

# MONTHLY OBSERVER'S CHALLENGE

*Compiled by:*

*Roger Ivester, North Carolina*

*&*

*Sue French, New York*

**June 2023**

**Report #175**

**M56, Globular Cluster in Lyra**

*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 who's interested, and if you're able to contribute notes and/or drawings, we'll be happy to include them in our monthly summary. 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 astronomers 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 Observer's Challenge. And for folks with an interest in astrophotography, your digital 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.

## **This month's target:**

Charles Messier discovered this globular cluster on January 19, 1779, the same day he discovered the Comet of 1779. Messier described the cluster as a Nebula without star, having little light. He discovered it on the same day he discovered the Comet of 1779. On January 23 he determined the object's position by comparison with the star 2 Cygni. He added that it is near the Milky Way and close to a star of 10th magnitude.

In 1825 John Herschel resolved catalogued this cluster and later added his observation to his General Catalogue describing it as a “globular cluster; bright; large; irregularly round; gradually very much compressed toward the middle; well resolved; stars from 11th to 14th magnitude.”



Admiral William Henry Smyth included this sketch of M56 in his *Bedford Catalogue*

**Bertrand Laville:** Observer from France



## M 056 L80 vs. T254

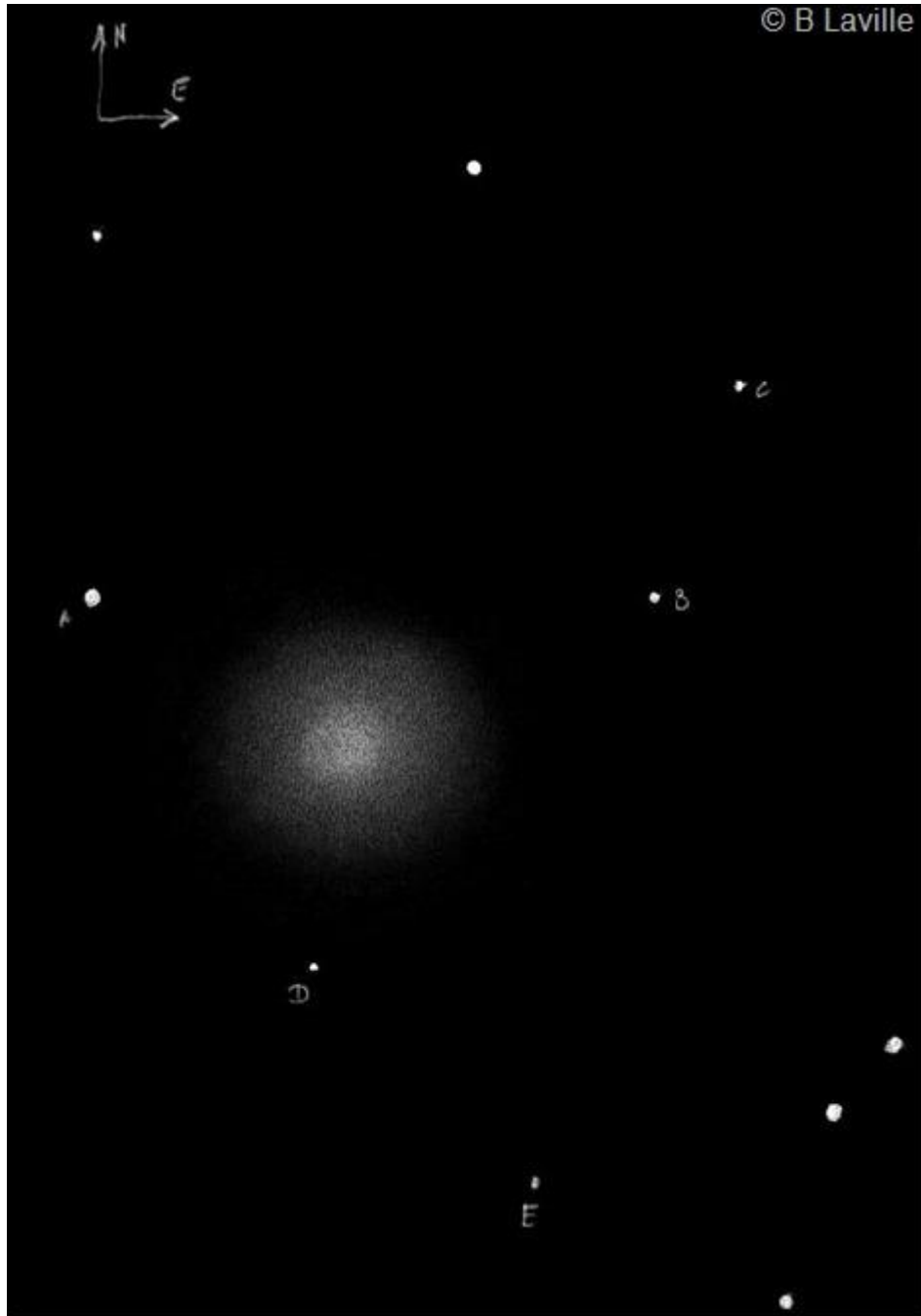


### Observations Details

<i>Date of sighting:</i>	Jun 24, 2001 12:31 a.m. UT
<i>Duration of observation:</i>	38 mins
<i>Object position:</i>	Alt: 75.3°, Az: 169.6°
<i>Weather conditions :</i>	not related
<i>Observation conditions:</i>	mvlon(UMi) 6.0 VI5D, T2, P2, S3-4/40
<i>Viewing location:</i>	Chabottes-les-Auberts
<i>Instrument :</i>	TSC LX200/254 Meade
<i>Main eyepiece:</i>	TeleVue Radian 10mm
<i>Barlow:</i>	(None)
<i>Magnification:</i>	254x

In May 2012 and leafing through one of my old notebooks, I found two sketches of M 56 dating from June 2001. These sketches are quite precise. Curiously, I had never cleaned them up, and so I decided to correct this oversight, also using my rather brief observation notes, which I resume below:

With the L 80 bezel:



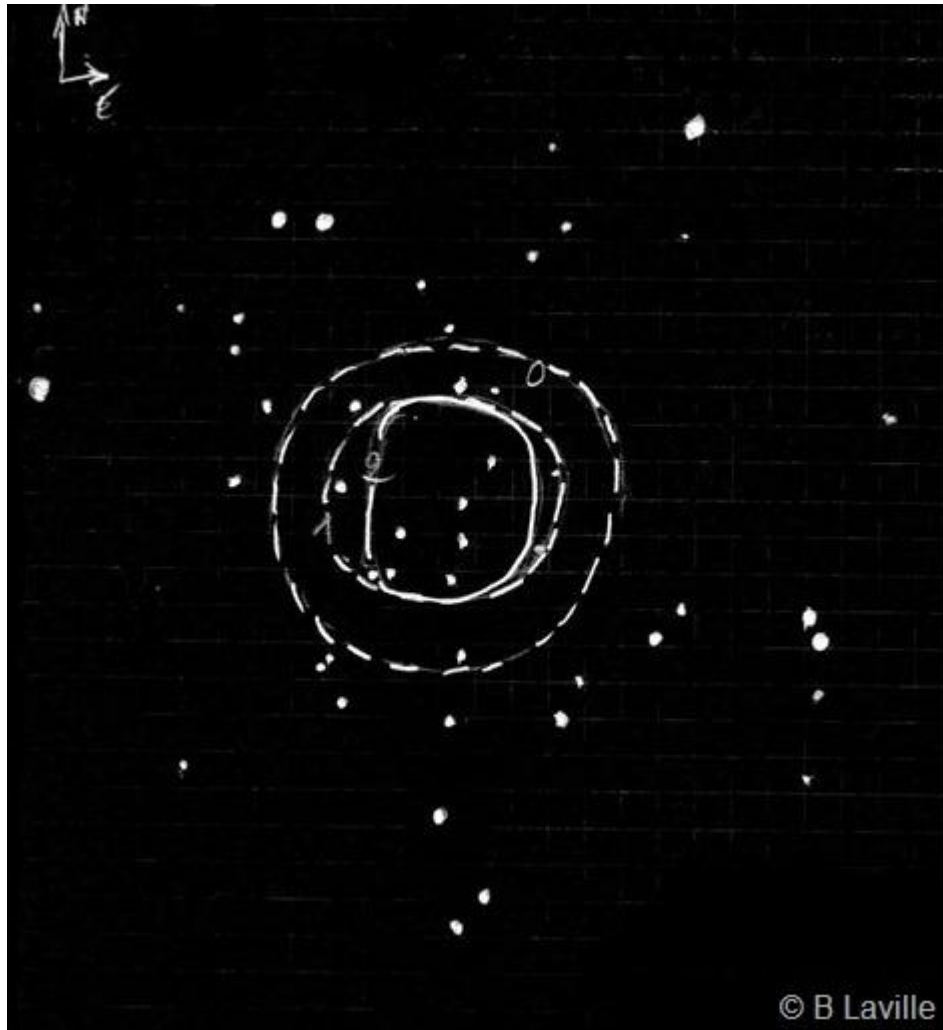
x57 TeleVue Nagler 7mm Type 2

The cluster is seen V2, round, whitish (not bluish), relatively low gradient, fuzzy edges

Total D~1' 45", D(CS) ~45"

A\* SAO 68060, B\* GSC 2653 1631, C\* GSC 2653 (2550 + 2109) unseparated, D\* GSC 2653 (2741 + 2349), m 13.4 + 13.7, unseparated

With the T254 telescope:



x254 TeleVue Radian 10mm

This observation was published in the special dossier of Ciel Extrême n°22, July 2001, page 13. All the stars in my drawing were positioned without any help from Guide7, photo visualization, etc.

external zone: D~2.5', limit of the milky bottom, in distant VI.

middle zone: D~1.5', round.

central zone: D~1.5'NS x 1.25'EW, trapezoidal, with rounded edges

On all the median and central zones, 12 stars have been positioned, but there are at least as many, not positionable

The cluster is beautiful, but not great: it plays in the 3rd division; from the level of M79. According to me, 1st division: M13, M5, 2nd division: M3, M4, M15, M22, 3rd division: M79, M30, M56

So, 12 years later, I was able to transform my sketches into two very representative drawings. I draw the following conclusion: always keep your sketches and observation notes. You don't know if you won't be happy one day to have kept them.

You'll find more of Bertrand's sketches at: <http://www.deepsky-drawings.com/>

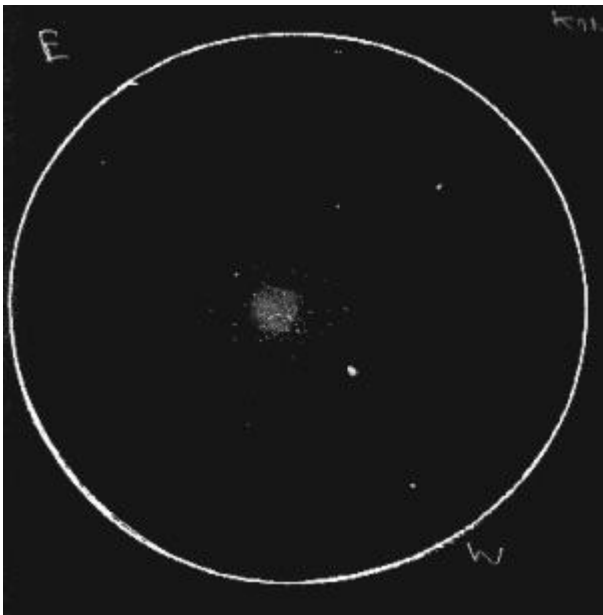
Larry McHenry: Observer from Pittsburgh, Pennsylvania

<http://stellar-journeys.org>



Globular Cluster M56 is located in the Summer constellation of **Lyra** – ‘The Lyre (Harp)’, and is about 32,900 light-years distant, about 84 light-years in size, and about 13.7 billion years old.

M56 was discovered on the night of January 23rd, 1779 by Charles Messier at his Paris observatory, located on top of a tower at the Hôtel de Cluny which was originally a medieval town house built in 1334. The observatory was a pyramidal wooden structure with large side windows that could be opened. Inside was kept the portable observatory telescopes that could be positioned to point out of whichever window the observer preferred. For the majority of his observing work, Messier used a small 100mm (4-inch) refractor. Messier described the cluster as “*Nebula without star, having little light*”.



### Visual Sketch

08/19/1987 suburban backyard in Louisville, KY:

Using a 13.1-inch f/4.5 Dob Reflector (Coulter blue-tube) 8mm eyepiece (143×).

Visually, the cluster was small and faint, only partly resolved....and could use a darker sky observation.

**Video-Capture/EAA:** 06/10/2023, from Cherry Springs State Park in Pennsylvania.



Using an 8-inch SCT optical tube @ f/6.3 on a GEM mount, with a CMOS color camera and broadband filter, 15-second guided exposure, live-stacked for 5 minutes.

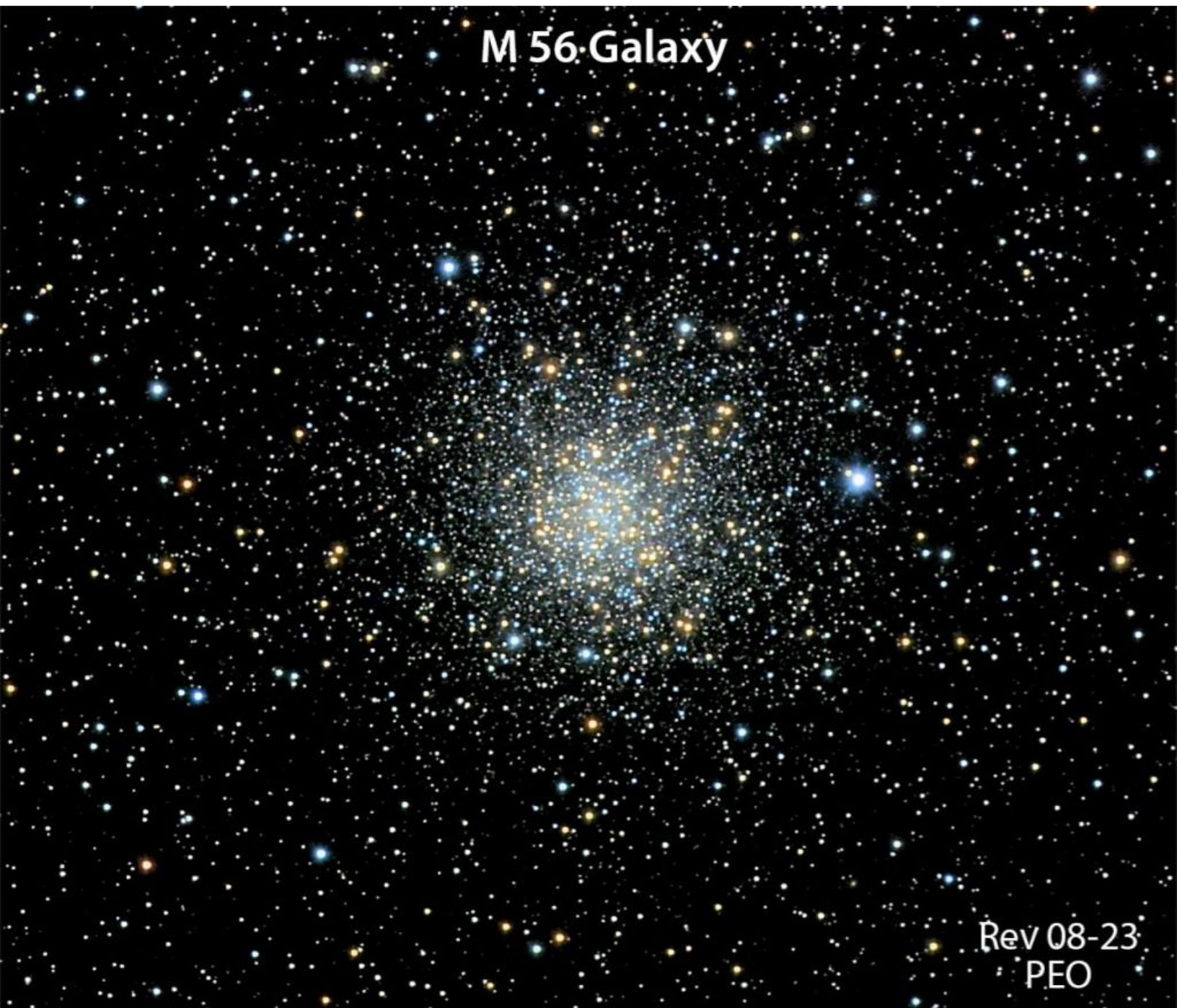
**Phil Orbanes:** Observer from Massachusetts

Messier 56 is a globular cluster in the constellation Lyra.

It is about 33 thousand light years away, and at 13.7 billion years, is almost as old as the universe.

It contains about 250,000 stars, so is not particularly large.

My photo was originally taken in 2017 for a presentation I made to GAAC on the history of Messier's catalogue. I added more subs to it and reprocessed it recently using BlurXterminator. This permitted me to enlarge the original considerably. Given the object's small size, I needed 25 hours of R,G,B filtering with my PlaneWave 14-inch reflector to do it justice.



**Mircea Pteancu: Observer from Arad, Romania**



Mircea Pteancu of Arad, Romania

Affiliated with the Hungarian Astronomical Assoc., Romanian Society for Cultural Astronomy, "Galaxis" Astronomy Club, moderator on *astronomy.ro* forum.

<https://observergosum.blogspot.com/>

<https://www.astronomy.ro/forum>

My observation of the globular cluster Messier 56 was made on August 27 from home, on a Bortle 6/7 city sky.

The instrument used was my "extra-axial non-obstructed 52mm f/23 reflector" which is a euphemistic name for the 52mm hole in the cap of my SkyWatcher Classic 250P Dobsonian.

The used magnification of 100× was obtained with the 12mm setting of the Baader Mark III ( 8 – 24) mm zoom eyepiece. According to Baader, the field of the zoom eyepiece at this setting is 63 degrees so the real field on the sky was 38 arcminutes.

The globular cluster M56 was visible as a round, small, very dim and hazy patch. The diameter of the cluster was about one-tenth of the radius of the visual field which means about two arcminutes. The cluster was void of any other detail except being slightly brighter toward its center.



At a distance of about one diameter of the cluster toward the west was visible a star. I checked this detail on DSS2 pictures of M56 and in published information regarding cluster M56.

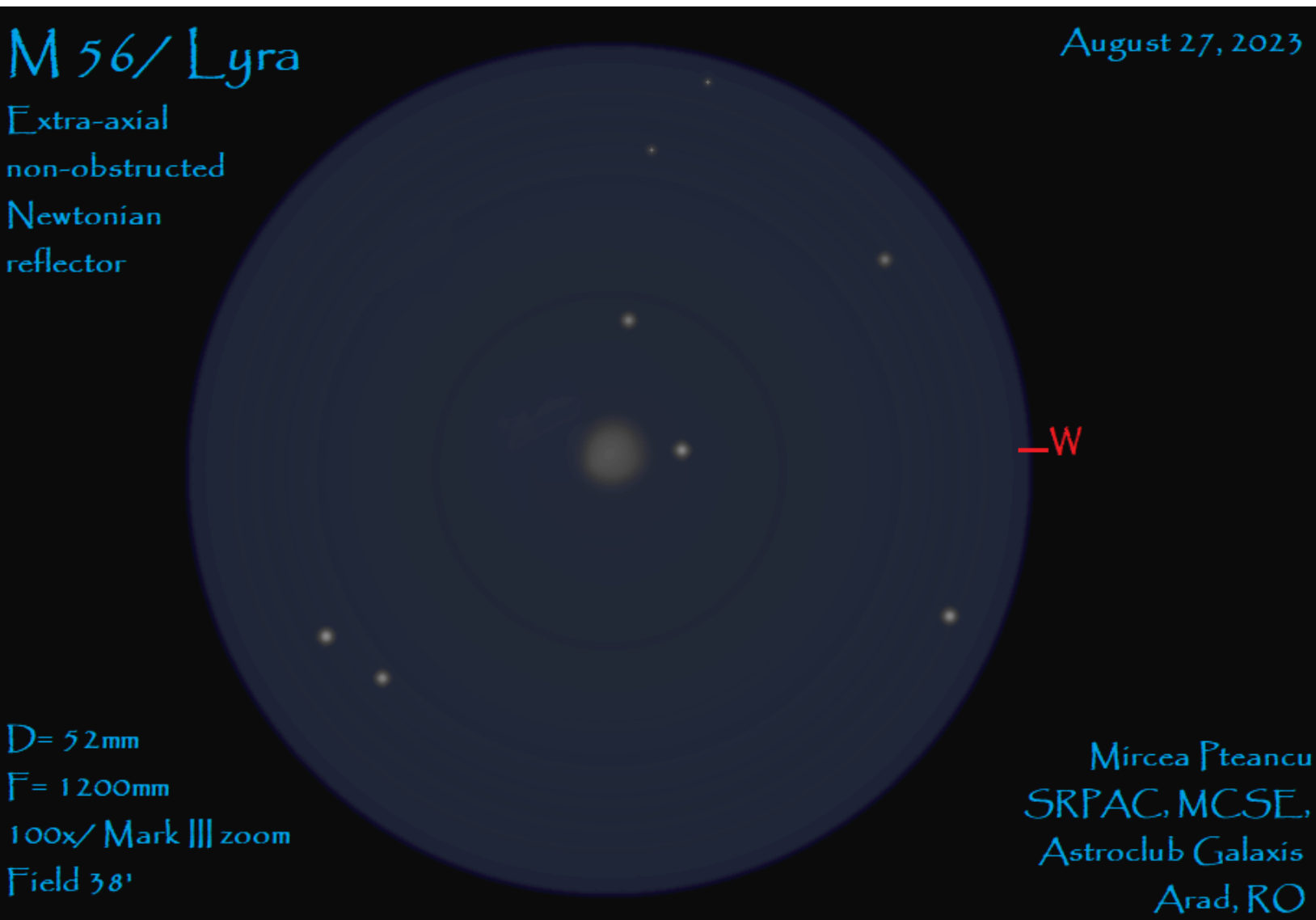
The apparent diameter of M56 is roughly 9 arcminutes. I was seeing only about a quarter of that, only the brightest central part.

My estimate of the visible diameter of two arcminutes (one-tenth of the 19 arcminute radius) of the cluster M56, as seen with the 52mm aperture fits very well with what I measured on the DSS2 image from Aladin Lite. There, the bright central part of the cluster has a diameter of 11 millimeters.

The radius of the visual field on my full screen of the DSS2 image of M56 is 112mm. One tenth of that is 11mm. The star at west, later identified as BD +29 3537, is located also on my drawing at one visible diameter away, as per my sketch and notes.

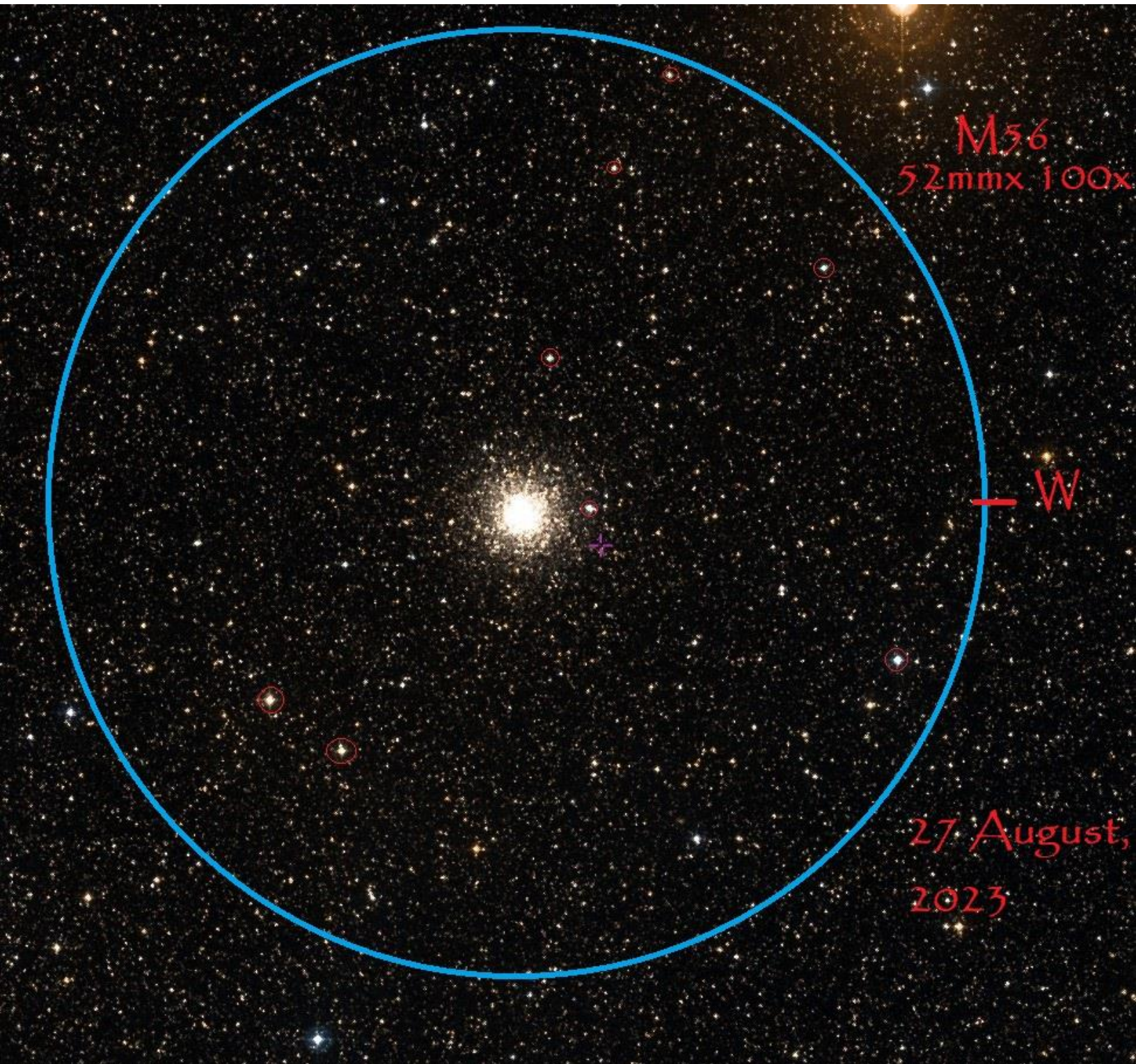
Why do I insist on this detail ?

Because the 9 arcminute diameter of M56 would mean at the scale of my actual field of view a diameter of 52mm for the cluster. The star at west being only at 11mm does that mean it belongs to the cluster? Did the small reflector resolved at least one star in M56 ???

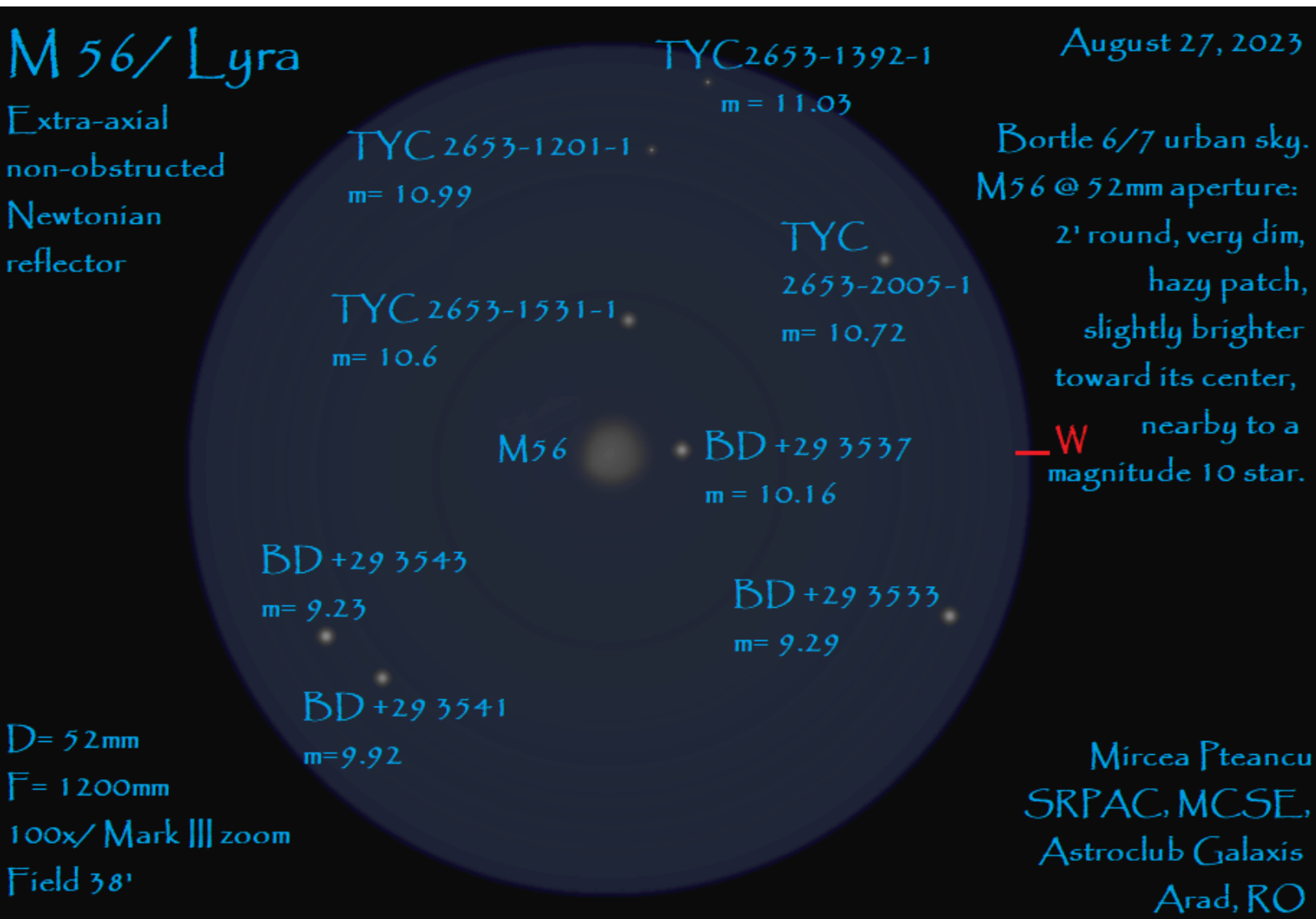


Below is the DSS2/ Aladin Lite image I mentioned.

The site WEBDA contains charts with the stars actually belonging to clusters. But unfortunately WEBDA, so useful in the case of many other clusters, doesn't have a page for M56. So the search there didn't help. But from the very different values of proper motions and parallaxes of cluster M56 and of star BD +29 3537 in Vizier and Simbad , I derived the star is just an overlap and doesn't belong to the cluster. So, I'm sorry, I cannot state the lilliputian 52-mm reflector was able to resolve at least one star in M56 ...



After carefully using the CDS interrogation on Aladin Lite, I believe the stars seen in the same field with M56 to be the ones below.

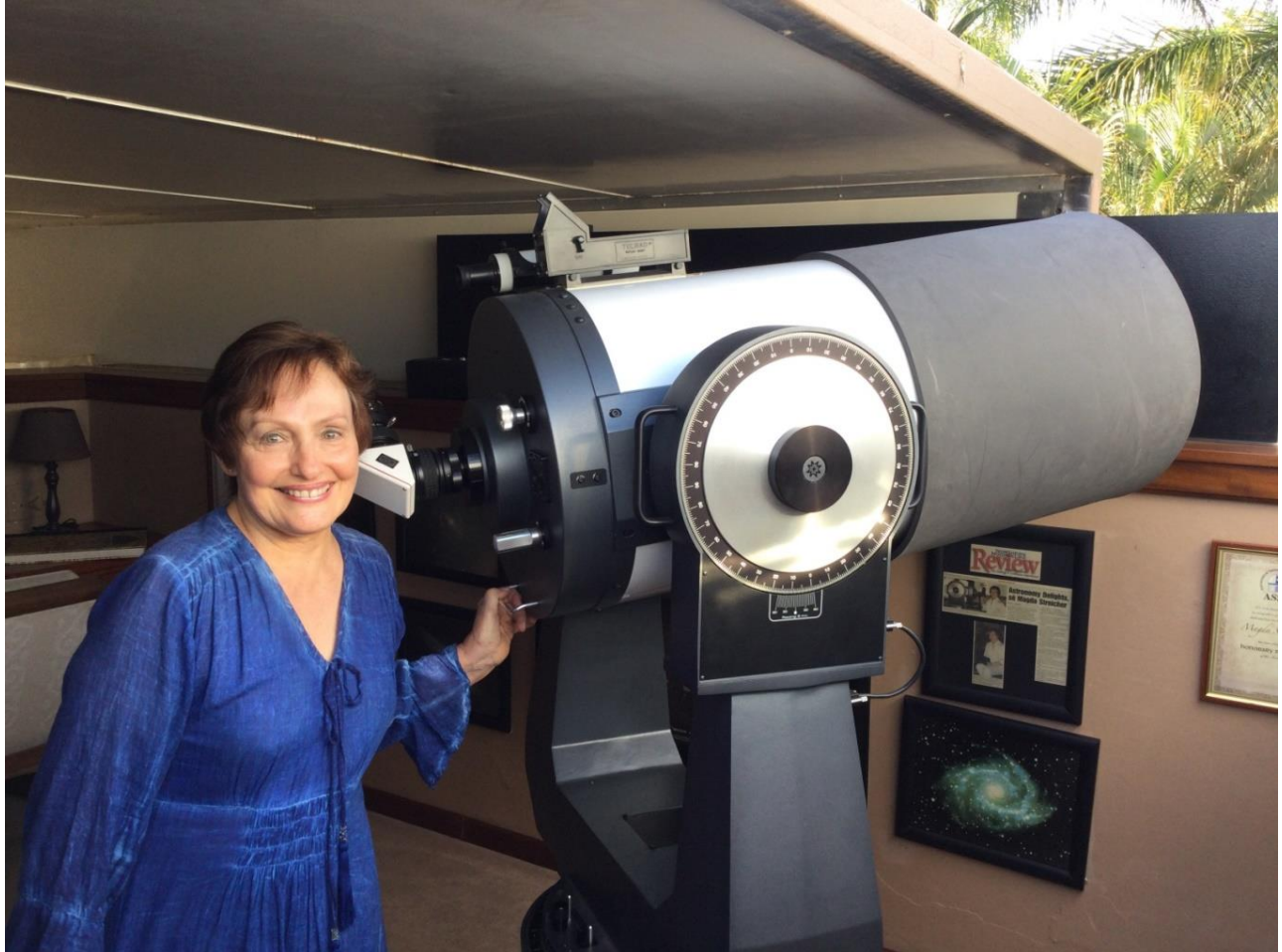


The brighter star seen was BD +29 3543 of magnitude 9.23 in the southeast. The dimmest star seen was TYC 2653-1392-1 of magnitude 11.03 in the north. The magnitude of 11 is well in line with the values published by Gerald North according to whom a 51mm aperture has a limiting magnitude of 12 at high magnifications.

My previous attempt at "Extreme Astronomy" happened on August 25 when, at 30x, I saw M56 with averted vision "close to a dim star." The instrument used on that occasion was my 45x300mm "beer-bottle" refractor built with an ex-military "Richtfernrohr" Zeiss objective.

Because of the much lower magnification used, I believe the star seen next to M56 on that occasion was BD +29 3543 of magnitude 9.23.

**Magda Streicher: Observer from South Africa**



This is what I have in my files on globular cluster, Messier 56.

With this observation a few years ago, using my 16-inch telescope and 17mm eyepiece I was listening to some oldies on my playlist...Jim Reeves, Elvis and others.

So with songs in my mind, I laid eyes on this wonderful object in the music constellation Lyra.

The globular cluster NGC 6779, also known as Messier 56, unfolds as a roundish haziness against the star field, and is situated about  $4^\circ$  SE from gamma Lyrae. Higher magnification shows star points sprinkled over a tight glowing broad core and reminds me somewhat of a delicate brooch.

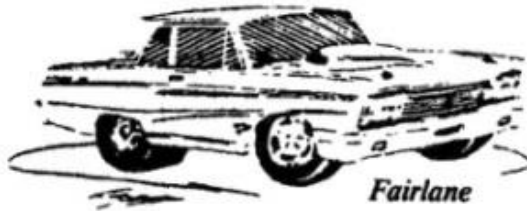
Closer investigation reveals amongst the fact that the globular is covered in flimsy haziness with a handful of yellow to reddish-colored stars, with very faint star outliers, against the darker background.

The members spread out west and are slightly deprived of starlight towards the east. I cannot but agree more with Pat Boone's song, "There is a goldmine in the sky."

**Mike McCabe: Observer from Massachusetts**



**Sketch and details follow.**



## Observer's Challenge, August 2023

### Messier #56, Globular Cluster in Lyra

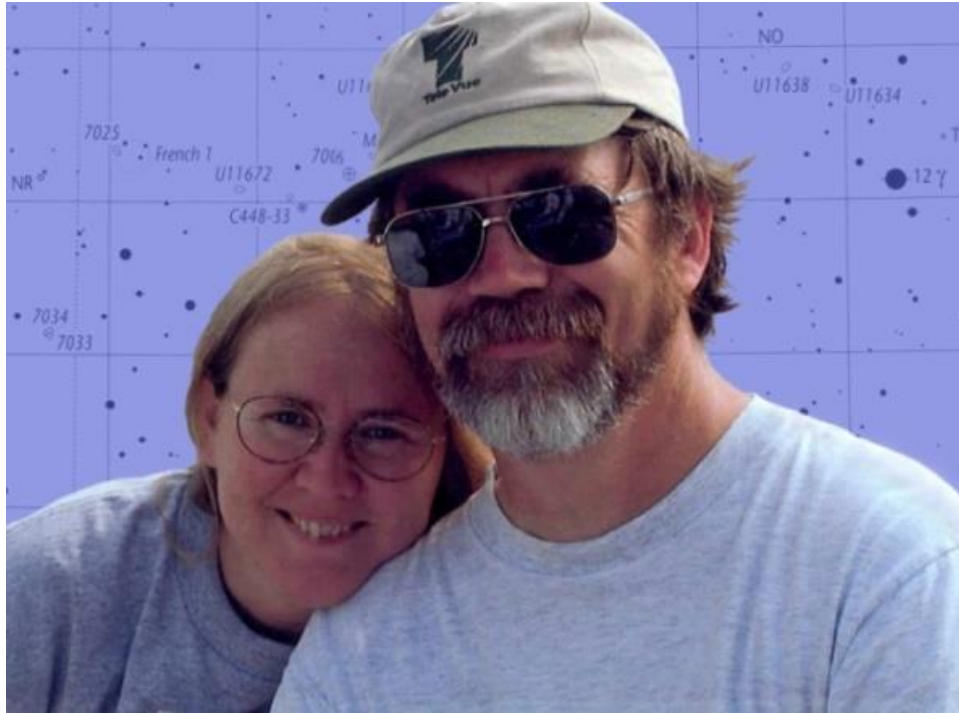
Messier 56 is a somewhat obscure globular cluster in the constellation Lyra, often overshadowed by the many more glamorous objects that populate the summer sky. M56's magnitude of 8.3 combined with its relatively small size of 8.8 arc minutes means that it can prove to be a challenge to find for the visual observer using star-hopping methods. Indeed that was the case for me as my summer sky has been rife with smoke more often than not. I observed M56 twice this summer for the observer's challenge, once on August 13th using a 10" F/5 newtonian reflector, and again on August 22nd using an 8" Schmidt/Cassegrain telescope. With the 10" a power of 180x rendered the cluster as a grainy sphere with a few resolved stars within, and with the 8" a power of 170x resolved the cluster very similarly. The sky was better on the 13th, but no sketch was attempted during that session. A sketch was made on the 22nd using the 8" under a sky that exhibited poor seeing conditions and terrible transparency due to passing clouds and a layer of smoke in the air. The field size shown in the eyepiece at the 170x that the sketch was made at was approximately 21 arc minutes, or about 1/3 of a degree. As presented, the starfield is shown left/right reversed as seen through a refractor/SCT/Mak-Cass equipped with a star diagonal.



41.98n, -70.90w

*M.T.M.*

## Sue French: Observer from New York



Messier 56 is reasonably straightforward to locate  $1.7^\circ$  west-northwest of the star 2 Cygni. Even with my old  $15\times 45$  image-stabilized binoculars, M56 is an easily noticeable hazy patch with a broadly brighter center and a 10th-magnitude star off the western side.

The cluster appears quite pretty through my 105mm refractor at  $87\times$ . Its  $1\frac{3}{4}'$  core is mottled, bright, irregular, and surrounded by a star-spattered halo that fades away near the western star. A magnification of  $127\times$  pulls out a few stars in the core.

My 10-inch scope at  $166\times$  shows an irregular, partly resolved core and a nice mixture of faint to fairly bright stars scattered across the cluster. A 6th-magnitude orange star sits 26 arcminutes north-northwest of the cluster. The halo is roughly  $5\frac{1}{2}'$  and has faint stars sprinkled over it and fades away just about where the 10th-magnitude star lies. The core is about  $1\frac{3}{4}'$ . The cluster is very nice at  $213\times$ . It grows much brighter toward the core, which shows many stars embedded in its haze.

While you're in the area, you might like to try for NGC 6765, a strangely shaped, 12.9-magnitude planetary nebula sitting  $1.2^\circ$  west-northwest of this month's target.

**Glenn Chaple:** Observer from Massachusetts



## **OBSERVER'S CHALLENGE\* – August, 2023**

**by Glenn Chaple**

**Messier 56 Globular Cluster in Lyra (Magnitude 8.3, Size 8.8')**

During an evening at the 1982 Stellafane Convention, I learned exactly why Charles Messier created his catalog of faux comets. An attendee asked if I had a star atlas, as he had spotted with his telescope a comet-like object in the area between Lyra and Cygnus. Excitement quickly turned to disappointment as the atlas identified the object as an 8<sup>th</sup> magnitude globular cluster discovered by Messier in January, 1779.

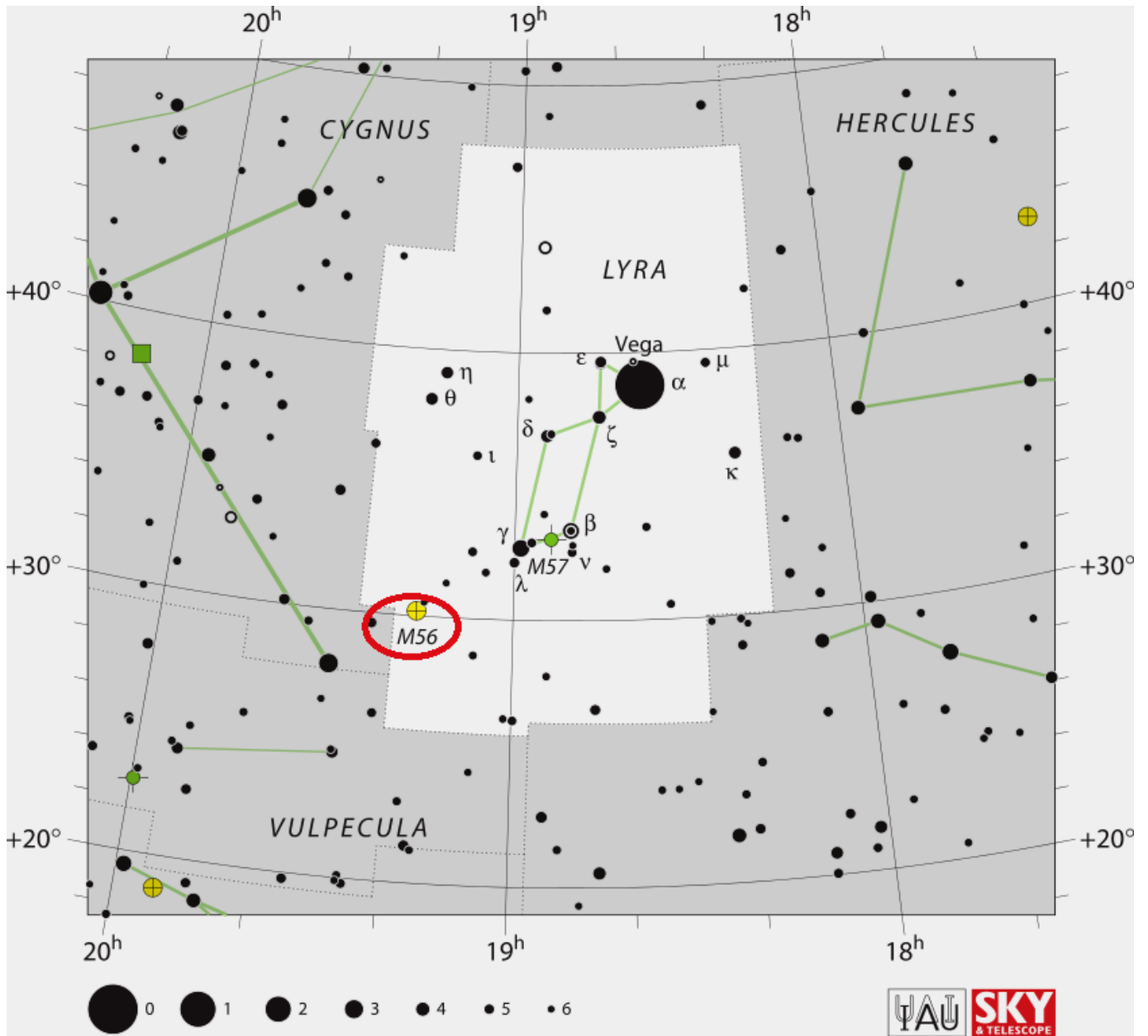
The 2000.0 coordinates for Messier 56 are: RA 19<sup>h</sup>16<sup>m</sup>35.6<sup>s</sup>, Dec +30°11'00.5". I usually pick it up by aiming at a spot midway between gamma ( $\gamma$ ) Lyrae and the beautiful double star Albireo (beta [ $\beta$ ] Cygni) and then nudging the scope slightly towards Albireo. A low power sweep of the area will turn up a small roundish glow. No wonder Messier and my friend at Stellafane thought they had uncovered a comet!

M56 certainly doesn't get the attention that Lyra's other Messier object, the "Ring Nebula" M57, does. I've seen the Ring many hundreds of times with a variety of instruments, while I can count on one hand the number of times M56 has graced my eyepiece field. Those earlier observations of M56 were all made with small-aperture instruments, so I recently returned to M56 with a 10-inch f/5 reflecting telescope and a magnifying power of 208 $\times$ . Even then, the cluster was barely resolved, with perhaps a dozen visible stars of around magnitude 13 to 14.

Studies indicate that M56 is about 33,000 light-years from earth. It spans a diameter of some 84 light-years.

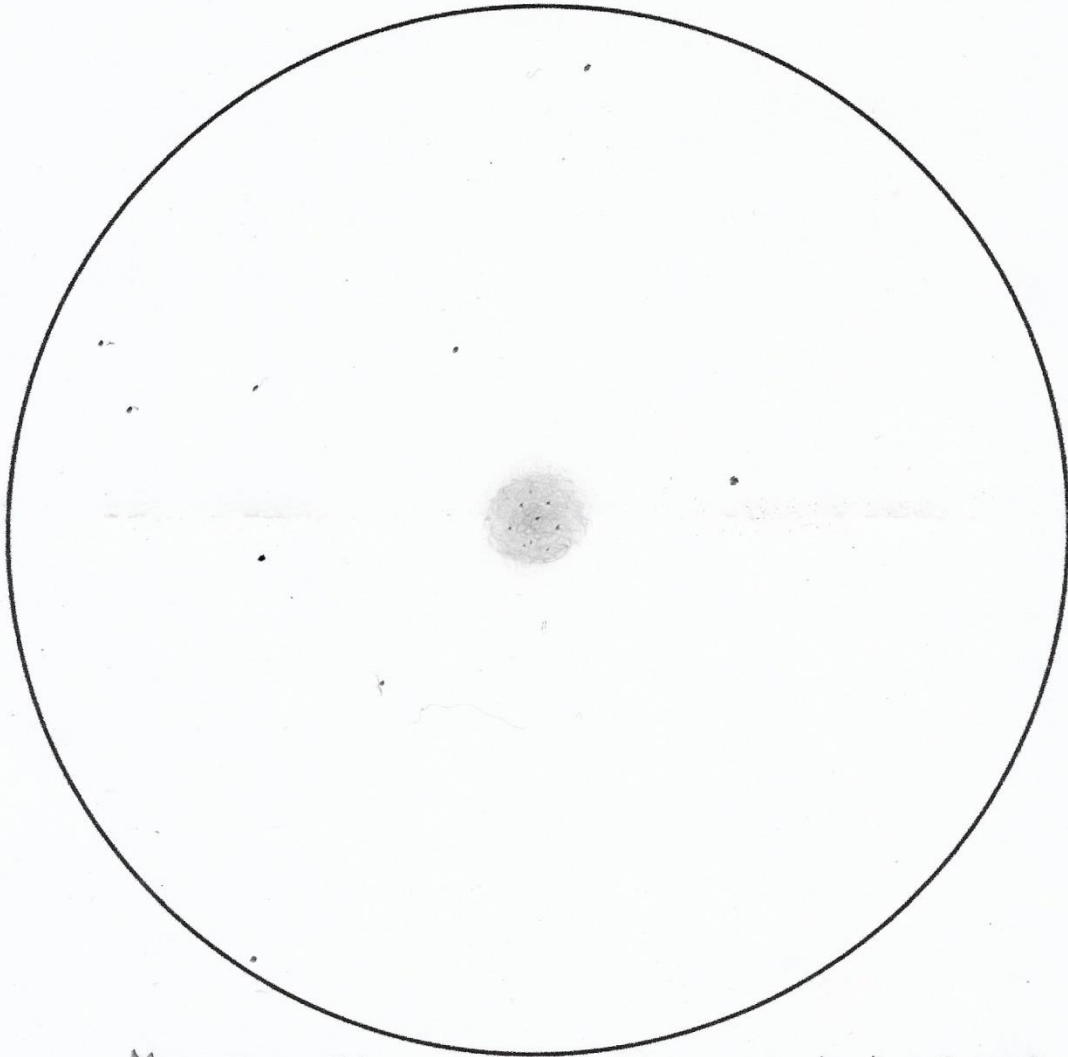


# Messier 56 Finder Chart



Sketch Follows.

N



**SUBJECT:** Messier 56

**DATE/TIME:** 19 July 2023

**TELESCOPE/EYEPIECE:** 10" f/5 reflector

11:45 pm EDT

**MAGNIFYING POWER:** 208X

**FIELD OF VIEW:** 0.3°

**NOTES:**

Faint with some resolution, perhaps a dozen stars ~ 13th magnitude.

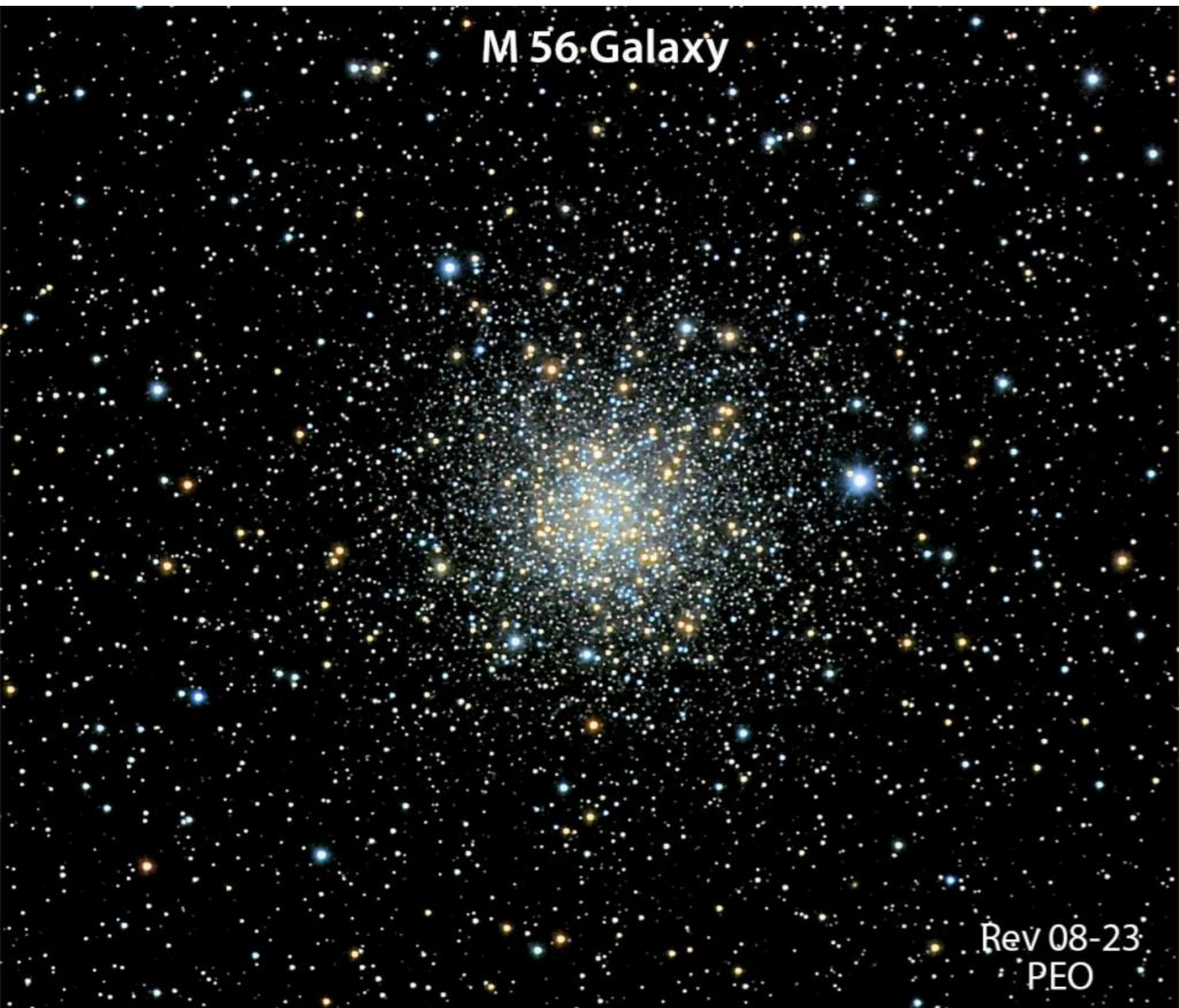
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My photo was originally taken in 2017 for a presentation I made to GAAC on the history of Messier's catalogue. I added more subs to it and reprocessed it recently using BlurXterminator. This permitted me to enlarge the original considerably. Given the object's small size, I needed 25 hours of R,G,B filtering with my PlaneWave 14-inch reflector to do it justice.



**Mario Motta:** Observer from Massachusetts



**Image an details follow.**



August, M56:

Taken with 32-inch scope, with ZWO ASI 6200 camera, RGB and Lum Filters.  
About 2 hours imaging total , and processed PixInsight for a color image of M56.

## James Dire: Observer from Texas



M56 is one of two objects residing in the constellation Lyra catalogued by Charles Messier. The other is the Ring Nebula, M57. On January 19, 1789, Messier discovered a comet in Lyra. Mere hours before Messier discovered the comet, Johann Elert Bode spied it. They are considered co-discoverers of Comet Bode (C/1779 A1). They also co-discovered Comet Messier (C/1769 P1). Bode, you might recall, discovered M81 (Bode's galaxy), formulated the Titus-Bode Law, and determined the orbit of Uranus (the name of which he suggested).

Comet Bode was very near the night Messier discovered it. However, he did not spot M56 until four nights later, on January 23, 1779. On January 24, 1779, Comet Bode was near M57. Perhaps it was cloudy and Messier could not track the comet the night of January 24. However, seven nights later, Messier discovered M57.

M56 lies about halfway between the blue and gold double star Albireo and Gamma Lyrae (Sulafat). Sulafat is the star in Lyra's parallelogram asterism that lies closest to Albireo.

M56 is a globular star cluster. It has a diameter of 8.6 arc minutes and shines at magnitude 8.3. It is nowhere near as large and bright as M13 or M22, but it is still a fine object to view in an 8-inch or larger telescope at high magnification.

Using his 18.7-inch telescope, William Herschel was the first to resolve M56's stars. Thus, he determined M56 was a star cluster. M56 became entry 6779 in Herschel's New General Catalog (NGC). The apparent size of M56 in telescopes is only one-third the actual size of the cluster. The outer two-thirds contains stars too faint to see in amateur telescopes.

M56 is one of the fainter Messier globular clusters. That's because it lies 32,900 light years away. Another reason is that the cluster only has around 80,000 stars. The star count is small compared to brighter globular clusters. M56 does not have the dense core seen in typical globular clusters either.

My image of M56 was taken with a 10-inch f/6 Newtonian with a Paracorr II Coma corrector to give an effective focal length of 1753mm. The exposure was 40 minutes using an SBIG ST-2000XCM CCD camera. In the image, north is up and east to the left. The width of the image is 24 arc minutes. The visible portion of the cluster resides in the center third of the image. However, many of the faint stars scattered throughout the image are members of M56.



**Joseph Rothchild: Observer from Massachusetts**



I have observed M56 many times over the years. It's easily found with 16×70 binoculars as a non-resolved haze, halfway between Albireo and Gamma Lyrae.

I observed this cluster with both my 6-inch f/5 and 10-inch f/4.9 reflectors, from the dark skies on Cape Cod.

In my 6-inch, M56 was visible as a small globular with a central condensation at 28×, 54×, and 94×. The core became granular with some resolution at the higher magnification. Overall, it looked like a smaller, and fainter version of M15.

In the 10-inch, its appearance was similar. There was some granulation of the core at 102× and a halo of faint stars was visible at 179×.



**Roger Ivester:** Observer from North Carolina



Date: June 2023

Telescope: 10-inch f/4.5 EQ Newtonian

Sketch Magnifications: 160×

Field-of-View: 0.38°

NELM: 4.8

M56 is not nearly as large and as well-concentrated as some other globulars such as M2, M3, M13 and M14 and among a few others.

In my 10-inch @ 160×, I see M56 as fairly large, bright and with a mostly even concentration of stars, with good resolution. Many faint outliers sparkling with averted vision. The cluster has a subtle N-S elongation, with a couple prominent star chains leading off toward the north.

October 5th 1997, using a 3.5-inch Maksutov-Cassegrain at 146×. Fairly bright, small, mostly round and appearing as an unresolvable patch. Some unevenness of texture with little or no center brightness or concentration.

December 16th 1998 with a 102mm refractor @156×: Irregular shape, no resolution of stars, but some faint stars visible surrounding the cluster. It has an uneven texture with some N-S elongation. A dark region sits just off the western edge.

**Sketch follows.**

M56 - GLOBULAR CLUSTER - LYRA  
DATE: JUNE 2023  
TELESCOPE: 10-INCH f/4.5 REFLECTOR  
SKETCH MAGNIFICATION: 160X  
FIELD OF VIEW: 0.38°  
NELM: 4.8

FAIRLY LARGE, BRIGHT  
WITH MOSTLY EVEN TEXTURE.  
GOOD RESOLUTION, MANY  
FAINT OUTLIERS SPARKLING  
WITH AVERTED VISION. N-S  
ELONGATION, COUPLE OF STAR  
CHAINS LEADING OFF TO THE N.



The following is the complete listing of all Observer's Challenge reports to-date.

<https://rogerivester.com/category/observers-challenge-reports-complete/>