MONTHLY OBSERVER'S CHALLENGE

Las Vegas Astronomical Society

Compiled by:
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&
Fred Rayworth, Las Vegas, Nevada
With special assistance from:
Rob Lambert, Las Vegas, Nevada

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.

FEBRUARY 2014
NGC-1664 – (Mel-27/C-56) (The Kite Cluster) – Open Cluster In Auriga

NGC-1664 seem at first to be a rather common open cluster in the constellation Auriga, mainly because this constellation is rich with open clusters. What makes it stand out is the unique shape that can be noted with many telescopes.

Shining at mag. 7.2, it's around 3,900 light-years away, is approximately 240 million years old and is approximately 18.0' in diameter. It's also known as Melotte 27 and Collinder 56. Because of its unique shape, some observers have dubbed it the "Kite Cluster" while Walter Scott Huston once dubbed it the "4-H" cluster.

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

Keith Caceres: LVAS Member from Las Vegas

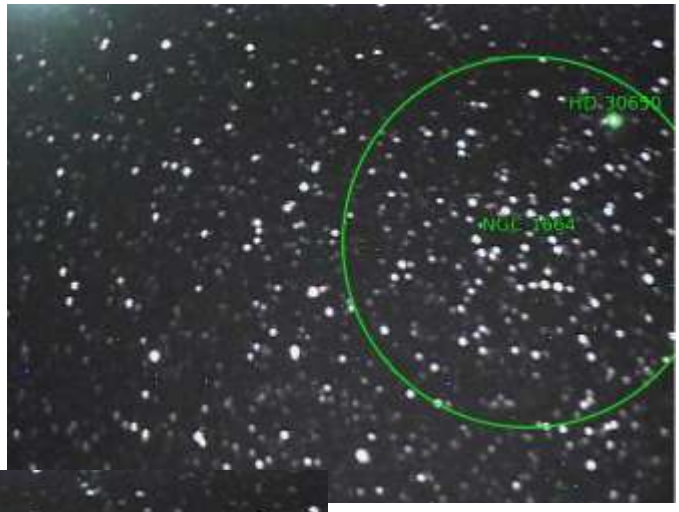
I observed the object on late Saturday evening of our Death Valley Star Party. I used my 8-inch SCT and a Mallincam Jr. Pro. Unfortunately, I think I left the exposure set too long for this object (probably around 15 to 20 seconds) and took the photo when there was still some backlash in the gear train, as it's a bit blurry.

Another factor in the poor quality of the capture is my outdated video capture device (Dazzle DVC-80), which only captures at 320 X 240. The image is blown-up to 640 X 480. I just got a 640 X 480 capture device, but I'm still deciding whether to take it back, due to compression artifacts in images that the Dazzle doesn't have.

I tried to get another snapshot of it on the evening of our Astronomy in the Park event at the National Desert Wildlife Refuge, but my GOTO precision that evening was not the best, and I had trouble getting the object in-frame.

Image Info: 8-inch SCT, focal length: 2000mm. Accessories: Mallincam Jr. Pro, Antares 0.5X focal reducer with 1.5" of extra spacers (in addition to Mallincam 1-inch nose piece). Focal reduction factor: 0.35X (estimated). f/ratio: f/3.5 (estimated). FOV: 32.5 X 24.4 arc minutes (taken from astrometry.net plate solve)

Raw Image



Annotated

Shaped Drawn In

James Dire: LVAS Friend from Hawaii

My image of NGC-1664 was obtained the night of February 2, 2014 with a 10-inch f/4.6 (with a coma corrector) Newtonian astrograph with an SBIG ST-2000 XCM CCD camera at the Kauai Community College Astronomical Observatory at Barking Sands. The exposure was 30 minutes. The seeing was around 2.5 arc sec and the transparency was a little poorer than average. Despite the conditions, the cluster came out quite well on the image. This refurbished telescope was placed into service December 25, 2013 and I'm still tweaking it for maximum performance. I just added a high volume cooling fan as this 2-inch thick mirror needs all the help I can give it to reach thermal equilibrium! I still need to move the mirror down the tube two inches as the focuser drawtube is maxed out at prime focus. I will also be adding a motorized focuser with computer control and hope to have the observatory remotely operated by year's end.

NGC-1664 is a loose cluster of around 50 stars located 2° due west of Epsilon Aurigae, or about 5° southwest of Capella. Eighteen of the stars are around mag. 10 and 11 while the rest are fainter. Several stars in the cluster show some great red color. There's a mag. 7.5 foreground star on the southeast side of the cluster. Overall, the cluster is mag. 7.6 and spans 9 arc minutes of sky. It lies 3,900 light years away.

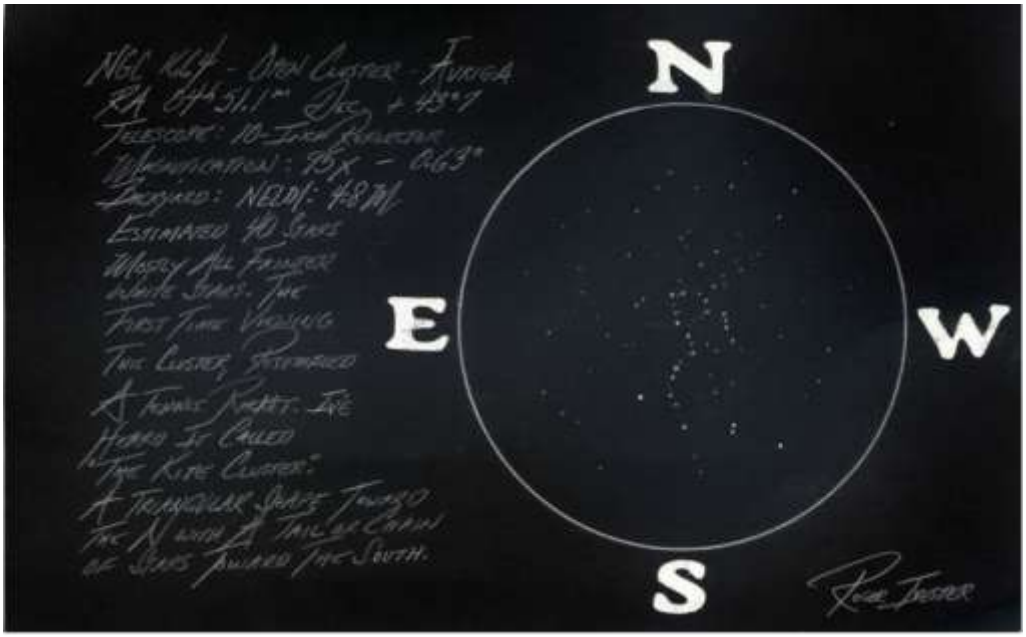
I've never viewed this cluster, but would like to with my 14-inch Dob. However, the night of the image, the only visual telescope I had with me was my 4-inch apochromatic refractor. In the eyepiece, the cluster took on a faint glow against the darker background skies. Using averted vision, I could easily make out the mag. 10 and 11 cluster members, but couldn't discern the color picked up by the CCD camera.

Sue French: LVAS Friend and Author from New York

I used a 105mm (4-inch) refractor at 87X.
About 25 faint stars forming a cute ginko-leaf kite. The leaf covers 6′ X 4′ and has a 7′-long tail. Another 25 stars are loosely scattered around the kite to a diameter of about ⅓′. A mag. 7½ star sits east of the tail.

Roger Ivester: LVAS Member from North Carolina

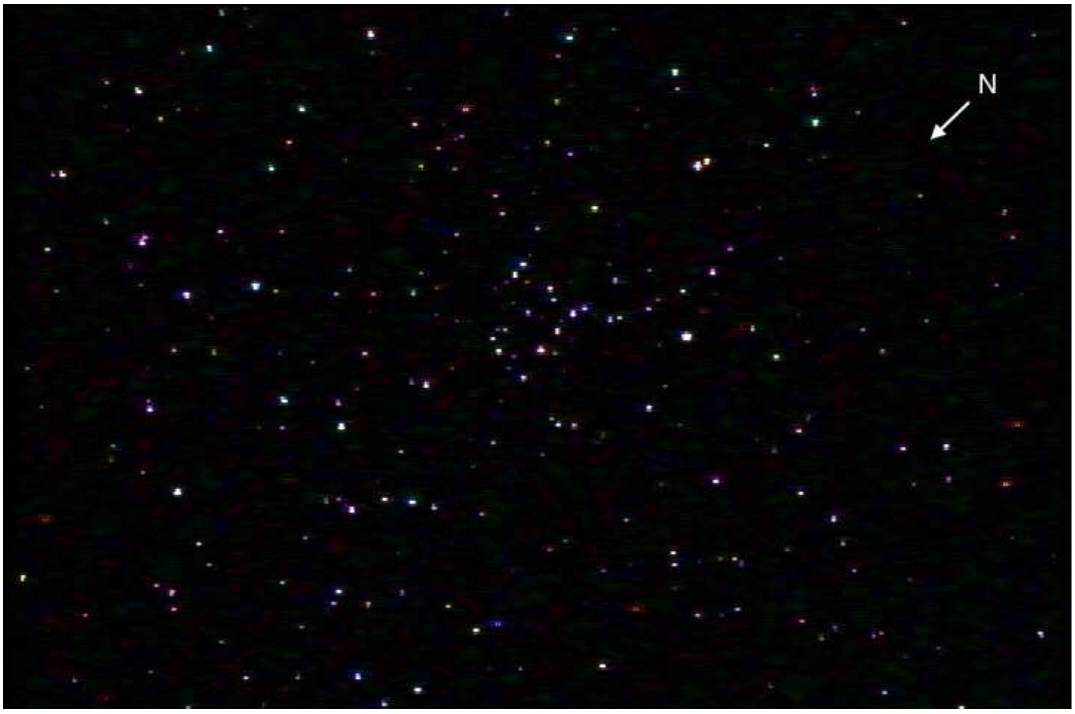
Using a 10-inch reflector at 95X, I saw about 35-40 stars in open cluster NGC-1664. The most interesting feature was a triangular asterism of stars toward the north, and a mostly single chain of stars to the south. This cluster has been often called the "Kite Cluster" which would seem to be a very descriptive comparison. I easily recognized it even at lower power, but when I increased the magnification to 95X, the kite feature really came to life. Some chains of outliner stars were very irregular. The cluster fit nicely in a 1/2º field of view. I made the following sketch using a No. 2 pencil on a blank 5 X 8 notecard. I had a friend use his dedicated scanner to invert the image until I can get a new one of my own.



Rob Lambert: LVAS President from North Las Vegas, Nevada

I always tell my Astronomy Lab students at the College of Southern Nevada, that if astronomers have nothing else, they at least have a vivid imagination - and NGC-1664 helps prove that statement to be true. I found it initially difficult to see the kite in this cluster. I think I probably should've gone for a longer integration/shutter speed setting. I didn't get a chance to look up this object to see what I should be seeing before actually going after it. Had I done so, I would've gone for a longer exposure. The cluster lies just outside, to the west of the misshapen pentagon of Auriga and astride the Winter Milky Way. A little more exposure would've revealed a denser field of stars around the cluster.

In my image, north is down and to the left. If you locate the brighter star (7.46 mag. TYC2906-152-1) that is to the right of image center, the tail of the Kite is just above the star and extends to the left and right, not quite centered over the star. The body of the Kite is an almost heart-shaped ring of stars at the left end of the tail, almost in the center of the image. The most interesting thing I noticed about NGC-1664 was the number of different colored stars within the cluster. There seemed to be a fairly wide range of color (yellow to blue) and thus temperature in the cluster's stars.



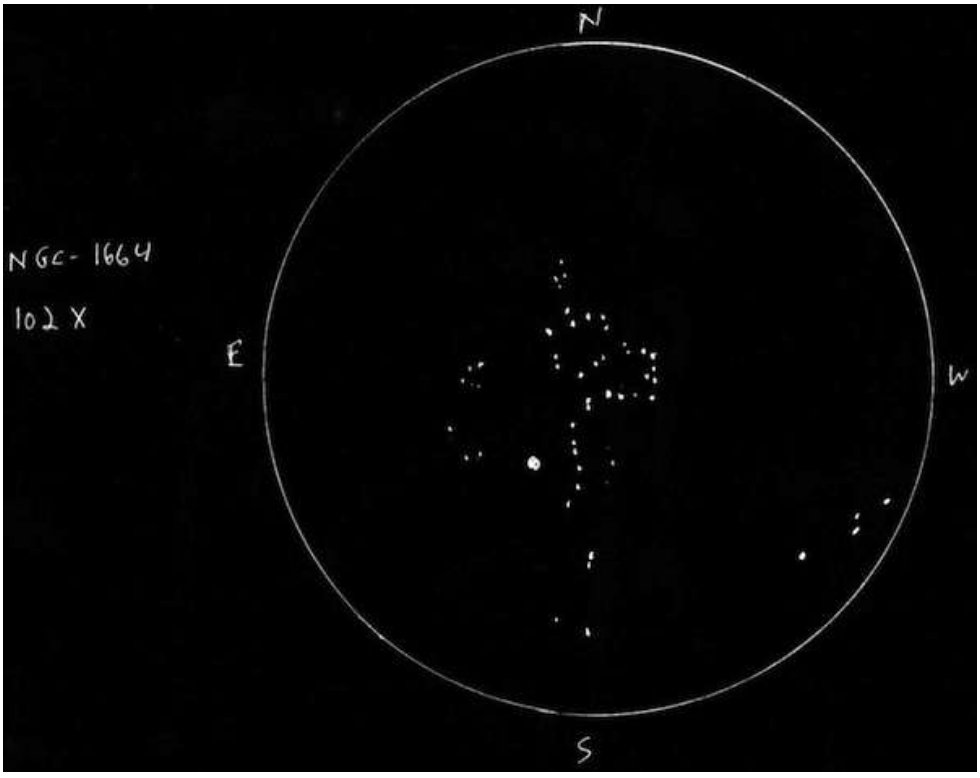
As always, the image above is an unprocessed single frame shot. The integration was only 3 seconds and that's why the star field isn't as dense as one might expect with the cluster sitting astride the Milky Way.

Fred Rayworth: LVAS Vice-President from Nevada

The first time I spotted NGC-1664 was at Lake Murray, near Ardmore Oklahoma during Okie-Tex on October 1, 1997. At 872 feet, it was clear and calm. It was also warm and the humidity stood at 68% according to astrophotographer Jason Ware, who had access to real-time weather data.

Using my 16-inch f/6.4 Newtonian at 70X, I saw a faint scattering of stars with a bright one on the edge. It filled up 3/4 of the field. I never noticed the shape, probably because of the low magnification.

I didn't get another chance to observe it until February 1, 2014 from Furnace Creek Ranch in Death Valley. At -192 feet below sea level, it was super clear, getting cold, with slight air movement. I thought it was going to be windy after the earlier forecast and high winds in the afternoon, but it never happened. Instead, the breeze ended up being slight and variable right until midnight when I gave up. The sky was pristine until sometime after 10:30 when I noticed some stars in Eridanus were starting to get halos around them on the far Western horizon. I had a feeling something was up, and that was confirmed the next morning when I woke up to overcast skies again, just like the Friday previous. That one-night break was worth it, though.



NGC-1664 was a nice, unusual-shaped open cluster of mostly even-magnitude bluish stars with one bright one. I didn't notice any other significant colors, though there might have been a few hints of red or orange in one or two, but nothing that gave me much thought. The bright star was next to a crooked handle that curved around to a distorted oval. The shape kind of reminded me of a mangled hair brush. There were other stars of various magnitudes that didn't match this shape within the confines of this grouping that were probably part of the cluster. However, due to the magnification (102X) and light gathering power of my scope, the distorted hair brush shape stood out making the rest of the stars almost insignificant in comparison. A very weird and interesting cluster.

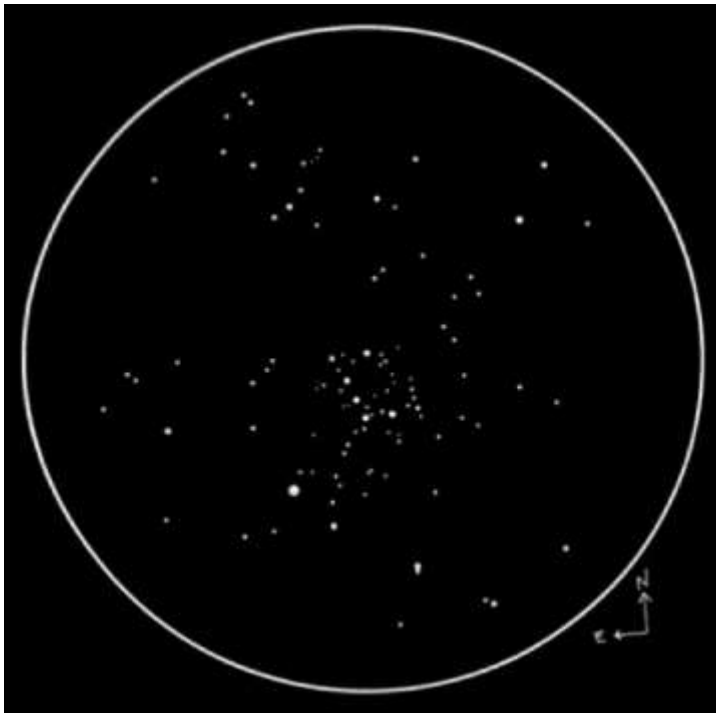
Jaakko Saloranta: LVAS Friend from Finland

Telescope: 8-inch 1200mm (f/6) Dobsonian. Object: NGC-1664. Observing site: Rajakylä, Vantaa, Finland. Date: December 07/08, 2004. NE Lim.mag: 5.6m. Background sky: 3-4. Seeing: 2. Weather: +1.0°C, clear.
Description: Pretty. Triangular toward mag. 7 star in the SE. Slightly concentrated. Several double stars in the SW edge. Stars mostly mags. 10. Brightest star in the NE edge. Stood well from the background.

Telescope: 8-inch 1200mm (f/6) Dobsonian. Object: NGC-1664. Observing site: Koivukylä, Vantaa, Finland. Date: October 14/15, 2009. Bortle class: Class 5. NE Lim.mag: 5.7m (north). SQM-L reading: 18.99 (zenith). Background sky: 3-4. Seeing: 5. Transparency: 4. Weather: -1.0°C, clear, f MW Cas-Per.

Description: Triangular group of 40* mags. 10-14.

NGC-1664 96X



NGC-1664 100X

Jay and Liz Thompson: LVAS Members from Nevada

Liz Thompson: I observed NGC-1664 from my backyard in Henderson, NV on December 28, 2013 and February 01, 2014 with a 14-inch SCT. The cluster was nice at 98X using a 2-inch 40 mm eyepiece. It revealed several dozen stars with a readily apparent shape of a kite on a string. A 14mm eyepiece at 279X yielded too much magnification.

It was a refreshingly easy object after last month's NGC 1491.

Jay Thompson: I observed NGC-1664 from Meadview, AZ on January 03, 2014 using a 17.5-inch reflector and a 5-inch SCT.
The cluster was nice with the 17.5-inch at 125X, revealing a few dozen stars and the "flower on a stem" shape. It also showed up well through the 5-inch SCT at 63X. Though dimmer than with the larger telescope, I could readily see the shape with the 5-inch.