MONTHLY OBSERVER'S CHALLENGE

Las Vegas Astronomical Society

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&

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JANUARY 2017

NGC-1545 (Collinder 49) Open Cluster In Perseus

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-1545 (Collinder 49) Open Cluster In Perseus

NGC-1545, also known as Collinder 49, was discovered by William Herschel in 1790. It's a rather sparse cluster and some of the members are questionable per recent research. Therefore, the most notable stars are the brightest ones which only amount to a few. The most notable are the triple star in the center, South 445, of which two of the pair are in the mag. 7-8 range. The overall mag. for the cluster is 6.4, depending on which reference you go by.

Observations/Drawings/Photos

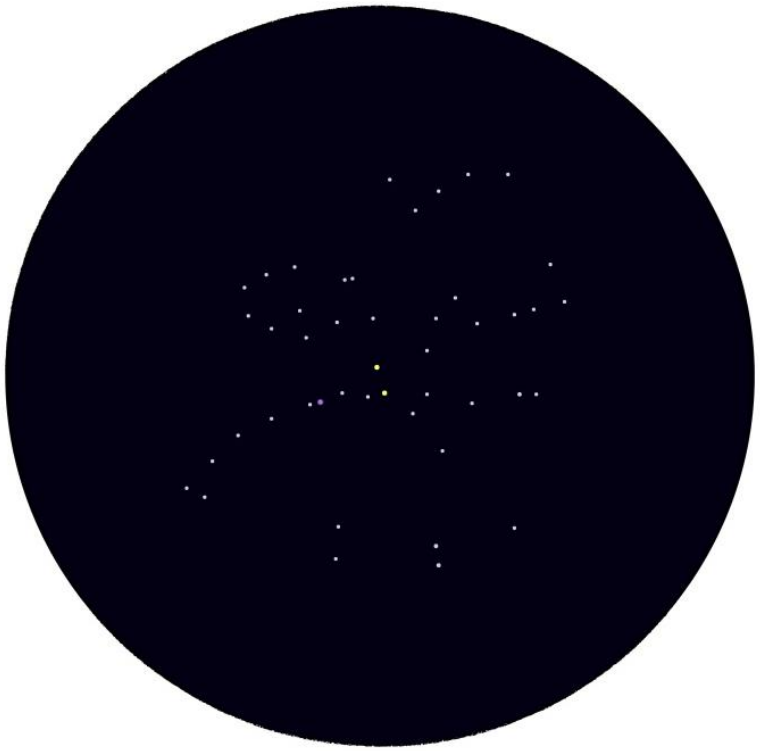
Mike McCabe: Observer from Massachusetts

For the LVAS January Observer's Challenge, I observed open cluster NGC-1545 on three separate occasions. On December 30, 2016, I observed it through my 12.5-inch Dobsonian. On January 1, 2017, I observed it again with some fellow observers through an 18-inch Dobsonian and on January 15, 2017, I observed it through my 4.5-inch Dobsonian.

In the 12.5-inch at 85X, I saw a pretty gathering of stars dominated by a trio of mag. 7 and 8 stars in the middle. From this bright triangle at the center, about 40 or so mag. 11 to 13 stars traced intricate patterns in several directions around the field of view. The view was very similar in the 18-inch.

In the 4.5-inch, the view was significantly different, with fully half of the stars disappearing and none of the intricate patterns present. In fact, if I didn't know where I was, I doubt that I'd mistake what I was seeing for a cluster. It was not that well-represented in a small scope.

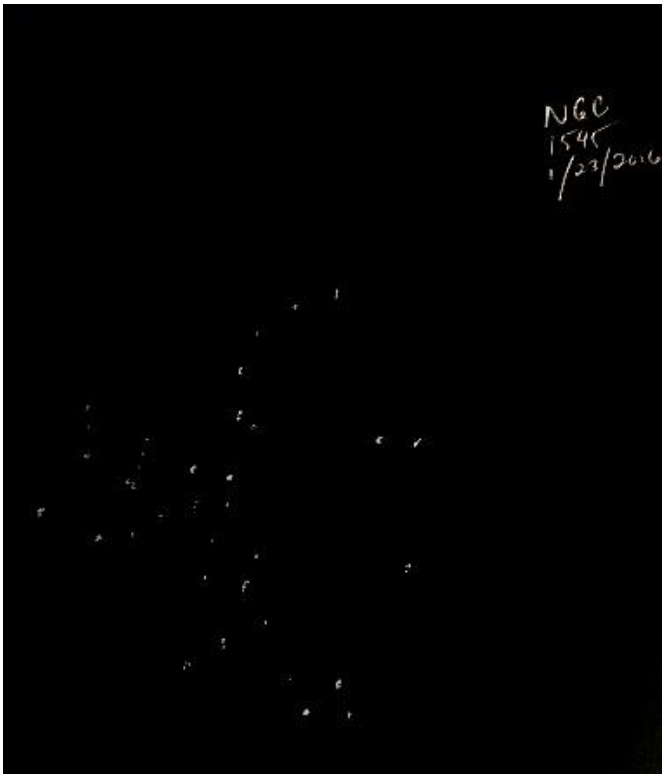
NGC-1545 is a good object for medium to large sized amateur instruments.



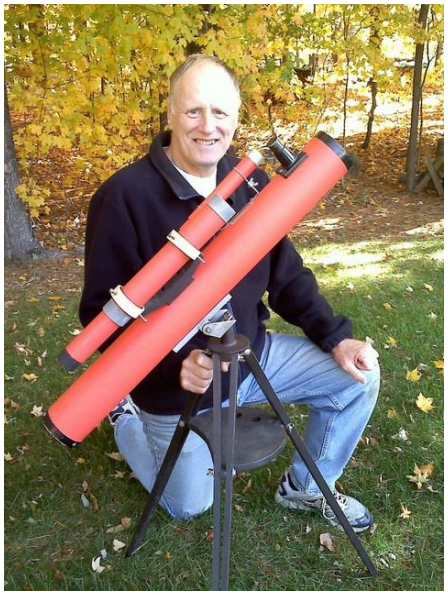
Craig Sandler: Observer from Massachusetts

On January 23, 2017, I observed NGC-1545 at 88X with an 8-inch SCT from Wakulla Beach, FL. The conditions were clear and very windy with 17-25 MPH gusts. The seeing was excellent and transparency was very good. The NELM was 6.0.

The view of this delightful object was superb, though all night I was battling the wind. Almost as bad as turbulence, but I'd still rather have the wind then unsteady seeing. I'm unhappy with this sketch - much more so than when I was in the field in the dark...I was really out to get something "good enough," and thought I had it, but studying it in daylight, I don't think it does justice to the central triangle, nor the several other interesting triangles and other patterns. Still, the attempt was enjoyable….if I hadn't had so many other objects on my agenda, and the wind hadn't been such a fierce opponent, I might've gone back and rendered something a bit better. But I'm learning!


NGC
1545
1/23/2016

Glenn Chaple: Observer from Massachusetts

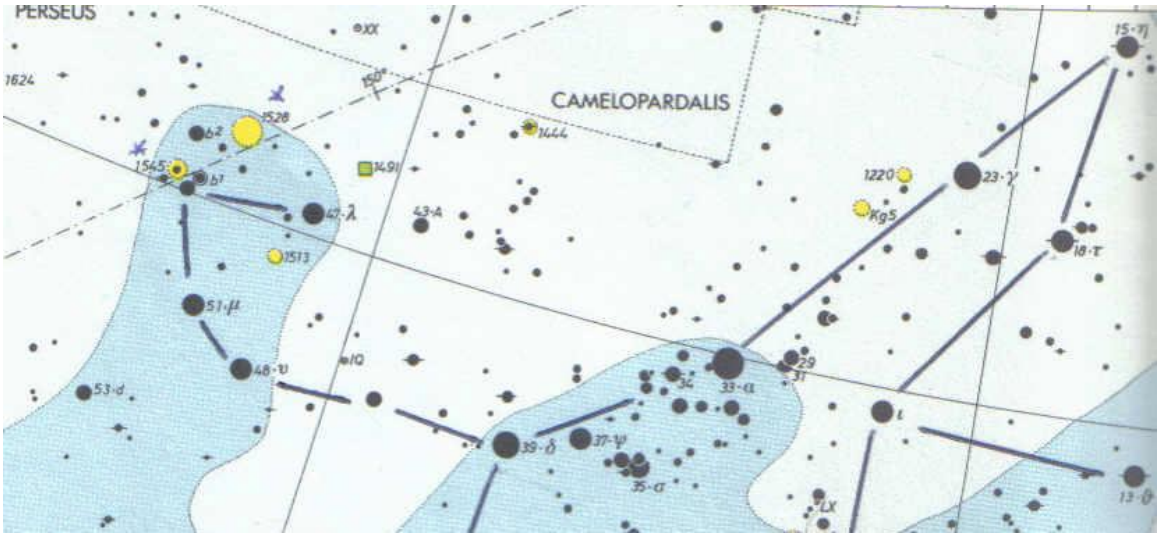


In the northeast corner of Perseus is the beautiful open cluster NGC-1528. This is not the January, 2017, Observer's Challenge object, but it's worth starting here before moving 1.5° southeastward to our real target, the open cluster NGC-1545. Both clusters shine at mag. 6.2, with NGC-1528 being larger and richer.

NGC-1545 lies a few arcminutes east of the mag. 5 star b Persei, and is dominated by the wide triple star South 445 (observed and catalogued by the British astronomer Sir James South in 1825). Its three members, of mags. 7.1, 8.1, and 9.3, form an isosceles triangle. The brightest is a yellow-orange K5 giant. About 7.5' north of S445 is the double star Struve 519 (mags. 7.9 and 9.4, separation 18.3") whose primary is also yellow-orange.

On March 18, 1979, I observed and sketched S445 and Struve 519 using a 3-inch f/10 reflector at 60X. I failed to notice the fainter stars that comprise the bulk of NGC-1545. My Observer's Challenge will be to re-observe the area with the 3-inch and see if I can pick out some of the dozen or so mag. 10 to 11 members. Steven O'Meara, author of the *Herschel 400 Observing Guide*, reports adding 3 dozen more stars with a 4-inch scope at 101X.

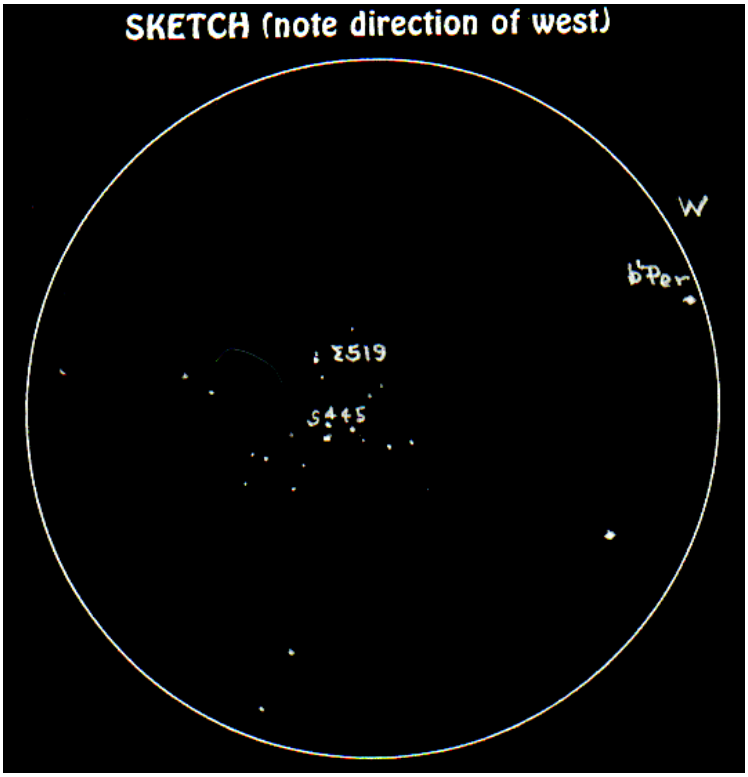
Discovered by William Herschel in late December, 1790, NGC-1545 also bears the Herschel designation HVIII85 (H858) – the 85th entry in his 8th category of deep-space objects (coarsely scattered clusters of stars) (**Editor note:** Though it's not listed as one of the Herschel 2,500). It lies an estimated 2,500 light-years away.



Finder Chart for NGC-1545 (From *Sky Atlas 2000.0*)

NGC 1528 (top right) and NGC-1545 (bottom left)

Sketch and re-observation done with a 4.5-inch f/7.9 reflector at 76X. The seeing was III and NELM was 4.5. Very coarse cluster dominated by the triple star South 445 (mags. 7.1, 8.1 & 9.3). Also contains the double star Struve 519 (mags. 7.9 & 9, sep. 18.3”). Surrounded by a faint sprinkling of a little over a dozen stars.



Sue French: Observer from New York

From *Deep Sky Wonders*, by Sue French:

105mm (4.1-inch) refractor.

"NGC-1545, is dominated by the colorful triple star, South 445 at its center. The widely spaced components form a skinny isosceles triangle pointing west-southwest. Through my little refractor at 68X, the mag. 7 primary is orange, the mag. 8 secondary north-northwest is yellow, and the mag. 9 companion at the triangle's pointy end seems bluish. About 30 stars, mostly faint, run outward from this triple in several branching arms."

10-inch f/6 reflector.

"At 68X, NGC-1545 is a pretty cluster dominated by a bright, colorful triangle of stars at its heart: orange, yellow, and blue. Several branching arms of fainter stars run away from the triangle. The northern arm has a nice double star at its end (STF 519) with a bright, orange primary and a wide companion to its north. The group has rather indefinite borders, but approximately 50 bright to faint stars populate ~ 25′."

Mario Motta: Observer from Massachusetts

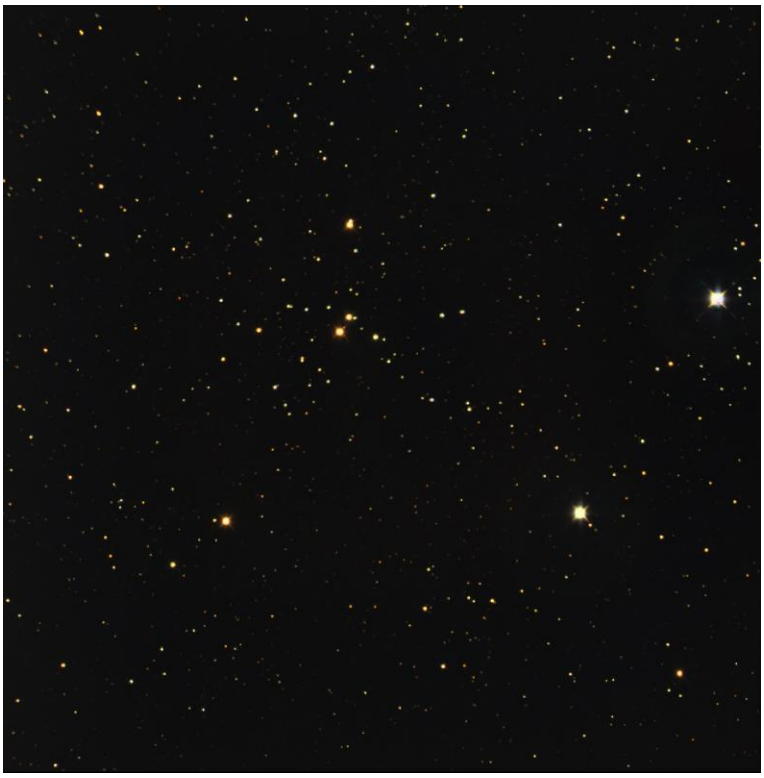
I have a new small scope for wide field, an 8 inch RC f/8, I picked up at a reasonable price. I Have it mounted piggyback on my 32-inch, wanted to test it out, so I redid NGC-1545 (this gives me 58X58 arc minutes). I have a compressor, so will soon test that for 70X70.

So, I tested it on NGC-1545 and did a color run. Seemed good.

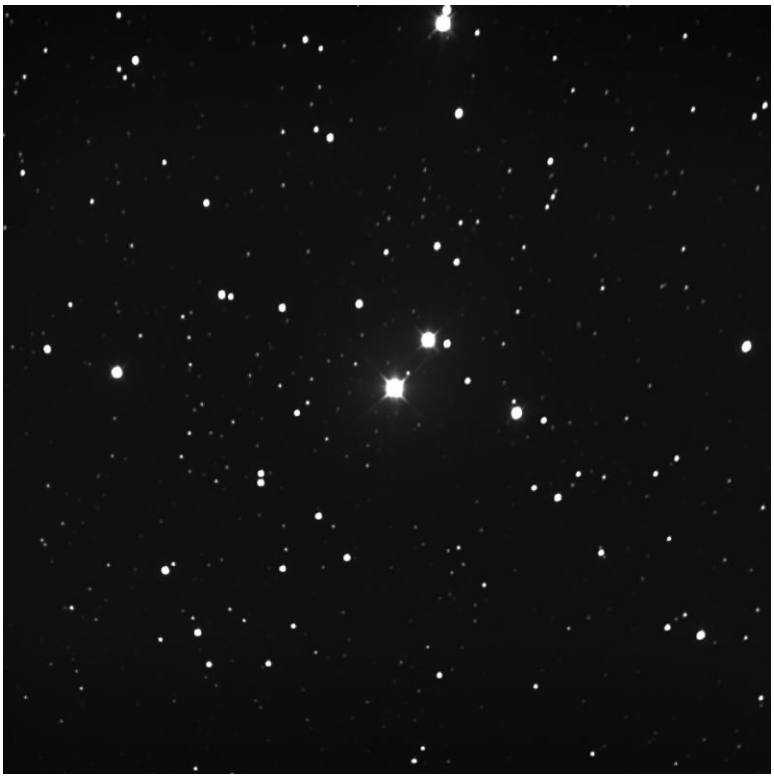
The image consists of 5 1-minute images each of red/green/blue, then combined for color.

Conditions were not great tonight, but adequate for testing on an open cluster.

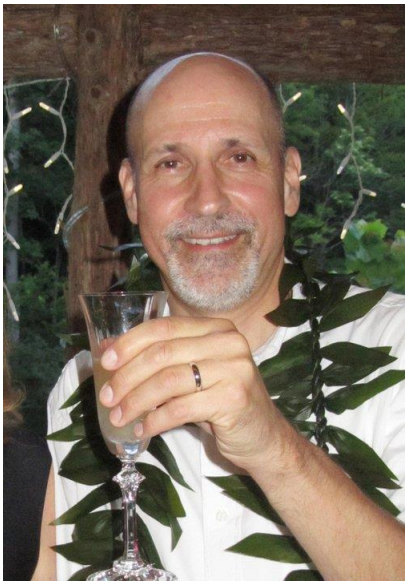
It appears the bright stars in this are yellow stars.



Did a luminance run as well.



Dr. James Dire: Astronomy Professor & Observer from Hawaii



The Winter Milky Way from Cassiopeia through Gemini is riddled with a multitude of open star clusters. One in particular, on the outskirts of the constellation Perseus, is NGC-1545. It can be found 9° due east of the star Mirfak (Alpha Persei) and 10.5° west-northwest of the star Capella (Alpha Aurigae).

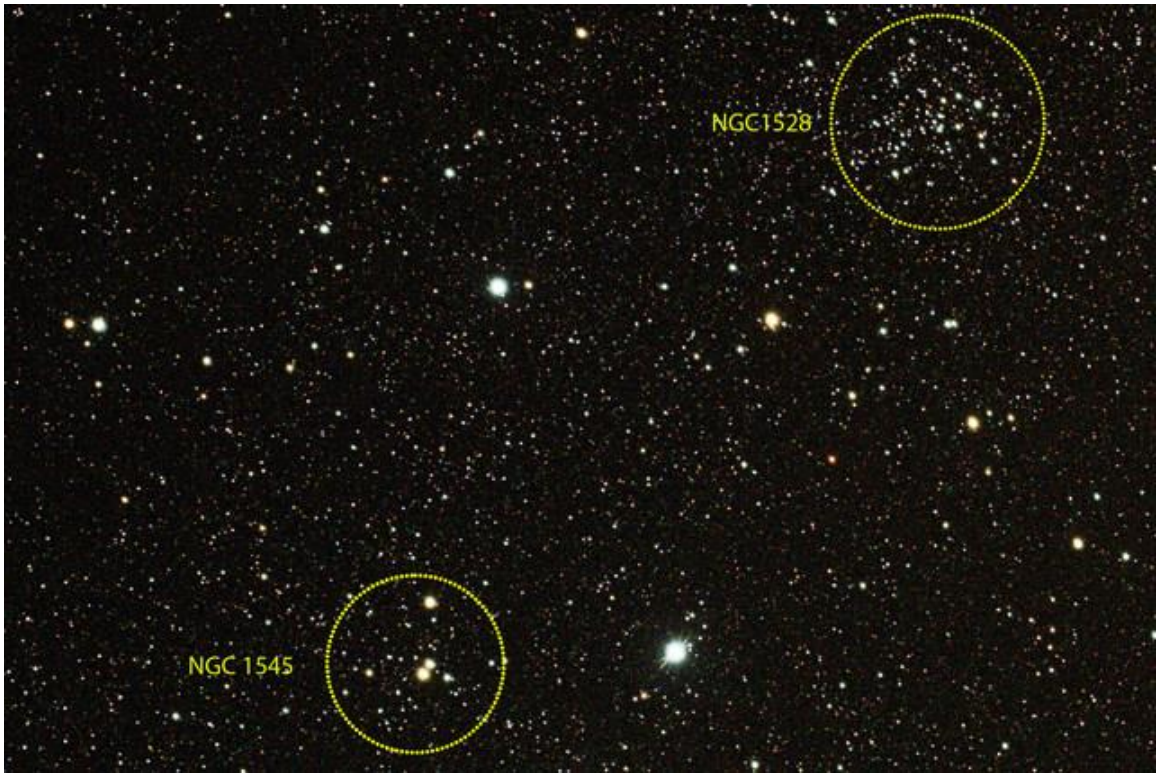
NGC-1545 is approximately 18 arc minutes in size and shines at an integrated mag. of 6.2. The cluster is an easy find in binoculars as it lies just to the east of the star b Persei, itself at mag. 4.5. The cluster is a loose collection of approximately 40 stars. At the center are a mag. 7 orange star and a mag. 8 yellow star that show good color contrast. These two stars form a triangle with a mag. 9 blue-white star. There's another orange star, mag. 7.7, located on the north edge of the cluster. Most of the remaining stars in the cluster are dimmer than mag. 10.

In binoculars or a rich-field telescope with an eyepiece yielding a 1.5° field of view or larger, the cluster can be placed in the same field of view as NGC-1528. Comparing the two clusters offers many contrasts. Both clusters have approximately the same integrated brightness and size. While NGC-1545 has several bright stars with the rest much fainter, NGC-1528 is a richer cluster containing twice as many stars with many more stars around mag. 10 and 11. NGC-1545 lies 2,319 light-years away while NGC-1528 lies 3,000 light-years distant.

My first image here is of both NGC-1545 and NGC-1528 taken with a 70mm (2-3/4-inch) f/4.8 APO using an SBIG STF-8300C CCD camera. The field of view is approximately 1.5° from left to right. I have circled and labeled the two star clusters. The brightest star in the image is b Persei, a foreground star 318 light-years away.

The second image contains only NGC-1545. This image was taken with an 8-inch f/6.4 Ritchey-Chretien Cassegrain telescope with an SBIG ST-2000XCM CCD camera. The image is

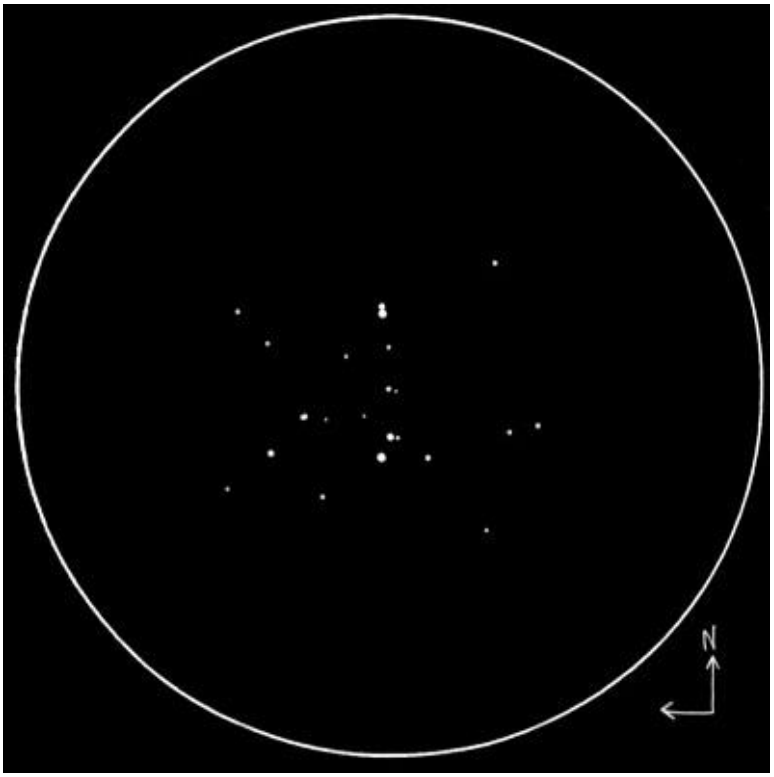
centered on the brightest star in the cluster. However, I should note, the brightest stars that appear in the cluster are actually foreground stars.



Jaakko Saloranta: Observer from Finland

Using 4.5-inch telescope, I could count about 20 stars visible within 15'. The cluster appeared quite sparse and was dominated by a deformed triangle in the middle known as triple star South 445. The brightest star in the triangle appeared orange, the second brightest looked light blue. Bright mag. 7 star (STF 519) in the northern edge was a double star with an orange and a blue component. I also spotted a second, fairly faint double star with the 10-inch telescope. It was listed as mag. 12 star TYC 3337-83-1 with the companion being nearly of the same mag.

Weather conditions were poor due to light pollution, high humidity and snow covered ground. I could barely make out mag. 5 stars near zenith with SQM-L reading around 18.30. The temperature was 15°F.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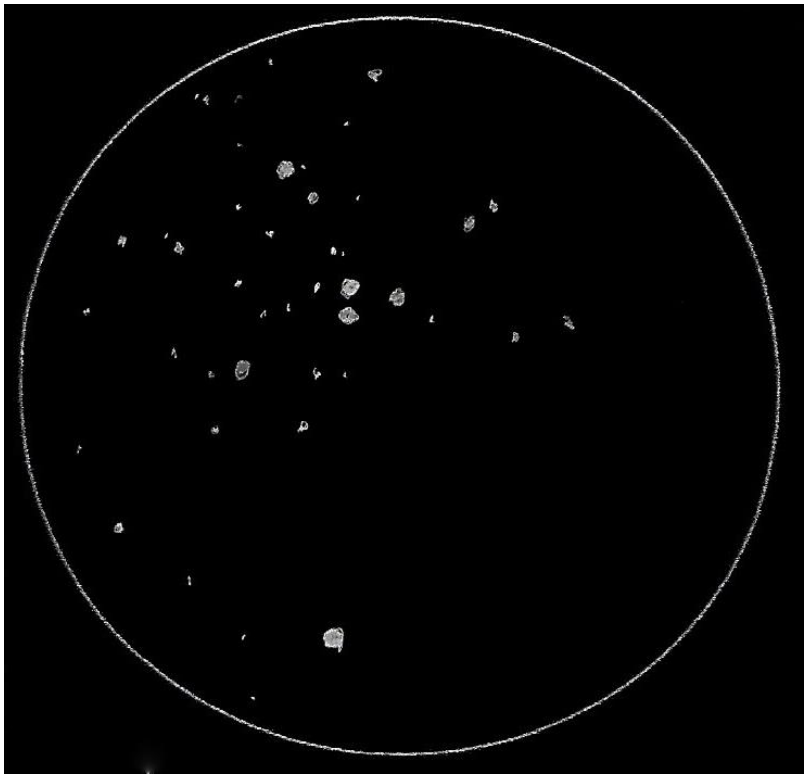
Francisco Silva: Observer from Nevada

I observed NGC-1545 from Valley of Fire State Park in Nevada on January 16, 2017. The temperature was 80°, the humidity 37%, wind 1 MPH. Transparency was 3 out of 5 and seeing was 3 out of 5. There was no moon during the observation.

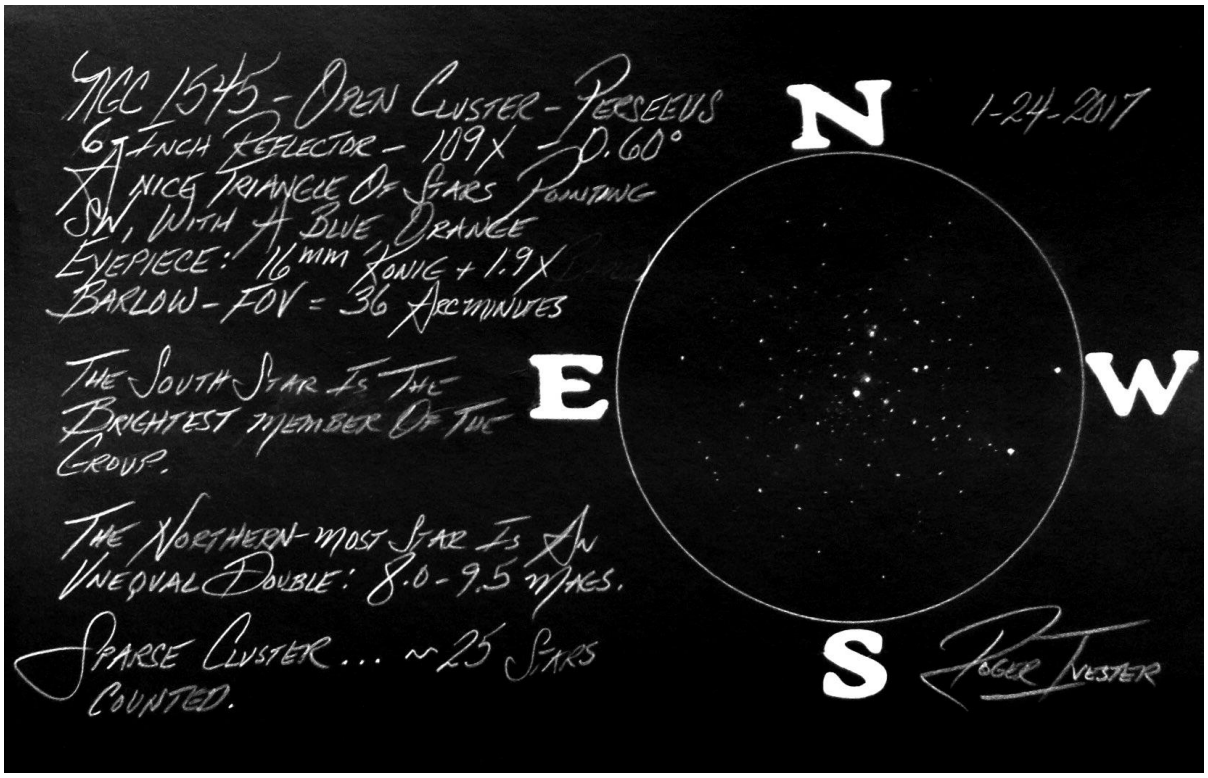
At a magnification of 80X, it was difficult for me to find it due to its position in the sky, but luckily the moon didn't come out until a couple of hours later which allowed me an acceptable sky for this type of observation. I was able to observe stars of different colors. The most dominant were orange and a few yellow ones which told me that they had to be very old.



Roger Ivester: LVAS Observer from North Carolina

On January 24, 2017, I observed NGC-1545 with a 6-inch f/6 reflector at 109X (16mm EP & 1.9X Barlow, 0.60° FOV).

In the center lay a small triangle of stars with the southern-most star being orange, and also the brightest of the cluster. The central star of the cluster was a double, but I couldn't see the companion with the 6-inch. Moving all the way to the northern edge of the cluster, I saw a fairly bright star, which was an unequal double, mags. 7.9/9.4 with a separation of 20". This northern-most star appeared slightly orange and the faint companion was blue. I counted 25 stars in a ~15 arc minute circle. A pair of faint mostly equal mag. white stars were located toward the west, with an orientation of E-W.


NGC 1545 - Open Cluster - Perseeus
6 Inch Reflector - 109x - 0.60°
A Nice Triangle Of Stars Pointing SW, With A Blue Orange
Eyepiece: 16 mm Konig + 1.9x Barlow - FOV = 36 Arcminutes
The South Star Is The Brightest Member Of The Group.
The Northern-most Star Is An Unequal Double: 8.0 - 9.5 Mags.
Sparse Cluster ... ~25 Stars Counted.
1-24-2017
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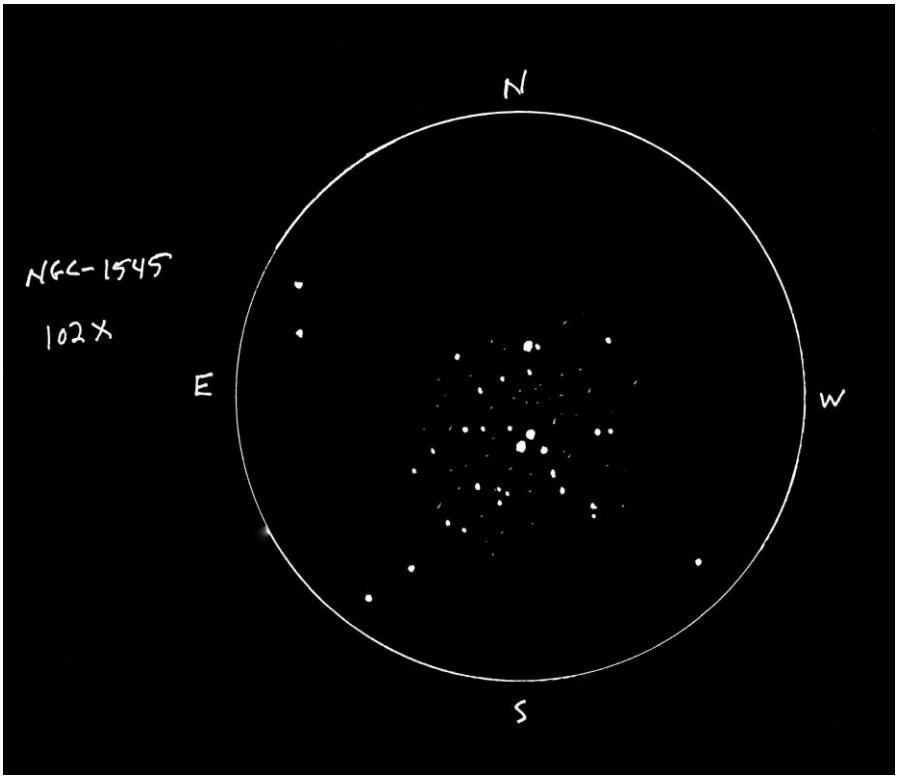
Roger Ivester

Fred Rayworth: LVAS AL Coordinator and Observer from Nevada

I've observed NGC-1545 only once before, back on October 2, 1997 at one of the Okie-Tex star parties when they used to hold them at Lake Murray in Ardmore, Oklahoma. At an altitude of 872 feet, it was warm, dry with 37% humidity according to observing neighbor Jason Ware. There was a slight breeze. Back then, I was using my home-built 16-inch f/6.4 Dob. At 82X, I saw about twenty stars with a few bright ones that formed a couple of random patterns. The cluster was medium-sized. Back in those days I rarely, if at all noted star colors and this case was no exception.

The second observation, for the Observer's Challenge, was with my commercial 16-inch f/4.5 from Furnace Creek in Death Valley on January 27, 2017. At an altitude of -190 feet below sea level, it was cold, with occasional wind gusts, just enough to make it uncomfortable. The transparency was excellent but the seeing was poor.

NGC-1545 was a very sparse cluster with a few prominent stars, mainly three bright orange ones. The orange one to the north was part of a double star, the companion fainter and maybe blue or green, but could not tell for sure due to it swimming around. The southern pair was part of a triple star with a much fainter companion to the west that looked sort of yellow-white. Otherwise, I noticed no color in the other stars except the usual gray-blue-white. The pattern reminded me of a peace sign without the circle around it. The peace sign was intersected with a line going across, making it sort of like a distorted A, with the line across in the wrong place. However, the drawing, when adding in the other prominent stars, only vaguely resembles that if you use your imagination. I still see it though, and it was much easier to see visually than in my crummy drawing. The rather bland cluster turned out to be a bit more interesting than it first appeared. I believe with better seeing, I might've draw out more color from the stars, other than the bright orange trio, which kind of slapped me in the face.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