

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, Las Vegas, Nevada

DECEMBER 2014

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-672 Spiral Galaxy In Triangulum

NGC-672 is a spiral galaxy, also known as H-157-1 because it was discovered by William Herschel on 26 October, 1786. It's an edge-on barred spiral galaxy that shines at a mag. 11.5 or thereabouts (depending on who you ask). It makes a nice galaxy pair with the slightly dimmer nearby IC-1727, coming in at a mag. 12.1. It's also a barred spiral that's edge-on. They are a fine sight and make for a challenge for any telescope aperture.

Observations/Drawings/Photos (Contributors listed in alphabetical order)

Gary Bruno: LVAS Member from Nevada



Well here I am, one month early for the Dec. challenge. It's early, but it's in a good position for me to observe. On October 28, 2014, I looked with my 10-inch Newtonian binocular pair and found NGC-672, but couldn't make out much detail. On October 29, 2014, I looked with a 14-inch SCT and got a much better view. When using a 41mm (87X) eyepiece with averted vision, I noticed two galaxies. The image wasn't steady, and I had to keep pulling away and looking back and even then, the image would bounce in and out of view. It looked like two galaxies joined together like a side view of an open jaw. One was vertical the other horizontal. I tried several of other eyepieces, but the 41 mm worked the best. I tried again on October 30, 2014, but the night of the 29th gave me the best look.

Dr. James Dire: LVAS Friend from Hawaii



NGC-672 is a tightly wound barred-spiral galaxy in the constellation Triangulum. The galaxy is easily found 2.5° south-southwest of Alpha Trianguli, the star at the vertex formed by the two long sides of the Triangle. It is mag. 10.8 and measures 6.9 by 2.7 arc minutes in size. It's tilted steeply from our point of view, but is just opened enough so that high magnification, long-exposure images reveal its central bar and spiral arms. The spiral arms contain many red HII star-forming regions.

Just a few arc minutes southwest of NGC-672 is the galaxy IC-1727, shining at mag. 11.5. IC-1727 is classified as an SBm galaxy, like the Large Magellanic Cloud. These galaxies are somewhere between a barred spiral galaxy and an irregular galaxy. To me, IC-1727 looks like two galaxies that have just merged. NGC-672 and IC-1727 make a striking pair through large telescopes and on photographs.

I tried viewing the pair recently on a clear night through a 4-inch f/8 APO. The seeing was great, but the transparency wasn't optimal. I was unable to detect either. However, in my 14-inch Dob, I was able to see both clearly.

I took my image with a 190mm (7.5-inch) f/5.3 Maksutov-Newtonian telescope using an ST-2000XCM CCD camera. The exposure was 60 minutes, only a fraction of what I should've attempted for this faint galaxy pair. The brightest star in the field of view is mag. 9.7. There are some galaxies and stars in the image below magnitude 17. Several of the faint galaxies are labeled in the image.



Sue French: Author and LVAS Friend from New York



On the night I observed, the seeing was good, the transparency was poor.

With a 4.1-inch f/5.8 refractor at 87X:

NGC-672 is a faint, elongated galaxy about 2 arcminutes long east-northeast to west southwest.

With a 10-inch f/6.1 Newtonian at 118X:

NGC-672 is framed by a triangle of stars, two of which straddle the west-southwestern end. The galaxy appears about 5 arcminutes long and one-third as wide. It becomes weakly brighter toward an irregular, blotchy, elongated core. There's a rough rhombus of nearly equal-magnitude stars in the field of view to the southeast. (There's a pretty sailboat of stars, Collinder 21, to the southeast in a low-power field.) IC-1727 shares the field with NGC-672. It's much fainter than its neighbor and appears only 2 arcminutes long and half as wide.

Roger Ivester: LVAS Member from North Carolina



NGC-672 and IC-1727, galaxy pair in Triangulum:

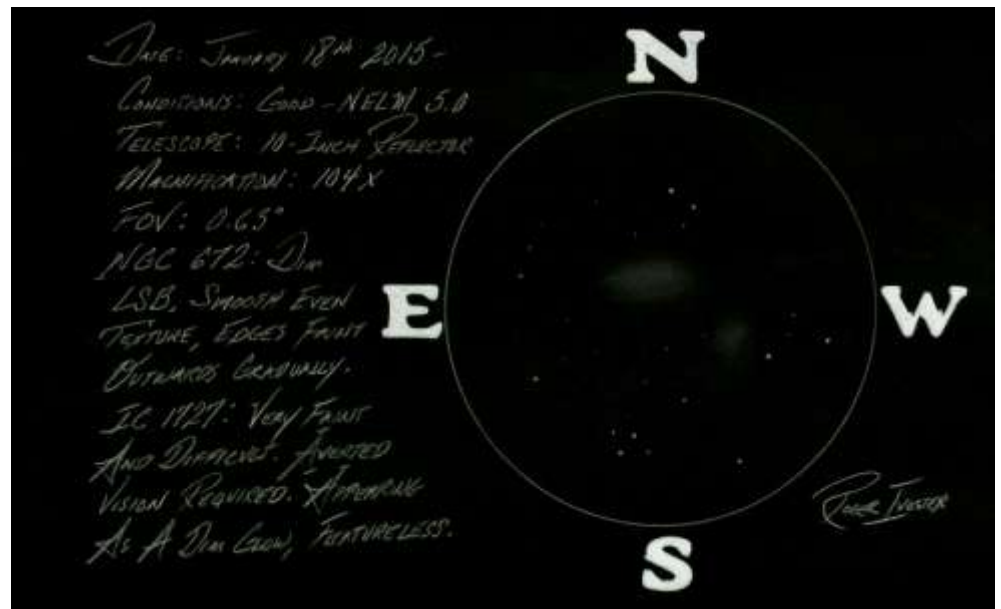
Date: January 18th 2015

Conditions: Very good, with a NELM of about 5.0 from my moderately light-polluted backyard.

Telescope: 10-inch f/4.5 reflector.

NGC-672: Large, elongated E-W, smooth even texture, without any central brightness or concentration. Not visible at 57X, but when increasing the magnification to 104X, the faint galaxy became obvious.

IC-1727: At 104X, a very faint mostly round glow, required averted vision, but couldn't hold constantly. Difficult and very dim. My notes of NGC-672 from December 11, 1993 don't mention IC-1727.



Gus Johnson: LVAS Friend from Maryland



NGC-672, Galaxy in Triangulum:

Date: December, 1999, using a 12.5-inch Newtonian reflector at 80X. Dim, pretty large and elongated. I could also see faint galaxy NGC-670, only 25' toward the NNW, appearing as a faint blur.

John Lourdes Pierce: LVAS Member from Las Vegas



The December Observer's Challenge, NGC-672 proved to be beyond the capabilities of my 6-inch reflector telescope and myself. I have, in the past, viewed items of equal or lower magnitude from my inner city vantage point. In this case, I not only couldn't see it from there, but also couldn't view it from the dark sky area of Redstone at Lake Mead.

A few days before my trip to Redstone, I took time to familiarize myself with the area of sky where the galaxy is. At Redstone, I had no problem finding its location, but could see no trace of the object itself. A fellow stargazer, Fred, found it using his 16-inch reflector, and allowed me to view it. It was just barely visible and showed no detail, whatsoever. Most likely, the

high-thin clouds and high moisture filtered out a good deal of its light.

Whether darker skies and much better conditions would ever allow me to view it is yet to be answered. I'll try again in four weeks at Death Valley. I take pleasure in pushing the 6-inch reflector to its limits. I shall see...or not.

Fred Rayworth: LVAS Vice President and AL Coordinator from Las Vegas



I've observed this galaxy pair, which is NGC-672 and IC-1727 several times in the past. For the challenge, I started with my most detailed observation on October 24, 2014 from Furnace Creek in Death Valley. Though I've been there many times, it was the first time here at the golf course driving range. Could be a great site but we had a street light issue from general store. Three major lights shone from the south, basically ruining the southern sky. Also, the date palms obscured the horizon, so viewing down low wasn't an option. The night was clear, calm but seeing was lousy. As the night progressed, it became apparent that transparency was a huge issue. I never found a single faint fuzzy, though I tried for several. I gave up in frustration. The "tourist objects" were readily available, but

nothing to write home about. Still, it was okay.

With the street light directly in my eye, this one was hard, but I managed. It was a lumpy oval that had a mostly oval shape and seemed to be colliding with IC-1727, though the glare between them was probably more the product of the street light than the actual galaxies because the separation of the pair is a lot more than how they looked in the eyepiece. Another factor may have been the initial magnification of 48X, which however did make for a beautiful site because it also grabbed that distinctive broken arc-ring shape of Collinder 21, a nearby open cluster. Unfortunately, at 102X, the two galaxies didn't separate any more than at 48X though they showed a bit more detail and mottling.

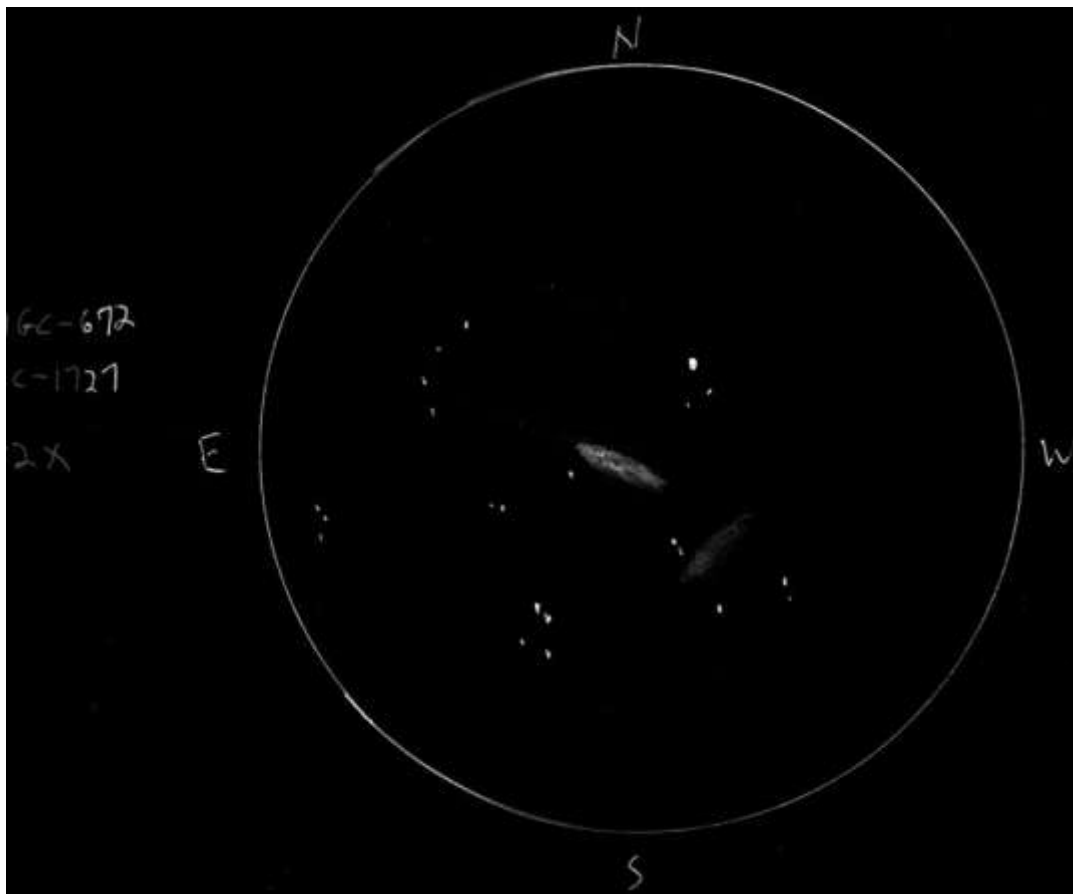
The next night the conditions were even worse because of extremely high winds, but I got a better view and nailed the observation between gusts. There was clear separation and I could distinguish the two edge-on opposing shapes. IC-1727 was a very nice mottled narrow oval companion to NGC-672. Still, at times, it appeared to almost touch it, probably because of the street light shining in my eye.

I tried again at Redstone Picnic Area on the North Shore of Lake Mead on January 17, 2015. It was cold, calm, with high, thin cirrus clouds floating over. There were holes and gaps that gave fairly wide spaces for viewing until 21:30. Transparency pretty much sucked throughout the night, except in a few areas, but only had a few really clear spots. Most bright stars showed nebulae around them, whether they had any for real or not.

For being so high in the sky, in the Dobson Hole, the galaxies were extremely hard to see. In fact, I think we hit a bad spot in the sky envelope with the cirrus clouds drifting by. I DID see them, but the angular shape was very hard to eke out of the light gray background. I finally did, and could barely make out the pair, but the separation was much more distinct. My earlier observation at Death Valley was much better.

IC-1727 was just barely there. It was very hard to make out but could just see the streak of the core which opposed the same streak of NGC-672. They are a really nice pair when you can actually see them well!

The drawing I made mainly from my observations on October 24, 2014 from Death Valley, with added enhancement from Jan 17 and a couple of older ones. I scanned it on my printer and used Picasa to invert it.



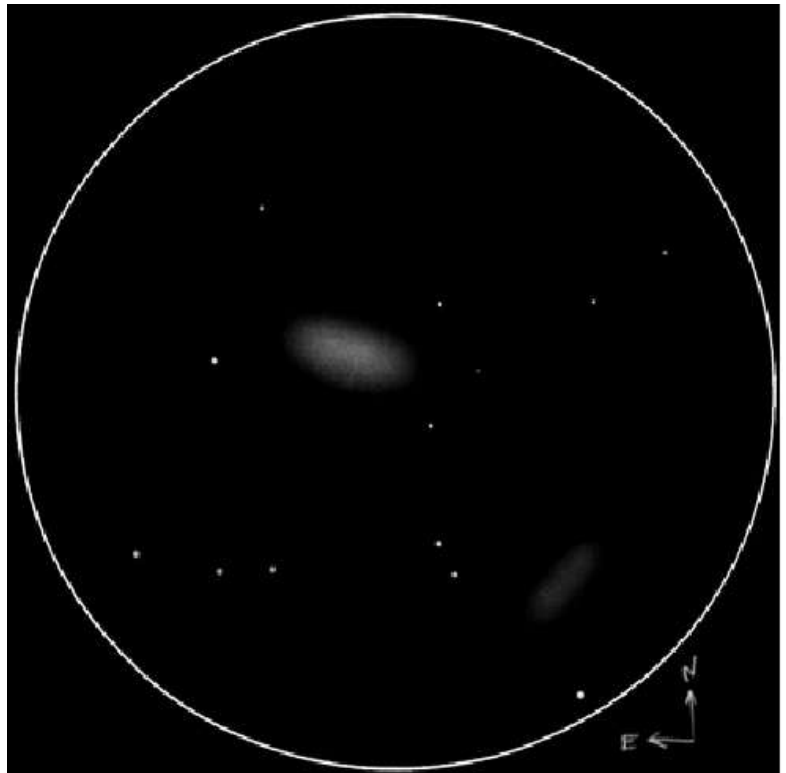
Jaakko Saloranta: LVAS Friend from Finland



Here are a few words and a sketch of NGC-672 and IC-1727. I sketched the object with the 4.5-inch Newtonian rather than the 8-inch, just for fun.

I observed the galaxy pair from my family cabin in Southern Finland back in October, 2014. Under decent rural skies (SQM-L 21.41 and NELM ~7.0) but with a typical high humidity, the galaxy pair was fairly well visible

with a 4.5-inch Newtonian, visible just NW of Collinder 21. Both of the galaxies were also visible with my cheap 3-inch refractor without much difficulty. Unfortunately, I didn't have my 2-inch (50 mm) Galileoscope with me, as I might have been just able to squint NGC-672 out from the background even with such small aperture.



With the 4.5-inch, I described the two as follows: NGC-672 was brighter and larger than IC-1727. @101X (24'), it appeared as a fairly bright, NE-SW elongated galaxy with a non-stellar, NE-SW elongated nucleus. IC-1727 was just fairly faint, SE-NW elongated.

Jay And Liz Thompson: LVAS Members from Henderson, NV



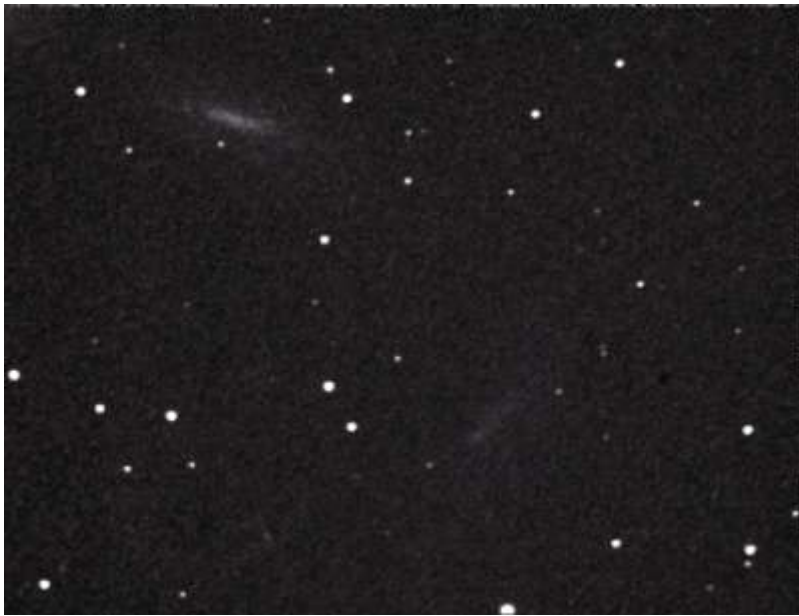
Over the past year, we've observed NGC-672 several times with a variety of telescopes.

From our backyard in Henderson, NV, only NGC-672 was visible as a haze at 279X in a 14-inch SCT. The companion galaxy, IC-1727 was not distinguishable from the background skyglow.

Visibility of the galaxies improved greatly under the dark skies of Meadview, AZ. With a 10-inch f/4 Newtonian, we could see NGC-672 at 38X. At 59X, it was more evident and the fainter IC-1727 also came

into view. The galaxies were even more distinct at 80X. At this magnification, we could see IC-1727 best with averted vision. NGC-672 was visible with direct vision and we could see more detail with averted vision. By increasing power to 100X, IC-1727 became more difficult to see.

The black-and-white image approximates the visual impression of the two galaxies through the 10-inch telescope. We took this image from Henderson, NV, and is a 30-minute exposure through a 14-inch SCT.



With three times the light of the 10-inch, our best views were with a 17-inch Newtonian. Under the dark skies of Meadview, AZ, we could easily see NGC 672 with the 17-inch at 63X and 125X. At 125X, we could also see nearby galaxy IC-1727. Increasing the magnification to 227X showed NGC-672 as an elongated slash, while IC-1727 was a more amorphous and elongated blob.

During some of the visual observing, Allan Guthmiller imaged the pair of galaxies from Meadview using his 20-inch f/5 Newtonian reflector. The attached color image is the result of nine hours of exposure time and reveals many structural details.

NOTE: The grainy black-and-white image is one we took from Henderson. The awesome color one was taken by Allan Guthmiller. He requested I submit it for him, so it's referenced in the last paragraph of my writeup.

Jay

