

Skylights

Newsletter of the Astronomical Society of Northern New England



MAR 2021



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 March

By *Bernie Reim*

The month of March is named after Martius, the father of Romulus and Remus who founded Rome, the world's first superpower, according to mythology. March used to be the first month of the year on the early

Roman calendar and is also named for the planet Mars, who is the god of war. That is fitting for this particular March, since Mars will be the only evening planet visible all month long.

March always marks the beginning of spring for us in the northern hemisphere. This year that will happen at 5:37 A.M. on Saturday morning the 20th. We did not have a particularly long or cold winter, but it is always nice to welcome spring back once more.

There are only two days each year, the vernal and autumnal equinoxes, when the sun will rise due east and set due west and the days will be 12 hours long for everyone on Earth except for the poles. So that will be a nice unifying factor to be aware of globally. What will be even more unifying, although it is created by humans and not nature itself, will be the annual Earth Hour one week later, on March 27 from 8:30 to 9:30 pm local time. Started in 2007 in Sydney, Australia, there are now 180 countries, thousands of cities, and millions of people that participate every year. This is the world's largest grassroots movement and is designed to bring more awareness to climate change and what we can do about it as we reflect and reconnect to each other and nature to protect our planet. The beauty of the night sky will become much more visible over many cities as all the non essential lights will be shut off for that one hour each year. Everyone can participate and shut off their own lights for that hour and go outside to observe if it is clear. You won't save that much on your energy bill, but you will be able to see the magnified effect of everyone working together towards a common goal.

There will be several interesting highlights in our night sky this month for everyone to enjoy. Mars is beyond its best, but it is well placed now as it drifts very close to the Pleiades star cluster in Taurus on the 4th, its closest pass in 15 years. The next time it will be this close

will be 2038, and we will most likely have landed humans on Mars by then.

NASA just successfully landed its Perseverance Rover in Jezero Crater on Mars with pinpoint accuracy on a dry lakebed right by a delta that used to flow into that lake 3.8 billion years ago. That will be a very rewarding mission that took great cooperation among hundreds of scientists and engineers lasting many years. It will look for evidence of microbial fossils in the stromatolites in that delta. It will drill into the planet nearly 2 meters and then some of those samples will be picked up and returned to Earth for the first time ever by another spacecraft. Then it will also fly a drone helicopter called Ingenuity through the thin Martian atmosphere, 12 minutes away at the speed of light. The UAE and China also have missions to Mars, one of which is already orbiting safely.

All the rest of the planetary action takes place in the morning sky, with Mercury, Jupiter, and Saturn forming some nice conjunctions. Only Venus will not be visible at all this month since it is too close to the sun. It will reappear in the evening sky next month. The brightest asteroid, Vesta, will reach opposition on the 4th and another comet Atlas will be visible through a telescope. Then you can also see the faint zodiacal light in the

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What's Up "Continued from page 1"

evening sky an hour after sunset when the moon will not interfere.

Mercury and Jupiter will be less than a quarter of a degree apart half an hour before sunrise on the 6th. That is almost as close as Saturn and Jupiter got on the last winter solstice. Notice that Jupiter will be 2 magnitudes or just over 6 times brighter than Mercury. Saturn will be just to the right and above the pair and is 10 times fainter than Jupiter. Then keep watching as Mercury gets a little lower and the waning crescent moon drifts near Saturn on the 9th and near Jupiter and Mercury the next morning.

The waxing crescent moon will pass close to the Pleiades on the 18th, and then continue close to the Hyades star cluster in Taurus, and will pass close to Mars the next evening on Friday the 19th, just before spring starts. Then keep watching each clear night as the moon visits the Beehive cluster in Cancer the Crab on the 23rd and 24th.

At 326 miles in diameter, about the size of Arizona, our second largest asteroid, Vesta, will reach opposition in Leo on the 4th. Vesta is our brightest asteroid, a little brighter than Ceres, which is our largest asteroid at 600 miles across, or about the size of Texas. Vesta will reach 5.8 magnitude that night, which makes it visible even without any optical aid from a perfect dark sky site, but you should probably use binoculars to find it. Vesta reflects 4 times as much sunlight as our moon does, but it is 7 times smaller than our moon.

Remember that we visited this asteroid for a year about 10 years ago. The Dawn spacecraft discovered many fascinating things about this large asteroid orbiting between Mars and Jupiter. Vesta is a differentiated protoplanet with an iron-rich core, silicate mantle, and basaltic crust, similar to Earth. Many of our meteorites on Earth come from Vesta. Then Dawn went on to study Ceres, which is an even more incredible place with a briny liquid ocean just below its icy surface. Dawn saw a bright spot in one of its craters which turned out to have organic chemistry and could well contain some kind of life right now. NASA plans to send another mission there soon to collect some samples.

The zodiacal light is best visible only twice each year, in March soon after sunset and in November well before sunrise. I have seen it 3 times and it is very subtle and the moon has to be absent to see them. This elusive glow is created by sunlight reflecting off trillions of tiny dust particles pervading the solar system and concentrating into a torus around the ecliptic plane. These particles are the remnants of eons of dusty comets as much of their mass is driven off by the strong solar wind as they continually orbit the sun. We would see a meteor shower when we pass right through the dusty trail of a particular comet, but now we can see the vast expanse of the combined effect of much more of this dust since the angle of the ecliptic plane with our western horizon is at its steepest now.

Look for a ghostly pyramid or cone of light stretching up through Aries and into Taurus. Mars would be right at the apex of this celestial pyramid.

Mar.2. The moon is at perigee, or closest to Earth at 227,063 miles today.

Mar.4. Vesta is at opposition in Leo and Mars will pass near the Pleiades in Taurus.

Mar.5. Last quarter moon is at 8:30 p.m. EST.

Mar.6. Mercury is at greatest western elongation from the sun this morning.

Mar.9. The moon passes near Saturn this morning.

Mar.10. The moon passes near Jupiter and Mercury this morning in Capricorn.

Mar.13. New moon is at 5:21 a.m. EST. On this day in 1781 William Herschel discovered the planet Uranus. He first named it George in honor of King George III. Then he soon renamed it to Uranus, who is the Greek father of the Titans and whose name also means "the heavens".

Mar.14. Albert Einstein was born on this day in 1879. This is also called pi day since the first 3 numbers of this famous ratio are 3.14. Einstein developed his special theory of relativity in 1905 and his general theory 10 years later. He completely redefined what gravity really is by discovering that gravity is just the curvature or topography of the 4th dimensional space-time continuum that everything in the universe is embedded in. This led to theorizing the existence of black holes, which were just recently proven to exist and we got our first picture of the shadow of one at the center of a galaxy known as M87 in the Virgo cluster 55 million light years away that is 7 billion times the mass of our sun.

Mar.16. Caroline Herschel was born on this day in 1750. She was the sister of William Herschel and a good astronomer in her own right and she discovered 8 comets. They were both accomplished musicians.

Mar.18. The moon is at apogee at 251,812 miles from Earth today.

Mar.19. The moon passes just 2 degrees south of Mars tonight.

Mar.20. The vernal equinox is at 5:37 a.m. EDT.

Mar.21. First quarter moon is at 10:40 a.m.

Mar.27. International Earth Hour is this Saturday from 8:30 to 9:30 local time.

Mar.28. Full moon is at 2:48 p.m. EDT. This is also known as the sap, worm, crow, or Lenten moon.

Mar.30. The moon is at perigee again today at 223,886 miles from Earth.

Moon Phases

Mar 5
Last Quarter

Mar 13
New

Mar 21
First Quarter

Mar 28
Full

Moon Data

Mar 2
Moon at perigee

Mar 9
Saturn 4° north of Moon

Mar 10
Jupiter 4° north of Moon

Mercury 4° north of Moon

Mar 16
Uranus 3° north of Moon

Mar 18
Moon at apogee

Mar 19
Mars 1.9° north of Moon

OBSERVER’S CHALLENGE* – March, 2021
by Glenn Chaple

NGC 2685 – Lenticular Galaxy in Ursa Major (Mag: 11.3, Size: 4.6' X 2.5')

This month’s Observer’s Challenge, NGC 2685, is a lenticular galaxy with a twist. It has a ring of stars, gas, and dust that runs perpendicular to the plane of the main galactic disk. Such rarities are known as polar ring galaxies. These cosmic oddities are likely a result as a collision or gravitational interaction between two galaxies, one of which is lenticular. The appearance of the whorls surrounding NGC 2685 give it the nick-name the “Helix Galaxy,”

Those with computer-controlled scopes will find NGC 2685 at coordinates RA 8h 55m 34.8s, Dec +58° 44' 03.9". If you locate deep sky objects via the star-hop method, begin your search at the 3rd magnitude star Muscida (omicron [o] Ursae Majoris), shown in upper right of Chart A. Aim your telescope midway between Muscida and 5th magnitude 17 Ursae Majoris (Chart B), and you should come across a pair of stars of magnitude 6 and 7 that are about a degree apart. Chart C shows the location of NGC 2685 between these two stars.

NGC 2685 was discovered by the German astronomer Wilhelm Tempel on August 18, 1882. Studies indicate a distance of around 40 million light years and a visual diameter of some 50,000 light years- about half that of the Milky Way.

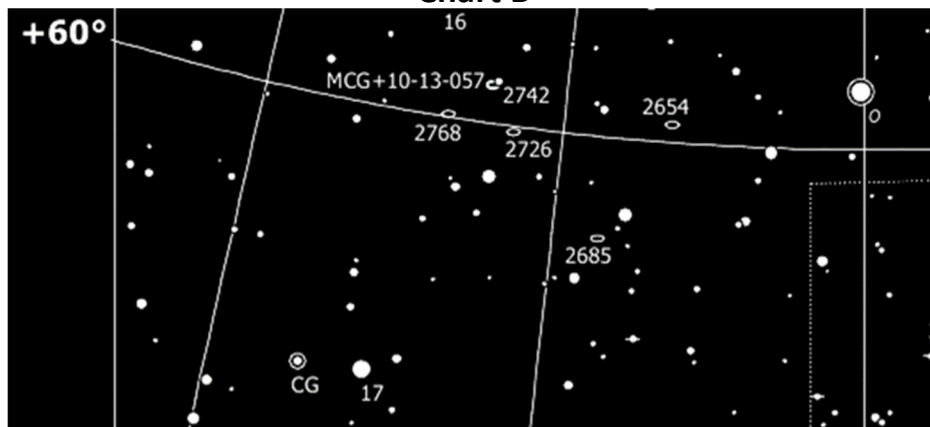
Finder Charts for NGC 2685

Chart A



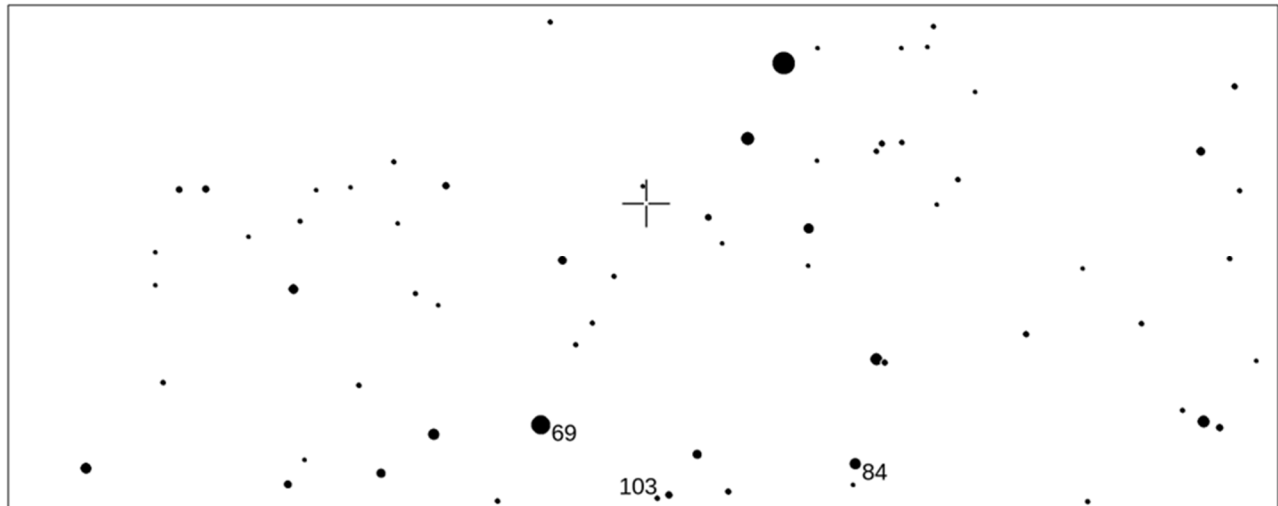
www.constellation-guide.com (from IAU and Sky and telescope)

Chart B



Taki’s magnitude 8.5 Star Atlas (takitoshimi.starfree.jp)

Chart C



Glenn Chaple (from AAVSO Variable Star Plotter) Field is 3° by 1° with north up. Stars shown to 11th magnitude



NGC 2685 Image by Mario Motta, MD (ATMoB) Taken with 32-inch f/6.5 telescope

**The purpose of the Observer's Challenge is to encourage the pursuit of visual observing and is open to everyone who is interested. Contributed notes, drawings, or photographs will be published in a monthly summary. Submit them to Roger Ivester (rogerivester@me.com). To access past reports, log on to rogerivester.com/category/observers-challenge-reports-complete.*

Principal Meteor Showers in 2021

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

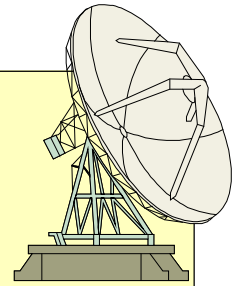
December 14
Geminids

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.***

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.

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!



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!

Taking the Dog Stars for a Springtime Walk: Sirius and Procyon

By David Prosper

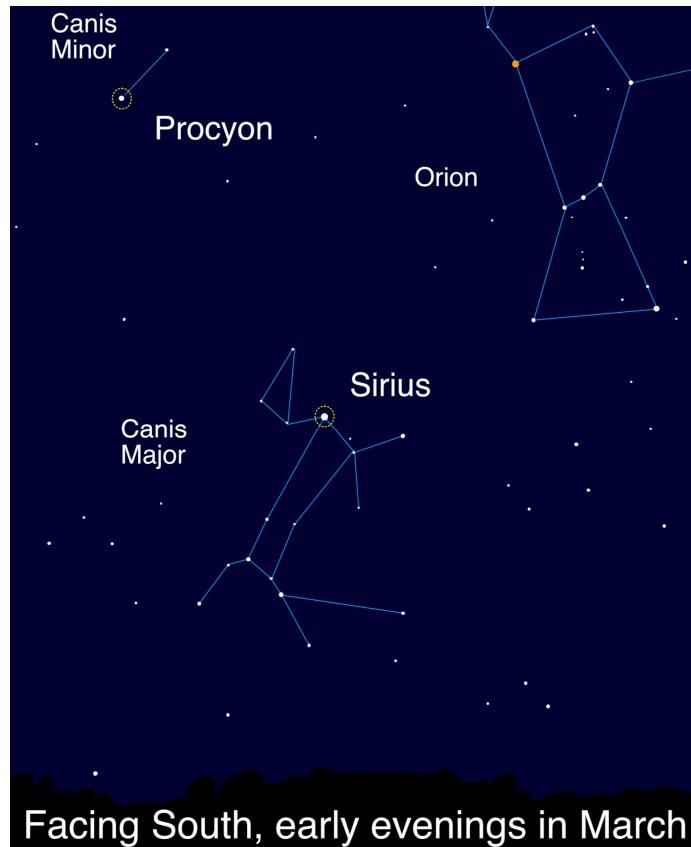
March skies feature many dazzling stars and constellations, glimmering high in the night, but two of the brightest stars are the focus of our attention this month: Sirius and Procyon, the dog stars!

Sirius is the brightest star in the nighttime sky, in large part because it is one of the closest stars to our solar system at 8.6 light years away. Compared to our Sun, Sirius possesses twice the mass and is much younger. Sirius is estimated to be several hundred *million* years old, just a fraction of the Sun's 4.6 *billion* years. Near Sirius - around the width of a hand with fingers splayed out, held away at arm's length - you'll find Procyon, the 8th brightest star in the night sky. Procyon is another one of our Sun's closest neighbors, though a little farther away than Sirius, 11.5 light years away. While less massive than Sirius, it is much older and unusually luminous for a star of its type, leading astronomers to suspect that it may "soon" – at some point millions of years from now – swell into a giant star as it nears the end of its stellar life.

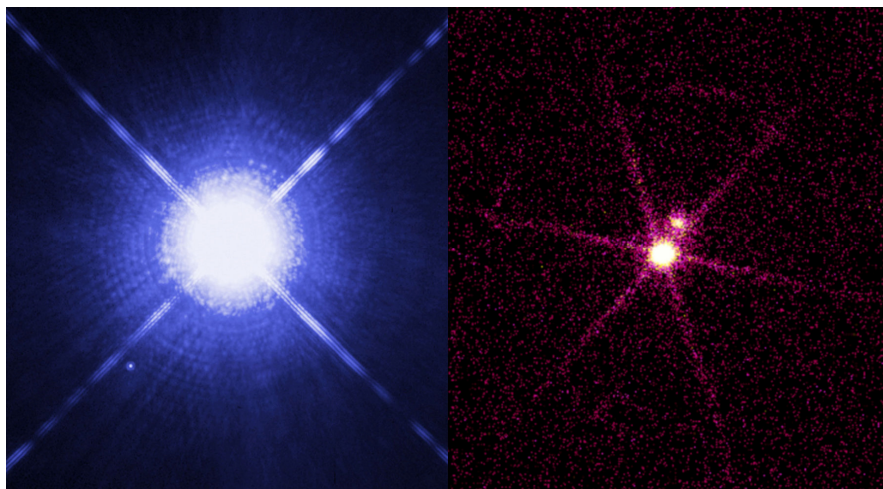
Sirius and Procyon are nicknamed the "Dog Stars," an apt name as they are the brightest stars in their respective constellations – Canis Major and Canis Minor – whose names translate to "Big Dog" and "Little Dog." Not everyone sees them as canine companions. As two of the brightest stars in the sky, they feature prominently in the sky stories of cultures around the world. Sirius also captures the imaginations of people today: when rising or setting near the horizon, its brilliance mixes with our atmosphere's turbulence, causing the star's light to shimmer with wildly flickering color. This vivid, eerie sight was an indication to ancient peoples of changes in the seasons, and even triggers UFO reports in the modern era!

Both of these bright stars have unseen companions: tiny, dense white dwarf stars, the remnants of supermassive companion stars. Interestingly, both of these dim companions were inferred from careful studies of their parent stars' movements in the 1800s, before they were ever directly observed! They are a challenging observation, even with a large telescope, since their parent stars are so very bright that their light overwhelms the much dimmer light of their tiny companions. The white dwarf stars, just like their parent stars, have differences: Sirius B is younger, brighter, and more energetic than Procyon B. Careful observations of these nearby systems over hundreds of years have helped advance the fields of: astrometry, the precise measurement of stars; stellar evolution; and astroseismology, the study of the internal structure of stars via their oscillations. Discover more about our stellar neighborhood at nasa.gov!

“Continued on page 7”



Sirius and Procyon, the loyal hunting dogs of nearby Orion the Hunter! What other stories can you imagine for these stars? Learn about “Legends in the Sky” and create your own with this activity: <https://bit.ly/legendsinthesky> Image created with assistance from Stellarium.



Sirius A and B imaged by two different space telescopes, revealing dramatically different views! Hubble’s image (*left*) shows Sirius A shining brightly in visible light, with diminutive Sirius B a tiny dot. However, in Chandra’s image (*right*) tiny Sirius B is dramatically brighter in X-rays! The “Universe in a Different Light” activity highlights more surprising views of some familiar objects: <http://bit.ly/different-light-nsn> NASA, ESA, H. Bond (STScI), and M. Barstow (University of Leicester) (*left*); NASA/SAO/CXC (*right*)

Point and Shoot Camera Astroimaging (no telescope)

Canon Powershot SX50 HS

Image & write-up submitted by Paul Kursewicz

M101 (Pinwheel Galaxy)

Specs: RAW mode, 1200mm, ISO 1600, 24 x 1min 30sec, 5-8-18



Just to remind folks, this picture was not taken through a telescope. I used my Canon Powershot camera and zoomed the lens out to a focal length of 1200 mm. M101 is a large face-on spiral galaxy 21 million miles away from Earth and is located in the constellation Ursa Major, the Great Bear. It has a diameter of 170,000 light-years (70 percent larger than our galaxy) and has around a trillion stars, ten times the amount in the Milky Way. M101 is noted for its high population of [H II regions](#), (large bright areas in its spiral arms) which are luminous with the emission spectrum of ionized hydrogen. M101 has an apparent visual magnitude of 7.86 and can be seen in binoculars as a faint hazy patch of light in dark skies. However, this galaxy suffers from low surface brightness and in bad seeing conditions or light polluted areas is sometimes difficult to spot even with a 8-inch telescope. The galaxy does not appear to have a supermassive black hole at its center. There have been 4 recorded supernovae in M101. The last one was discovered on August 24, 2011.

[Astronomical Society of Northern New England \(ASNNE\) Online Meeting Notes of 5 February 2021](#)

[Submitted by Carl Gurtman](#)

Record Note: Because of the coronavirus crisis (COVID-19), the Regular Meeting of 5 February 2021, was not held in person. Rather, the meeting was held via the teleconferencing application, "Zoom". Again, Ian Durham hosted the meetings. (Thank you Ian!). The following Notes are provided. They are not meant to take the place of regular Minutes, which were not taken, but rather to serve as documentation.

[Zoom Teleconferencing Meetings of Friday, 5 February 2021](#)

Business Meeting: There was a no business Meeting. We started the Regular Meeting shortly after 7:30 pm.

Regular Meeting: There were 13 participants via Zoom.

[Items Related to ASNNE Business:](#)

Although there was no formal Business Meeting, at the start of our Regular Meeting, we first addressed items related to ASNNE Business.

Officer Rotation: Carl brought up the pressing need to have a replacement for Ron as President. Ron has been President for about ten years, and needs to move on. We addressed the concept of other Members taking on the more onerous duties the President currently performs, to lessen the demands on that position. Carl also stated that we should, if possible, have a woman as President, as a way of letting people know we value inclusiveness.

Social Media Vehicle: Ian reported that he will soon be moving ASNNE to the intermediate level of ".io".

Talmage Observatory at Starfield Status: Keith reported that he has put the correct belt on the snow blower, and after making some adjustment, was able to attach the snow blower to the tractor; it had apparently never been attached before. He has not done any snow plowing to date. Keith will submit his bills for parts, etc., to Ian, who will reimburse him. Keith asked what interest there was in the winter use of the Talmage Observatory at Starfield. There seems to be little current interest.

[Regular Meeting:](#)

New Member: David introduced Pam, a new member. Pam shared her astronomical interests. She currently has a powerful set of binoculars; which she showed on Zoom, and is interested in moving to a telescope. Several members pointed out the benefits of binoculars, with their wide field of view, as a perfect way of introducing oneself to the night sky. Also, upon familiarization, members may use the telescopes at the Talmage Observatory at Starfield. We described to Pam the Meetings and Star Parties we hold.

"What's Up?": Bernie gave his usual thorough, comprehensive, and complete discussion of what's in store for us in the skies of February. February is named for a Roman festival of purification, which took place at this time.

Bernie had a USM Professor of Geology on his radio show, and will have Seth Lockman, who spoke to us about his satellite company. They recently successfully test-fired a rocket. Carl asked if Bernie would question Seth about how his company will deal with the problem of space junk.

Bernie described the planets of Mercury, Jupiter, and Saturn, which will be appearing in the early morning skies of February.

Bernie covered the names of this month's moon, and what happened on this day in . . . including the famous astronomers born in February.

Speakers: Ian will see if he can get Zia, the physicist who works with him on his top physics stories of the year, to give a talk to ASNNE. Because of the time difference between here and England, some extra coordination will be necessary.

Astroshorts: There were a few Astroshorts. There had not been a lot of observing in January.

We will hold our next Meeting, via Zoom, on Friday, 5 March.

Respectfully submitted,

Carl Gurtman

Club Meeting & Star Party Dates

Date	Subject	Location
<u>Mar 5</u>	<p><u>ASNNE Club Meeting:</u></p> <p>Our March Club meeting at The New School Has been cancelled due to the Coronavirus.</p> <p>In all likelihood the plan for the March meeting is to have our Club Meeting while staying at home by using ZOOM.</p> <p>So, a computer or a phone will be required. Ian Durham will likely organize all of this. And as we get closer to the 5th, Ian will post a connection link to join Zoom.</p> <p><u>Topic:</u> TBD. Bernie Reim will do "What's Up." Astro Shorts</p>	<u>The New School, Kennebunk, Me.</u>
<u>Last Month</u>	At last month's Zoom meeting Bernie Reim did "What's Up." Club members also participated in Astro Shorts. There was no Keynote speaker. A new member, Pam Stutch, joined us at our Zoom meeting.	
<u>TBD</u>	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.

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

2021 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 _____

