

MONTHLY OBSERVER'S CHALLENGE

Las Vegas Astronomical Society

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&

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January 2012

NGC-1502 – Open Cluster In Camelopardalis

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-1502 – Open Cluster In Camelopardalis

NGC-1502 is a small open cluster consisting of about 45 stars. It's in the middle of the constellation Camelopardalis and is at the tail end of a line of stars called Kemble's Cascade. This asterism is a relatively straight line of unrelated stars that has the cluster at one end. This feature was named by observer and Sky & Telescope columnist Walter Scott Houston who gave it the name from Father Lucian J. Kemble, a Franciscan Friar who had written Walter to tell him about it. The cascade is best seen in finders or binoculars, but can be followed in telescopes at very low power.

Observations/Drawings/Photos

Jay Thompson: Observer from Nevada



We'd like to welcome new participant Jay Thompson to our Challenge.

On January 19, 2012 from my backyard in Henderson, NV, I used an 8-inch f/10 SCT with a 35mm eyepiece at 57X. NGC-1502 had an overall V-shape reminiscent of the Hyades. There was a pleasing bright double star near the center of the cluster. This bright double was included in a row of several double stars with progressing position angles. I traced nearby Kemble's Cascade for a couple fields, though I saw it better in a 3-inch f/4.

Buddy Barbee: Observer from North Carolina



This observation of NGC-1502, known as the Jolly Roger Cluster, was made Monday, January 30, 2012 from my home in Winston-Salem, NC. I was using a 2.6-inch APO refractor with a 5mm eyepiece at a magnification of 80X. It was a beautiful clear night with a mild temperature in the mid 40's F. The naked-eye limiting magnitude was only 4.2.

Using a 24mm eyepiece for a magnification of 16.7X with a 4° true FOV, I star-hopped from Mirfak and the Alpha Perseus moving cluster north-northeast about 13° to Kemble's Cascade. I saw NGC-1502 easily as a small hazy spot at the southeast end of Kemble's Cascade with this low magnification. This hop was surprisingly easy considering the fact that there were no stars visible in Camelopardalis in town with the light pollution.

Putting the 5mm eyepiece in the little telescope, I focused on the bright pair of stars in the center of the cluster. This double star, mags. 6.93 and 6.94 and separated by 17.9 seconds of arc, is known as Struve 485 and was very prominent in the light-polluted view of this cluster. At first glance, I could only see a few very faint stars around the double star over a faint gray haze. After covering my head to block out stray light, and looking at the cluster for a few minutes, I started to see many very faint stars around the double star. In total I was able to count about 14 stars that were visible. Not too shabby for such a small scope in a heavily light-polluted sky.

DEEP-SKY OBSERVATION FORM

CONSTITUTION:

Camelopardalis

OBJECT:

NGC 1502
and Struve 485



Day & Date: Mon, Jan 30, 2012

Time (local): 9:35pm EST

Time (UT):

Observer: BLB

Location: Home in W-3, NC

W

Seeing (1-5): 4

Transparency (1-7): 4

NELM: 4.2

Temp: 46°F Wind: 3-5 mph

Humidity: 34%

INSTRUMENT

Telescope: ATG6

Aperture: 66mm

Focal Length/Ratio: 400mm

Eyeiece: 4mm

Magnification: 100x

Field-of-View: 00°36'

Filter: None

OBJECT

RA: 04 hr. 07.8 min.

Dec: +62 d. 20 min.

Type: Open Cluster

Listed Magnitude: 6.9

Listed Size: 7.0'

Altitude of object: 75°±

NOTES

I counted 14 stars over a faint gray haze behind them.

The bright double star in the center of the cluster is Struve 485

The magnitude of these stars are 6.93 and 6.94 and are separated by 17.9 seconds.

Jim Gianoulakis: Observer from Nevada



NGC-1502 is located in the constellation Camelopardalis. It's located either on the outer portion of the local spiral arm or it may be located between the spiral arm and the next one out, the Perseus spiral arm. It's a very young but bright cluster dominated by a handful of mag. 7 and 8 member stars and including a close bright binary pair (SAO 13031, mag. 6.95; SAO 13030, mag. 7.08). Lying at a distance of 2,680 light-years away, NGC-1502 is estimated to be a mere 11.2 million years old. Comprised of approximately 50 member stars spanning approximately 8 arc-minutes in diameter, this cluster is very well detached from the background sky owing to the number of bright member stars at the core. The cluster is best observed during winter and early spring when it is furthest north of the celestial pole at the end of astronomical twilight and thereafter.

About the exposure:

Mount: Orion Atlas EQ-G. Camera: Orion Star Shoot Pro V2. Exposures: 160 10-second sub-frames calibrated with 40 darks, flats and bias frames.



Jaakko Solaranta: Observer from Finland



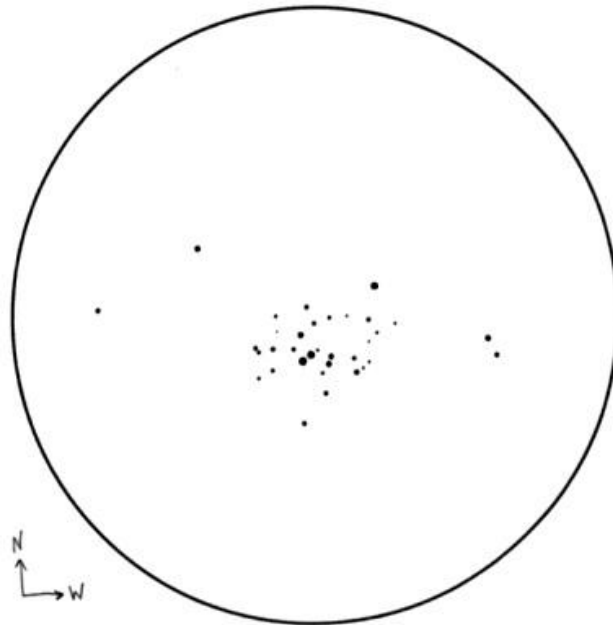
The easiest way to locate the cluster is to navigate from mag. 4 double star STF 385 to a large, bubbling river of stars known as Kemble's Cascade (Kemble 1). Follow the river SE (or downstream with binoculars) and there's NGC-1502. Under better conditions, the Cascade is also easily visible as a stream of unresolved stars so you can also directly navigate to it.

If up for a challenge? Try to spot the actual cluster first without optical aid. I can do this under very dark skies (SQM-L 21.50+ / NELM 7.3) from a rural family cabin in central Finland. I either gaze directly at the mag. 5 star HD 24479 (brightest star in Kemble's Cascade) and "jiggle" my vision around it or move my eyes around the cluster's presumed location in a square-shaped pattern. Once you find your averted vision sweet spot, can you see a small puff of light where the cluster should be? If the answer is yes, you've successfully logged NGC-1502 with the naked eye. Congratulations! Veteran American deep sky observer Stephen O'Meara was successful in doing so. How about you?

Looking at the cluster with a 4-inch telescope at low power, the eye instantly jumps to two points of interest. The first one is an enchanting arc (or a Y) of stars on the northern side of the cluster making the low-power view quite enjoyable. The second one is, of course, the mag. 7 double star at the heart of the cluster which also seems to teem with additional stars or components at high power. I fail to see any color in the double or other members of the cluster, but this is often the case under poor conditions.

High magnification reveals quite a symmetrical arrangement of stars with an enchanting curve of stars surrounding the double stars in the NW. The fainter stars in the cluster seem to flow toward the SE in straight lines just like the stars in Kemble's Cascade. The cluster's size is visually about $10' \times 9'$ being slightly elongated in NW-SE direction. The common given catalog value is $8'$. With a magnification of 240X, my 4.7-inch refractor displays 57 stars in a large brightness range of 7-14. Under less perfect conditions, the same scope shows roughly 30 stars down to mag. 13.

If using high or low power to enjoy this cluster, try a medium magnification. It's quite easy to let the brain connect the dots and see some weird shapes in the cluster. To me, the double in the middle looks like a pair of eyes praying on an unwary observer. I've also seen a dragonfly, a grasshopper and a helicopter, just to name a few shapes. The sketch attached here was made with a 4.7-inch refractor from my suburban backyard back in October, 2010.



Tony Labude: Observer from Oklahoma



On the January 21, 2012, with the temp at 33°F and 15 mph wind with gusts to 20; a party of four of us, with a makeshift warm up/ wind shelter didn't spend a lot of time at the eyepiece. NGC-1502 was the first target for the old 8-inch, so I just went cluster-hopping from Cas 45 to St6 to TR3 and finally Kemble's cascade and NGC-1502. At 50X, Struve 485 was a lot brighter than the other 10 stars I counted in the field, and more separation than expected. Just to the right in the field of view of 485 was a trapezium asterism. I switched to a 12mm and counted six more stars. I kept hopping back and forth between NGC-1502 and TR3 comparing the star patterns. TR3 had more stars but no standout bright double. I took very little time to search for NGC-1501 but the heaters in the shelter needed my time more. About 2AM, the clouds came rolling down the plains and ended the party.

Image credit: Dennis Wigley, Kevin Davis and Tony Labude.



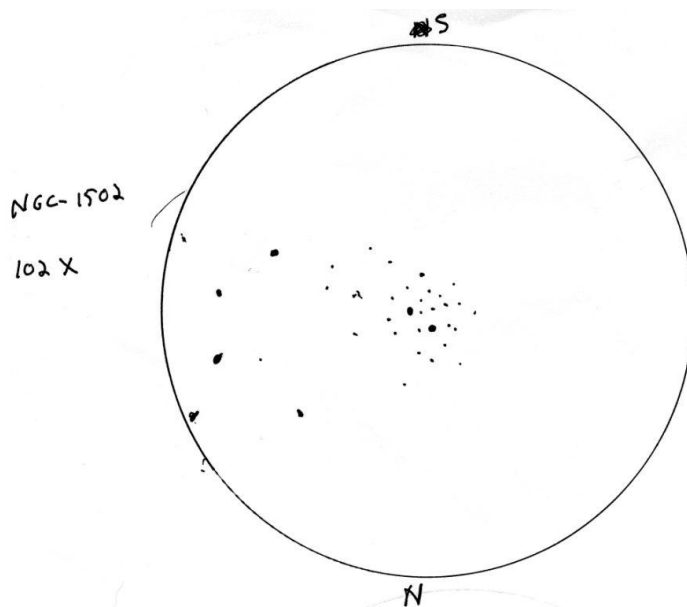
Fred Rayworth: Observer from Nevada



The first time I observed it was on November 16, 1998 from my house in Tipton, Oklahoma with my home-built 16-inch f/6.44 reflector. Using 70X, I noted a cluster of about 20 stars with a bright orange-ish double star in the middle. It stood out against the background. I didn't observe it again until January 21, 2012 from Furnace Creek in Death Valley. Using my 16-inch f/4.5, I observed it at 102X.

I saw a small uneven clump of stars with two brighter orange stars dominating the center. There were plenty of fainter companions surrounding them in the background. A line of stars curved off to the northeast which I had to follow beyond the field of view of the cluster. That line of stars was much easier to see and much more obvious in my 50mm finder scope. Kemble's Cascade. When fellow observer David Blanchette came over for a look, he noticed the pattern immediately in the finder.

After studying the cluster a bit, I got the impression of a sparkler. Kembles Cascade was like a line of fire with the cluster the sparkle at the end. The dominant orange double star in the middle of the cluster made it easy to identify from other open clusters I've seen lately. It made for an interesting and unique view. My drawing is a crude representation of what I saw and the stars are not in the exact spots, just generalizations.

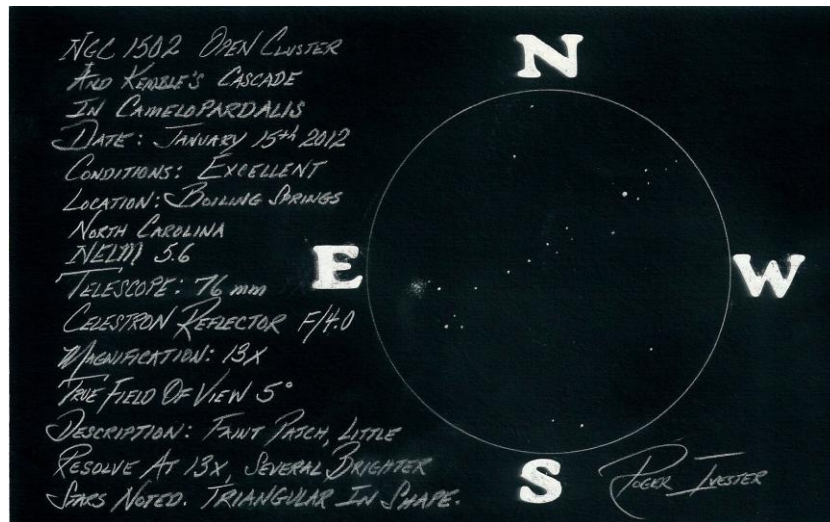


Roger Ivester: Observer from North Carolina



Magnification: 12 mm + 2.8x Barlow @ 70X

With a 76mm f/4 scope, at 70X, I could see a bright, but coarse open cluster that I could also easily see through a 6 X 30 finder. When I observed it with the 76 mm reflector, the cluster appears sparse, and counted 8-10 stars. The double star, Struve 485, located in the middle of the cluster, are both mag. 7.0, and are the brightest stars of the cluster. When I used averted vision, the cluster appeared a bit hazy, which were actually faint stars that I couldn't resolve or see through the small reflector. I made the sketch with a No. 2 pencil, on a white 5 X 8 note card. I inverted the colors with a scanner.



Magnification: 24 mm @ 12.5X and a 5.0 FOV

The small reflector at 12.5X presented both NGC-1502 and Kemble's Cascade in the same 5.0° field of view. Kemble's Cascade is a chain of stars that extend 3° and I counted fifteen stars. NGC-1502 appeared very subtle at the low magnification, with a slight triangular shape, and the double star, Struve 485, appeared merged together as a single bright star. It's important to note, that all observations this month were made using a \$50 f/4 reflector.

NGC 1502 OPEN CLUSTER

Campanularis

DATE: JANUARY 15, 2012

TELESCOPE: 76 mm CELESTRON

FIRST SCOPE REFLECTOR F/4

12 mm + 2.8x BARLOW

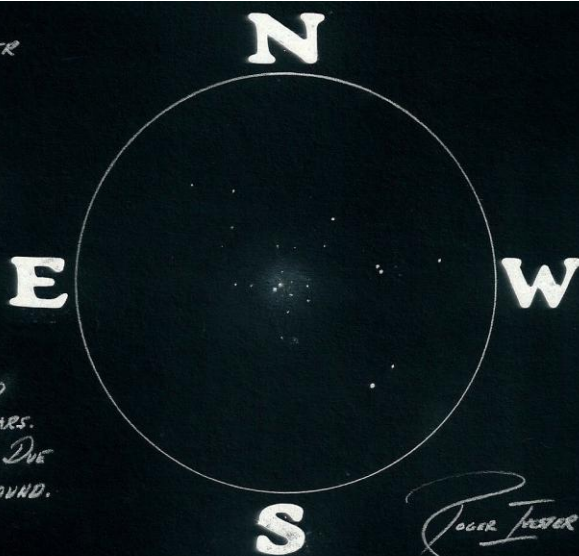
= 70x

DESCRIPTION: BRIGHT, BUT
SPARSE GROUPING OF STARS.

STRIVE 485 VERY BRIGHT AND

EASY. COUNT COUNT 8-10 STARS.

CENTRAL REGION A BIT HAZY DUE
TO FAINT STARS IN BACKGROUND.



Gus Johnson: Observer from Maryland. **NOTE:** On April 19, 1979, Gus Johnson, visually discovered Supernova 1979C in spiral galaxy M-100. NASA announced on November 15, 2010, there was evidence of a black hole as a result of this supernova explosion.



I first read of the Kemble Cascade, named by Fr. Lucian Kemble, in "Sky & Telescope" Dec. 1980, p 547, which he discovered with 7X35 binoculars. It was mentioned again in the March 1985 issue, pp. 282-283 in Walter Scott Houston's "Deep Sky Wonders", who wrote of it "This irregular, 7th mag. group of about two dozen stars (referring to nearby 1502 now), . pleasant for binoculars and 10-inch reflector alike." He wrote of member, Struve 484 "easy for even a 2-inch." Nearby Struve 485n "is even easier".

I found the Kemble Cascade readily apparent in a 6X30 finder. It crosses almost two fields of my 4 1/4-inch with an Erfle eyepiece at 38X.

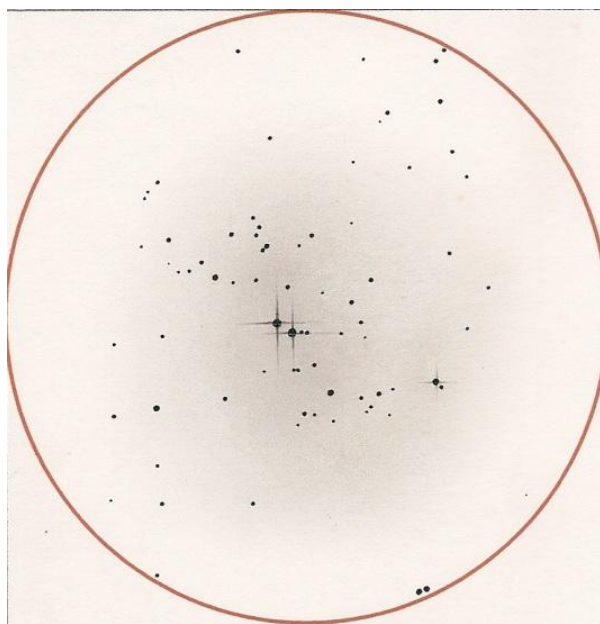
The AAVSO chart shows the NW half. Can't miss NGC-1502 just off the SE end, a cluster made up of doubles, it seems.

More about the K.C. in February and November 1991 Sky & Telescope.

Brandon Doyle: Observer from New York



NGC-1502 was a very broad object in the eyepiece. Seeing conditions didn't seem that great, but the fuzziness in the stars was probably mostly due to that fact that I was going from a temperature around 70° indoors to about 17° outside, so the primary mirror didn't have any time to cool to ambient. On top of all of this, I only had around half an hour at the eyepiece because the seasonal overcast skies were slowly coming back into view. After recording the stars under 200X, which yielded a field 0.29° across, I searched for stars that might have a bit of color, but couldn't find any. All of the stars appeared white. Under lower magnification, with my 25mm eyepiece, the surrounding star field was very rich with many stars appearing to be around mag. 6 to mag. 7. The dominating stars I saw in the center of the cluster appeared to be around mag. 7 as well, with maybe three dozen fainter stars making up the total. In the sketch, I also added a slight background-haze of graphite to outline the apparent extent of the cluster that I could detect.



Object: NGC 4507
 Date: 2 . 18 . 17 - Site: Leicester
 Seeing: 5 : 10 - Transparency: 2 : 5
 Constellation: Canis Major
 Type: Open Cluster
 Magnification: 200 X - AFOV: 58 ° - TFOV: 0.29 °
 Eyepiece(s): TVS Mounting II - 6mm
 Instrument(s): Orion 10" f/10.3 Dobsonian
 Filter(s) Used: None
 Artist(s): Bruce Soper
 Start Time: 6 : 05 - End Time: 6 : 25
 Wind Vel: 5 mph - Cloud Cover: 10 % - Temperature: 47 °F
 Wind Direction: ~ southward - Orientation:
 Description: Large open cluster with
many bright members. Sketched
for the LVOC, January, 2017.

