

Skylights

Newsletter of the Astronomical Society of Northern New England



Feb 2019



Member of NASA's



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 februa, which are the ancient Roman rites of purification. For us in the northern hemisphere this month also marks the half way point of the winter season, which is Ground Hog Day on the second of February. The Christian Candle mass also occurs on this day.

Even though this is usually the coldest month of the year, the days are getting several minutes longer each day on their steady march towards spring and there are several good highlights well worth observing this month. These include a trio of our brightest planets visible in the morning sky, a very close conjunction of Venus and Saturn, several nice conjunctions of the moon with bright planets, and yet another comet.

This would be a good month to get more acquainted with the Winter Hexagon and its many denizens if you have not done much searching into this part of our sky. This roughly hexagonal-shaped group of stars in our southern evening sky contains most of the brightest winter stars along with many good stories and myths.

Start with Capella in Auriga, located at the top of this hexagon. Located about 43 light years away, Capella is actually a binary star. Then continue clockwise to Aldebaran in Taurus, an interesting orange giant star 150 times brighter than our sun, located about 65 light years away. Its name means "the follower", since it seems to be following the Pleiades around the sky. At about 7 billion years of age, it is 2.5 billion years older than our sun. If there were any inhabited planets orbiting around this star, they would have had that much more time to evolve than we did. Imagine where humans could be in just 50 to 100 years and then add a few more billion years to that development.

Keep traveling to Rigel, the blue supergiant star marking the left knee of Orion as the great hunter perpetually faces us in the sky. Located about 900 light years away, the light from this

star left there at about the time of the Battle of Hastings in 1066 when William the Conqueror defeated the English. Halley's Comet was sighted during that battle, as depicted on the Bayeux tapestry. If you simply take the distance to each of these stars and relate them to historical events on Earth, you will review a good slice of recent history along with obtaining a more 3-D view of this seemingly flat hexagon in nearby space.

Then you will encounter Sirius in Canis Major, the brightest star in the entire sky visible from Earth. Only 8.8 light years away, you can't go far back into history when you look at the source of this star. Known as the Dog Star, Sirius has a white dwarf companion star which completes one orbit around it every 50 years.

Then continue to the dimmest of these 8 stars, which is Procyon in Canis Minor, not much farther away than Sirius. Procyon also has a white dwarf star orbiting around it every 40 years.

We will complete our circle with Castor and Pollux in Gemini the Twins.

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What's Up "Continued from page 1"

Each one is about 50 light years away, but Castor is actually a system of 6 stars and Pollux is also a multiple star system. There is much more up there than meets the eye, even with good telescopes. A son of Zeus, Pollux is the immortal twin and Castor is the mortal twin.

Then we will land on Betelgeuse in the center of this hexagon, or winter circle as it is also called. This is the most intriguing of all of these stars because it may not even exist anymore since it may have already run out of fuel and exploded as a supernova. It is about 700 times larger than our sun and located about 500 light years away. That is very similar to another red supergiant star, Antares in Scorpius, close to where Jupiter is now located.

Brilliant Venus has now been overtaken by Jupiter in the morning sky. Venus rises around 4:30 am, but Jupiter now rises around 3 am. Venus will continue to sink lower until we finally lose it into the sun's glare about when summer starts. Through a telescope you would see that Venus is now more than half illuminated by the sun and getting larger, similar to a waxing gibbous moon. Jupiter continues to rise a little earlier and get a little brighter each morning on its way to opposition in early June.

Saturn now rises just after Venus does, but they will rise at the same time on Monday the 18th, producing a close conjunction just one degree apart, which is only twice the width of the full moon. Notice that Venus will be nearly 100 times brighter than Saturn, even though it is actually about 10 times smaller than Saturn. Venus is about the same distance from us now as the sun, and Saturn is nearly 1 billion miles away, or 10 times farther. The net result is that each planet is about the same size in our sky.

Notice that Jupiter, Venus, and Saturn will be about evenly spaced in our morning sky 45 minutes before sunrise by the end of the first week of this month. Then continue watching this celestial dance of great motion as Venus sinks and Saturn and Jupiter keep climbing higher. A waning crescent moon will pass very close to Jupiter in Scorpius on the morning of the 26th.

Mars is the only evening planet, avoiding all the action and drama now taking place in the morning sky. The red planet continues to set at about 11 pm all month long, as it will continue to do right through this spring. We are well ahead of Mars now in our orbits. Mars is moving eastward at nearly the same rate that we are moving around the sun, which is one constellation per month. The net result is that it stays in nearly the same place, but that is very deceptive since we are always orbiting the sun at 18.6 miles per second and Mars is only a little slower at 15 miles per second.

To maintain our lucky string of fairly bright comets, we will have another one this month. Called Comet c/2018 Y 1, Mr. Iwamoto just discovered this one in December. It could reach about 8th magnitude by its closest approach on the 11th. So you would need binoculars to see it, but it would be a good challenge with a great reward of spotting a primordial first-time visitor to our solar system on a steep parabolic plunge around our sun. It will be in Leo just above its bright star Regulus on the 11th. That also happens to be close to where the sun was on August 21 of 2017 during that amazing solar eclipse and also where the moon was recently during the total lunar eclipse at the super-moon last month.

Unfortunately it was cloudy for most of this area for that great event, but I did watch several live feeds with great pictures showing the lunar transformation as it reflected sunlight back to us that was filtered through the earth's thin and precious atmosphere. It attained an ever-changing and stunningly beautiful light coppery orange-red color while it was completely immersed in our shadow for about one hour. It looked three dimensional and very close to earth during this rare time. The next one will not happen until May 26 of 2021.

Feb. 1. A star, 3 planets, and the moon form a graceful arc in our morning sky.

Feb. 4. New moon is at 4:05 p.m. EST. Clyde Tombaugh was born on this day in 1906. He would discover Pluto just 24 years later.

Feb. 8. Jules Verne was born on this day in 1828.

Feb. 10. The moon is just below Mars in Pisces tonight.

Feb. 12. First quarter moon is at 5:27 p.m.

Feb. 14. On this day in 1990 Voyager 1 took a portrait of all the planets in the inner solar system from deep space.

Feb. 15. Galileo was born on this day in 1564.

Feb. 18. Venus and Saturn will be just one degree apart this morning.

Feb. 19. Full moon is at 10:55 a.m. This is also called the Hunger or Snow Moon. Nicolaus Copernicus was born on this day in 1473.

Feb. 21. Mercury appears low in our evening sky tonight.

Feb. 23. Pioneer 11 left the solar system on this day in 1990.

Feb. 26. Last quarter moon is at 6:29 a.m.

Moon Phases

- Feb 4**
New
- Feb 12**
First Quarter
- Feb 19**
Full
- Feb 26**
Last Quarter

Moon Data

- Feb 2**
Saturn 0.6° south of Moon
- Pluto 0.6° south of Moon
- Feb 5**
Moon at apogee
- Feb 7**
Neptune 3° north of Moon
- Feb 10**
Mars 6° north of Moon
- Uranus 5° north of Moon
- Feb 19**
Moon at perigee
- Feb 27**
Jupiter 2° north of Moon



LVAS Observer's Challenge* – February 2019

By Glenn Chaple for the LVAS

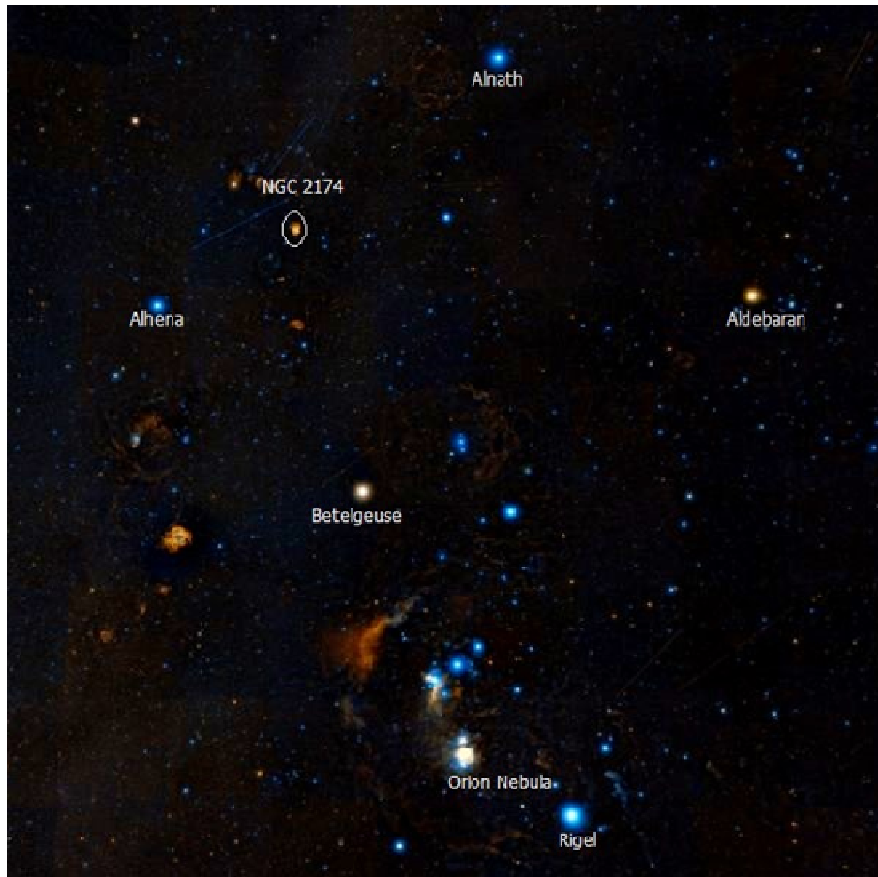
NGC 2175 –Reflection Nebula in Orion Magnitude: 6.8 Size: 40' X 30'

This month's Observer's Challenge, the Monkey Head Nebula, has an identity crisis where its NGC designation is concerned. Is it NGC 2174 as some star atlases and observer's guides note, or is it NGC 2175 as stated in others? The dual identities arose from the fact that the nebula surrounds an open star cluster. Which, cluster or nebula, is the real NGC 2175? I'll side with Stephen James O'Meara's assessment of the situation. He researched the NGC 2174/2175 dilemma and, in his guidebook *Hidden Treasures*, asserts that the latter is the correct designation.

NGC 2175 is nestled in the extreme northeast part of Orion, not far from its border with Gemini. Its location is shown on the accompanying Wikisky map, where it's identified as NGC 2174! O'Meara notes that NGC 2175 is better seen with binoculars than with large aperture scopes. If the latter is used, a nebula filter will help. Dark skies are a must.

While some sources ascribe the discovery of NGC 2175 to the Italian astronomer Giovanni Batista Hodierna in the middle of the 17th century, it was most likely discovered by the German astronomer Carl Christian Bruhns during a comet search around 1857. It lies at an approximate distance of 6400 light-years.

"Continued on page 4"



NASA (Wikisky)



Sky and Telescope

*The purpose of the LVAS Observer's Challenge is to encourage the pursuit of visual observing. It is open to everyone who is interested. If you'd like to contribute notes, drawings, or photographs, the LVAS will be happy to include them in our monthly summary. Submit your observing notes, sketches, and/or images to either Roger Ivester (rogerivester@me.com) or Fred Rayworth (queex@embarqmail.com). To find out more about the LVAS Observer's Challenge or access past reports, log on to lvastronomy.com/index.php/observer-s-challenge.

Principal Meteor Showers in 2019

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.***



The latest issue of the Space Place Newsletter: News and Notes for Formal and Informal Educators can be found at: <http://spaceplace.nasa.gov/en/educators> .

Space Place is a NASA website for elementary school-aged kids, their teachers, and their parents.

RED ALERT – Downward Pointing Lasers

NASA is planning to use (or is already using) downward pointing lasers which are mounted on their spacecrafts. For those of us who look at the night sky through a telescope, or a pair of binoculars, this is a potential hazard. If a laser beam enters our instrument at the very time we are viewing, eye injury or blindness could occur. Contact physicist, Dr. Jennifer Inman, jennifer.a.inman@nasa.gov and tell her your concerns about this perilous issue. Why should we have to live in fear each time we look into a telescope or a pair of binoculars? This is unacceptable!

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





***ALL money raised goes to our operating fund.
Any design can be put on any item.
Just let our club member, David Bianchi, know.***



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!

Hexagon at Night, Quartet in the Morning

By David Prosper

The stars that make up the **Winter Hexagon** asterism are some of the brightest in the night sky and February evenings are a great time to enjoy their sparkly splendor. The Winter Hexagon is so large in size that the six stars that make up its points are also the brightest members of six different constellations, making the Hexagon a great starting point for learning the winter sky. Find the Hexagon by looking southeast after sunset and finding the bright red star that forms the “left shoulder” of the constellation Orion: **Betelgeuse**. You can think of Betelgeuse as the center of a large irregular clock, with the Winter Hexagon stars as the clock’s hour numbers. Move diagonally across Orion to spot its “right foot,” the bright star **Rigel**. Now move clockwise from Rigel to the brightest star in the night sky: **Sirius** in Canis Major. Continue ticking along clockwise to **Procyon** in Canis Minor and then towards **Pollux**, the brighter of the Gemini twins. Keep moving around the circuit to find **Capella** in Auriga, and finish at orange **Aldebaran**, the “eye” of the V-shaped face of Taurus the Bull.

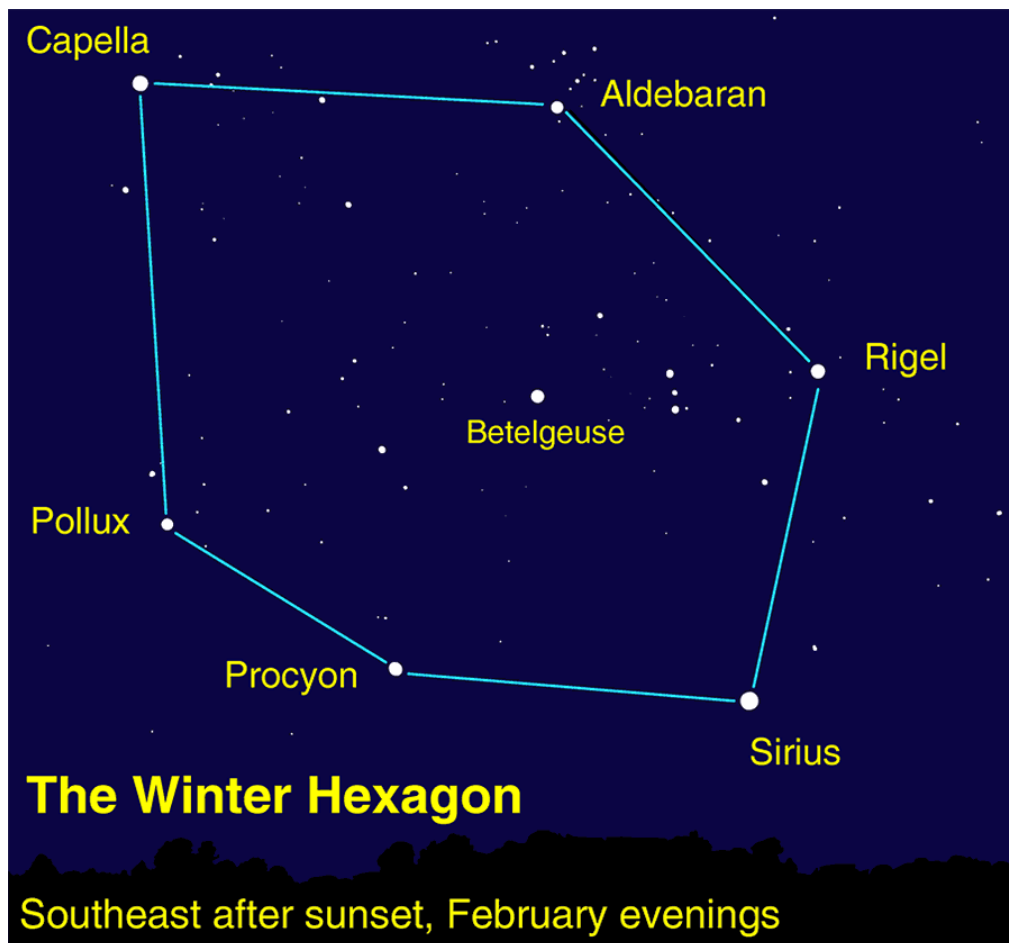
Two naked-eye planets are visible in the evening sky this month. As red **Mars** moves across Pisces, NASA’s InSight Mission is readying its suite of geological instruments designed to study the Martian interior. InSight and the rest of humanity’s robotic Martian emissaries will soon be joined by the Mars 2020 rover. The SUV-sized robot is slated to launch next year on a mission to study the possibility of past life on the red planet. A conjunction between Mars and **Uranus** on February 13 will be a treat for telescopic observers. Mars will pass a little over a degree away from Uranus and larger magnifications will allow comparisons between the small red disc of dusty Mars with the smaller and much more distant blue-green disc of ice giant Uranus.

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Speedy **Mercury** has a good showing this month and makes its highest appearance in the evening on February 27; spot it above the western horizon at sunset. An unobstructed western view and binoculars will greatly help in catching Mercury against the glow of evening twilight.

The morning planets put on quite a show in February. Look for the bright planets **Venus**, **Jupiter**, and **Saturn** above the eastern horizon all month, at times forming a neat lineup. A crescent **Moon** makes a stunning addition on the mornings of February 1-2, and again on the 28th. Watch over the course of the month as Venus travels from its position above Jupiter to below dimmer Saturn. Venus and Saturn will be in close conjunction on the 18th; see if you can fit both planets into the same telescopic field of view. A telescope reveals the brilliant thin crescent phase of Venus waxing into a wide gibbous phase as the planet passes around the other side of our Sun. The Night Sky Network has a simple activity that helps explain the nature of both Venus and Mercury's phases at bit.ly/venusphases

You can catch up on all of NASA's current and future missions at nasa.gov



Caption: The stars of the Winter Hexagon
Image created with help from Stellarium

Point and Shoot Camera Astroimaging

Canon Powershot SX50 HS

Image & write-up submitted by Paul Kursewicz

Total Lunar Eclipse (Composite)

Specs: Auto Focus, Hand-Held, FL 760mm, 1-20-19



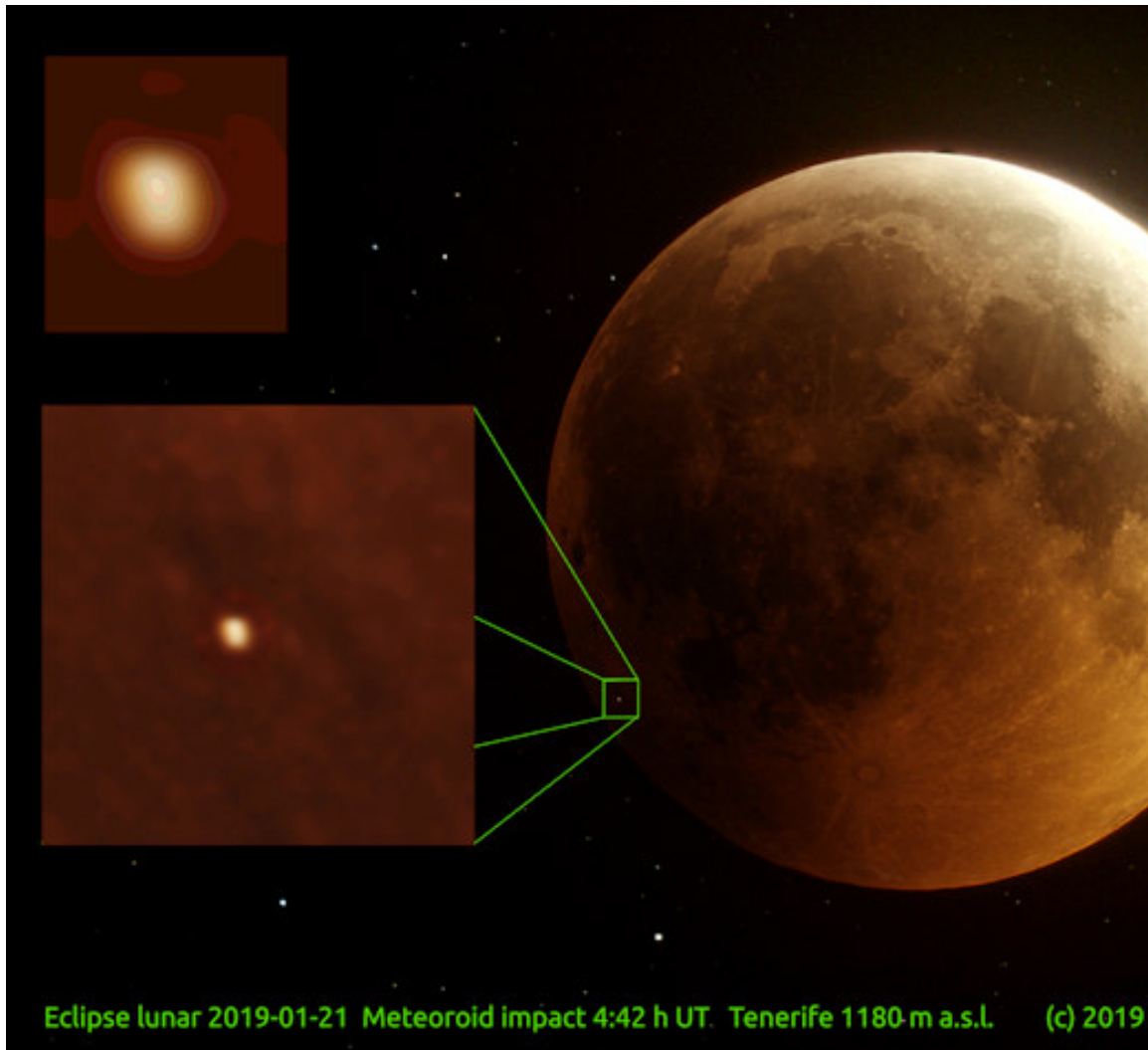
About 15 minutes
before totality

About 30 minutes
into totality

Cold, windy, and lots of clouds. That describes my local viewing conditions on the night of the eclipse. The sky did clear for about an hour, but then the clouds rolled back in. A meteoroid slammed into the Moon during the early part of totality. It created a bright flash near the Moon's limb any many people captured the event in their photos. I unfortunately missed out. The Moon was at perigee during the eclipse, closet approach to Earth. This made the Moon a "supermoon," almost 8% wider and 16% brighter than an average full Moon.

“Continued on page 9”

METEOROID IMPACT



spaceweather.com

According to the Meteoroid Environment Office, about 73,000 pounds of meteoric material pelts Earth every day, most burn up harmlessly in the atmosphere. A steady stream of space material likewise slams into the Moon, but with little to no atmosphere to resist, it strikes the surface and vaporizes in a flash of light and heat. Since meteoroids hit the Moon all the time, NASA and other groups typically record flashes once every 2 to 3 hours of observing time.

Club Meeting & Star Party Dates

Date	Subject	Location
FEB 1	ASNNE Club Meeting: Business Meeting 6:00 PM Regular Meeting 7:30-9:30 PM <u>Meeting Agenda</u> Guest speaker/topic - TBD Bernie Reim - What's UP Astro Shorts: (news, stories, jokes, reports, questions, photos, observations etc.)	The New School, Kennebunk, Me.
TBD	Club/Public Star Party <i>(Check List-serve / website for updates or cancellations)</i>	Starfield Observatory, 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 Starfield Observatory [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.

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>

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

2019 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 _____

✂