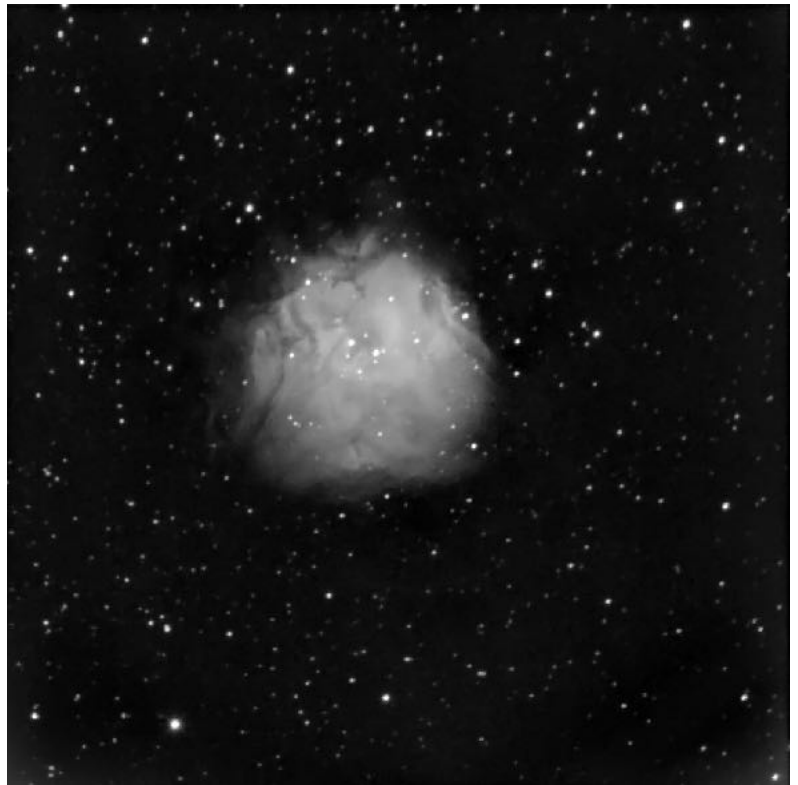
I found NGC-1624 to be an interesting object to observe, and the moral of the story is, don't pre-judge an object by its mag. rating, like I originally did.



Mario Motta: LVAS Friend from Massachusetts

Done with a 32-inch reflector.

“Looks a bit like the cocoon nebula to me, just not as bright”

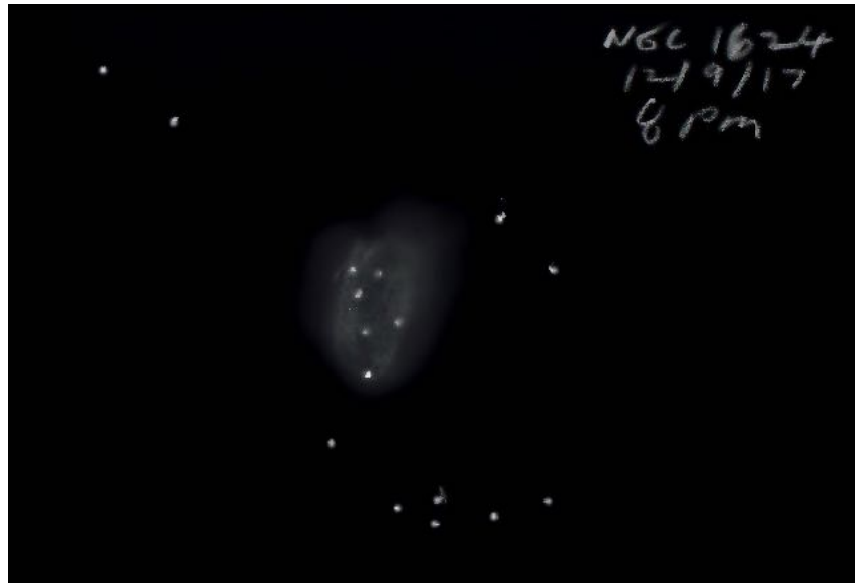


John Lourdes Pierce: LVAS Member from Las Vegas, Nevada

In early December, while doing some observing in the dark skies in the Lake Mead area, I was able to view NGC-1624 and its nebula companion.

Using a 10-inch scope with 90X magnification, it showed very well in the dark sky. I remember it being a somewhat small object that stood out only because it had a nebulous appearance.

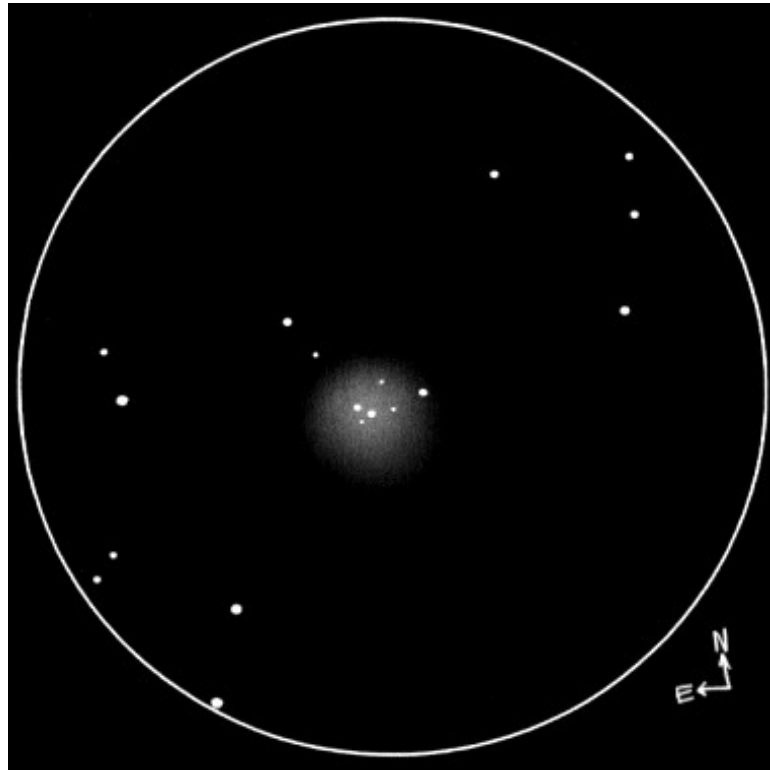
It could've been easily overlooked. It wasn't conspicuous.





Jaakko Saloranta: LVAS Friend from Finland

Using an 8-inch Dobsonian, I observed NGC-1624 as a “Small, very poor cluster of five stars, mags. 11-13, embalmed in a fairly faint, circular nebulosity. Quite sharp edges. Center slightly brighter? Estimated Trumpler class: II 2 p. n.” I used a magnification of 122X and a UHC filter, OIII contrast poor. In photographs, NGC-1624 looks like a tiny Rosette nebula.



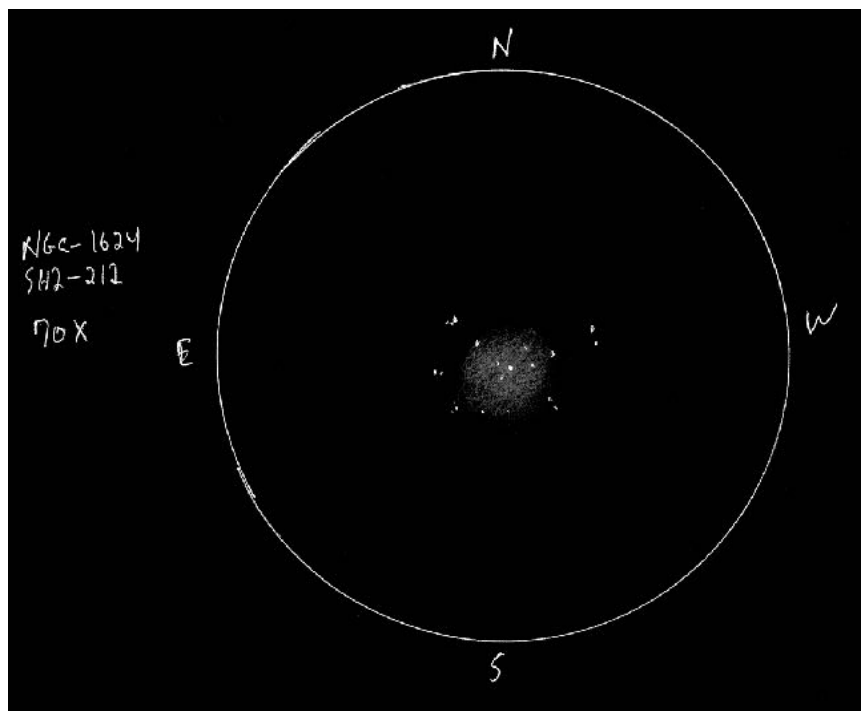
Fred Rayworth: LVAS AL Coordinator from Lass Vegas, Nevada

I’ve only had one chance to observe this cluster/nebula and it was with my 16-inch f/4.5 on October 16, 2009 from Furnace Creek Ranch at Death Valley at an altitude of -190 feet. It was clear, calm, and very warm. Looked like a great night. There was a bit of haze during the day and I guess it affected the sky. I was able to see many things, but also missed plenty.

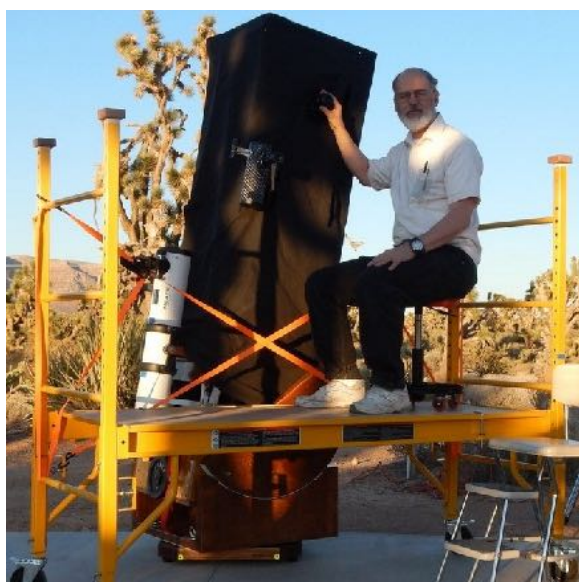
At 70X, NGC-1624 was almost V shaped. Heavier on one side than the other. Nice but quite sparse. Saw a bit of the nebulosity of SH2-212, which at first I thought was more background stars.

Didn’t use a filter but the cloud still stood out a bit after careful viewing. If I’d used a slightly higher magnification and maybe a filter that night, I probably would’ve seen much more detail of the nebula.

Note that the drawing exaggerates the intensity of the nebula a bit more than what I actually saw that night. Blame that on my artistic skills.



Jay and Liz Thompson: LVAS members from Henderson, Nevada



We observed NGC-1624 from our backyard in Henderson, NV with a 16-inch SCT. At 102X, it was small and faint. The nebulosity showed up with a UHC-type nebula filter. At 156X, it was a little more evident.

At 203X, with averted vision and no filter, we saw some nebulosity around stars that were in a roughly Y-shaped pattern. The nebula itself became much more apparent with the nebula filter.

At 271X with no filter, the fainter members of the cluster were a little easier to see. With direct vision, there was also a dim glow centered around a bright star. When we slid in the nebula filter, the nebulosity was still visible with averted vision, but was not as evident as at 203X. At 406X, the dim cluster members were reasonably evident, but the nebulosity wasn't visible, even with a filter.

The view of the nebulosity was essentially the same with either a UHC or OIII filter. An H-beta filter didn't enhance the view.