

Skylights

Newsletter of the Astronomical Society of Northern New England



APR 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 April

By *Bernie Reim*

The month of April is named after the word "aprilis", which is derived from the Latin aperire meaning "to open". That is exactly what much of the northern hemisphere of the earth is starting to do now during this first full month of spring. Our landscape will not really be transformed until next month, but it will start this month as many sure signs of spring will appear and the ice will melt completely out of our lakes and rivers.

Since the days are getting longer now and the nights are getting warmer, this will be a good month to get outside more to view the beauty of the night sky and contemplate our place in it. As T.S. Eliot said "April is the cruelest month", so we can't just count on it getting continually warmer and greener this month. There will be many interesting highlights in the sky this month as spring begins to take hold of this hemisphere again and the whole earth will celebrate Earth Day on the 22nd, as we do every year.

The first full week of this month, April 5 through the 12th, is also International Dark Sky Week. Its purpose is to help raise the awareness of people all around the world to the importance of preserving our heritage of dark skies where they still exist and to help restore darker skies to more light polluted places by advocating for more effective lighting. People around the globe can contribute as citizen scientists by going to the Globe at Night website to monitor the night sky where they live based on how many stars you can see in certain constellations. This can be done for 10 days every month around the new moon, not just during the first week of April.

Fully 83% of the world's population of 7.85 billion people live in light polluted cities and towns and about half of those people have never even experienced truly dark and pristine skies where the Milky Way just takes over and transports you to other realms and serves as a source of inspiration for much of our great art, literature, and music. We are lucky here in Maine that dark skies are close by, but much of the world has lost that resource and the best part is that we can do something about it quite easily.

This is a good follow up to the International Earth Hour that we had on March 27 when millions of people and hundreds of cities turned off all non-essential lights for one hour.

The highlights that we can enjoy this month include a continuation of Mars ruling the night along with the long-awaited return of Venus to our evening sky late this month. As a bonus, Mercury will join Venus very low in the western sky right after sunset. Then Saturn rises about 4:30 am followed by Jupiter half an hour later in Capricorn. The asteroid Vesta will be easy to see in Leo with a pair of binoculars and another comet named ATLAS will be visible in Hercules with a telescope. Then we have the first good meteor shower since the Quadrantids. That is the Lyrids on April 22, which is also Earth Day.

Orange Mars can still be found in Taurus until the 24th when it transitions into Gemini. Notice that the red planet is moving in its direct eastward motion at the rate of one constellation per month, or about one degree per day. The net result is that it rises and sets about the same time each day, nearly matching our revolution around the sun.

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What's Up "Continued from page 1"

Compare its orange hue with the orange giant star Aldebaran in Taurus located 65 light years away and the deeper orange glow of the red super giant star Betelgeuse in Orion at 640 light years away. Mars continues to get a little fainter each night as we pull farther ahead of it in our orbits around the sun. Aldebaran is about twice as bright as Mars now as is Betelgeuse, which has returned from its dimmest appearance in recorded history early last year when it got as faint as 1.8 magnitude. It is about 0.8 magnitude now, similar to Aldebaran.

As you watch Mars move a little every evening against the background of stars, keep in mind the great success the Perseverance rover is enjoying on its surface as it continues its explorations. We are getting ready to fly the Ingenuity drone later this month or next month. This will be the first powered flight ever attempted by humans on another planet, and it will happen just 118 years after the Wright Brothers little flight on that beach in Kitty Hawk, NC and 52 years after we first walked on the moon. Since the Martian air is just one percent as dense as ours, it will be similar to flying 100,000 feet above the earth, which no helicopter has ever done before.

After Mars sets around midnight we have a long stretch of time with no planets visible. Then Saturn appears around 4:30 followed closely by Jupiter. The pair is now separated by over 10 degrees, which can be measured with a fist held up at arm's length. As you recall, they were over 100 times closer together at one tenth of a degree on the winter solstice last year. Watch a waning crescent moon pass right below the pair on the morning of the 6th and 7th.

The brightest asteroid, Vesta, will trace a nice loop in Leo this month. At a magnitude of 6.6, just fainter than the naked eye limit of 6.0, you can easily spot it in a pair of binoculars. It is our second largest asteroid with a diameter of 310 miles, or about the size of Arizona. Ceres is the biggest at 600 miles across. Just these two asteroids make up about half the mass of all the one million plus identified asteroids in the belt between Mars and Jupiter.

Just recently discovered with the two ATLAS telescopes in Hawaii, located about 100 miles apart, Comet C/2020 R4 (ATLAS) should reach about 11th magnitude this month in Hercules and Bootes. So you would need a good amateur telescope to see it. ATLAS is an acronym for the ominous-sounding set of words, Asteroid Impact Last Alert System. ATLAS has already found 575 near-earth asteroids, 60 potentially hazardous asteroids that are on an orbit that crosses ours around the sun, 58 comets, and even 8327 supernovae in other galaxies.

The Lyrid Meteor Shower will peak on Saturday, April 22, which is also Earth Day. Caused by Comet Thatcher, you can expect up to 18 meteors per hour from a dark-sky site. The waxing gibbous moon will not set until about 4 am, so you will have a short window to see these meteors before just before sunrise, which is usually the best time to see them anyway because the earth is rotating

into the meteors after midnight. They will all emanate from the constellation of Lyra, which is part of the Summer Triangle and doesn't rise until later in the morning.

April 1. On this day in 1997 Comet Hale-Bopp made its closest approach to the sun. This was a once-in-a-lifetime comet that took over half the sky in March and April of that year. I remember seeing and photographing it many times. It was preceded by another once-in-a-lifetime comet just one year earlier, Comet Hyakutake, discovered by a Japanese photographer.

April 4. Last quarter moon is at 6:02 a.m. EDT. Asteroid Metis is at opposition.

April 6. The moon passes 4 degrees south of Saturn this morning.

April 7. The moon passes 4r degrees south of Jupiter this morning. The Compton Gamma Ray telescope was launched on this day in 1991. This was just one of a family of 4 space telescopes designed to search the sky in many different wavelengths of light from gamma rays to infrared. The Compton telescope discovered about one powerful gamma ray burst every day during its 9 years of operation, until it had to be brought down on June 4 of 2000. Most of these bursts are over 1000 times more powerful than supernovae and they are caused by neutron star mergers, hypernovae collapse, flares from magnetars, and black hole mergers and other events.

April 11. New moon is at 10:31 p.m. EDT. On this day in 1986 Halley's Comet made its closest approach to Earth. I remember seeing this comet several times starting on Nov.8 of 1985.

April 12. On this day in 1961, Yuri Gagarin became the first human to ever orbit the earth. John Glenn accomplished that feat less than a year later on February 20 of 1962.

April 17. The moon passes less than one degree south of Mars this evening.

April 18. Mercury is in superior conjunction with the sun today.

April 20 First quarter moon is at 2:59 a.m.

April 22. The Lyrid Meteor shower peaks this morning.

April 25. The Hubble Space Telescope was deployed on this day in 1990 with the Space Shuttle Discovery, STS-31. It is still up there and functioning 31 years and millions of great pictures and discoveries later.

April 26. Full moon is at 11:32 p.m. This will also be the first super moon of the year since it will occur just 12 hours before perigee, or its closest approach to Earth for the month. This is also known as the Pink, Grass, Egg, or Frog moon.

April 30. Frances Wright, an American astronomer who taught celestial navigation at Harvard to Naval officers and wrote 3 books on celestial navigation, was born on this day in 1897.

Moon Phases

Apr 4
Last Quarter

Apr 11
New

Apr 20
First Quarter

Apr 26
Full

Moon Data

Apr 6
Saturn 4° north
of Moon

Apr 7
Jupiter 4° north
of Moon

Apr 9
Neptune 4° north
of Moon

Apr 13
Uranus 2° north
of Moon

Apr 14
Moon at apogee

Apr 17
Mars 0.1° north
of Moon

Apr 27
Moon at perigee

OBSERVER'S CHALLENGE* – April, 2021

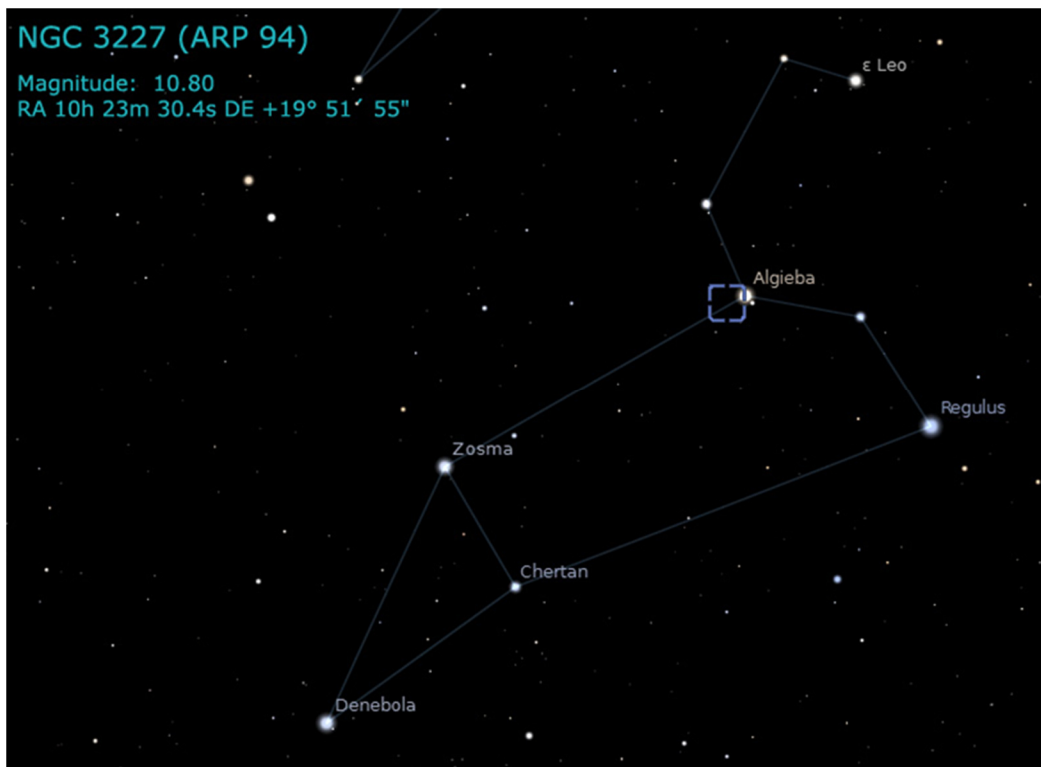
by Glenn Chaple

NGC 3226/3227 – Interacting Galaxies in Leo
NGC 3226 (Mag: 11.4, Size: 2.8' X 2.4") NGC 3227 (Mag: 10.3, Size: 4.1' X 3.9')

Our April Observer's Challenge brings us to a cosmic double-header, the interacting galaxies NGC 3226 and NGC 3227. NGC 3227, the brighter of the pair at magnitude 10.3, is a Seyfert galaxy (a spiral galaxy with a quasar-like nucleus). Its partner, the dwarf elliptical galaxy NGC 3226, is about half as large and a magnitude fainter. The two are gravitationally bound and are listed in the *Atlas of Peculiar Galaxies* as Arp 94.

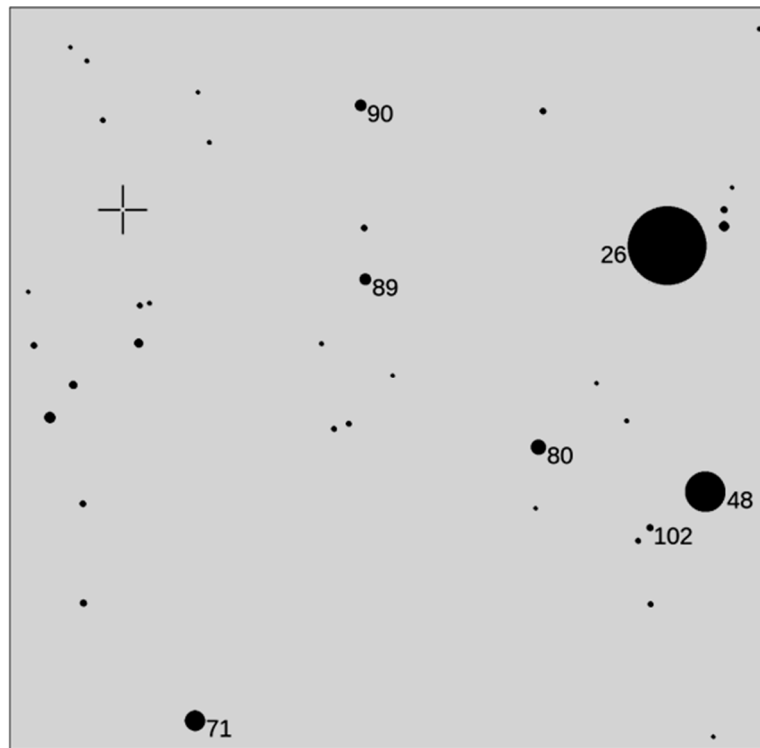
If you use a scope with GoTo technology, you'll find these galaxies by plugging in the coordinates Right Ascension 10h23m30.6s and declination +19°51'54". I suggest you skip the electronics and simply aim your scope at the 2nd magnitude star gamma (γ) Leonis (Algieba). NGC 3226 and NGC 3227 are less than a degree east. Before you go anywhere, however, center this star in the telescopic field and switch to an eyepiece that magnifies around 100X. Algieba is a showpiece binary pair whose components, of magnitudes 2.4 and 3.6, are currently separated by 4.7 arc-seconds. These spectral class K1 and G7 giants shine with striking golden yellow hues.

Once you've paid your respects to Algieba, keep your eye glued to the eyepiece as you slowly move eastward past a pair of 9th magnitude stars to the spot marked with an "+" on the accompanying finder chart. At this location, I was able to see a pair of hazy smudges (the nuclei of the two galaxies) separated by about 2 arc-minutes. I was using a 10-inch reflector and a magnifying power of 141X under magnitude 5 skies. There was no sign of the spiral arms of NGC 3227. The appearance of NGC 3226 and NGC 3227 was not unlike a small-scope view of M51 and its companion NGC 5195.



NGC 3226/3227 Images www.jwinman.com.

“Continued on page 4”



Detailed chart adapted by Glenn Chaple from the AAVSO's Variable Star Plotter (VSP). Stars shown to magnitude 11.0. 2.6 magnitude star is Algieba. Field is 1° on a side with north up.



Image by Mario Motta (ATMoB) 32-inch f/6.5 scope, ASI6200 camera, 4 hrs total exposure.

“Continued on page 5”

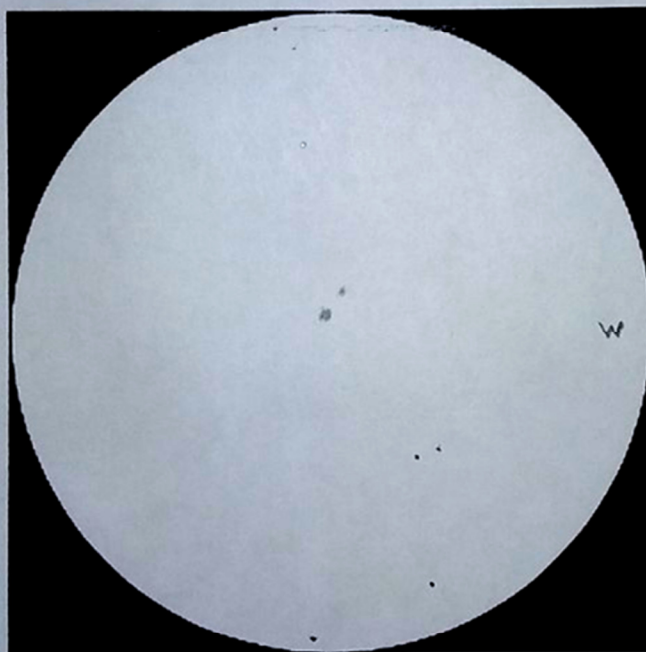


OBSERVING LOG

NAME: Glenn Chaple
 DATE (M/D/Y) 3/13/2021 TIME: 9:45 pm EST
 OBSERVING SITE: 82 S. Harbor Rd. Townsend MA
 SKY CONDITIONS: Seeing (Antoniadi Scale) IV Limiting Magnitude 5.0
 OBJECT: NGC 3226/3227 TYPE: EG/SG CONSTELLATION: Leo

SKETCH (note direction of west)

NOTES:



Visible in 10-inch as
 double Nebula. Only
 nucleus of NGC 3227
 visible

NGC 3227 barely visible
 in 4.5-inch at 150X

OBSERVING EQUIPMENT

Binoculars X
 Telescope: 10-inch F/5 reflector Eyepiece: 9mm Nagler
 Mag: 141 X Field Diam: 0.6° Filter (if any): _____

Sketch by Glenn Chaple (ATMoB)

**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

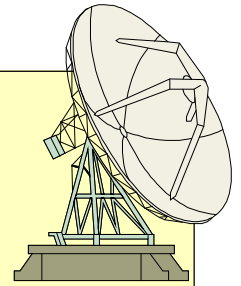
December 14
Geminids

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!

Watch the Lion: Celestial Wonders in Leo

By David Prosper

Leo is a prominent sight for stargazers in April. Its famous sickle, punctuated by the bright star Regulus, draws many a beginning stargazer's eyes, inviting deeper looks into some of Leo's celestial delights, including a great double star and a famous galactic trio.

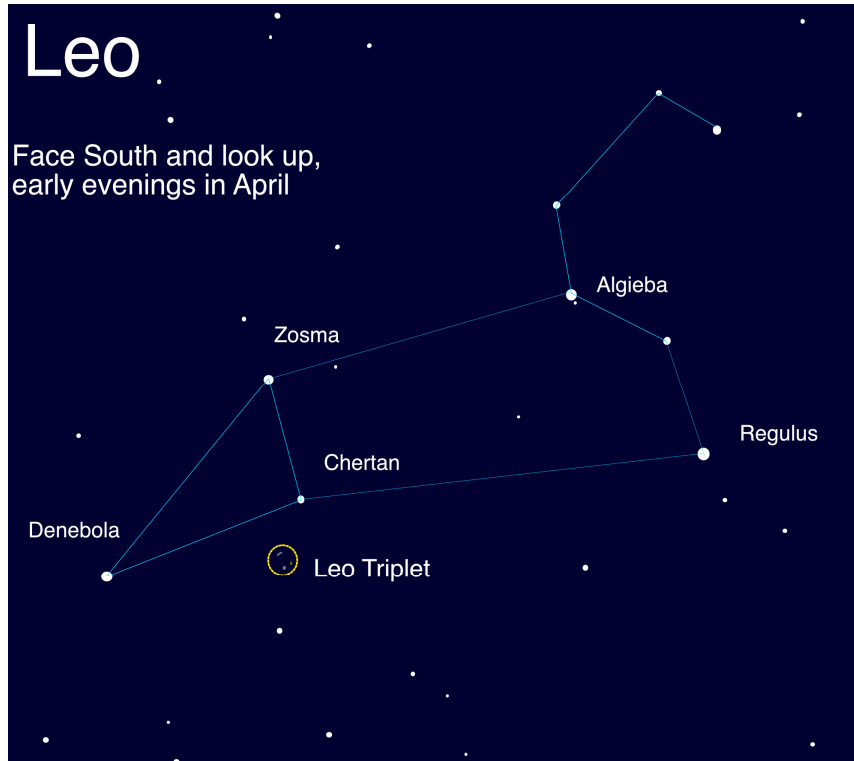
Leo's distinctive forward sickle, or "reverse question mark," is easy to spot as it climbs the skies in the southeast after sunset. If you are having a difficult time spotting the sickle, look for bright Sirius and Procyon - featured in last month's article - and complete a triangle by drawing two lines to the east, joining at the bright star Regulus, the "period" in the reverse question mark. Trailing them is a trio of bright stars forming an isosceles triangle, the brightest star in that formation named Denebola. Connecting these two patterns together forms the constellation of Leo the Lion, with the forward-facing sickle being the lion's head and mane, and the rear triangle its hindquarters. Can you see this mighty feline? It might help to imagine Leo proudly sitting up and staring straight ahead, like a celestial Sphinx.

If you peer deeper into Leo with a small telescope or binoculars, you'll find a notable double star! Look in the sickle of Leo for its second-brightest star, Algieba - also called Gamma Leonis. This star splits into two bright yellow stars with even a small magnification - you can make this "split" with binoculars, but it's more apparent with a telescope. Compare the color and intensity of these two stars - do you notice any differences? There are other multiple star systems in Leo - spend a few minutes scanning with your instrument of choice, and see what you discover.

One of the most famous sights in Leo is the "Leo Triplet": three galaxies that appear to be close together. They are indeed gravitationally bound to one another, around 30 million light years away! You'll need a telescope to spot them, and use an eyepiece with a wide field of view to see all three galaxies at once! Look below the star Chertan to find these galaxies. Compare and contrast the appearance of each galaxy - while they are all spiral galaxies, each one is tilted at different angles to our point of view! Do they all look like spiral galaxies to you?

April is Citizen Science Month, and there are some fun Leo-related activities you can participate in! If you enjoy comparing the Triplets, the "Galaxy Zoo" project (galaxyzoo.org) could use your eyes to help classify different galaxies from sky survey data! Looking at Leo itself can even help measure light pollution: the Globe at Night project (globeatnight.org) uses Leo as their target constellation for sky quality observations from the Northern Hemisphere for their April campaign, running from April 3-12. Find and participate in many more NASA community science programs at science.nasa.gov/citizenscience. Happy observing!

"Continued on page 8"



The stars of Leo: note that you may see more or less stars, depending on your sky quality. The brightness of the Leo Triplet has been exaggerated for the purposes of the illustration - you can't see them with your unaided eye.



Your view of the three galaxies in the Leo Triplet won't look as amazing as this image taken by the VLT Survey Telescope, unless you have a telescope with a mirror 8 feet or more in diameter! Still, even a small telescope will help your eyes pick up these three galaxies as "faint fuzzies": objects that seem blurry against a background of pinpoint stars. Let your eyes relax and experiment with observing these galaxies by looking slightly away from them, instead of looking directly at them; this is called averted vision, a handy technique that can help you see details in fainter, more nebulous objects.

Image Credit: ESO, INAF-VST, OmegaCAM; Acknowledgement: OmegaCen, Astro-WISE, Kapteyn I.

Point and Shoot Camera Astroimaging (no telescope)

Canon Powershot SX50 HS

Image & write-up submitted by Paul Kursewicz

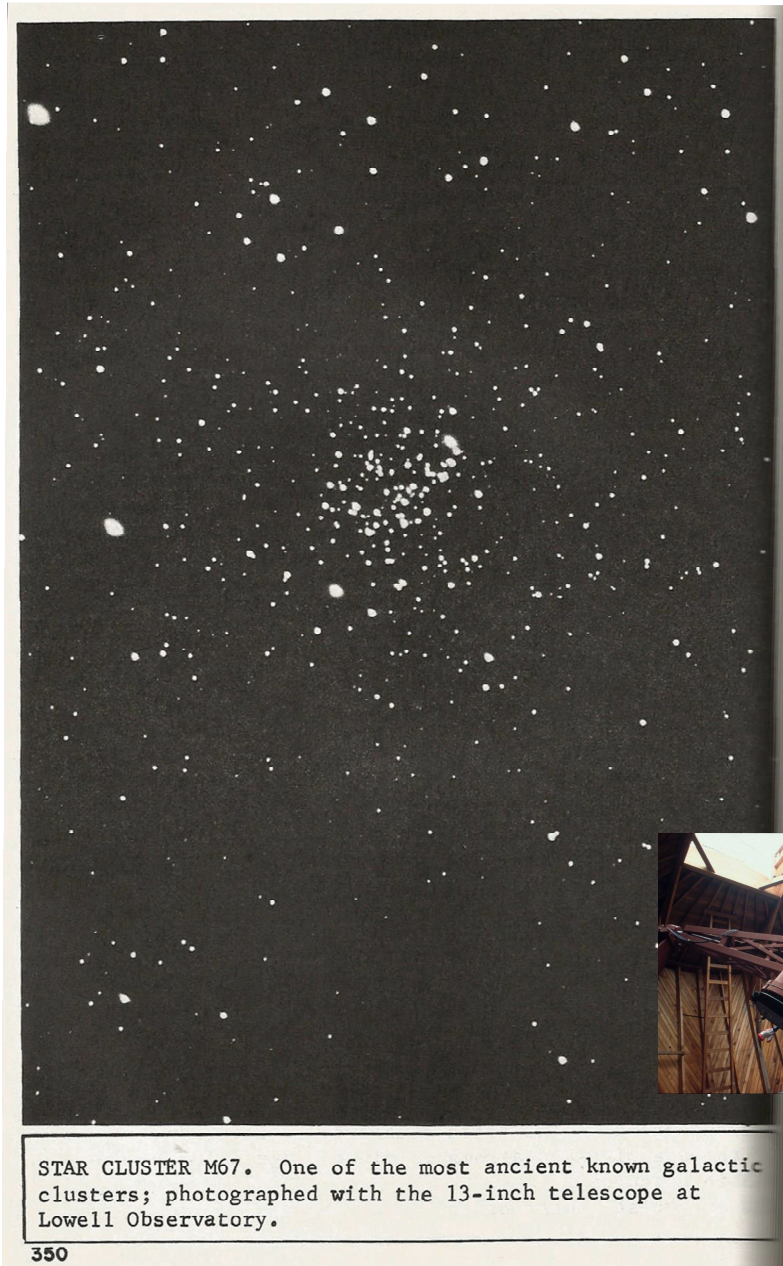
King Cobra Cluster (M67)

Specs: RAW mode, FL 1200mm, ISO 1200, 24 x 1min 30sec, 3-7-21



This is a close-up view that I took of M67, an open cluster in the constellation Cancer. It is also known as the King Cobra Cluster. Apparently Stephan O'Meara gave it the nickname in his book "Deep Sky Companions: the Messier Objects." M67 is about 2,700 ly away and contains around a dozen bright orange K-type giant stars. Messier 67 has a magnitude of 6.1 and is one of the most studied open clusters out there. Its age was determined to be between 3.2 - 4 billion years, making it the oldest open cluster in the entire Messier catalog. For comparison, the Beehive Cluster (M44), an open cluster that is located a little above M67, is 600 million years old. Researchers have estimated that M67 contained at least 150 white dwarfs. Looking at M67 through my 4.5 inch refractor, it is a beautiful object. Through 12 x 36 binoculars, it's small and faint. M67 contains around 200 to 500 stars spread over a apparent diameter of 30 arc minutes, which is equivalent to that of the full Moon. Messier 67 was discovered by the German astronomer Johann Gottfried Koehler in 1779. He described it as a "rather conspicuous nebula in elongated figure, near Alpha of Cancer."

"Continued on page 10"



This is a scanned image of M67 taken from “Burnham's Celestial Handbook” copyright 1978. The inset picture is the 13-inch telescope that was used to take the photo. Compare this photo with mine again. It's utterly amazing what today's point & shoot hybrid cameras like mine can capture today (no telescope needed). A peculiar feature of M67 is the great distance above the plane of the galaxy, nearly 1500 ly. The majority of open clusters are distributed generally along the central plane of the Milky Way. Fly through M67 by clicking on the below link and enjoy your voyage:

<https://www.youtube.com/watch?v=qsTt2rkRYxc>

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

[Submitted by Carl Gurtman](#)

Record Note: Because of the coronavirus crisis (COVID-19), the Regular Meeting of 5 March 2021, was not held in person. Rather, the meeting was held via the teleconferencing application, "Zoom". Again, Ian Durham's Zoom account was the host of the meeting, (Thanks, Ian!) but Ian was not present. 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 March 2021

Business Meeting: There was a no business Meeting. We started the Regular Meeting about 7:45 pm.

Regular Meeting: There were 11 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.

ASNNE in the Time of COVID: There was some discussion about how to run Star Parties, and could/should a Star Party be held for two people. All these discussions are held against the backdrop of disruptions to normal business brought about by COVID. The purpose of these particular discussions was not to come to any particular conclusion, but to air the issues.

Officer Rotation: There was no real progress on a replacement for Ron. Dave is handling the e-mail addressed to ASNNE well, and more importantly, seems to enjoy doing it. While having a woman as our next President is a fine goal, we will most probably be happy to accept any competent volunteer.

Star Party for the Great Works Regional Land Trust: We usually donate a Star Party to be auctioned off at the Great Works Regional Land Trust fund-raising auction. The consensus was that we wish to continue to do this; but someone must step forward and volunteer to run it.

Bernie's Radio Show: Bernie has had Seth Lockman, of bluShift Aerospace on his radio show. His company, bluShift, has had a recent successful rocket launch from Maine. Seth was also a guest speaker at an ASNNE Meeting.

Recovering from COVID: While prudence dictates that we have our next ASNNE Meeting, in April, held as a Zoom Meeting, a phased return to normalcy is in the works in Maine. Meeting restrictions are being loosened, and the ASNNE population, on the older end of the age spectrum, is actively engaged in getting vaccinated. Carl suggested that we tentatively plan to hold our ASNNE May Meeting, in person, at the Talmage Observatory at Starfield. We could formally open the Observatory after the worst of the pandemic, dedicate & rename the Talmage Observatory at Starfield then, with Peter's family in attendance; hold Starfest, and a Star Party. Also, the first Friday in May, 7 May, is very close to Astronomy Day, 15 May.

"What's Up?": Bernie gave his usual thorough, comprehensive, and complete discussion of what's in store for us in the skies of March. Named for the Roman god Mars, this used to be the first month of the year, because of the vernal equinox occurring then. This year, the vernal equinox will be on 20 March. In March, Mars, a bit past its best, will be the only evening sky planet.

Jupiter, Saturn, and Mercury are morning sky planets this month. Jupiter and Mercury will only be 1/4 of a degree apart in the morning sky, a half-hour before sunrise, on 6 March.

Bernie also described how the Zodiacal Light is best seen in March, soon after sunset.

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

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

We will hold our next Meeting, via Zoom, on Friday, 2 April.

Respectfully submitted,

Carl Gurtman

Club Meeting & Star Party Dates

Date	Subject	Location
<u>APR 2</u>	<p><u>ASNNE Club Meeting:</u></p> <p>Our April Club meeting at The New School Has been cancelled due to the Coronavirus.</p> <p>In all likelihood the plan for the April 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 2nd, 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>	<p>Last month's Zoom meeting began with some Business Meeting items. Bernie Reim did his "What's Up." Club members also participated in Astro Shorts. There was no Keynote speaker.</p>	
<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 _____

