MONTHLY OBSERVER'S CHALLENGE

Compiled by:

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&

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July 2020

Report #138

Messier 8, Nebula and Cluster in Sagittarius

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

Messier 8 is made up a historically confusing collection of star groups and nebulosity. According to expert NGC/IC researcher Dr. Harold Corwin: "NGC 6523 is the star-forming core of M8 at the heart of the bright northwestern part of the nebula. NGC 6526 is the southeastern part of the nebula, and NGC 6530 is the bright star cluster 10-12 arcmin following N6523. NGC 6533 applies to the entire M8 complex, and IC 1271 and IC 4678 apply to condensations in its eastern reaches."

You can read more about these and many other items of interest at:
http://www.haroldcorwin.net/ngcic/ngcnotes.all and
http://www.haroldcorwin.net/ngcic/icnotes.all

2019 and 2020 journal papers involving parts of the M8 complex use distances from 4.1 to 4.3 thousand light-years.

Anas Sawallha: Observer from Jordan

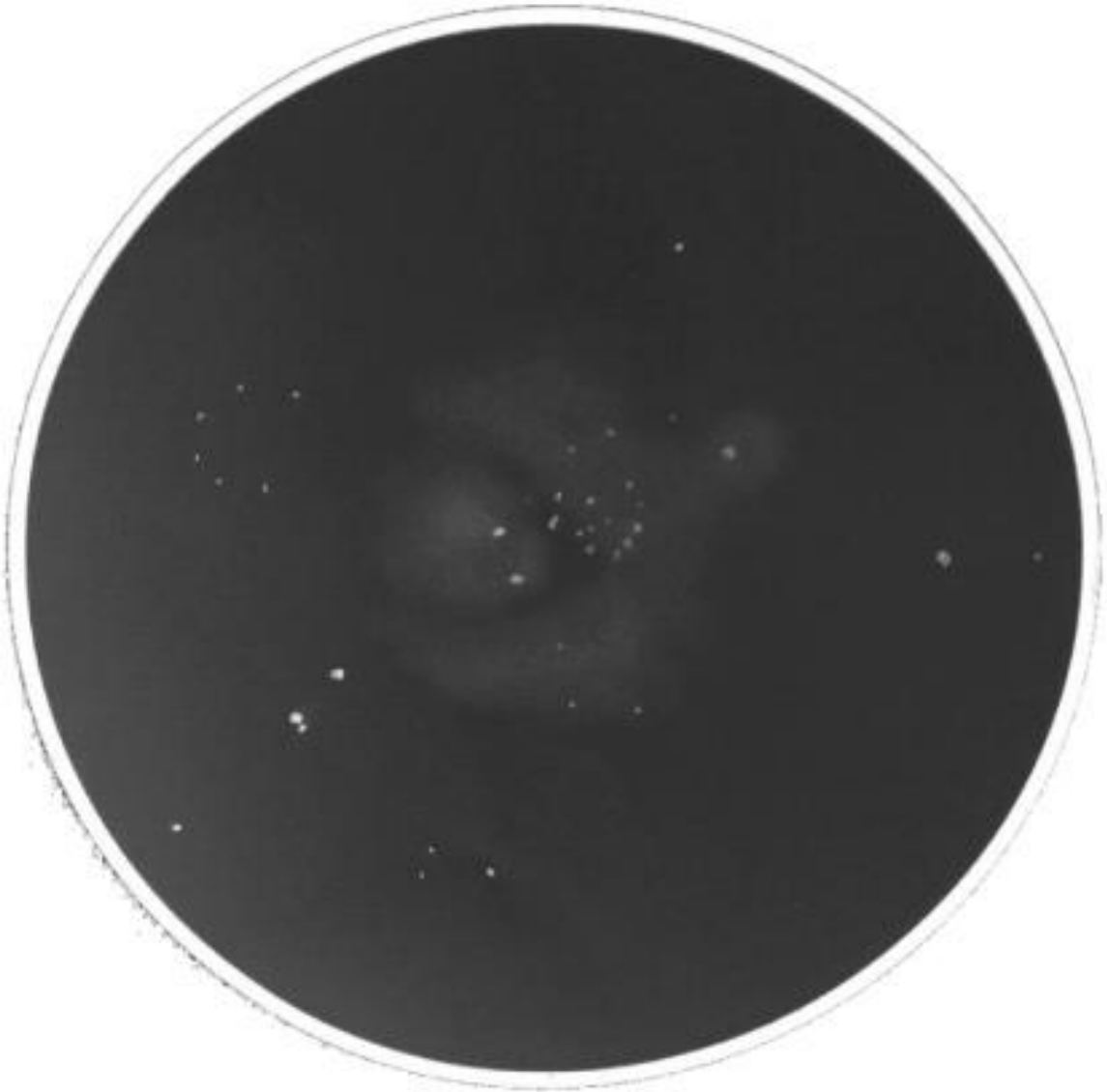
We welcome a new participate this month, Anas Sawallha.

I have observed M8, the Lagoon Nebula from many locations, starting from my hometown Irbid, in northern Jordan which has Bortle scale of 6. It usually appears as a faint smudge even with the aid of a UHC filter. My best time to observe this object was when I went to a camp which belonged to the Jordanian Astronomical Society (JAS) in the desert near the city of Al-Azraq.

However, at that time, I did not have a chance to sketch it, being occupied with the riches of deep-sky objects that could be observed from that location.

This time I had the opportunity to sketch the Lagoon Nebula, because it was my primary purpose.

Telescope: Newtonian reflector 5-inches
Eyepiece: Aspheric 23mm Svbony
Magnification: 43×
UHC filter was used to aid with the sketching.
Location: Al-Kharaneh Palace, built during the Umayyad period.
Bortle sky scale: 3



Gregory Brannon: Observer from North Carolina.

Hi. My name is Gregory Brannon. I'm a former student of Tom English. He's encouraged me to submit to the observer's report, since I've been doing a lot of sketching in my log. Visual observing is a great thing and I advocate for keeping logs and sketches in online discussions, whenever I can.

I made two sketches: One of Messier 8, and then one of M8, M20, and M21 all together.

I accidentally discovered M8 late one June night in foggy skies just before discovering that it'd be the observer's challenge object for July. I knew I had to return for another look. It was gorgeous, despite the poor transparency.

On July 11th, an excellent clear night, I did return. I observe from an approximately Bortle-6 field, with no major light domes in the south.

Using my 6-inch f/8 dobsonian with a 25mm eyepiece, I could see the "bean" shape of the brightest part M8 and just barely make out a small bit of nebulosity nearer the cluster. The dark lane that gives the Lagoon its name separates them. Two dim stars lie in the brightest part of the bean, a brighter star lies in a dimmer part of the bean. The cluster is an excellent addition, and the cluster + the nebula really makes this object a showstopper.

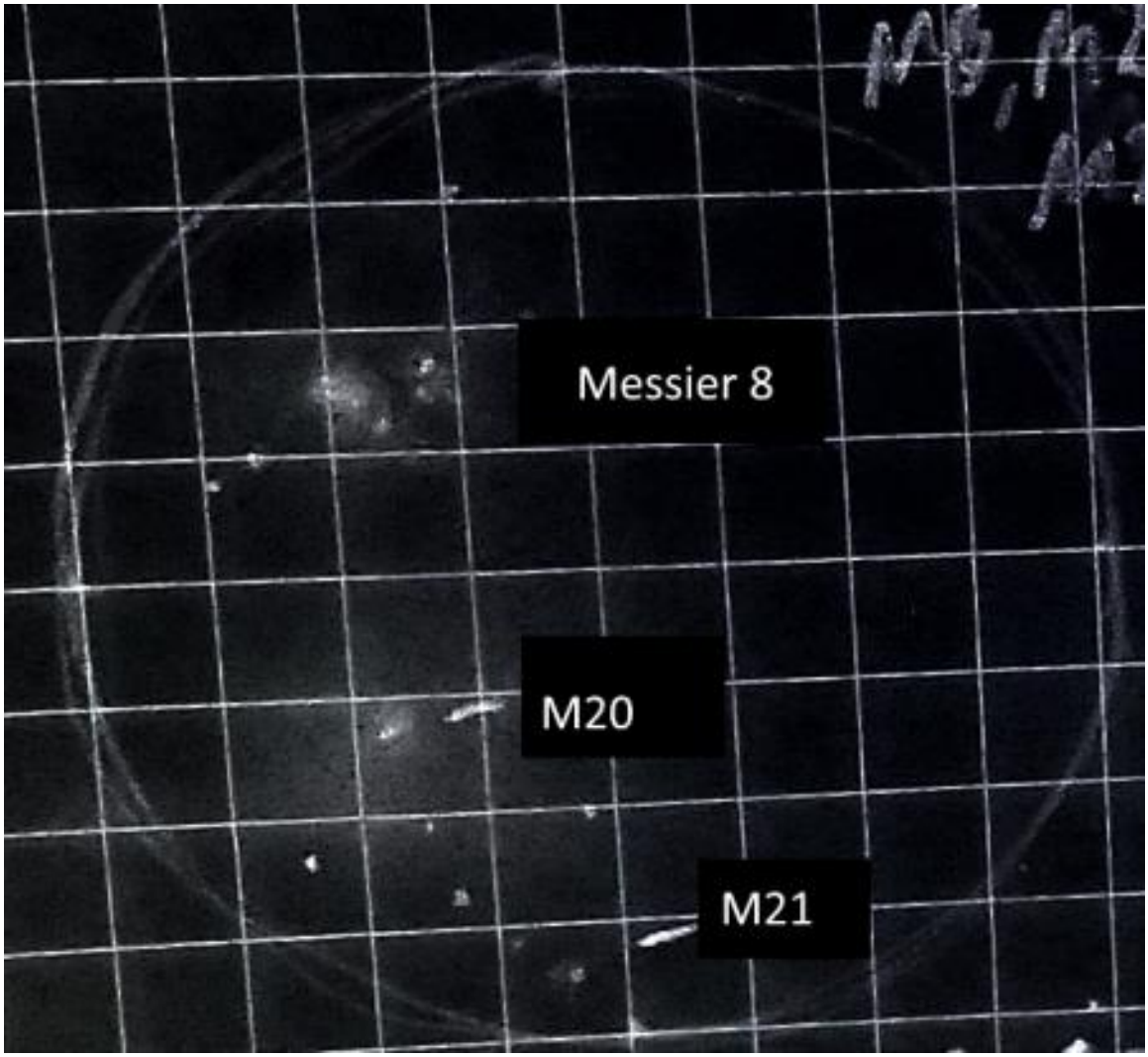
On another night, I re-observed some objects from the 11th with my dob (finding many new objects as well; Sagittarius is a gold mine!) as well as with my Celestron FirstScope, a small 3-inch f/4 tabletop dob with a spherical primary mirror.

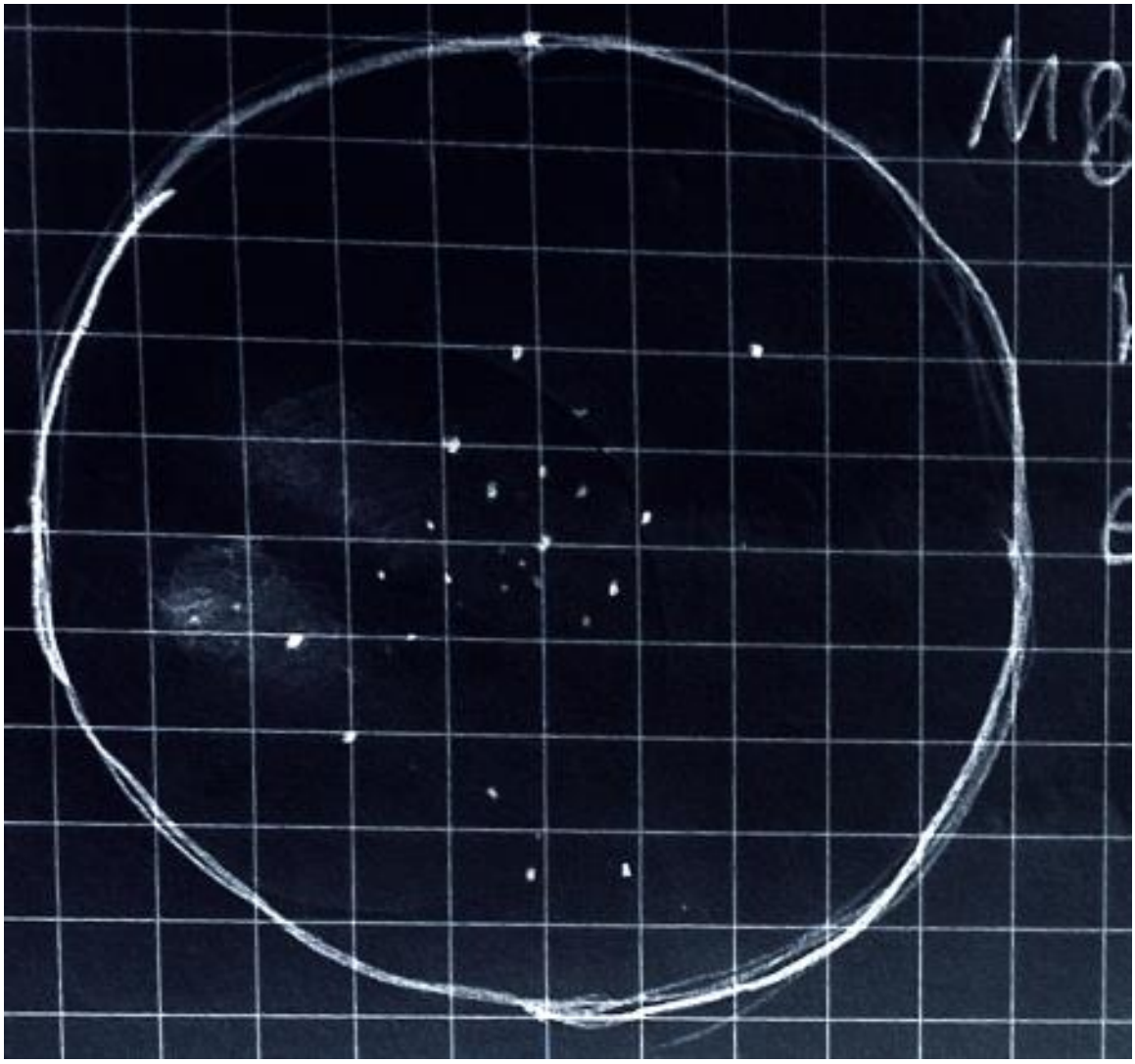
Through the FirstScope, the M8 nebula was very bright and easy to see, with the cluster also appearing as a nebulosity unless you dim it down with direct vision. I could easily make out the bean-shaped feature.

M20 and M21 share the field of view with M8. My drawing shows M20 as much brighter than it actually was, due to leftover smudging, something I didn't catch until later. M20 and M21 were plain stars with direct vision, appearing as small faint nebulae only with averted vision and some difficulty. I also looked at M21 up close and could barely split it into individual stars.

I have not been able to see the larger nebula which surrounds M8, due to light pollution. I look forward to returning to the Cline Observatory and being able to turn its 24″ telescope onto the object–next summer after the pandemic ends, probably.

I'd also love to look at it in a dark sky someday. I'm also wondering how much a UHC/Hβ/O III filter could improve the view. Either way, it's definitely an object to return to.





Uwe Glahn: Observer from Germany

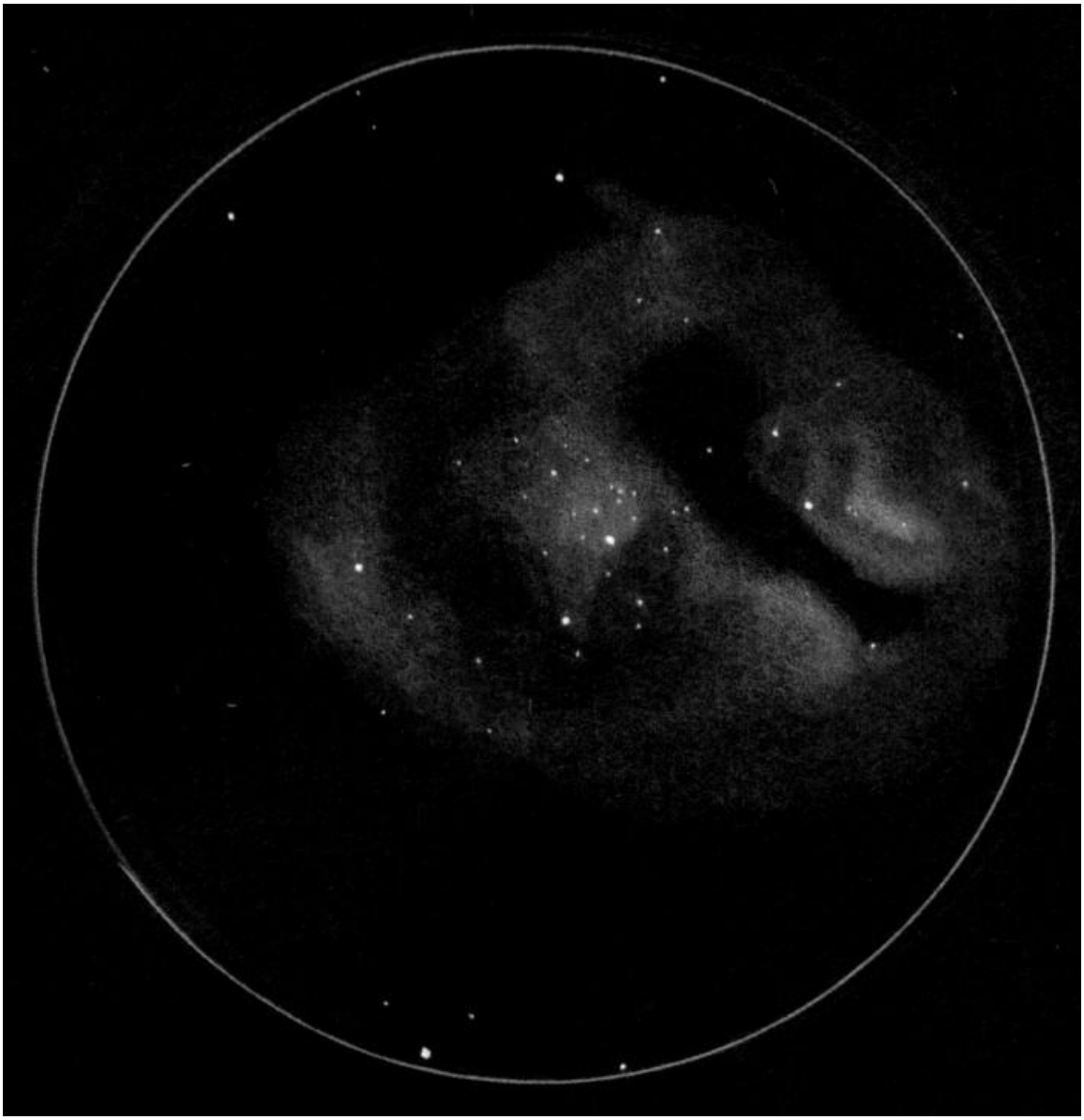
Telescope: 4-inch Binocular. Magnifications: 55×, Filter O III
NELM: 6.5+, Seeing: III
Location: Sudelfeld

Rony De Laet: Observer from Belgium

Messier 8 is one of my favorite summer objects. Unfortunately it never rises higher than 15° above the horizon from where I live.

My first sketch was made in 2006 on a holiday location in Spain, where M8 culminates at 26°. The sketch is a compilation of a 'normal' view and a 'UHC-filter' view. The UHC shows the nebula better, because I was observing from a roof terrace in the middle of a small town. The nebula was larger than expected. It did not fit in the FOV of my eyepiece. The observation was made with a 105mm Maksutov at a magnification of 62×.

North is up, West to the right.



My second sketch was made in 2008, again on a holiday in Spain. This time I travelled to a dark location. I used a 15x70 binocular on a tripod.

M8 can be seen with the unaided eye as a small bright patch in the Southern Milky Way. M8 is even brighter than the famous Orion Nebula. The view with a pair of binoculars is spectacular. M8 appears as an elongated glowing cloud of gas, divided by a 'dark' river, running from NE to SW. The eastern part of the nebula contains the open cluster NGC 6530. About a dozen stars can be counted with 15×70 bino's. The western part of the nebula harbors only a few bright stars, together with a small bright patch of light, the Hourglass Nebula. This small patch looks like an out of focus star. It is the brightest feature of the Lagoon. Larger telescopes will reveal its true shape. But the Lagoon has more treasures to offer as time goes by. The patient observer will be rewarded with the view of fainter nebulous extensions and delicate curls of dark lanes. Altogether, the Lagoon Nebula is a very complex diffuse body at a distant of 5200 l-y.

Messier 8 is accompanied by a few other objects. At one and a half degree NNE of M8, there is M20, the Trifid Nebula. A 40′ more to the north, the subtle glow of the open cluster M21 borders the edge of the field of view. At 1° SE of M8, I suspected the presence of globular cluster NGC 6544. The FOV of the sketch is 4.4°.

I made my last sketch on July the 20th of this year with a 16″ Dobson. This time I observed from my Bortle 5 backyard, where the southern horizon is filled with skyglow. A large telescope pulls in a lot of light, but in my case it also pulls in a lot of skyglow. When I located M8, the only thing I saw was a pale cluster and a hint of the hourglass. Things changed completely when I added an O III filter to my eyepiece. The field of view was filled with luminous clouds of swirling gas, divided by a dark river, the Lagoon. M8 extends beyond the borders of my eyepieces. The most pleasing view was obtained at a magnification of 144×. I first drew the stars without the filter, then the nebulae with the use of the O III filter.

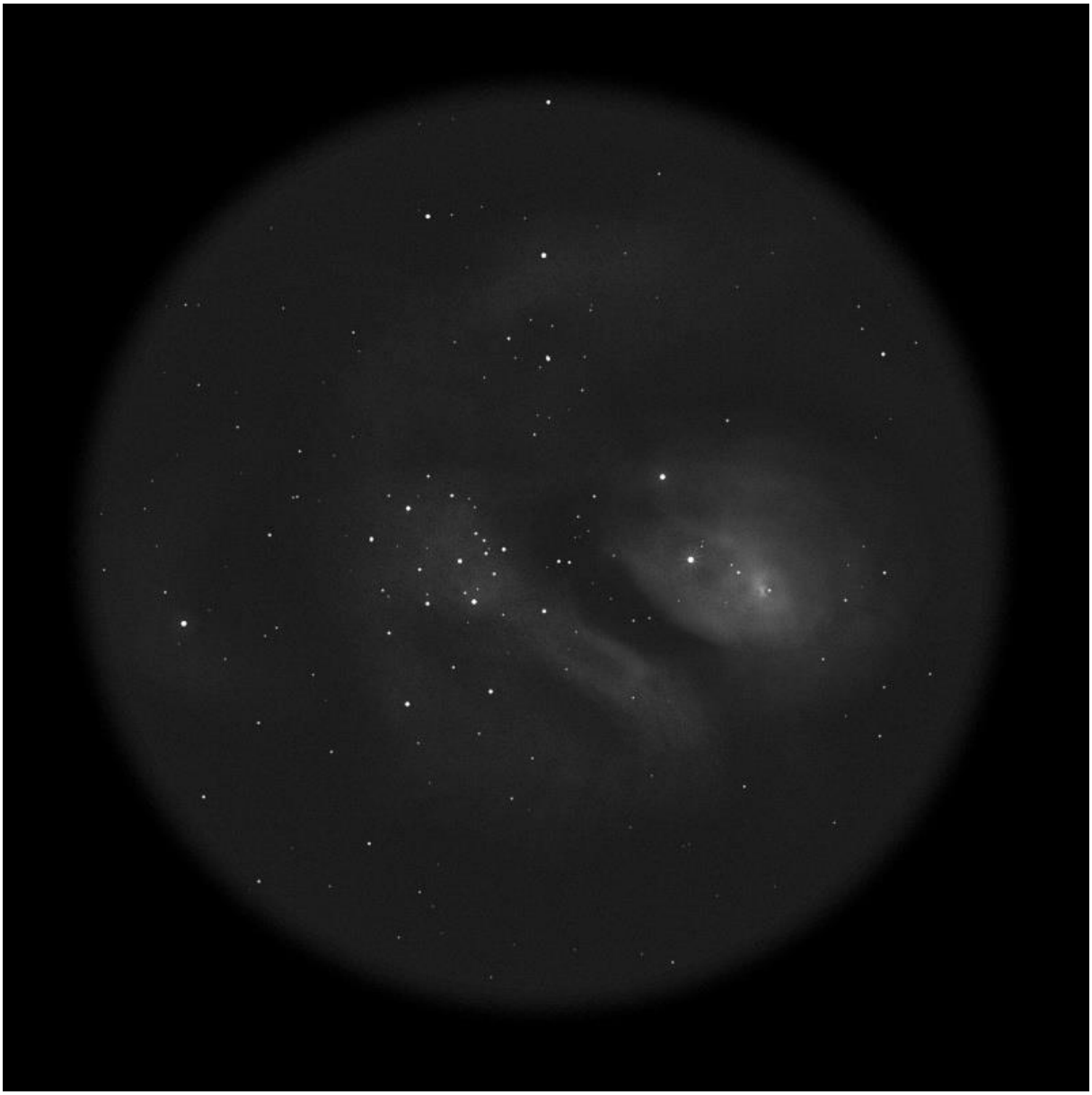
Telescope: 16 inch f/4.5 truss Dobson

Eyepiece: 12.5mm 76°

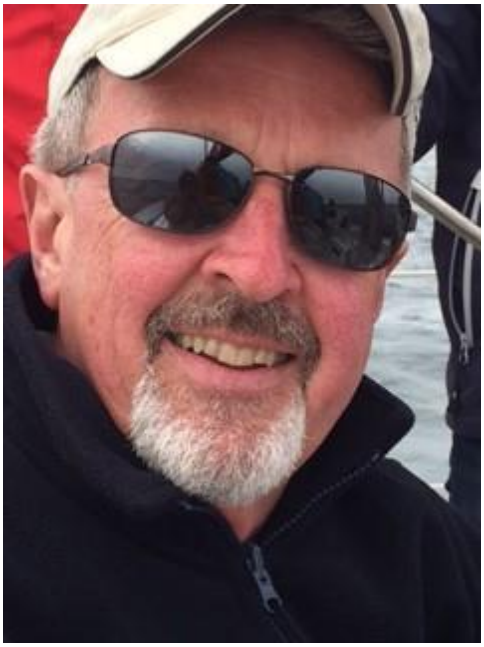
The fov is 32′

North is up

West to the right



John Bishop: Observer from Massachusetts



I observed NGC 6523, more commonly known as Messier 8 or the Lagoon Nebula, on 7/21/20 from Wellfleet, a town on Cape Cod, Massachusetts.

Wellfleet may be under-appreciated as a dark sky site, due to its relative proximity to Boston, but is surrounded by the ocean on two sides, and the National Seashore elsewhere. However, on a good night, the observing can be outstanding. This was such a night.

Conditions were very favorable. The sky was clear. Transparency and seeing were excellent; the air was dry and still, despite my being about one quarter mile from the harbor. All seven stars of the Little Dipper could be seen with direct vision. The Milky Way was a swirl of clouds. My wife compared the view to that at Cherry Springs, Pennsylvania, a fine view indeed.

I observed with 10×42 image-stabilized binoculars, and an 8.25-inch f/11.5 Dall-Kirkham reflector at 48×, 100×, and 130×. I did not use any filters.

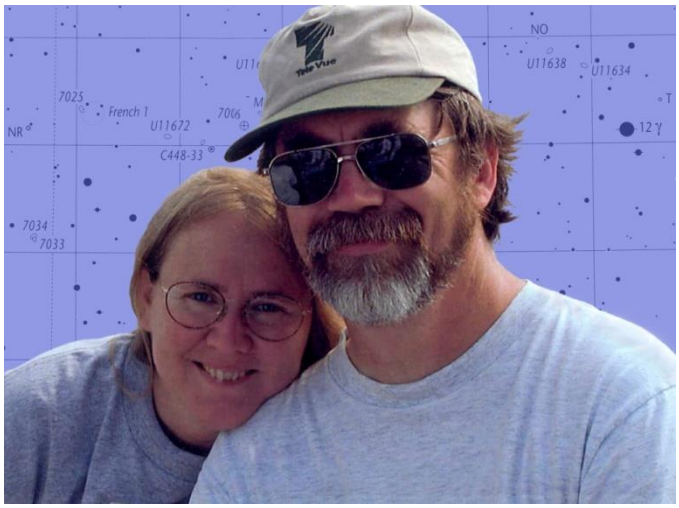
The observing was so good, and there are so many objects to view in this region of the sky…it was difficult to slow down and spend enough time with M8. In the binoculars, the area from M7 to M11 is like a waterfall of starclouds, clusters, and nebulae.

M8 was easily visible to the naked eye as a distinct bright patch in the starfield. In the reflector, M8 was large and bright, irregularly shaped, with a jumble of components: emission nebulae, star clusters, dark nebulae, and multiple stars.

The nebulosity of M8 without a filter was faint but visible enough to extend into the star cluster and show the dark lane dividing the bright emission area from cluster NGC 6530. (I know filters can show more, but I often find the filtered view “strange” and dim). The faint nebulosity was typically gray, but the overall hue from M8 was blue, possibly from the stars in NGC 6530.

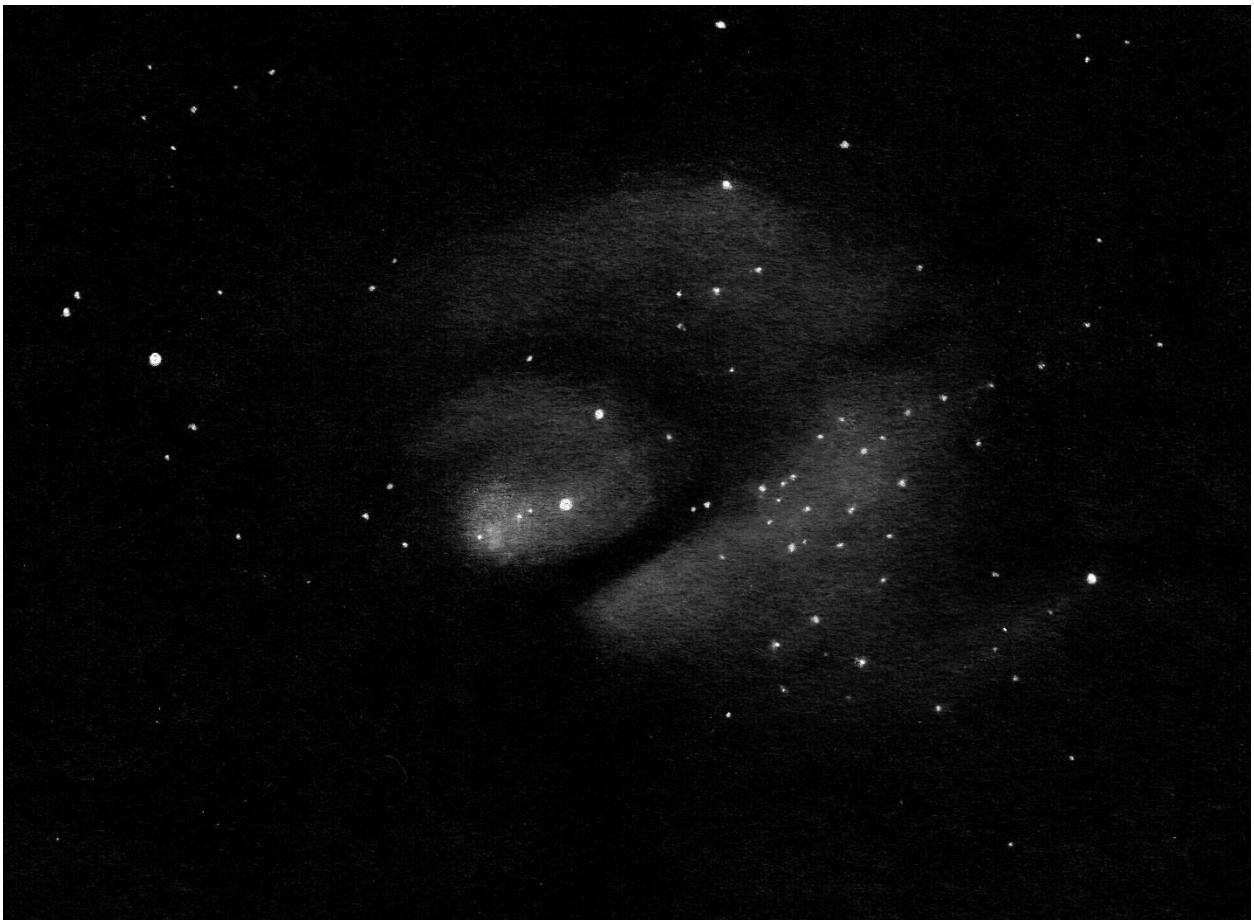
A complex, fascinating object in a beautiful field.

Sue French: Observer from New York



I've sketched M8 on two occasions. I worked on my first sketch during two nights in 1997 with my 105mm (4.1-inch) refractor at 87×. I did not use a star diagonal, so this drawing has north up and west to the right. My sketch paper back then left something to be desired. It took pencil very well, but was a bit yellowish and tended to look rumpled.

The second sketch was made in 2016 as seen through my 130mm (5.1-inch) refractor at 48×, also on two nights. A narrowband (UHC) filter was used to help define the nebula, but no filter was used for the stars. The brightest star on the right-hand side of the sketch is 7 Sgr, which looked yellow through the scope. In this mirror-reversed view north is up and west is to the left. The small, butterfly-shaped region in the brightest part of the nebula is known as the Hourglass.



Glenn Chaple: Observer from Massachusetts

Our July and August Observer's Challenges might be themed the "Summer of Sagittarius," as both inhabit the celestial Archer. This month, we set our sights on Messier 8 (the "Lagoon Nebula"); in August, we'll turn our attention to Messier 20 (the Trifid Nebula).

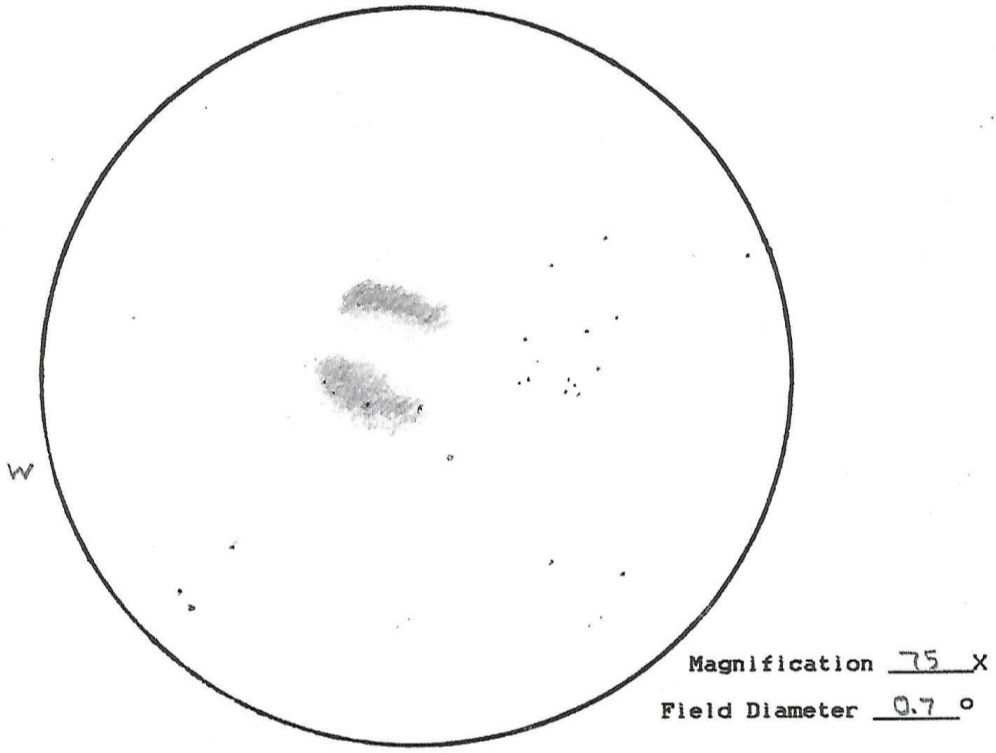
Along with the Orion Nebula (M42), the Lagoon is the only diffuse nebula readily visible to the unaided eye from mid-northern latitudes. Like M42, it's an emission nebula and an H II region of active star formation. Credit for the discovery of the Lagoon Nebula goes to the Italian astronomer Giovanni Hodierna who spotted it with a crude 20× refractor on or before 1654. Because the nebula is visible to the unaided eye, we can rightly assume that a number of astute observers spotted it long before Hodierna. Messier added it to his catalog in 1764. It bears the New General Catalogue designation NGC 6523.

I first saw M8 on the evening of July 20, 1974 – coincidentally, the 5th anniversary of the Apollo 11 moon landing. This was definitely a NASA-themed night, as the session began with a fly-over of the Skylab space station. M8 was visible to the unaided eye a half-dozen degrees north of gamma (γ) Sagittarii, the star that marks the spout of the "Teapot." It was easily seen in my 3-inch f/10 reflector at 30× as two separated nebulous patches oriented in a north/south direction. I made another small-scope observation of the Lagoon in the summer of 2012 – this time with a 4.5-inch f/8 reflector and a magnification of 75×. I described it as "two elongated clumps of nebulosity separated by a dark rift. Beautiful cluster (NGC 6530) to the east." Since NGC 6530 is embedded in the nebulosity, it's obvious that a larger instrument will be necessary to fully appreciate the grandeur of the Lagoon.

The immensity of the Lagoon Nebula can be fully appreciated when we realize that, although it lies 5200 light-years away, its widest dimension spans an area three full moons across. Were it as close as the Orion Nebula, the Lagoon would appear four times larger and shine at first magnitude.

For a detailed look at Messier 8 from a backyard astronomer's point of view, read Howard Banich's article "Swimmin' in the Lagoon" on pages 20-25 of the August, 2020, issue of *Sky and*

Telescope. Banich mentions the “Hourglass,” a small, bright part of the Lagoon Nebula that was first described by John Herschel. It appears in Mario Motta's narrow-field image of the Lagoon. Here’s a challenge for you big-scope users. Can you make a visual sighting?



M8, as seen with 4.5-inch f/8 reflector. Sketch by Glenn Chaple (ATMoB)

Chris Elledge: Observer from Massachusetts

On July 27th @10:10pm EDT, I used a 10-inch f/5 refractor to observe M8 from Arlington, MA. Sky conditions were: Bortle Scale 7; NELM 3.0 near M8; Transparency: Fair; Seeing: Good.

Attempting to locate M8 in the light pollution to the South was very disappointing after having seen its contained cluster several times in the past as a naked eye object at dark locations. Mag. 2.8 Kaus Borealis was barely visible, but I managed to star hop my way from it to M8.

At 36× (35mm eyepiece) there is a cluster of faint stars (NGC 6530) surrounded by a cluster of brighter stars. I could see eight mag. 8 to 9 stars in the faint cluster with a single mag. 7 star near the middle. The cluster of stars forms a heart shape with the bottom tip pointing to the SSE. There's a line of brighter stars that runs from WNW to ESE across the fainter cluster. This runs from 7 Sagittarii to 9 Sagittarii and finally HD 165052. 9 Sagittarii and nearby HD 164816 just to its NNE both sit just to the West of NGC 6530. Unfiltered, the nebulosity is pretty lacking. It appears as just a brighter background near the clusters of stars. The brightest part of the nebulosity is near NGC 6530 with some extension to the West, NE, and SE from the cluster.

Adding an UHC filter darkens the background substantially. Nebulosity near NGC 6530 is more easily visible with the brightest area near the South side of the cluster. There is another knot of bright nebulosity just to the West of 9 Sagittarii. There is fainter nebulosity visible to the North of near HD 164865. Some more heads to the West toward 7 Sagittarii, and some stretches from the South of NGC 6530 towards the SE.

Replacing the UHC filter with an O III further reduces the background brightness. The two bright regions of nebulosity at the South end of NGC 6530 and to the West of 9 Sagittarii are both easily visible. There's a faint arc stretching between the two regions on the South side. The rest of the nebulosity is much fainter than with the UHC, but some hints of it are still visible in the areas noted before.

Another filter change to H-Beta reduced the brightness of the knots that stood out with the O III; however, it was easier to pick out the extended glow of the outer areas of the nebulosity against the background. More of the nebula was visible in the area to the North of NGC 6530 and to its SE.

Increasing the power to 115× (11mm) revealed closer to 25 stars visible in NGC 6530. Without a filter it is possible to see the knot of brightness described before to the West of 9 Sagittarii along with an arc of nebulosity to the South reaching into the Southern end of the cluster. There is also now a dark U-shaped region in the nebulosity that starts between 9 Sagittarii and the cluster, wraps around the Northern potion, and heads back to the South once it passes the Eastern edge of the cluster. Adding an UHC enhances the visibility of the dark region. The O III makes the region between 9 Sagittarii and NGC 6530 more visible, but doesn't help with the Northern and Eastern sides. The H-Beta makes everything fainter, but the contrast between the dark U and the surrounding nebulosity is improved.

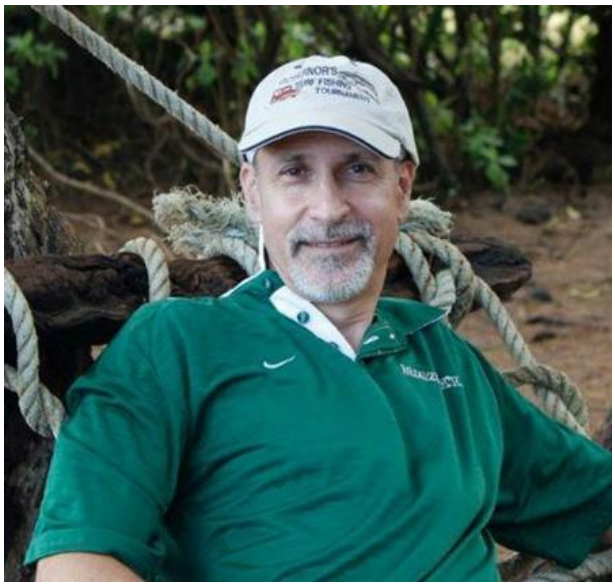
Gus Johnson: Observer from Maryland

M8: June 1979 (only two months to the day from my SN discovery)

8-inch reflector @ 94×. Many interesting double and multiple stars in the FOV. The brightest part of the nebula is on the SW edge. A dark lane separates the two-part nebula from the dimmer NE portion and oriented NE-SW. The star cluster really stands out, but I have never counted the number of visible stars.

There are two bright stars, just above the brighter section toward the north, and west of the cluster. I have many observations of this most beautiful and interesting nebula and cluster.

James Dire: Observer from Illinois

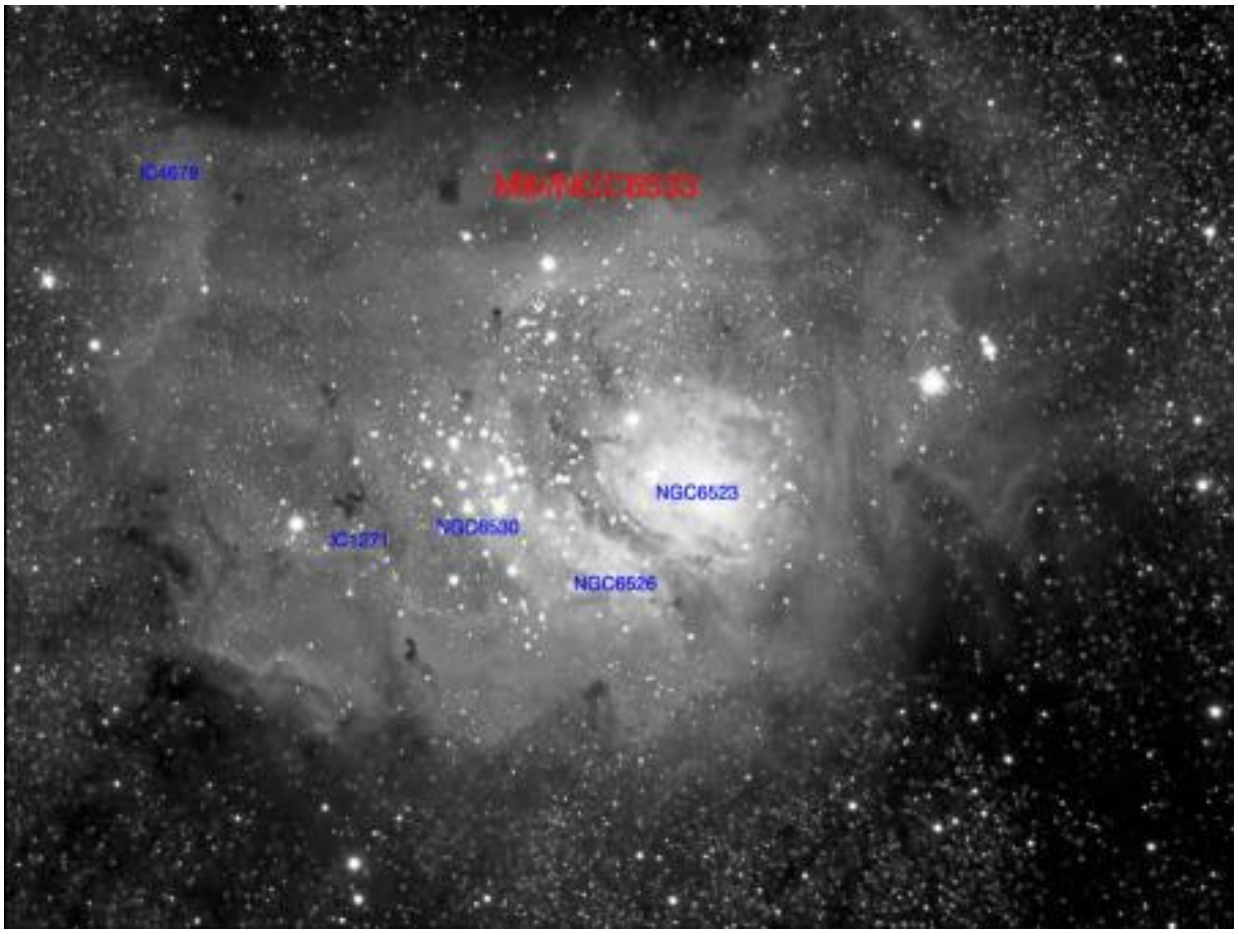


The Lagoon Nebula, a.k.a. M8, a.k.a. NGC 6533 is a celestial complex that is quite often viewed by telescope owners from late spring into the early fall. The complex can be seen naked eye in the darkest skies and offers something for every sized telescope. The complex contains a star cluster, a star-forming region, dark nebulae, and lots of wispy emission nebulae. I have viewed it in every optical instrument I own from binoculars to a 14-inch f/6 Dobsonian reflector. Binoculars and small telescopes resolve the star cluster embedded on the east side of the nebula (NGC 6530) and start to pick up the bright star-forming region (NGC 6523). In my 14-inch Newtonian, the grandness of the entire nebula is visible!

My first image of M8 was taken with a 102mm f/6.3 apochromatic refractor with an SBIG ST-2000XCM CCD camera. The exposure was 80 minutes. The nebula is dominated by hydrogen gas emissions at 656.3 nm. Fortunately, my color CCD camera has great sensitivity at that wavelength.

Also herein is a black and white version of that image with the various regions of M8 labeled with their individual NGC or IC catalog numbers. None of the dark nebulae are labeled, just the star cluster and the various brighter regions of the emission nebula.

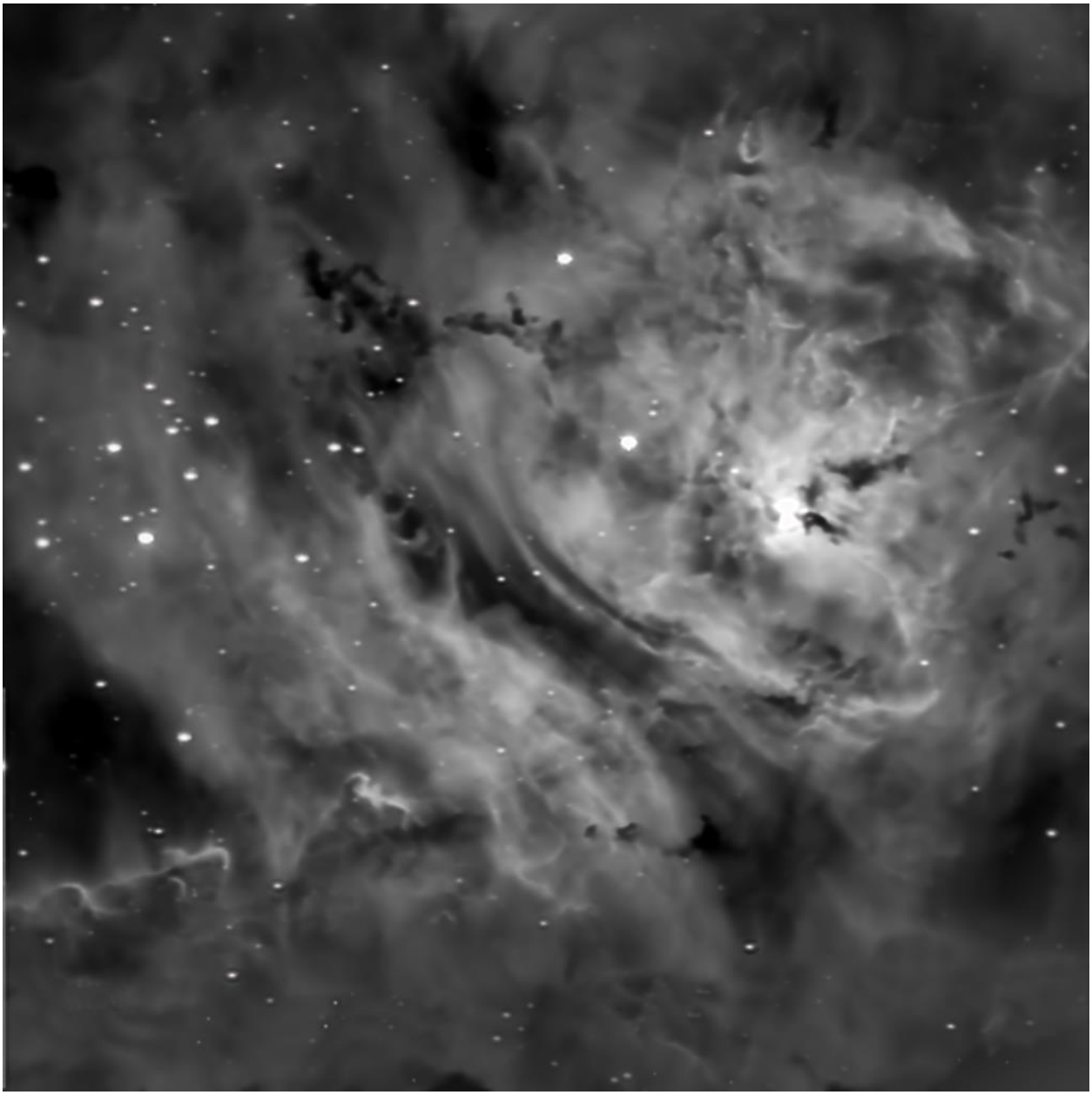
The wide field shot includes both M8 and its neighbor M20, the Trifid Nebula. That was taken with a 71mm f/4.9 apochromatic refractor using an SBIG-STF-8300C CCD camera. That exposure was also 80 minutes.


IC4679
M8/NGC6523
NGC6523
NGC6530
IC1271
NGC6526

Mario Motta: Observer from Massachusetts

M8 is large for my 32-inch, so I am sending two sets of images: The first image is from my 32-inch which shows the center of the lagoon, and also highlights the star forming glow to the right of the lagoon itself, and the hourglass shape glow. This image taken with narrowband imaging Ha, O3, and S2, total about three hours.

Also Ha only as it shows detail, 1.5 hours.



The next image is an M8 wide field, taken with my 8-inch RC, which was piggybacked on my scope. This is Lum, R,G,B filters, and also some Ha added to Lum and Red for a total of about 3.5 hours imaging

Here is a Lum only of M8 wide field with the 8-inch RC. It is about 50/50 Lum filter and Ha combined, about 2 hours imaging total.

Joseph Rothchild: Observer from Massachusetts

The Lagoon nebula has always been one of my favorite summer objects and I have been observing it for over 50 years. It can be easily seen naked eye, with a dark sky, and is a pleasure in all instruments, from 10×50 binoculars to my 10-inch reflector.

I was able to observe this month from Cape Cod under dark but somewhat hazy conditions using my 10-inch reflector. I observed at magnifications of 46×, 89×, and 178×, as well as 57× with an NBP filter.

The nebula was most visible with the filter, but appeared more three dimensional without the filter, especially at 89×. The dark lagoon feature is easily seen with the star cluster visible toward the east. The nebula has beautiful texture. The hourglass feature was bright and best seen at 178× but also clearly demarcated at 57× with the nebula filter.

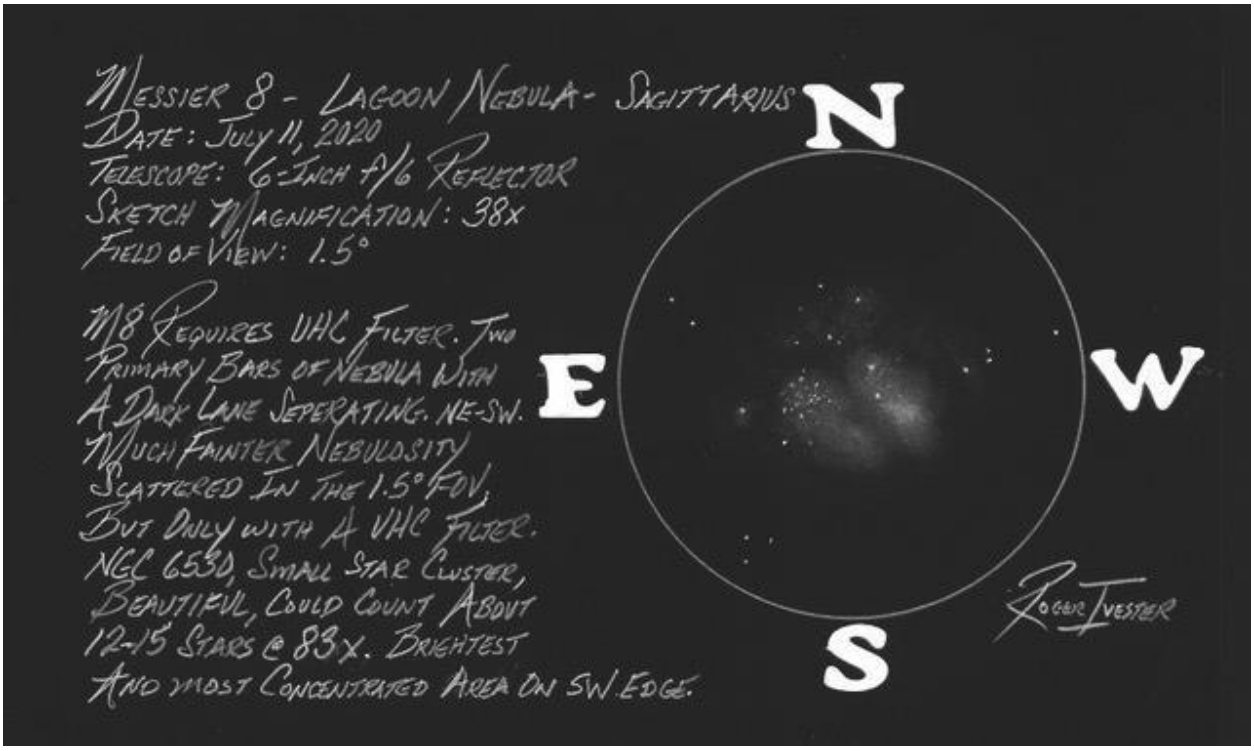
Roger Ivester: Observer from North Carolina

Messier 8, also known as the Lagoon nebula was the first object to be observed by John Mallas in the 1930s. Mallas authored *The Messier Album* along with Evered Kreimer. I used this book extensively during my first quest to observe and document the Messier catalog during the ’70s, and I continue to use it often, even to this day.

Saturday night July 11, I observed M8 from my back yard, using a 6-inch f/6 Newtonian reflector. Unfortunately, due to M8 being located so far south in the sky, makes it a difficult object for me, but could easily see the complex through my 8×50 finder.

With the 6-inch, and a magnification of 38×, I first sketched the small, but beautiful, star cluster, NGC 6530. When increasing the magnification to 83×, I could count about 12 stars in a mostly circular arrangement. I then reduced the magnification again to 38×, and included a UHC filter, which enhanced the view of the nebula significantly.

There are two primary banks of nebula with a dark lane between, oriented NE-SW. However, much fainter and scattered areas of nebulosity are present in the ~1.5º telescope field of view, but only with a UHC filter.



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

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