

Skylights

Newsletter of the Astronomical Society of Northern New England



FEB2022



Member of NASA's
Night Sky Network



Astronomical League

ASNNE MISSION

ASNNE is an incorporated, non-profit, scientific and educational organization with three primary goals:

- 1) *To have fun sharing our knowledge and interest with others.*
- 2) *To provide basic education in astronomy and related sciences to all who are interested.*
- 3) *To promote the science of Astronomy.*

What's Up In February

By Bernie Reim

The month of February is named after the Latin term februum, which means purification. The Roman purification rituals named Februa were held every February 15 on the old Roman calendar.

We have already reached the middle of winter as of February 2nd, which is commonly known as Groundhog Day. This is our version of the original Celtic cross-quarter days which divide each of our four seasons in half. Candlemas is their name for Groundhog Day. Then the halfway point between spring and summer is called Beltane, which is the same as our May Day. Then we have Lammas Day on August 1, halfway between summer and fall. That word means "loaf mass" which marked the beginning of the wheat harvest. Then our Halloween is Samhain or "summer's end" in the Celtic tradition. The seasons are important turning points to understand the earth and its motions better, but it is also important to understand the midpoint of those seasons.

This month of February will not be quite as dramatic as January was this year, but every month is always unique and different and it is always well worth getting outside under the night sky for a while as often as you can. At least the days are getting noticeably longer now and the days will be nearly 11 and a half hours long by the end of this month, with just 3 weeks to go until the vernal equinox gets here once again. The sun will feel a little stronger and higher each clear day this month.

The other highlights include Venus reaching its greatest brilliancy for the year on the 12th at minus 4.9 magnitude, which is a full magnitude or two and a half times brighter than it is when it reaches its least brilliancy at minus 3.9 magnitude. We started last month with four planets visible in the evening sky. Now three of those planets have migrated to the morning sky, creating a nice morning line-up for us with 4 bright planets, since Mars was already there. Look low in the eastern sky half an hour before sunrise to spot this nice celestial slowly-moving dance. Venus will be the highest, and then Mars, then Mercury, and Saturn will be the lowest one in our sky. Watch this on the 27th when the waning crescent moon will join this quartet of planets, producing a great show in Sagittarius just below the Summer Triangle. Jupiter remains as the only evening planet, low in the western sky, but we will lose it completely by the middle of the month.

There will be no more meteor showers until the Lyrids on April 20th, so we will have to make it through this drought until then. However, you can still catch up to 3 or 4 stray meteors every hour from a dark sky site. The largest asteroid, Ceres, will track right through Taurus between the Hyades and Pleiades open star clusters all this month. Ceres is now a dwarf planet along with Pluto, but it used to be a full-fledged planet for about 50 years until 1850. Ceres is 600 miles across, or about the size of Texas. It will reach 8.5 magnitude, or about 10 times fainter than anything you could see with the naked eye. The first quarter moon will pass very close to Ceres on the night of the 8th into the morning of the 9th.

The James Webb Space Telescope had a perfect launch on the morning of Christmas Day, the ultimate Christmas gift that will keep giving for 10 more years or so. As of 23 days after its launch, it is already 92% of its way to its destination at the L2 point way out beyond the moon about a million miles from Earth. It is now traveling at only about the speed of sound, only one mile in 5 seconds. All of its mirrors have been fully deployed along with its tennis-court sized sunshield to keep it cold enough to observe in the infrared instead of the visible wavelengths like the Hubble Space Telescope does. It is 132 degrees F on the hot side and 338 degrees below zero F on the cold side, nearly a 500 degree difference! It is amazing to me how hot it can get that far out in the cold of space. Thanks to excellent engineering, cooperation, and testing it successfully overcame all of its 355 possible points of failure, any one of which could have rendered this entire 10 billion dollar science experiment useless. Now all that remains is perfectly focusing its 18 hexagonal mirror segments, each one 4.3 feet in diameter for a total size of just over 21 feet in diameter, which is nearly 3 times larger than the Hubble's 8 foot mirror. Then they will also deploy and test many of its other instruments. This whole process will take another 4 months at least, so we won't be ready for real results and great new photographs until late spring.

The Webb will be 100 times as powerful as the Hubble, which is still working after over 31 years in orbit. The Webb will also be able to see much farther back to the beginning of our universe to see exactly how black holes, galaxies, and stars first formed along with studying exoplanets in much more detail and even looking at our own planets. This is truly one of the most complex

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What's Up "Continued from page 1"

marvels of engineering that humans have ever built, taking about 30 years of careful and detailed work, longer even than the time to build the great Egyptian pyramids at Giza, the ultimate remote control robot of discovery far out in space that all of us have some ownership interest in.

There will not be any good comets this month, but Comet Borrelly will track from Pisces into Aries all this month. It will only reach 10th magnitude, or about 50 times fainter than anything you could see with the naked eye, so you would need a good telescope to spot it. There is a very interesting phenomena that starts to become visible this month and next about an hour after sunset low in the western sky. The other time to best see these phenomena, called the zodiacal light, is an hour before sunrise in the southeastern sky in October and November. The reason for those times is that the angle that the ecliptic makes with our horizon is at its steepest at those times of the year for us in the northern hemisphere, allowing this light to become better visible, even though it is always there.

I have only seen this subtle light 3 or 4 times. It is much easier to see far away from any artificial light. This haystack or pyramid of light consists of many trillions of tiny meteoritic particles that form a torus or doughnut-shaped ring along the ecliptic plane of our solar system. You can see them because they reflect the sunlight back to us. You are not seeing only a single comet when you see this enigmatic light, but you are actually seeing the dusty remains of thousands or even millions of long-dead comets.

The size of these tiny particles ranges from 10 to 300 microns, which is a millionth of a meter. By comparison, the width of a human hair is 70 microns, so some of those tiny particles would be visible without a microscope. The particles are continually spiraling into the sun, but new ones are always being created from the dust of comets, asteroids, and meteoroids as they pass through our solar system. Every single day the earth gathers up 140 tons of this dust as we continually orbit the sun at 18.6 miles per second, or only 10,000 times slower than the speed of light. Look for this ethereal cone of light on clear nights with no moon present and get as far away from any towns as you can. The cone-shaped glow will stretch upward through Taurus the Bull.

Venus will be the star performer this month and the rest of the planets will serve as her backup cast. It will rise 2 hours before the sun and remain visible for a while even after the sun will appear. Since Venus turned into a morning planet last month, it will now dazzle us with its brilliance for most of the month. If you have access to a telescope you can also watch its rapid transformation each morning as it changes shape from spanning 49 arc seconds of the sky and being a thin crescent of only 16% to spanning only 32 arc seconds and becoming 38% illuminated by the sun. That is only 60 times smaller than the moon, which always spans very close to 30 arc minutes or half a degree of our sky, which is the same size as the sun.

Watch how Venus is getting smaller in the sky even as it is getting more illuminated. There is a trade-off here and Venus always reaches its greatest brilliancy at 26% lit. That will happen on the 12th. This time Venus will appear brighter than usual on that day since its slightly elliptical orbit will bring it closer to us than on other orbits when it reaches 26% illuminated.

Venus is a very strange planet indeed; it is the only planet in our solar system whose day is longer than its year since it rotates so slowly. Its year is 225 days and its day is 243 days. Venus only rotates at 4 miles per hour, or a fast walking speed. It also rotates in retrograde, so the sun rises in the west once in 243 days. Its surface temperature is about 900 degrees F, hot enough to melt

lead. Its surface pressure is nearly 100 what we have on Earth at our surface. You would have to dive 3,000 feet under our ocean to experience the same pressure that is present on the surface of Venus. NASA has two missions planned to study Venus up close, to be launched in 2028 and 2030.

Mars was already a morning planet before Venus joined it. Mars will be about 7 degrees to the right and below Venus in the constellation of Sagittarius, but it will be just over 250 times fainter than Venus. Then Mercury and Saturn will show up below and to the left of Mars, rounding out this morning cast of the great play of our solar system.

Feb.1. New moon is at 12:46 a.m. EST.

Feb.2. The moon passes 4 degrees south of Jupiter tonight.

Feb.4. Clyde Tombaugh was born on this day in 1906. He would discover Pluto on the 18th of this month in the year 1930.

Feb.5. Apollo 14 landed on the moon on this day in 1971, becoming our third manned landing and the last one before we brought along lunar rovers for the last 3 missions. The astronauts were Alan Shepard and Edgar Mitchell. They collected 93 pounds of moon rocks on that trip.

Feb.7. We performed the first untethered space walk on this day in 1984. The Stardust Comet Probe to Comet Wild2 was launched on this day in 1999. It was the first mission to return some samples of dust from this comet and some other cosmic dust to Earth.

Feb.8. First quarter moon is at 8:50 a.m. Jules Verne was born on this day in 1828.

Feb.10. The moon is at apogee or farthest from Earth at 251,591 miles this morning.

Feb.12. Venus reaches its greatest brilliancy today at magnitude minus 4.9. Venus passes 7 degrees north of Mars this morning.

Feb.14. On this day in 1990 Voyager 1 took the first ever family portrait of 6 planets in our solar system including the famous "Pale Blue Dot" image of Earth, inspired by Carl Sagan. The Swiss astronomer, Fritz Zwicky, was born on this day in 1898. He first proposed the existence of dark matter in 1933 and coined the term supernova the next year.

Feb.15. On this day in 2013 the Chelyabinsk meteor exploded a few miles over this Russian city. It was about 50 feet in diameter and left thousands of meteorites on the ground. Galileo was born on this day in 1564.

Feb.16. Full moon is at 11:56 a.m. This is also known as the Snow or Hunger Moon.

Feb.19. Copernicus was born on this day in 1473. He suggested that the sun is really the center of the solar system and Galileo later proved that.

Feb.20. On this day in John Glenn became the first American to orbit Earth.

Feb.23. Last quarter moon is at 5:32 p.m. On this in 1987 the light from a supernova in the Large Magellanic cloud, one of two satellite galaxies to our own Milky Way, was first seen on Earth. That supernova actually exploded 160,000 earlier, since that is the distance to the LMC.

Feb.27. The moon passes 9 degrees south of Venus and 4 degrees south of Mars this morning.

Feb.28. The moon passes 4 degrees south of Mercury and Saturn this morning.



Moon Phases

Feb 1
New

Feb 8
First Quarter

Feb 16
Full

Feb 23
Last Quarter

Moon Data

Feb 2
Jupiter 4° north
of Moon

Feb 3
Neptune 4° north
of Moon

Feb 7
Uranus 1.2° north
of Moon

Feb 10
Moon at apogee

Feb 26
Moon at perigee

Feb 27
Venus 9° north
of Moon

Mars 4° north
of Moon

Feb 28
Saturn 4° north
of Moon

Mercury 4° north
of Moon

OBSERVER'S CHALLENGE* – February, 2022

by Glenn Chapple

M42– Emission Nebula in Orion (Magnitude 3.6, Size 70'x60')

M43 – Emission Nebula in Orion (Magnitude 9.0, Size 20'x15')

This month's Observer's Challenge is (drum roll) M42/M43, the Orion Nebula! You might ask why a deep-sky object that's easy to find (it's in the Sword of Orion) and see (it's bright enough to be viewed with binoculars) would be considered a challenge.

Let's begin with M42, the brighter of the two. It was discovered in 1610 by the French astronomer Nicolas-Claude Fabri de Peiresc and cataloged by Charles Messier on March 4, 1769. Binoculars and small-aperture telescopes will reveal the bright northeast part of M42, which resembles the outspread wings of a celestial eagle. One challenge is to visually capture the nebula's faint southerly region. Because M42 spans 85' by 60', you'll want to work with a low-power, wide-field eyepiece. A second visual challenge is to detect M42's greenish hue. I've seen it with a 13.1-inch f/4.5 scope, but not with a 4.5-inch. What is the smallest aperture that will reveal this subtle hue? Find out, and forward your result to Challenge coordinator Roger Ivester.

Being fainter and thus overshadowed by M42, M43 eluded detection until reported by Jean-Jacques Dortous de Mairan in 1731. Messier entered it in his catalog on the same date as M42. It is separated from M42 by a dark, dusty lane and surrounds the irregular variable star NU Orionis (magnitude range 6.5 to 7.6). The nebula's published magnitude of 9.0 might be on the low side, as I've seen M43 with a 60mm refractor. Admittedly, it was small and faint, and only visible when I ramped up the magnification to 140X to remove M42 from the field of view. What I saw was a roundish haze surrounding NU Orionis. In larger instruments, M43 will take on a comma shape.

Looking for another challenge? At the heart of M42 is theta-1 (θ^1) Orionis, a stunningly beautiful multiple star birthed from the surrounding nebulousity. The four brightest members, all hot and massive O- and B-type stars, form a lop-sided diamond known as the Trapezium. Labeled A to D in order of increasing right ascension, they shine at magnitudes 6.7, 7.9, 5.1, and 6.7, respectively. A and B are eclipsing binaries- the former, bearing the variable star designation V1016 Orionis, fading to magnitude 7.5 every 65.4 days, the latter (BM Orionis) dipping to 8.5 every 6.5 days. Galileo discovered the three brightest members (A, C, and D) in 1617. The fourth (B), was discovered by the French astronomer Jean Picard in 1673. It can be difficult in a small-aperture scope, especially at the low magnification needed to view the entire Orion Nebula. If seeing conditions allow for a magnification of 200X or more, a 6-inch telescope will reveal two more stars – E (magnitude 10.3) and F (magnitude 10.2). Four other members- G, the tight double H1 and H2, and I- are extremely faint at magnitudes 14.5 to 15.5 and require large scopes and optimum seeing conditions. These are a true challenge!

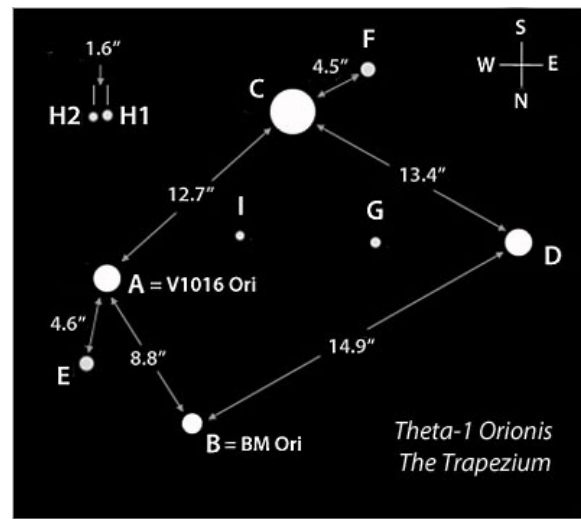
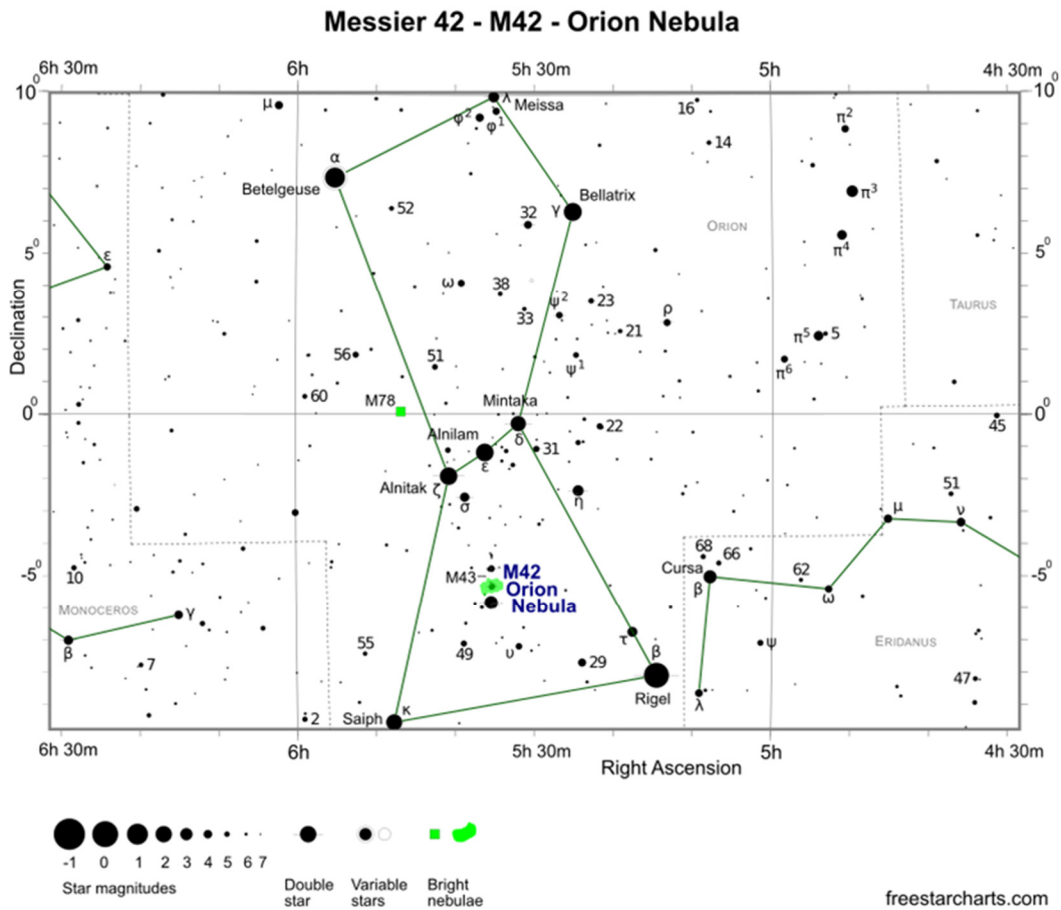
Oh yeah- here's a final challenge. See if you can view the Orion Nebula, its gaseous wreaths embracing a diamond-like clutch of newborn stars, and not feel a sense of awe and wonder.

The Orion Nebula lies some 1350 light-years away. Cosmically young, it is just 2 or 3 million years old. The stars in the Trapezium are even younger, perhaps no older than 300,000 years. M42 and M43 have linear diameters 23 and 7.5 light-years, respectively, while the brightest stars in the Trapezium span a distance of about 1.5 light-years.

**The purpose of the Observer's Challenge is to encourage the pursuit of visual observing. It is open to anyone who is interested. If you'd like to contribute notes, drawings, or photographs, we'd be happy to include them in our monthly summary. Submit your observing notes, sketches, and/or images to Roger Ivester (rogerivester@me.com). To find out more about the Observer's Challenge, log on to rogerivester.com/category/observers-challenge-reports-complete.*

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Messier 42 and 43 Finder Chart (freestarcharts.com and SEDS Messier Database)



Sky & Telescope magazine

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Messier 42 and 43 Image (Insert: Trapezium)

(Mario Motta, MD [ATMoB] 32-inch scope, Using NB imaging. One hour total of the center of M42



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M42 & M43



EDITOR: I took this photo of M42 & M43 back in January 2017. Just above the pair is NGC 1977, a blue reflection nebula also known as the *Running Man Nebula*. I did not shoot through a telescope, just my camera.

SPECS: RAW mode, 1000mm, ISO 1600, 4 x 4 minutes, with one 30 second Mask, 1-1-17.

Principal Meteor Showers in 2022

January 4
Quadrantids

April 22
Lyrids

May 6
Eta Aquarids

July 30
Delta Aquarids

August 12
Perseids

October 9
Draconid

October 21
Orionids

November 9
Taurids

November 18
Leonids

November 26
Andromedids

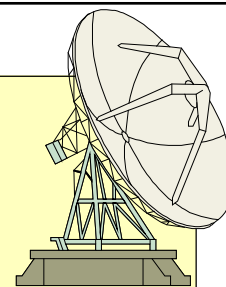
December 14
Geminids

December 22
Ursids

*Note: Dates are
for maximum*

Got any News?

Skylights Welcomes Your Input.



Here are some suggestions:

***Book reviews -- Items for sale -- New equipment --
Ramblings -- Star parties -- Observing -- Photos.***

Benefits of Membership

- Attend our monthly meetings and club star parties
 - Our Monthly Newsletter: *Skylights*
 - Discounts on *Sky & Telescope*. and *Astronomy* magazine subscriptions
 - Automatic subscription to the Astronomical League's quarterly newsletter, *The Reflector*
 - With proper training, access to the equipment at ASNNE's Talmage Observatory at Starfield.
 - By special arrangement, free admission to the Southworth Planetarium at USM in Portland
- Enjoy sharing your interest and have fun learning about Astronomy!

Our Club has Merchandise for Sale at: www.cafepress.com/asnne



***All money raised goes to our operating fund.
Any design can be put on any item.***

Contact David Bianchi dadsnorlax@yahoo.com for further details.



This article is distributed by NASA Night Sky Network

The Night Sky Network program supports astronomy clubs across the USA dedicated to astronomy outreach. Visit nightsky.jpl.nasa.org to find local clubs, events, and more!

Hang Out with the Twins of Gemini

By David Prosper

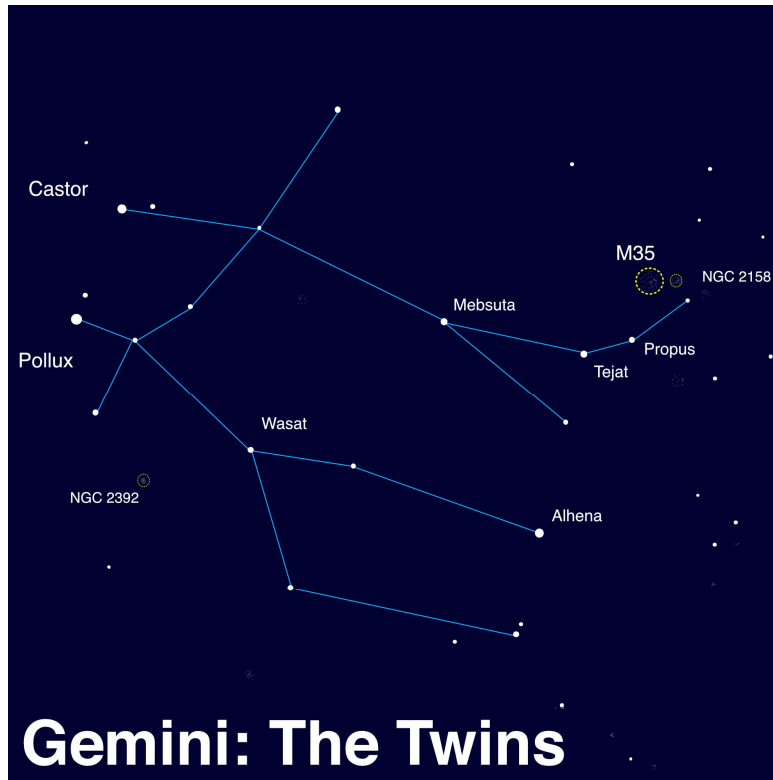
The night skies of February are filled with beautiful star patterns, and so this month we take a closer look at another famous constellation, now rising high in the east after sunset: Gemini, the Twins!

If you're observing Orion, as discussed in last month's article, then Gemini is easy to find: just look above Orion's "head" to find Gemini's "feet." Or, make a line from brilliant blue-white Rigel in the foot of Orion, through its distinct "Belt," and then on through orange Betelgeuse. Keep going and you will end up in between the bright stars Castor and Pollux, the "heads" of the Gemini Twins. While not actually related – these stars aren't bound to each other, and are almost a magnitude apart in brightness – they do pair up nicely when compared to their surrounding stars. Take note: more than one stargazer has confused Gemini with its next-door neighbor constellation, Auriga. The stars of Auriga rise before Gemini's, and its brightest star, Capella, doesn't pair up as strikingly with its second most brilliant star as Castor and Pollux do. Star-hop to Gemini from Orion using the trick above if you aren't sure which constellation you're looking at.

Pollux is the brighter of Gemini's two "head" stars - imagine it has the head of the "left twin" - and located about 34 light-years away from our Solar System. Pollux even possesses a planet, Pollux b, over twice the mass of Jupiter. Castor - the head of the "right twin" - by contrast, lies about 51 light-years distant and is slightly dimmer. While no planets have been detected, there is still plenty of company as Castor is actually a six-star system! There are several great deep-sky objects to observe as well. You may be able to spot one with your unaided eyes, if you have dark skies and sharp eyes: M35, a large open cluster near the "right foot" of Gemini, about 3,870 light-years away. It's almost the size of a full Moon in our skies! Optical aid like binoculars or a telescope reveals the cluster's brilliant member stars. Once you spot M35, look around to see if you can spot another open cluster, NGC 2158, much smaller and more distant than M35 at 9,000 light-years away. Another notable object is NGC 2392, a planetary nebula created from the remains of a dying star, located about 6,500 light-years distant. You'll want to use a telescope to find this intriguing faint fuzzy, located near the "left hip" star Wasat.

Gemini's stars are referenced quite often in cultures around the world, and even in the history of space exploration. NASA's famed Gemini program took its name from these stars, as do the appropriately named twin Gemini North and South Observatories in Hawaii and Chile. You can discover more about Gemini's namesakes along with the latest observations of its stars and related celestial objects at nasa.gov.

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Castor and Pollux are Gemini's most prominent stars, and often referred to as the "heads" of the eponymous twins from Greek myth. In Chinese astronomy, these stars make up two separate patterns: the Vermillion Bird of the South and the White Tiger of the North. What do you see? The Night Sky Network's "Legends in the Sky" activity includes downloadable "Create Your Own Constellation" handouts so you can draw your own star stories: bit.ly/legendsinthesky

Image created with assistance from Stellarium.



Montage of Gemini North, located on Mauna Kea in Hawaii, and Gemini South, located on Cerro Pachón in Chile. These "twin" telescopes work together as the Gemini Observatory to observe the entire sky.

Image Credit: NOIRLab Source: <https://www.gemini.edu/gallery/media/gemini-northsouth-montage>

Point and Shoot Camera Astroimaging (no telescope)

Canon Powershot SX50 HS

Image & write-up submitted by Paul Kursewicz

Fireworks Galaxy & Cluster **Specs: RAW mode, FL 1200mm, f/4, ISO 2000, 14 x 1-1/2 min, 11-3-21**



Supernova SN 2017eaw was detected on May 14, 2017 in the **Fireworks Galaxy** (NGC 6946), 22 million light-years away. It received its name from the frequent supernova-explosions. During the 20th and early 21st century, ten supernovae, the death explosions of massive stars, were discovered in NGC 6946. The galaxy is located at the edge of the Cepheus and Cygnus constellations and has an apparent magnitude of +9.6. Its diameter is approximately 40,000 light-years, about one-third of the Milky Way's size, and it contains roughly half the number of stars as the Milky Way. In the right center part of my photo is **NGC 6939**, an open cluster located approximately 4000 light years away. It's estimated to be over a billion years old.

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From the pages of “Burnham’s Celestial Handbook” copyright 1978

Fireworks Galaxy & NGC 6939



DEEP-SKY OBJECTS IN CEPHEUS. Top: The diffuse nebula NGC 7023. Below: The open star cluster NGC 6939 and the spiral galaxy NGC 6946.

Lowell Observatory photographs

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The photo on the right shows the Fireworks Galaxy and Open Cluster NGC 6939. I rotated the page 90 degrees counter clockwise to match my photo. This picture was taken from Lowell Observatory. There is no mention as to what telescope was used to capture the image. I’m assuming that the 13-inch was used (the scope that discovered the planet Pluto). I have visited Lowell Observatory and had a close look at that scope. Burnham’s handbook says that the greatest telescopes will resolve the galaxy arms into long chains of bright condensations—star clouds and masses of nebulosity. Today, we know that these areas are places where stars are being born. As mentioned earlier, there have been an unusual amount of supernovae in the Fireworks Galaxy. The first of these was discovered in July 1917, this led directly to the studies which ultimately proved that the “spiral nebulae” are other galaxies.

[Astronomical Society of Northern New England \(ASNNE\) Meeting Notes of
7 January 2022](#)

Note: Due to the snowfall on Friday, 7 January, 2022, this Meeting was held entirely on Zoom, including the presentation, which had always been intended to be by Zoom.

Directors Present: Ian Durham, President *Pro Tem* and Treasurer
 Bernie Reim, Vice President
 Carl Gurtman, Secretary
 Gary Asperschlager, Director

Others Present: There were 17 people present on Zoom.

President *Pro Tem* Ian Durham called the Business Meeting to order at 7:05 pm.

There was no formal Secretary's Report or Treasurer's Report.

Dues for 2022 are due. Dues should be submitted to Ian. Ian reported that ASNNE has 22 paid-up Members for 2022.

The Board elected at the Annual Membership Meeting on December, 2021: Gary Asperschlager, Larry Burkett, Ian Durham, Carl Gurtman, Bernie Reim, and Bern Valliere, then elected the Officers for 2022. Ian was to have contacted Larry, to see if he still wanted to be a Board Member. Larry has not yet returned Ian's call. (If Larry is no longer interested, Ian will appoint Ron Burk as a Board Member.)

The Officers elected were the same as last year's: Ian as President *Pro Tem* and Treasurer, Bernie as Vice-President, and Carl as Secretary.

Although not an official position, David Bianchi will continue to handle ASNNE e-mail.

Carl reported that *The Weekly Sentinel* had carried his Press Release about the January Meeting. It was also reported that other people had seen the Press Release, but it was not known in which publication. In the future, Carl will include a reference to our website, where any last-minute changes relative to any Meeting will be posted. Additionally, Carl will evaluate adding the Zoom contact information as well.

David reported that he has been contacted by people wanting an observing session at the Talmage Observatory at Starfield arranged. David has had to inform them that the Observatory is closed until Spring. Additionally, the Appalachian Mountain Club wants volunteers for its Naturalist Program. Ian is aware of this Program, and plans to volunteer.

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Regular Meeting:

President *Pro Tem* Ian Durham called the Regular Meeting to order at 7:35. There was a short break until our Presenter for the evening could join us.

Presentation:

The Presentation, on Zoom, was by Kerry-Ann Lecky Hepburn. Kerry-Ann's background is interesting in itself. Her interest in the night sky started early. By the age of 15, she was taking pictures of the stars and solar system objects. As a space science undergraduate student at York University in Toronto, she volunteered at the observatory, where she aided in tours, observing sessions, and research. In the next 20 plus years, she made big strides, improving her skills in deep-sky astrophotography, Kerry-Ann's work has won awards, and has been featured in science textbooks, astronomy-related calendars, magazines, and on-line publications such as Sky & Telescope, Sky News, and NASA's Astronomy Picture of the Day (APOD). Kerry-Ann shares her knowledge by conducting workshops and addressing astronomy clubs, camera clubs, and the general public, at speaking engagements.

She lives in the Niagara region of Ontario, Canada with her family. She works for The Weather Network; a Canadian National TV station, as a senior meteorologist, and in her spare time flies small airplanes and travels around the world to capture unique nightscapes.

Kerry-Ann started her Presentation by telling us a little about herself. Very impressively, her astrophotography skill are essentially self-taught, and honed by trial-and-error. As Kerry-Ann went through her slides, she provided a commentary as to the details of each photograph; exposure, telescope, location, camera, and what photo-shopping she had used. Starting with her earlier astrophotographs, you could see the progression as her skills improved. Kerry-Ann interacted with her audience throughout her Presentation.

There was great interest in Kelly-Ann's work, as many of our Members are astrophotographers. Now, she works from her own observatory, with telescope, camera, computer, and access to advanced photo-shopping tools. Her photographs are of surpassing and inspiring beauty, and were much appreciated by our Members.

These days, Kelly-Ann has branched out into taking nightscapes; where the photograph not only shows the astronomical objects, but includes the landscape at night. These photographs have a high human-interest quotient.

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Kelly-Ann's astrophotography is well-known, and acclaimed. She is in demand, and has travelled around the globe, conducting workshops, and imparting her knowledge.

The Presentation lasted approximately two hours, and was very well-received. You may see her work at her website; www.weatherandsky.com

"What's Up?":

Bernie then gave his usual thorough, comprehensive, and complete discussion of what's in store for us in the skies of January, named after Janus, the Roman god of beginnings (and endings).

This year starts out in spectacular fashion with four of our five brightest planets all nicely lined up in the western evening sky right after sunset, which is a

fairly rare occurrence by itself.

Then there is the annual Quadrantid meteor shower, which already peaked on the third.

Not observable, the long-awaited James Webb Space Telescope is finally deploying. As of today (Saturday), the Telescope is deployed, and is on its way to its L2 observing position.

Bernie then covered "What Happened on this Day. . ."

Bernie's excellent presentation, in its entirety, can be found, this month, and every month, in *Skylights*, ASNNE's newsletter; editor, Paul Kursewicz. *Skylights* may be found at: <http://www.asnne.org/newsletter.php>

AstroShorts:

Several Members presented Astroshorts.

The next ASNNE Meeting, will be at 7:30 pm, Friday, 4 February, 2022, at the New School in Kennebunk, Maine. The Regular Meeting will be preceded by a Business Meeting at 7:00 pm. All Members may attend the Business Meeting as they choose.

Respectfully submitted,

Carl Gurtman

Club Meeting & Star Party Dates

Date	Subject	Location
<u>Feb 4</u>	<p><u>ASNNE Club Meeting:</u></p> <p>Business Meeting starts prior to Club meeting.</p> <p>7:30-9:30PM: Club Meeting</p> <p>Guest Speaker/ Discussion Topic - Open</p> <p>Bernie Reim - What's UP</p> <p>Astro Shorts: (news, stories, jokes, reports, questions, photos, observations etc.)</p>	The New School, Kennebunk, Me.
Last Month	A snow storm prevented us from having our club meeting at The New School. So instead, we had a Zoom meeting. Our keynote speaker was Kerry-Ann Lecky Hepburn. Kerry lives in Ontario, Canada and is a senior meteorologist for The Weather Network. She gave an excellent presentation on astrophotography. After Kerry's presentation Bernie did his What's-Up, and some members did Astroshorts.	
	Club/Public Star Party: TBD	Talmage Observatory at Starfield West Kennebunk, Me.

Directions to ASNNE event locations

Directions to The New School in Kennebunk [38 York Street (Rt1) Kennebunk, ME]

For directions to The New School you can use this link to the ASNNE NSN page and then click on "get directions" from the meeting location. Enter your starting location to generate a road map with complete directions. It works great. http://nightsky.jpl.nasa.gov/club-view.cfm?Club_ID=137

Directions to Talmage Observatory at Starfield [Alewife Road, Kennebunk, ME]

From North:

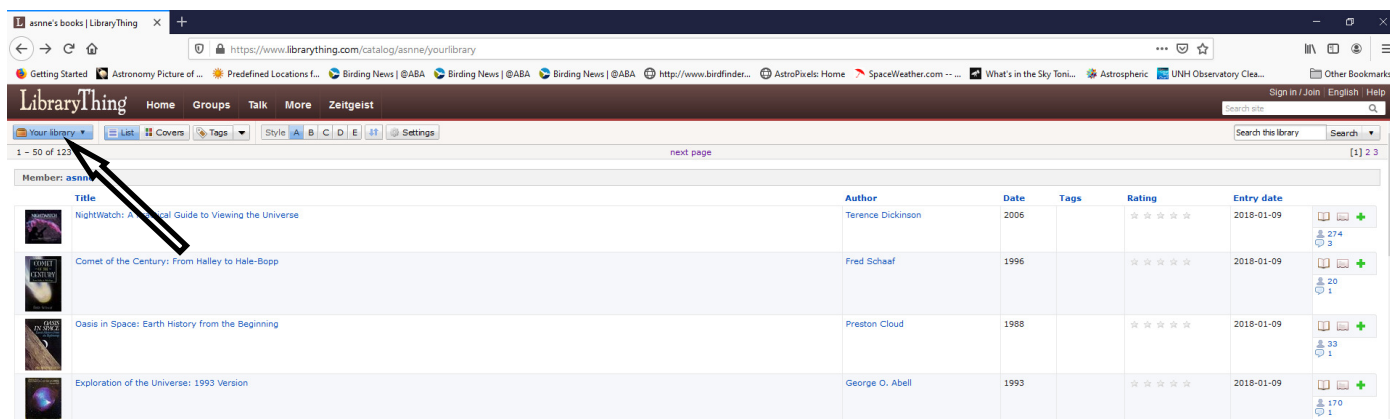
Get off turnpike at exit 32, (Biddeford) turn right on Rt 111. Go 5 miles and turn left on Rt 35. Go 2 miles on Rt 35 over Kennebunk River to very sharp 90 degree left turn. The entrance to the Starfield Observatory site is at the telephone pole at the beginning of the large field on the left. Look for the ASNNE sign on the pole.

From South:

Get off the turnpike at exit 25 in Kennebunk. After toll both turn right on Rt 35. Go up over the turnpike and immediately turn right on Rt 35. About 4 miles along you will crest a hill and see a large field on your right. Continue until you reach the end of the field. Turn right into the Starfield Observatory site at the last telephone pole along the field. Look for the ASNNE sign on the pole. If you come to a very sharp 90 degree right turn you have just passed the field.

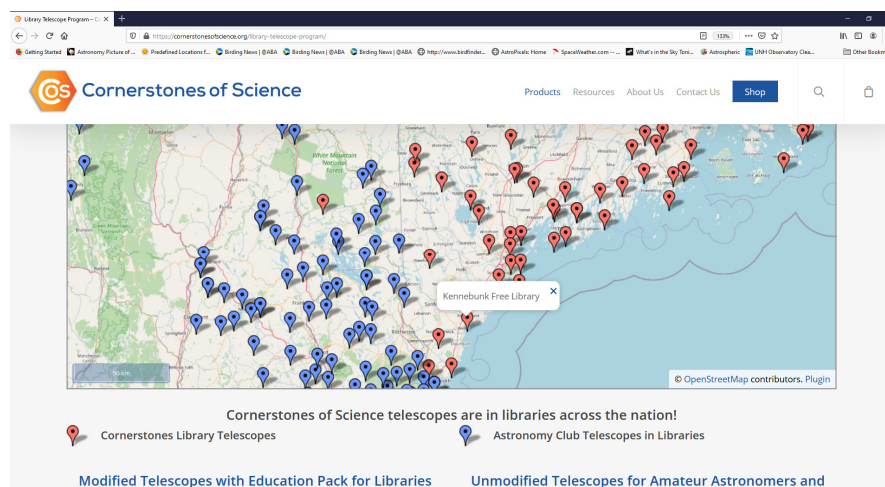
Astronomy Club & Library Resources

Our club has a library of astronomy books which are stored at The New School in Kennebunk, Maine (our monthly club meeting location). To request a book(s), contact one of the club officers. A listing of books is provided here: <https://www.librarything.com/profile/asmne> . After clicking on the link, a window will open. Click on “Your library” near the upper left corner (as shown by the arrow below). Then scroll down to the end of the page to go to the next page.



Would you like to borrow a telescope? While many astronomy clubs may have a scope to lend out, there are also many libraries which have telescopes for their guests to use. Here are a couple of links.

The following link will bring up an active map (see screen shot below) of the USA showing the libraries which have telescopes to lend out: <https://cornerstonesofscience.org/library-telescope-program/>



The below link will show a list of known participating library locations for the state of Maine.
<https://www.librarytelescope.org/locations/usa/maine>

To join **ASNNE**, please fill out the below membership form. *Checks should be made payable to: Astronomical Society of Northern New England (A.S.N.N.E).* For more details, please visit our website: <http://www.asnne.org>



Astronomical Society of Northern New England
 P.O. Box 1338
 Kennebunk, ME 04043-1338

2022 Membership Registration Form

(Print, fill out and mail to address above)

Name(s for family): _____

Address: _____

City/State: _____ Zip code: _____

Telephone # _____

E-mail: _____

Membership (check one):

Individual \$35 _____ Family \$ 40 _____ Student under 21 years of age \$10 _____ Donation _____

Total Enclosed _____

Tell us about yourself:

1. Experience level: Beginner _____ Some Experience _____ Advanced _____

2. Do you own any equipment? (Y/N) And if so, what types?

3. Do you have any special interests in Astronomy?

4. What do you hope to gain by joining ASNNE?

5. How could ASNNE best help you pursue your interest in Astronomy?

6. ASNNE's principal mission is public education. We hold many star parties for schools and the general public for which we need volunteers for a variety of tasks, from operating telescopes to registering guests to parking cars. Would you be interested in helping?

Yes _____ No _____

7. ASNNE maintains a members-only section of its web site for names, addresses and interests of members as a way for members to contact each other. Your information will not be used for any other purpose. Can we add your information to that portion of our web site?

Yes _____ No _____

