MONTHLY OBSERVER'S CHALLENGE

Las Vegas Astronomical Society

Compiled by:

Roger Ivester, Boiling Springs, North Carolina

&

Fred Rayworth, Las Vegas, Nevada

With special assistance from:

Rob Lambert, Alabama

JUNE 2018

M51 Spiral Galaxy in Canes Venatici

"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 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.

M51 Spiral Galaxy in Canes Venatici

Known also as M51 – The Whirlpool Galaxy or NGC-5194/5, it's a spectacular object to observe. With a mag. 8.4 brightness, it's easy to spot in most any telescope, and even binoculars. However, the larger the aperture, the more details can be seen within it.

It was discovered by Charles Messier in 1774, but the spiral shape was not recognized until Lord Rosse trained his leviathan 72-inch reflector on it from his observatory at Birr Castle in Ireland. It was still thought to be a spiral nebula until modern astrophotography revealed its true nature.

Though its companion, NGC-5195, is a separate galaxy, it has long interacted with the main galaxy to affect how the spiral arms formed. This smaller companion has collided with the main galaxy at least twice, and is currently behind it as referenced from Earth. Visually, in smaller apertures, two bright spots can be seen with one a bit larger and brighter than the other. However, they're both connected within the glow.

M-51 is part of the small M-51 galaxy group that includes M-63 (the Sunflower Galaxy), NGC-5023 and NGC-5229. The Whirlpool Galaxy lies about twenty-three million light-years from Earth.

Observations/Drawings/Photos

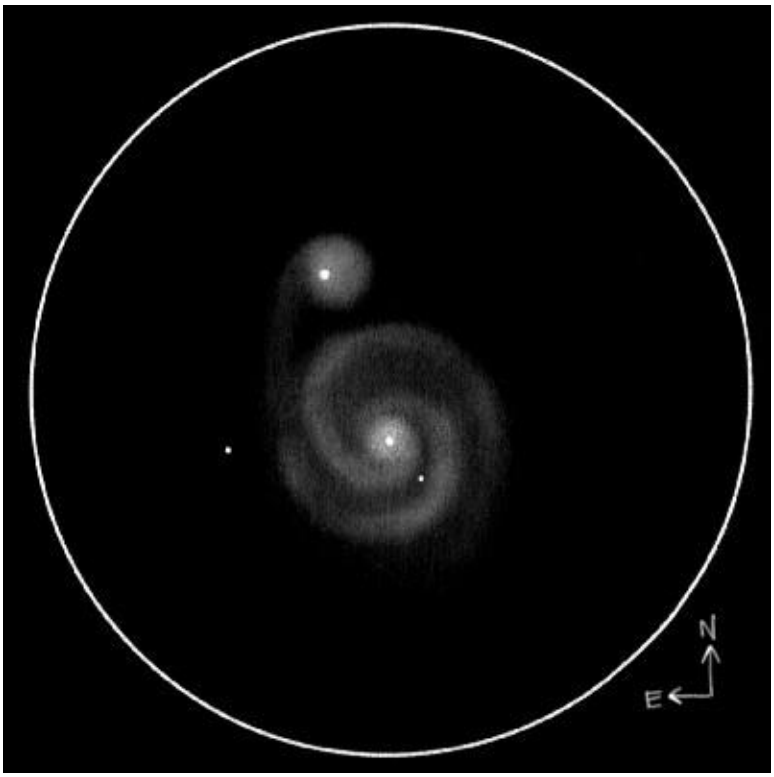
Jaakko Saloranta: Observer from Finland

4.3-inch scope @ 134X (18’):

I saw a nearly stellar core, surrounded by a round, 0.5’ halo. The east arm was brighter and easier to see as well as larger than the west arm, which showed only a small stub in the SW. A mag. ~13.5 star was fairly easily visible between the two spiral arms in the SW. The bridge between M51 and NGC-5195 was visible with a little magnification. It wasn’t as smooth and detailed as with the 8-inch Dobson, and details took a lot more time to discern. The spiral structure was most obvious in the SE and W/SW from the nucleus. I barely detected (actually suspected) two very faint stars in the face of the galaxy.

8-inch reflector @ 133X (15’):

A classic view! M51 had a non-stellar nucleus surrounded by a bright, round core. A faint mag. 14 star was visible SW from the core. The spiral structure was fairly obvious @133X with averted vision, but required a lot of work for me to see it properly with my 8-inch aperture. The bridge connecting M51 and NGC-5195 was quite elusive.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Chris Elledge: Observer from Massachusetts

On June 11, 2018 @10:30pm EDT, I used a 10-inch f/5 reflector and a 102mm (4.1-inch) f/7 refractor to observe M51 from the ATMoB Clubhouse in Westford, MA. Sky conditions were: Bortle Scale 6. NELM 5.0. Transparency good. Seeing good.

M51 was easy to find as it was just a couple of hops from Alkaid, via 24 Canum Venaticorum at low power.

At 35X in the reflector (35mm, 1.9°FOV), the area directly around M51 was devoid of bright stars, but there were several mag. 7 to 8 stars surrounding it at least 20' away from M51. The brightest nearby star formed an obtuse triangle with M51, sitting just inside the longest leg. HD1117815 to the east was the closest, with HD117377 to the NW and HD117403 to the south, forming the rest of the triangle. M51 was located inside the leg between the latter two stars. There were several mag. 11 stars within the triangle near M51. The cores of M51 and NGC-5195 were easily visible with the southern core (M51) being larger. They looked like fuzzy spheres.

At 51X in the reflector (25mm, 1.4°FOV), the southern core (M51) still looked larger, but the northern core(NGC-5195) appeared to be the brighter of the two. When viewing with averted vision, both cores looked like they had pinpoint bright spots in the middle.

At 127X (10mm, 0.6° FOV) in the reflector, the outer parts of the two galaxies were clearly separated from each other. With averted vision, it appeared that there was a very faint connection between the two galaxies on the eastern side. No spiral arm structure was visible.

Viewing at 28X in the refractor, I saw M51 as a single fuzzy oval elongated in the north to south direction. However, I could not separate the cores until I increased the power to 71X.

At that magnification, the cores were clearly separated, but the rest of the two galaxies faded from view.

Gary Ahlers: Observer from Nevada

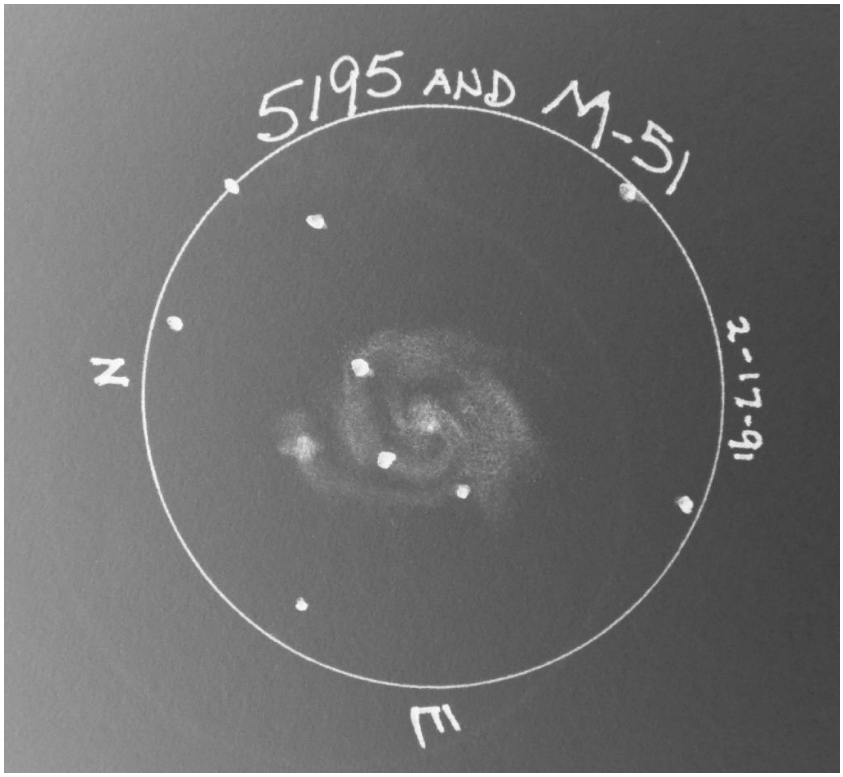
The Whirlpool Galaxy is a very well-known and interesting object, designated Messier 51a and b, or NGC-5194/5, and located in the constellation Canes Venatici. Very bright – mag. 8.4, this pair is easy to locate and observe. The larger M51a is a prime example of an unbarred grand design spiral galaxy, and very similar to our Milky Way, but 1/3rd the size. It was the first to be designated as a spiral galaxy.

51a is orbited by a small dwarf galaxy which has either passed through, or grazed the disk of M51a. At present, or rather, 23 million years ago, these galaxies interacted, with a gas and dust bridge siphoning off mass from the dwarf. This has reoccurred at least twice.

M51a shows very well-defined arms, with dust lanes interlaced with many star clusters visible, and a large bright core believed to contain a massive black hole. The arms are somewhat distorted due to gravitational pull of the small companion galaxy. M51b is a bright but disorganized dwarf galaxy. There is an obvious connection between the two, with distinct luminous gas streams and dust lanes.

Kenneth Drake: Observer from Texas

I've observed this object so many times I cannot count them all. It can be observed along with its companion from dark skies with handheld 50mm (2-inch) binoculars, which I did in the early '80s. In somewhat light-polluted skies, both can be seen in a 10-inch reflector as 1-minute round fuzz balls about 5-minutes apart. My drawing was made in my 10-inch f/5.6 from about 100 miles west of Dallas/Ft. Worth when I was drawing NGC-5195, H-186-1 of the Herschel 400. The FOV is 22 arc minutes at 137X, using a 10.5mm EP. Spiral structure was readily visible in the 10-inch Dob while the connection was not. This is a showpiece object in my 24-inch scope with the connecting bridge clearly visible running next to a dark band. In a 36-inch scope, one is simply blown away.

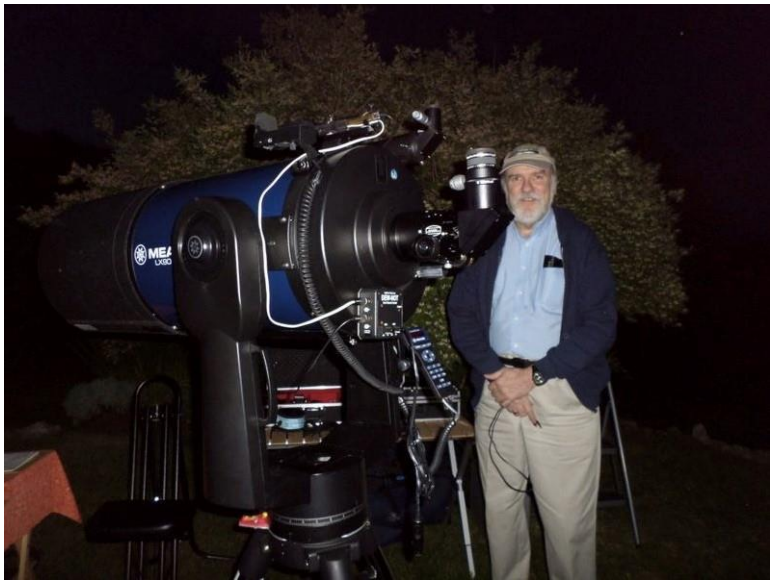


David Brodersen: Observer from Nevada

I imaged M51 and NGC-5195 with a Nikon D7200 @ ISO 3200, attached to an 11-inch SCT. 10 stacked exposures in DSS edited in Adobe Lightroom Classic.

I tried on the June 29, 2018 for a better shot. However, I had serious vibration problems in the mount. Out of 32 exposures, none of them turned out.

Dwight Lanpher: Observer from Maine



I observed M51 and NGC-5195 on June 16, 2018 from Cadillac Mountain, Maine.

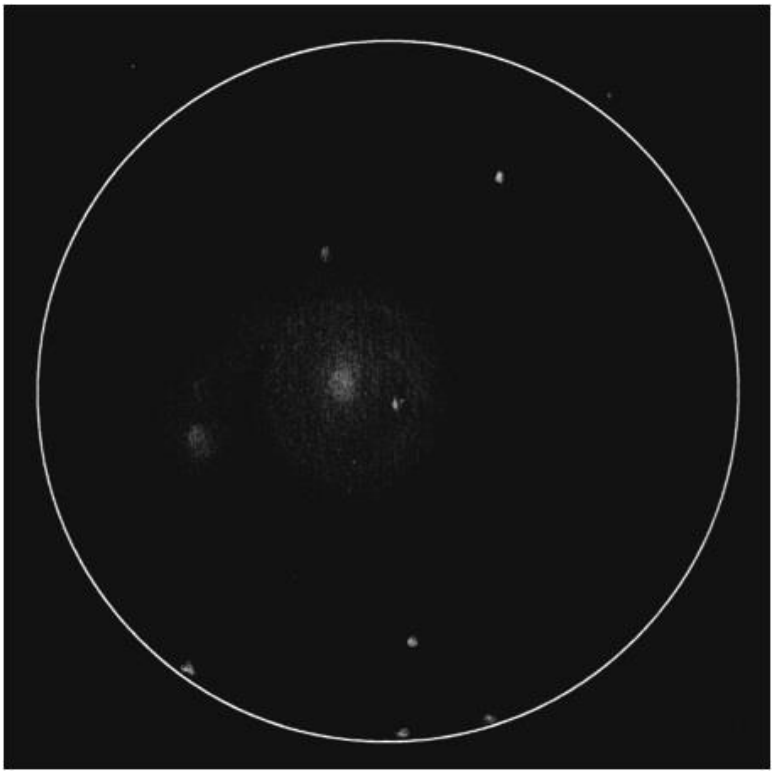
On Saturday June 16, it was a balmy 68°, with a light breeze, so conditions were good for an observing session on Cadillac Mountain (1,530'). It seemed like a reasonable time to try sketching M51. Minor light-pollution from the town of Bar Harbor to the north (SQM 21.36 on a moonless night) was not a significant factor when observing south out over the ocean. I started setup in the southern part of the summit parking lot, with maybe 20 other cars.

After completing the setup of my 12-inch SCT at 9:30, there were several tourists in the area, eager to get a view of the Milky Way. I explained that being so near to the solstice, they'd have to wait another hour for it to start getting really dark (astronomical twilight was 10:47, but summit times were actually nearly ten minutes later than predicted for sunsets on Cadillac Mountain). I offered, while I was waiting for it to get dark, to show them Jupiter and Saturn. They happily accepted and we started observing planets (with the mandatory "ooh wows" for Saturn), and then moved on to double stars and globular clusters, and ultimately, some classic nebulae. It was getting close to fully dark, and the Milky Way made its distinct appearance. The dark lanes were clearly visible, and the galaxy center in Sagittarius finally appeared and was bright.

Before I moved on to M51, someone requested a view of M31, the Andromeda Galaxy. Although the galaxy should've been visible, the northern horizon was obscured with low overcast, and I could see no stars near the horizon. Whenever it's warm on top of Cadillac, it likely means that weather is making its way up along the south Atlantic states, with its accompanying humidity, instead of crisp cool dry air coming down from Canada.

I finally turned the scope to The Whirlpool around 11:00PM, and there it was, with no signs of clouds, and the moon had long ago dropped below a tree line. Conditions seemed promising, but despite looking for many minutes, I could not eke out any structure in the galaxy. The interconnecting lane to companion NGC-5195 was equally elusive. I kept looking and studying, swapped eyepieces a few times, and finally settled on my favorite 17mm wide field (179X at 3,048mm FL). Although the spiral arm structure never appeared, I convinced myself that I did see a hint of the interconnecting lane. However, if you told me it was just my imagination, you might make me believe that you were right. The Clear Sky Chart had missed a bit on their predicted level of seeing. It seemed that the humidity and perhaps winds aloft were presenting a slightly compromised sky. I persisted, and *did* manage the following sketch. About 11:45, the winds had picked up enough so that it seemed appropriate to call it a night. At least it was only a ten mile drive home, this time.

I've always liked the Whirlpool as a fascinating object in pictures…perfectly named. Although I've never achieved a spectacular view in my telescope, in 2012 I had the fortunate opportunity to visit the Observatoire Astronomique du Mont-Mégantic. This observatory is located in Quebec, just 20 miles across the Maine and New Hampshire borders. It's the largest research telescope in Canada, and is sited on the summit with a second 24-inch outreach telescope observatory, part of a national park complex where they run astronomy programs all summer. Four or five weekends each year, they move the CCD aside on the research telescope and install an ocular so that it's possible to directly view through the 63-inch Perkin Elmer telescope. One of the objects that we observed that night was the Whirlpool galaxy. They had the magnification cranked up, and the image was huge. I was surprised at how dim and gray it was, but everything was absolutely distinct and there was no problem making out amazing detail in the spiral arms, and the interconnecting lane to NGC-5195. Sketching there would've been a joy, but others waiting for their turn might've objected.



Gus Johnson: Observer from Maryland

I observed M51 (NGC-5194) and its companion galaxy, NGC-5195 on several occasions and through several different instruments.

In June, 1977, I used an 8-inch reflector at 59X and saw spiral structure. I could also see a faint patch of light using 7X35 binoculars.

In April of 1978, I used a 12.5-inch reflector to see the easternmost arm, and it extended toward the northern companion, but did not fully connect with NGC-5195.

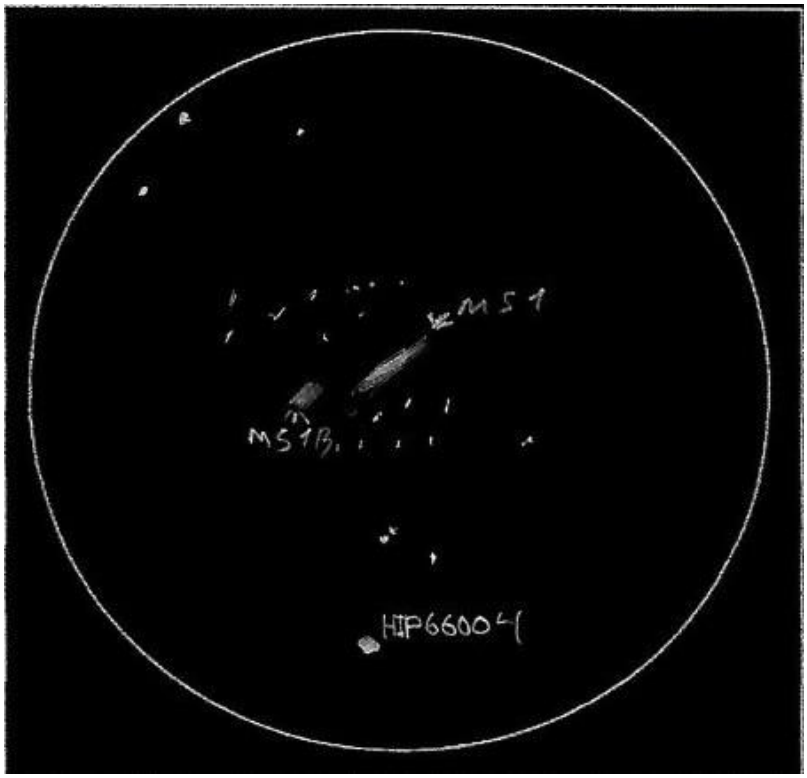
In that same month, April 1978, I used 12X50 binoculars and saw it fairly easily, but it was difficult to separate the galaxy pair.

Francisco Silva: Observer from Nevada

I observed M51 from Mt Potosi, south of Las Vegas, on June 10, 2018, using my 4.5-inch reflector @ 66.7X. Transparency was 4 out of 5 and seeing was 1 out of 5. There was no moon.

I used the handle stars of Ursa Major, Alkaid and Megrez as points of reference to locate the galaxy. It was not difficult to find.

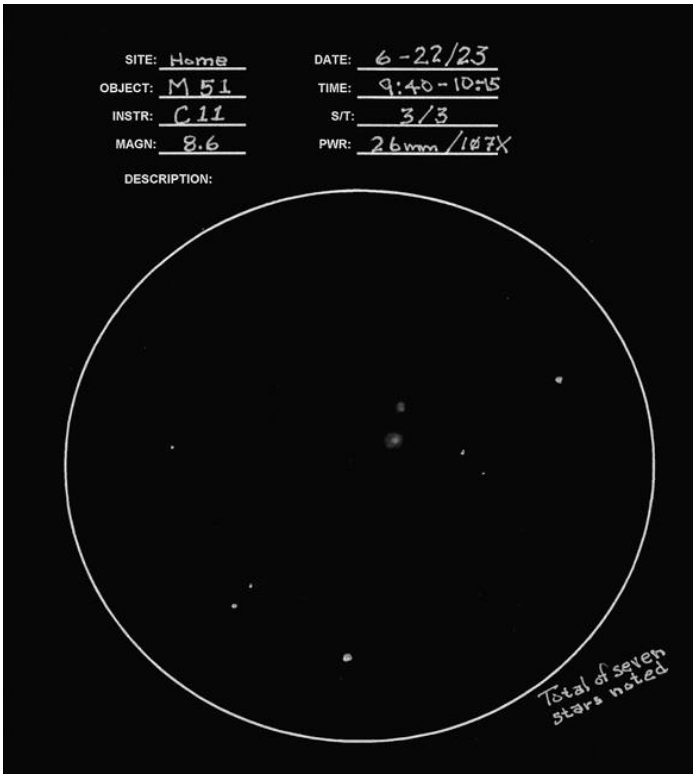
I could not distinguish any particular detail except a kind of a cloud. I could see the point that would correspond to the satellite galaxy, NGC-5195.


M51
M51B
HIP66004

Ed Fraini: Observer from Texas

M51 can be an extremely challenging object when the local conditions are not the best. Because of prolonged cloudy weather and time conflicts, I realized I was not going to be able to make it to a dark site before the moon filled the sky. Therefore, I attempted to observe M51 from my suburban driveway. On June 21, 2018, the moonlight scattered on the haze so badly I was unable to locate the object using an 11-inch SCT. The following two nights, the humidity and high haze diminished considerably. On the 22nd, I could barely detect the presence of the two galaxies, then on the 23rd, conditions where much better and I made my sketch. The moon was more than 50% illuminated, and my phone app gave me a DSQ of 18.6. I could only see four stars in the bowl of the Ursa Major. In fact, Megrez (mag. 3.3) was itself very dim.

As shown in the drawing, only the brightest of the galaxy cores could be seen. The view of the cores was steady. The limiting magnification was found to be 107X. After a half hour, I was only able to locate seven stars in the field of view so I moved on to other brighter targets for the remainder of the night.


SITE: Home
DATE: 6-22/23
OBJECT: M51
TIME: 9:40-10:15
INSTR: C11
S/T: 3/3
MAGN: 8.6
PWR: 26mm/107X
DESCRIPTION:
Total of seven stars noted

Richard Nugent: Observer from Massachusetts

During the fall of 1969, I acquired an 8-inch f/7.8 reflecting telescope. The mirror had been completed in April 1941 by one Ralph Baker of Springfield, Vermont. The scope used a prism as a secondary and came with a war surplus Erfle eyepiece which yielded a magnification of about 40X. Shortly, thereafter, I purchased a pair of eyepieces from University Optics: 12.5mm and 4mm orthoscopic oculars. I was like a kid in a candy shop…I was out every clear night observing! My high school grades clearly show when astronomy took over my evenings! Who had time for homework? The skies above Worcester, Massachusetts at that time were very dark. Most of the street lights near my house were still incandescent bulbs with a flat, corrugated metal covering to keep the rain off. I routinely had mag. 5.5 skies, with an occasional 5.8 night! The Milky Way blazed, and the Coma Berenices star cluster was obvious. I observed everything I could, including this month's challenge object, M51.

I found the galaxy (and its companion, NGC-5195) on March 25, 1970. The sky was bright because the 90% illuminated waning gibbous moon had risen. Back then, I didn't take detailed notes–just brief summaries of my observations. Here's what I wrote about M51 that night:

"Fainter than I supposed (am not sure if this is M51 because of its faintness). Saw double galaxy, though."

I observed the galaxy pair again on April 9th (The 4-day old moon was low in the west) noting:

"Saw M51 very clearly. Double galaxy was very evident."

There's no other mention of me observing the galaxy again that year. Why no more observations? Most likely it's because the galaxies hadn't impressed me. I was on to bigger and better eye-candy.

Of course, I've observed this pair on many occasions since 1970. They're bright because they're reasonably close (about 25 million light-years, or so), making them a popular tourist attraction. Still, from my light-polluted home in Framingham, MA (NELM is routinely 4.8), the pair can still be a challenge. Here are my notes for 2018:

Although its location is easy, I could not see the galaxy pair in my 80mm finder scope. The galaxy lies just SSW of a triangle of mag. 7 stars just to the SSW of 24 Canum Venaticorum, which is just west of Alkaid, the last star in the handle of the big dipper. Through my 10-inch f/4.7 reflector, the pair was easy to see, but the contrast was somewhat poor. There was no sign of any haze surrounding the nucleus of M51, and both galaxies appeared to be of equal brightness. Increasing magnification to darken the background did little to improve the view.

I had an opportunity to observe the galaxy pair using the ATMoB's 25-inch f/3.5 reflector in Westford, MA. The sky conditions were quite good with a NELM of about 5.3, and steady seeing. Under these conditions, M51 was obvious in the scope's 80mm finder. Using an 8mm eyepiece (278X, 3.7mm exit pupil, 0.36° true FOV), the pair nearly filled the field of view which was sprinkled with faint stars! The spiral arms of M51 were visible (!), however I couldn't quite make out the bridge. This was the first time I've ever seen the spiral structure of this galaxy! As is usually the case, the scope was busy so we didn't spend a lot of time on this object. I'll observe it again with this fine instrument.

On the evening of July 4/5, I had set up my 20-inch scope to observe Saturn's occultation of the mag. 9.7 star TYC 6277-0323-1. This was a night that might've been better spent in front of the TV. At midnight, the temperature was 75°F, with 86% humidity. The NELM was no better than 4.3, and clouds were drifting in from the west. I gave the transparency a 4-5/10 and the seeing a 2-3/10. Mosquitoes and Gypsy Moths were more than a little annoying. While I was waiting for the occultation, I checked out the galaxy pair. It turns out, they looked pretty good. Using an 8mm eyepiece (315X, 1.6mm exit pupil, and a 0.3° true FOV), I could see considerable haze marking the extent of M51. I couldn't make out any spiral structure, nor could I detect the bridge between the pair. I could easily see the mag.13.6 star near the nucleus of M51. The surprise of the night was the star-like appearance of the center of M51's nucleus. I don't recall ever noticing that before. Nice!

As for the occultation, I used magnifications of 315-525X. I lost sight of the star about 10 minutes before it was covered by Saturn's rings. I couldn't see the star at any time during the event…not even as it passed through the Cassini Division. Saturn was only 25° above the horizon and there was a considerable amount of turbulence. It reminded me of the difficulties

I've had attempting to observe Sirius B. Oh, and Mars (18° altitude) was a large, orange, spectacular mess.

As I've mentioned before, nothing beats a dark sky! Galaxies are usually faint and most have low surface brightness. A dark sky will often make up for a lack of aperture. Don't be discouraged if your regular observing site isn't ideal. If your scope is portable, get it to the darkest skies you can find and check out this pair. You might be surprised at how much detail a medium-sized telescope can show under dark sky conditions. Enjoy!

John Lourdes Pierce: Observer from Nevada

I was able to observe M-51 a few months ago during an outing in the hills of Lake Mead. It was interesting, but showed little to no detail. However, I was still able to make a brief sketch.

Joseph Rothchild: Observer from Massachusetts

I observed M51 (NGC-5194) on June 15, 2018 under dark skies at Cape Cod. This galaxy is a longstanding favorite object of mine, and was, particularly during the 2011 supernova. I was able to see only the brightest spiral arm of NGC-5194, but not the bridge between the two galaxies. Best view was with a 10-inch reflector at 89X. The extent of the spiral arms of NGC-5194 were clearly increased with averted vision.

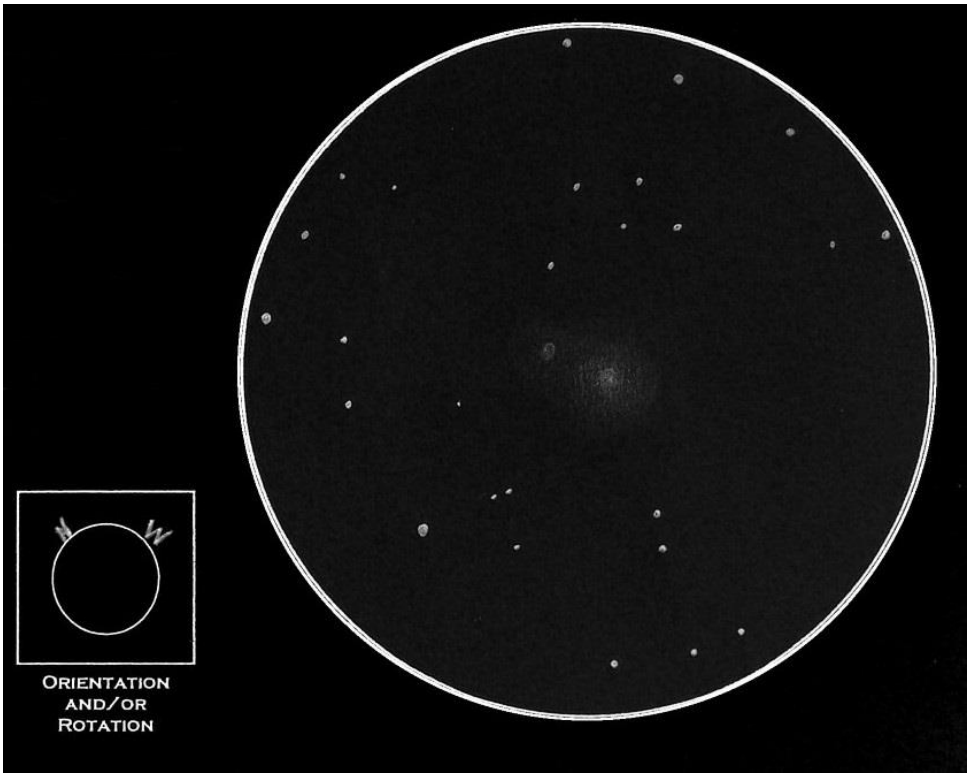
Mike McCabe: Observer from Massachusetts

The LVAS Observers Challenge object for June, 2018 was the classic summer galaxy Messier 51, aka the Whirlpool Galaxy. The question for me with M51 as far as the challenge was concerned wasn't about whether I'd be able to see it or not, but rather which instrument I'd use to produce my sketch. M51 is one of those objects that can be seen in nearly any scope, but as you go up in size the amount of detail you can see also goes up, sometimes dramatically.

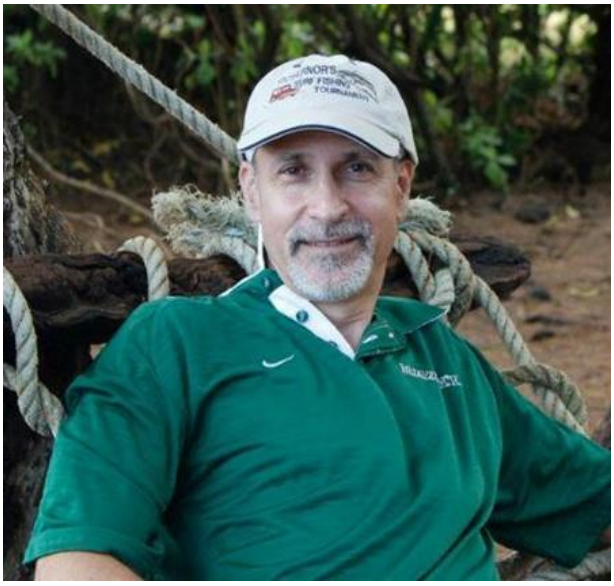
I don't know how many times I've looked at M51. I don't keep very comprehensive observing notes like some observers do. All I can say is that I've looked at it many times and in just about every sized optical instrument from 2-inches on up to 20-inches. My most memorable view of this dramatically interacting duo of galaxies came back in June of 2011 at our annual club camping and observing event. A fellow observer had been exploring the then recently discovered supernova (SN2011dh), located in the outermost spiral arm that leads to the apparent "bridge" connecting M51 with NGC-5195. During a lull in the observing, I stepped up to the eyepiece of his 15-inch Newtonian reflector and was treated to the best view I've ever seen of the Whirlpool. The transparency was spectacular, and the spiral arm structure in the visual image presented by that scope was incredibly well-defined. I'm still waiting for that observation to be matched or surpassed, and I've looked many, many times since then.

M51 isn't much to write home about in a small scope under average skies, but the two cores can usually be seen pretty easily. For my challenge sketch, I took the medium size scope route, using a 10-inch F/5 Newtonian reflector from my driveway. There was a 46% waxing crescent moon hanging in the SW sky, but it didn't seem to bother the view very much. I could see a good amount of nebulosity around both cores, but any spiral structure eluded me during this observation. That's okay though, because I'm sure I'll go back again, and again, and

again…it's just a cool, must-see object every year, and one of these times the conditions will fall into place, and I'll get my socks blown off–again!



Dr. James Dire: Observer from Hawaii



M51 is the famous Whirlpool Galaxy, discovered by Charles Messier on October 13, 1773. Messier spied it using a three-inch telescope. Messier's companion galaxy, NGC-5195, was discovered by Messier's colleague Pierre Méchain March 1781. M51 is easy to find. It's located 3.5° southwest of the star Alkaid (the end star in the Big Dipper's handle).

M51 is an edge-on spiral galaxy of mag. 8.1. It's 7.8X6.6 arc minutes in size. Its companion galaxy, NGC-5195 is a mag. 9.6 spiral galaxy, also nearly face-on. The two galaxies are 20-25 million light years away. NGC-5195 is smaller than M51 and is thought to have passed though the disk of M51 at least twice in the last half-billion years. M51 is thought to be of comparable size to the Milky Way and Andromeda galaxies.

I have viewed M51 in almost every sized telescope from 3-inches to 25-inches. Most telescopes reveal the cores of both interacting galaxies. In an 8-inch telescope, M51's spiral structure is very observable. I had the opportunity a few years back to view it in a 25-inch Dobsonian at 7,000 feet in mag. 7 skies in Colorado. The spiral arm detail I observed at the eyepiece rivaled what can be seen in many photographs taken with small refractors.

Most recently, I imaged it with an 8-inch f/8 Ritchey–Chrétien astrograph. I used a 0.8X focal reducer/field flattener to yield f/6.4 with a 1,300mm focal length. The exposure was 2.5 hours using a SBIG ST-2000XCM CCD camera. The image brings out structure detail in M51's spiral arms, the spiral nature of NGC-5195, and the distortion in each galaxy caused by their gravitational interactions. The two galaxies might eventually merge. It's unknown whether M51 can retain its spiral disk upon merging with such a large satellite galaxy.

Jay and Liz Thompson: LVAS members and observers from Nevada

From a dark-sky location such as Ash Meadows National Wildlife Refuge near Pahrump, NV, or from Meadview, AZ, M51 is spectacular in the LVAS 24-inch. At 116X, spiral structure was obvious and the companion was evident. At 277X, the galaxy and its companion took up most of the field of view. There were brighter areas in the arms and the arms were very evident. We could faintly see the bridge between the galaxy and its companion.

It looked surprisingly good on June 1, 2018 with a 16-inch SCT from our backyard in Henderson, NV. At 203X, M51 and its companion showed up, especially the cores. There was a faint halo around it and some glow around the companion. There were hints of spiral structure, in that we could see the dark areas in the haze extending out from the core. Similarly, at 406X, there were bright and dark areas visible, though not quite as distinct as at 203X.

Mario Motta: Observer from Massachusetts

M51 in color with my 32-inch f/6 telescope. Camera SBG 1001E, 10 min subs, 90 minutes luminance, 30 min each red/blue/green.

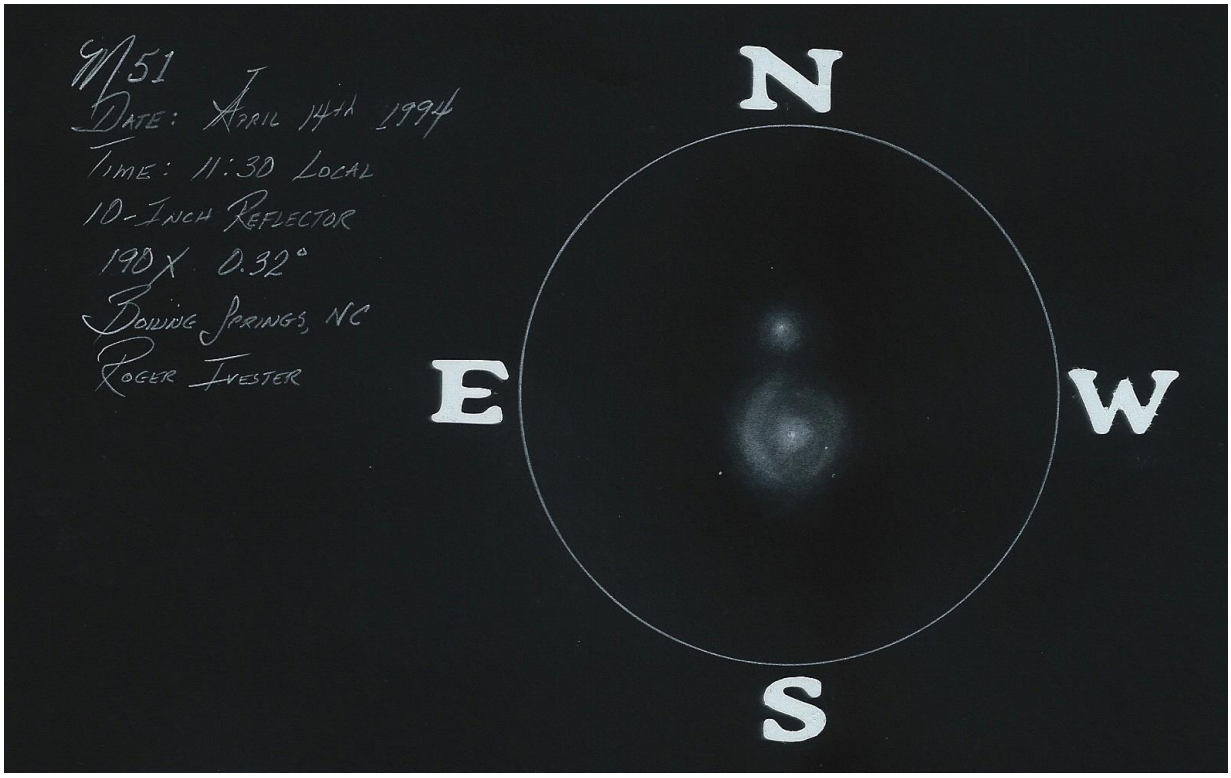
Roger Ivester: LVAS Observer from North Carolina

Messier 51 is visible along with companion NGC-5195 in a 60mm (2.4-inch) refractor. M51 was mostly round with a bright stellar nucleus and a very faint halo. The small companion galaxy, NGC-5195, just to the north was very faint and small. If sky conditions are poor, this galaxy pair can be extremely difficult to see using a telescope this small.

In a 10-inch reflector on an exceptional night at 190X, spiral structure was easily visible. I could trace the prominent eastern arm almost in contact with companion galaxy, NGC-5195. The nuclei of both NGC-5194 and NGC-5195 were both stellar, with the smaller galaxy, 5195, having a brighter, more intense nuclei. M51 had a mag. 13.5 star a couple of minutes to the SW of the core, still within the halo, and a mag. 14 star, (requiring averted vision to see) just off to the east, but outside of the halo.

One of my most memorable views of NGC-5194 and NGC-5195 came during an early spring night in 1993, using a 14.5-inch reflector. The connecting arm of M51 (NGC-5194) was incredible and it reached far out toward the companion galaxy to the north. This view rivaled that of many photographs.

On the night of April 14, 1994, supernova 1994I was visible. I estimated the mag. of the SN on that night at 13.8.


M51
Date: April 14th 1994
Time: 11:30 Local
10-Inch Reflector
190X 0.32°
Boiling Springs, NC
Roger Ivester
N
E
W
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Fred Rayworth: LVAS AL Coordinator and Observer from Nevada

I had two opportunities to look at this great galaxy pair for the spring supplemental back in 2010. Once in May and the other in June. Below is a summary of the two observations, both made with my home-built 16-inch f/6.4 Dobsonian reflector. A current observation will come later.

I saw it both times from Redstone Picnic Area on the north shore road of Lake Mead, Nevada. On May 15, 2010, what started as a bad night (clouds moving in before sunset) opened up after dark and became the best observing night of 2010, at the time. The sky was pristine, at least wherever I looked. There was no wind and I remained in a T-shirt the whole night.

At first glance, I was wowed by the stunning detail in the galaxy pair. At 70X, it was small, a pair of bright cores with the larger one having just the hint of spiral arms. At 101X, more details came out as the spiral arms started to show mottling and more structure. At 229X, it was the best. As the spiral arms spread out from the bright and large non-stellar core, I spotted individual lumps of nebulosity and what may have been some globular clusters embedded within. A faint bridge connected to NGC-5195. As for NGC-5195, the core seemed almost as bright as that of M-51, but the surrounding glow was much smaller and just a tad oval. It had no other shape and I thought it to be distinctly of the elliptical variety. It was quite a contrast to the extended spiral arms of M-51. Overall, I got the impression that M-51 was spinning so fast, it threw a large chunk off to the side and it was still connected. This is not likely the case, but it set my imagination wild.

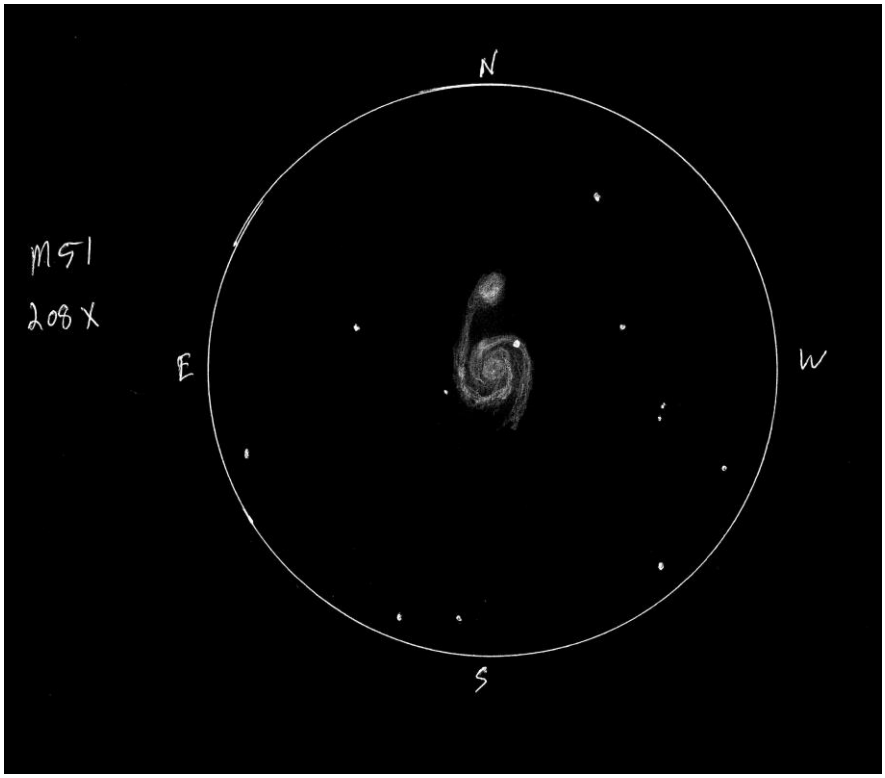
Upon a return visit on June 5, 2010, the skies weren't quite as nice, there was an erratic breeze blowing, and I was tired the moment I got there. Still, I had a great time and had a chance to try a new 4.7mm eyepiece (390X) on it.

At 70X, 101X, and 229X, I observed the same details as the last time, though they were not quite as distinct. When I tried 390X, the image filled the field. Both cores looked equally bright, though M-51 was a bit larger. The spiral arms washed out so that only the brightest clumps were visible, vaguely giving it a spiral appearance. The bridge between M-51 and NGC-5195 was gone. Though the new eyepiece gave a nice 82° field of view, the magnification was just too high for the conditions and didn't add much. Overall, they looked like a pair of bright cores with "something" around one of them.

My most current observation came from Cathedral Gorge State Park in east-central Nevada at 4,800 feet using my commercial 16-inch f/4.5 Dob on May 10, 2018. It was partly cloudy and cool, with intermittent breezes. The skies cleared up after dark, but that didn't last long, and soon, the transparency went bad with a thin, almost invisible haze moving over from the west. Eventually, we noticed a visible dimming of stars and couldn't find even bright galaxies. We had to shut down at 22:50.

M51 was wow! It was a nice, round spiral with a dense, bright core and mottled arms, distinctly spiral, curling clockwise with one curving off and attaching to the ball of NGC-5195, which is like a separate core. I spotted several vague HII regions and possible globulars throughout the arms and a couple of superimposed stars. Started with 102X and when I increased to 208X, I got the best view of major detail. However, 102X gave the best perspective overall. Then we lost the sky. Oh well…

The drawing reflects the best detailed view at 208X, my poor artistic skills taken for granted.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