

Skylights

Newsletter of the Astronomical Society of Northern New England



OCT2022



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 October

By Bernie Reim

The month of October always marks the first full month of fall for us in the northern hemisphere. The nights are getting considerably longer and cooler now, which also allows our famous New England fall foliage to blaze forth in all of its wide range of vibrant colors.

Just as the surface of the earth was being transformed into a tender green half a year ago as spring started, it is now being transformed into brilliant yellows, oranges, and reds as the leaves lose their green chlorophyll and activate their colored pigments as they wrap up their productive summer season and prepare for their dormant period in winter. Each leaf is part of a remarkably efficient process that we can have not completely figured out yet.

The celestial vault above our limited terrestrial view is also being transformed as the top of the Winter Hexagon begins to appear once again over our eastern horizon before 10 pm and we saw goodbye to summer as Scorpius and Sagittarius disappear below our southwestern horizon. Notice that any given star will rise four minutes earlier each night, so that the whole sky seems to move ahead two hours each month. The sky will look the same at 8pm on the first of November as it does on the first of October at 10pm.

There are many interesting highlights this month including Jupiter still very close to its September 26 opposition. That marked its closest approach to Earth since 1963. It will reach minus 2.9 magnitude, only 6 times fainter than Venus at its best at minus 4.9 magnitude. Saturn still looks bigger and brighter than usual since it just reached opposition on August 14. Mars is getting bigger and brighter and closer every night now, approaching its December 8 opposition. The annual Orionid meteor shower peaks on the 21st with no moon to interfere until 3 am. The moon will occult Uranus on the 12th and Mercury on the 24th. The second largest asteroid, Vesta at 320 miles in diameter, or about the size of Arizona, will reach 7th magnitude and be easily visible in a pair of binoculars in Capricorn near Saturn. There will be several nice conjunctions of the moon with the planets, as usual, but since we are in a new eclipse season now, there will be a partial solar eclipse over Europe, parts of Asia and northern Africa. It will reach 80% of total over parts of Russia, but no part if it will be visible for us. However, we will be able to see a total lunar eclipse two weeks after that time on November 8 early in the morning just as the moon will be setting. That also happened to be Edmund Halley's birthday, just 366 years earlier, so that should be an easy date to remember.

Jupiter is in the western part of Pisces the Fish now, just below the circlet of 6 stars. Since it takes Jupiter 12 years to orbit the sun, it will spend one full year in each of our 12 zodiac constellations along the ecliptic. That includes its annual retrograde loop, when it appears to be moving backwards or westward against the fixed background of stars in our sky for 4 months. It will remain in retrograde until November 23 of this year. There will be several nice transits of its largest moons across the face of Jupiter visible in a telescope this month. I have seen that many times and it really gives you a good insight into the motions of this miniature solar system. Their orbits range from 2 to 16 days and some of them change noticeably in just a few minutes when they are close to the planet. Its four largest moons, also called the Galilean moons since he discovered them just over 400 years ago, are visible in just a pair of binoculars. Jupiter has at least 79 moons, only 53 of which are officially named.

Saturn is still providing us with above average views in the eastern part of Capricorn. You can see it about 30 degrees to the right and slightly above Jupiter. It shines with a slightly golden light at 0.5 magnitude, or about 15 times fainter than Jupiter. Saturn takes 30 years to orbit the sun, so it will spend just over 2 years in each zodiac constellation along with two retrograde loops. The ringed planet will end its retrograde motion on October 23, just 9 weeks

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What's Up "Continued from page 1"

after its opposition occurred on August 14. Saturn has 82 moons, only 53 of which are named.

Mars is getting bigger and brighter and closer to us each night as Earth is rapidly catching up with the red planet in our orbits around the sun. Mars orbits at 15 miles per second while the earth averages 18.6 miles per second, so we catch up with and pass our neighbor every 26 months. That will happen again on December 8 this year. Mars now looks like a brilliant imposter in the familiar Winter Hexagon. It can be found in the middle of Taurus, forming a stunning triangle with two other red objects, Aldebaran in Taurus and Betelgeuse in Orion. Compare the brightness and color of these 3 objects and you will see that Mars is the brightest and reddest and will keep getting brighter until December 8, while the two stars will remain at about the same brightness since they are both slightly variable stars.

Aldebaran is 65 light years away, so the light that will enter your eyes as you look at this star actually left there in 1957, just when the Russians launched the first satellite ever, Sputnik 1. It is only slightly more massive than our sun, but it is 500 times as luminous and is 40 times larger than our sun. Its name means "the follower" in Arabic, since it seems to be forever following the Pleiades across the sky. It marks the eye of Taurus the Bull, forever charging the mighty hunter Orion. It is about 6.5 billion years old, or about two billion years older than our sun.

Betelgeuse is an even more remarkable star. It is about 600 light years away. That means that the light you will see when you look at the red supergiant star left there when the earth was a very different place. The crusades had just ended, the Ming Dynasty in China was flourishing, and the printing press was about to be invented, changing the course of history on earth forever and transforming our methods of communicating much more quickly and effectively. Now we are way beyond that with the World Wide Web and the metaverse, but even our great new methods of communicating today are merely in their infancy.

Betelgeuse is only about 10 million years old since it has burned through all of its massive amounts of fuel very quickly to maintain its perfect balance between its enormous gravity pulling it in and its fusion pushing it out. It is about 500 times the size of our sun, which means that Earth and Mars and the entire asteroid belt nearly out to Jupiter would be orbiting inside this incredible star!

Betelgeuse is one of only a handful of visible stars that may actually not even be there anymore since it has already madly burned through all of its hydrogen and is now fusing helium into carbon. If it turns supernova today, we will not see it until 600 years from now, but if it ran out of fuel and exploded 600 years ago, we could see a new supernova any night now. Most likely it will still live for a few thousand more years, but it is an intriguing idea.

The Orionid meteor shower will take place from October 2 through November 7, but it will peak on Friday morning the 21st. Its radiant in Orion will rise at 10:30 pm and the waning crescent moon will not rise until 3 am. You can expect about 20 meteors per hour from a dark sky site with no light pollution from any towns.

What you will really see are tiny sand grain-sized pieces of the most famous of all comets, Halley's, burning up high in our atmosphere. Halley's Comet also causes the May 4 Eta Aquarid meteor shower. They may be called shooting stars, but they are really just about the size of a grain of sand. The reason they leave such a brilliant streak of light is their great speed of entry.

Each meteor shower has different characteristics, but this one is amongst the fastest, about 40 miles per second,

or more than twice our constant speed around the sun. Most of them vaporize at about 50 to 70 miles high, right at the edge of space in the ionosphere where the northern lights also occur. That is where there are so few molecules of air left in our atmosphere that they no longer scatter out the short wavelengths of blue light and space becomes black, even in the middle of the day with our white sun shining brightly. You can certainly no longer see any man-made boundaries from that perspective. The only real boundary that matters is the thin blue line of our precious atmosphere that protects all 8 billion of us on Earth from the hazards and radiation of space.

There will be a partial solar eclipse at new moon this month on Tuesday the 25th. It will reach its maximum of about 80% over parts of Russia. Remember that a total solar eclipse will pass right over Maine on April 8 of 2024, just before the second Artemis mission is scheduled to fly to the moon with humans aboard, but they will not land on the moon until their third mission around 2025. Then we may be walking around on Mars by 2037.

Oct.1. On this day in 1897 the 40-inch refractor at the Yerkes Observatory was dedicated and became the largest telescope in the world. It is still the largest refractor in the world. George Ellery Hale designed it along with the next 3 largest telescopes in the world, culminating in the 200-inch reflector at Mt. Palomar in 1948.

Oct. 2. First quarter moon is at 8:14 p.m. EDT.

Oct 4. The moon is at perigee, or closest to Earth today at 229,488 miles. On this day in 1957 the Russians launched Sputnik 1 and began the Space Age and the Space Race.

Oct. 5. The moon passes 4 degrees south of Saturn tonight. Neil deGrasse Tyson was born on this day in 1958.

Oct. 7. The asteroid Vesta is stationary and at its best in Capricorn near Saturn tonight.

Oct. 8. The moon passes two degrees south of Jupiter tonight. Pluto is stationary, ending its retrograde motion in Capricorn. Since it takes 248 years to orbit the sun once, Pluto spends nearly 21 years in each zodiac constellation.

Oct.9. Full moon is at 4:55 p.m. This is also called the Hunter's Moon. The German astrophysicist Karl Schwarzschild was born on this day in 1873. He calculated the event horizon for black holes using Einstein's field equations.

Oct.15. The moon passes 4 degrees north of Mars tonight. The American astronomer Asaph Hall was born on this day in 1829. He discovered the moons of Mars, Phobos and Deimos, in 1877.

Oct.17. The moon is at apogee or farthest from Earth today at 251,238 miles. Last quarter moon 1:15 p.m. EDT.

Oct.21. The Orionid Meteor shower peaks this morning.

Oct. 22. Venus is in superior conjunction and will not be visible for a while until it becomes an evening planet next month. Karl Jansky was born on this day in 1905. He is the father of radio astronomy and he first found radio signals from the center of our Milky Way galaxy in 1931.

Oct. 23. Saturn is stationary, ending its retrograde motion in Capricorn.

Oct.25. New moon is at 6:49 a.m. Henry Norris Russell was born on this day in 1877.

Oct.30. Mars is stationary, beginning its retrograde motion leading to its opposition on Dec.8.

Oct.31. On this day in 2005 the Hubble Space Telescope discovered 2 new moons of Pluto, Nix and Hydra. Then it discovered Kerberos in 2011 and Styx in 2012. Those 4 moons are quite small, 20 to 30 miles across, and they tumble chaotically around Pluto and Charon.

Moon Phases

Oct 2
First Quarter

Oct 9
Full

Oct 17
Last Quarter

Oct 25
New

Moon Data

Oct 4
Moon at perigee

Oct 5
Saturn 4° north
of Moon (noon EDT)

Oct 7
Neptune 3° north
of Moon

Oct 8
Jupiter 2° north
of Moon

Oct 12
Uranus 0.8° south
of Moon

Oct 15
Mars 4° south
of Moon

Oct 17
Moon at apogee

REPRINT**OBSERVER'S CHALLENGE* – OCTOBER, 2015****Messier 2 (NGC 7089) – Globular Cluster in Aquarius**

by Glenn Chaple

October can be a depressing month for the globular cluster aficionado. Sagittarius, Scorpius, and Ophiuchus and their treasure trove of globular clusters have ridden off to the west, leaving us with the barren-looking skies of autumn.

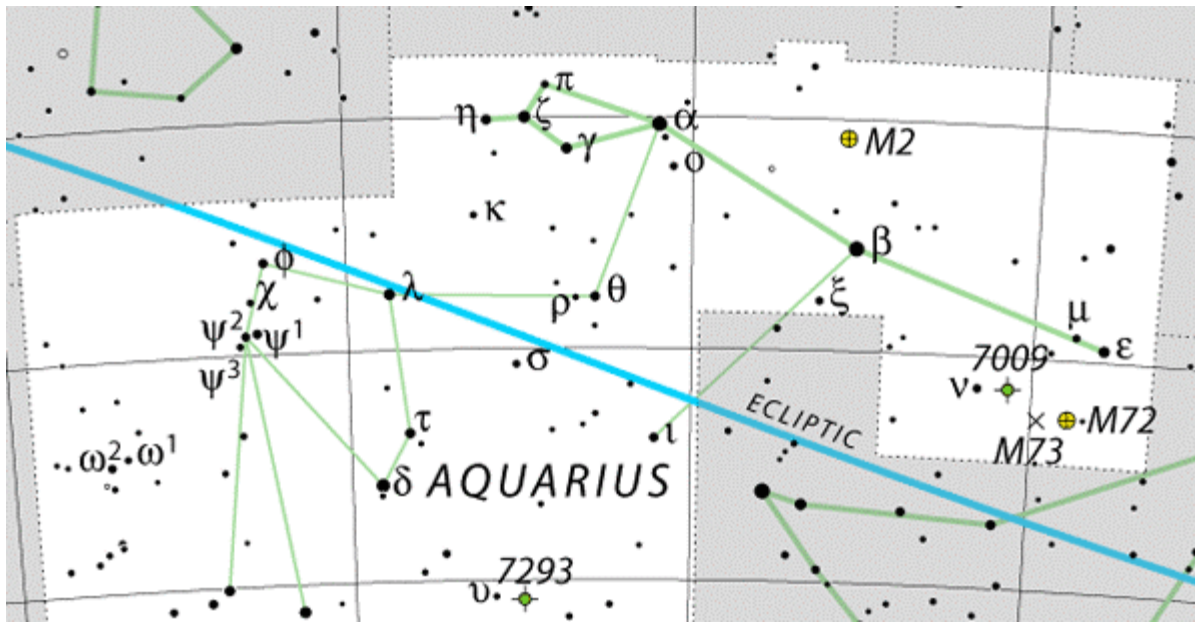
But all is not lost! Pegasus is home to the wonderful globular M15, and Aquarius sports a pair of globs, M2 and M72. The former is our "Object of the Month" and a worthy rival to M15.

M2 was discovered by French astronomer Jean-Dominique Miraldi in 1746, and catalogued by Messier 14 years later. At magnitude 6.5, M2 is barely visible to the unaided eye from dark-sky locations. You can find it with binoculars or finderscopes by searching the area 5 degrees north of beta (□) Aquarii and looking for what appears to be an out-of-focus star. Viewed with small-aperture scopes and magnifications between 60-120X, M2 is an unresolved, condensed circular haze some 5 or 6 arcminutes in diameter. Larger scopes and magnifications in excess of 150X expand the overall dimensions to 8-12 arcminutes and reveal stars in the outer regions.

Recently, I compared M2 and M15 with my 13.1-inch Dob and an 18-inch Dob owned by fellow ATMoB member Steve Clougherty. Both globulars appeared similar in size; their outer regions nicely resolved by the two scopes. M15 seemed more concentrated toward the middle – a surprise to me, as some observing guides describe M2 as having an almost stellar-looking center. I didn't see it; neither did Clougherty. What's your opinion?

M2 lies about 37,000 light years away. It's one of the richer and larger globular clusters - an estimated 100,000 stars fill an area 175 light years across. At a calculated age of 13 billion years, M2 is also one of the oldest globular clusters in the Milky Way.

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www.constellation-guide.com



Image by Mario Motta M.D.

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

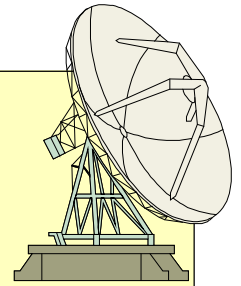
December 14
Geminids

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!

Fomalhaut: Not So Lonely After All

By David Prosper

Fall evenings bring a prominent visitor to southern skies for Northern Hemisphere observers: the bright star **Fomalhaut!** Sometimes called “The Autumn Star,” Fomalhaut appears unusually distant from other bright stars in its section of sky, leading to its other nickname: “The Loneliest Star.” Since this star appears so low and lonely over the horizon for many observers, is so bright, and often wildly twinkles from atmospheric turbulence, Fomalhaut’s brief but bright seasonal appearance often inspires a few startled UFO reports. While definitely out of this world – Fomalhaut is about 25 light years distant from us – it has been extensively studied and is a fascinating, and very identified, stellar object.

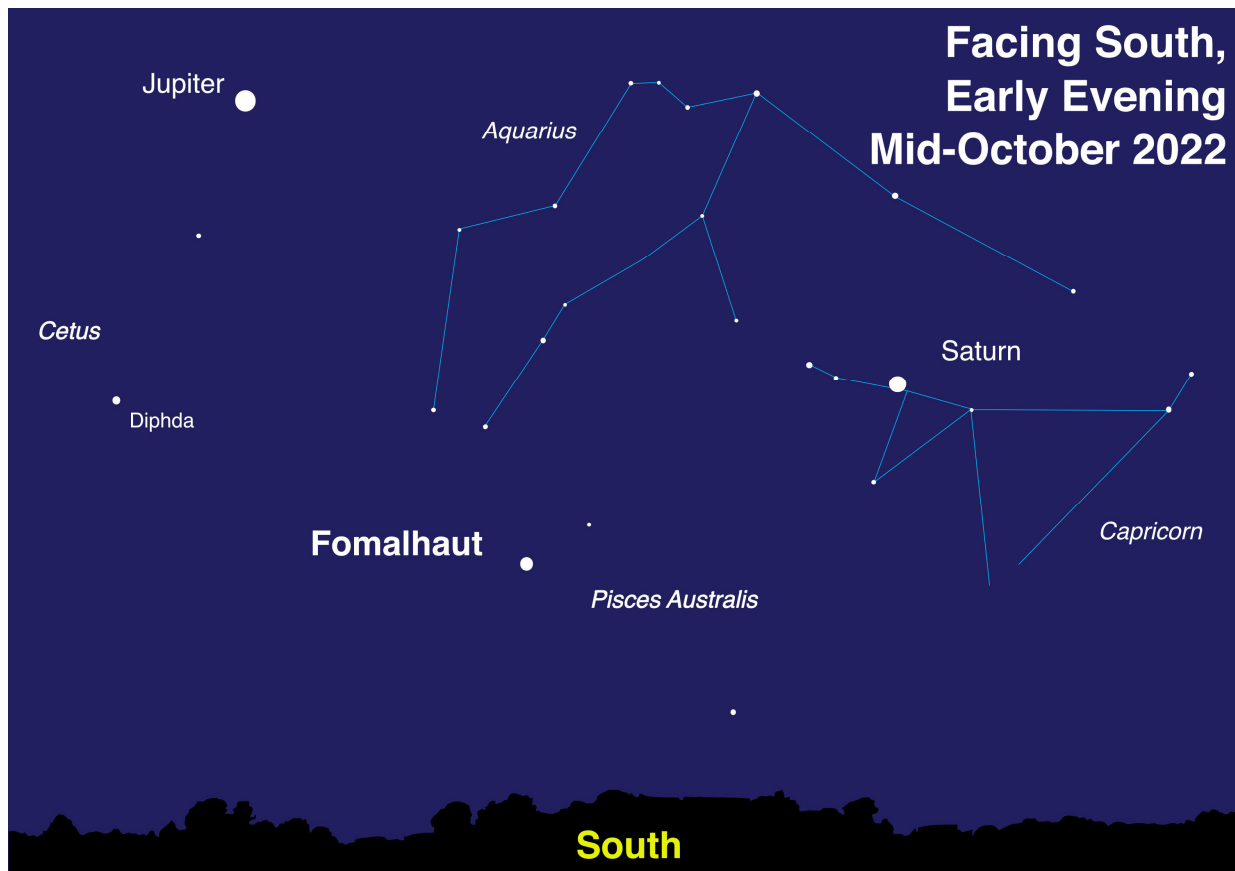
Fomalhaut appears solitary, but it does in fact have company. Fomalhaut’s entourage includes two stellar companions, both of which keep their distance but are still gravitationally bound. Fomalhaut B (aka TW Piscis Austrini, not to be confused with former planetary candidate Fomalhaut b*), is an orange dwarf star almost a light year distant from its parent star (Fomalhaut A), and Fomalhaut C (aka LP 876-10), a red dwarf star located a little over 3 light years from Fomalhaut A! Surprisingly far from its parent star – even from our view on Earth, Fomalhaut C lies in the constellation Aquarius, while Fomalhaut A and B lie in Piscis Australis, another constellation! – studies of Fomalhaut C confirm it as the third stellar member of the Fomalhaut system, its immense distance still within Fomalhaut A’s gravitational influence. So, while not truly “lonely,” Fomalhaut A’s companions do keep their distance.

Fomalhaut’s most famous feature is a massive and complex disc of debris spanning many billions of miles in diameter. This disc was first detected by NASA’s IRAS space telescope in the 1980s, and first imaged in visible light by Hubble in 2004. Studies by additional advanced telescopes, based both on Earth’s surface and in space, show the debris around Fomalhaut to be differentiated into several “rings” or “belts” of different sizes and types of materials. Complicating matters further, the disc is not centered on the star itself, but on a point approximately 1.4 billion miles away, or half a billion miles further from Fomalhaut than Saturn is from our own Sun! In the mid-2000s a candidate planetary body was imaged by Hubble and named Fomalhaut b. However, Fomalhaut b was observed to slowly fade over multiple years of observations, and its trajectory appeared to take it out of the system, which is curious behavior for a planet. Scientists now suspect that Hubble observed the shattered debris of a recent violent collision between two 125-mile wide bodies, their impact driving the remains of the now decidedly non-planetary Fomalhaut b out of the system! Interestingly enough, Fomalhaut A isn’t the only star in its system to host a dusty disc; Fomalhaut C also hosts a disc, detected by the Herschel Space Observatory in 2013. Despite their distance, the two stars may be exchanging material between their discs - including comets! Their co-mingling may help to explain the elliptical nature of both of the stars’ debris discs. The odd one out, Fomalhaut B does not possess a debris disc of its own, but may host at least one suspected planet.

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While Hubble imaged the infamous “imposter planet” of Fomalhaut b, very few planets have been directly imaged by powerful telescopes, but NASA’s James Webb Space Telescope will soon change that. In fact, Webb will be imaging Fomalhaut and its famous disc in the near future, and its tremendous power is sure to tease out more amazing discoveries from its dusty grains. You can learn about the latest discoveries from Webb and NASA’s other amazing missions at [nasa.gov](https://www.nasa.gov).

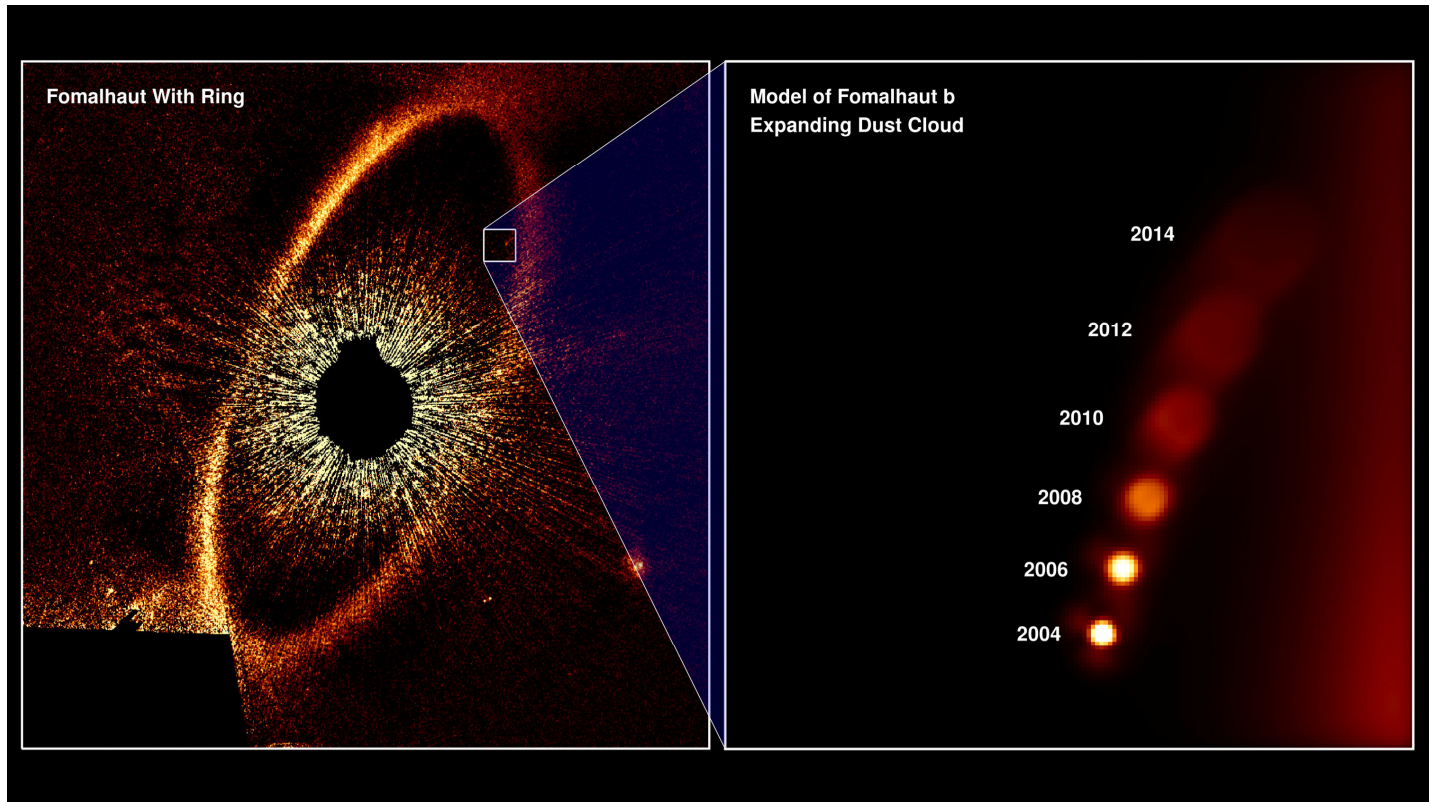
**Astronomers use capital letters to label companion stars, while lowercase letters are used to label planets.*



Sky map of the southern facing sky for mid-latitude Northern Hemisphere observers. With Fomalhaut lying so low for many observers, its fellow member stars in the constellation Pisces Australis won't be easily visible for many without aid due to a combination of light pollution and atmospheric extinction (thick air dimming the light from the stars). Fomalhaut is by far the brightest star in its constellation, and is one of the brightest stars in the night sky. While the dim constellations of Aquarius and Capricorn may also not be visible to many without aid, they are outlined here. While known as the “Loneliest Star,” you can see that Fomalhaut has two relatively close and bright visitors this year: Jupiter and Saturn!

Illustration created with assistance from Stellarium

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The magnificent and complex dust disc of the Fomalhaut system (left) with the path and dissolution of former planetary candidate Fomalhaut b displayed in detail (right).

Image credits: NASA, ESA, and A. Gáspár and G. Rieke (University of Arizona) Source: <https://www.nasa.gov/feature/goddard/2020/exoplanet-apparently-disappears-in-latest-hubble-observations>

Point and Shoot Camera Astroimaging (no telescope)

Canon Powershot SX50 HS

Image & write-up submitted by Paul Kursewicz

Cocoon Nebula (IC 5146)

SPECS: RAW mode, f/3.56, FL 1200mm, ISO 3000, 48 x 1min 45 sec, 1/3 crop, 9-1-22



The **Cocoon Nebula** (IC 5146) is a beautiful emission nebula located in the constellation Cygnus. It is about 15 light-years across and around 4,000 light years away. Inside the Cocoon is a newly developing cluster of stars. Near the center of the Cocoon lies a young giant hot blue star that is only about 100,000 years old, and now provides much of the energy source for the emitted and reflected light. The whole cluster of stars emits energetic radiation that heats the nebula. Like other star forming regions, it stands out in red because of the glowing hydrogen gas excited by young hot stars. You may have noticed that there are relatively few stars around the nebula and to its upper left. This darkness is part of a dark nebula known as **Barnard 168** (B168) which is made up of dust that is blocking out the star light behind it. B168 extends out a great distance from what you see here. When viewing the Cocoon, B168 is an inseparable part of the experience. In the sky the nebula is about 15 arc minutes in size or about half the size of the full moon and has a magnitude of 7.2.

STARFEST 2022



Our keynote speaker for Starfest was club member Bernard Valliere. Bern gave a wonderful presentation on “The Cosmic Distance Ladder.”



After his presentation the audience gave a delightful round of applause.

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STARFEST 2022



On Saturday evening, near the beginning of Bern's presentation, a bright Rocket appeared in the southern sky. We all got out of our seats to get a better look. I took this picture of the Rocket with my small point-and-shoot camera. Pictures don't do it justice. It was like having a close-up action view right before you. Was it just a coincidence that I happened to bring a box of "Cheddar Cheese **Rocket** Crackers" to this year's Starfest? Up and down the US east coast, people were reporting a comet-like object in the sunset sky. It was the [SpaceX Jellyfish](#). With a 7:32 pm EDT launch, a Falcon 9 rocket from Cape Canaveral sent up 52 Starlink satellites. Sunlight reaches up from below the horizon to illuminate the exhaust plume, making it extremely visible in the twilight sky.

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STARFEST 2022



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STARFEST 2022



“Continued on page 14”

STARFEST 2022



“Continued on page 15”

STARFEST 2022



Sunday morning, time to pack up and put things away. Mark had lost an important screw to his equipment set-up. After searching for it with no luck, Peter came to the rescue with his metal detectors. The screw was pushed under ground!



Another Starfest in the books. We had good weather throughout the festival and good company. Looking to next year!

[Astronomical Society of Northern New England \(ASNNE\)](#)

[Starfest Meeting Notes of](#)

[23-25 September 2022](#)

Record Note: There was no formal Meeting in September, as it was Starfest; so these Notes are provided, not formal Minutes. I was only present for a portion of Starfest on Saturday, so these Notes are weighed towards the part I was present for.

STARFEST 2022 a Great Success!

Starfest 22, a weekend-long Event, was recently hosted by the Astronomical Society of Northern New England (ASNNE). Held annually at the Talmage Observatory at Starfield, ASNNE's Observatory, on Alewife Road (Rte 35), in Kennebunk, ME, it was held this year from Friday, 23 September through Sunday, 25 September. This year, a greater effort was made to invite the General Public, as well as our ASNNE Members.

The Event featured both day (solar) observing and night observing.

People were invited to tent (or stay in vehicles) on Friday and Saturday nights. There were a few tents, and people attending on both Friday and Sunday, but the high-point of the Event was after noon on Saturday.

Starfest on Friday: Quite a few people were here for observing. A tent I observed could have been for Friday night overnight camping, or an "Observatory" tent.

Starfest Cookout: A white professional tent had been erected for the Cookout and the Presentation. Alyson was in overall charge, once again, and she had coordinated all the people bringing items. Thank-you, Alyson! At about 3:30 pm, we started our famous Starfest Cookout. Unlimited regular & hot sausages, hot dogs, hamburgers, and corn-on-the-cob were available, with all the fixings. A very wide assortment of delicious desserts were also available. Approximately 20 people were at the Cookout. Thank-you to all the people that brought food and other items!

Raffle: At 6:40, ASNNE President Professor Ian Durham held our raffle, where donated astronomical items were raffled off to raise funds for ASNNE.

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Presentation: At 7:30 pm, ASNNE Director, Bernard (Bern) Valliere, gave his scheduled Presentation. Mr. Valliere is a ten-year Member of ASNNE, and by day, a software engineer.

Bern discussed how distances on Earth, then within the solar system, then to the stars, and then to distant galaxies are determined. He likens the process to ascending a ladder; where each step up, depends upon the establishment of the step below it. For extreme distances, objects of known luminosity are used; known as "standard candles."

About one-third of the way into the Presentation, everyone's attention was diverted to something outside our tent. In the sky was what appeared to be a very bright comet, with a bright white head, and a wide tail. It was quickly realized that what we were seeing was the launch of a SpaceX Falcon 9 rocket, delivering 52 Starlink satellites into orbit. Launched from Cape Canaveral, we were seeing it proceeding northward along the Eastern Seaboard. Several people congratulated Bern for arranging such a thrilling demonstration!

Bern's Presentation was very well received. About forty-four people attended his Presentation

Thank-You's: President Durham took a moment to thank several Members who gave lectures at "glamping" campgrounds this summer. The lead, Gary Asperschlager; was especially noted, as well as Bernard Reim, Bern Valliere, Carl Gurtman, and Bob Conley. The work of David Bianchi, ASNNE's E-Mail Manager, was also commended.

Night-Time Observing: After Bern's Presentation, Members and guests moved to the many telescopes that had been set up. The planets Jupiter and Saturn were visible, and the night was moonless, bright and clear, and very starry. People enjoyed views of the planets, and the "tours" of the constellations via laser pointer!

Next Meeting: Our next Meeting will be on Friday, 7 October, 2022, at 7:30 pm at the New School.

Respectfully submitted,

Carl Gurtman

Club Meeting & Star Party Dates

Date	Subject	Location
<u>Oct 7</u>	<p><u>ASNNE Club Meeting:</u></p> <p>Our October Meeting will be held at The New School.</p> <p>Business Meeting at 7:00 pm.</p> <p>Club Meeting 7:30 to 10:00PM</p> <p>Guest Speaker: TBD.</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	<p>We had our Starfest weekend last month and it was a huge success. Pleasant weather abounded and good comradery. Bern gave an excellent presentation on The Cosmic Distance Ladder. We even had a rocket grace our southern sky during his presentation.</p>	
<u>TBD</u>	<p>Club/Public Star Party: Weather permitting. Check before heading over.</p>	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:

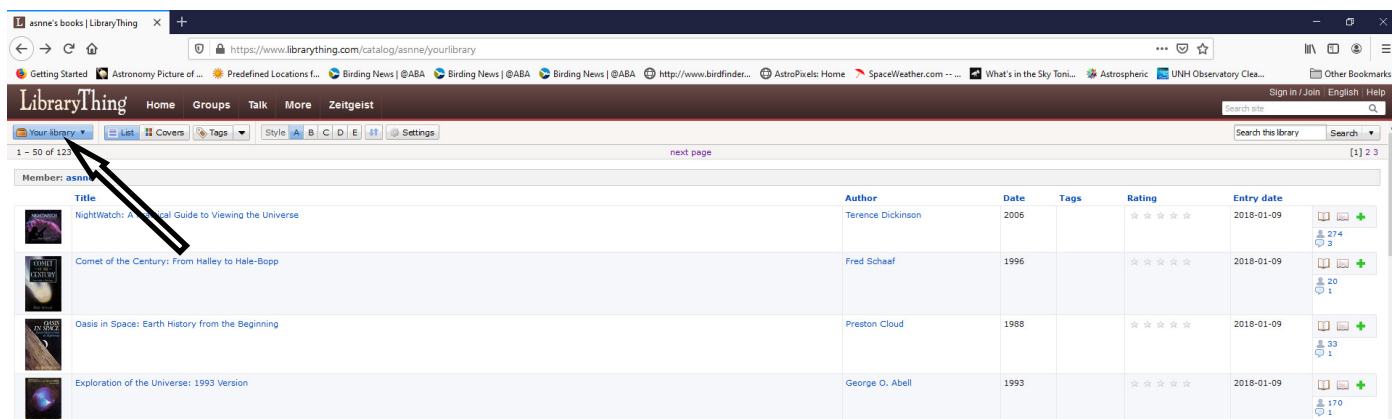
Get off the turnpike at exit 25 in Kennebunk. After toll both turn right on Rt 35. Go up over the turnpike and immediately turn right on Rt 35. About 4 miles along you will crest a hill and see a large field on your right. Continue until you reach the end of the field. Turn right into the Starfield Observatory 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

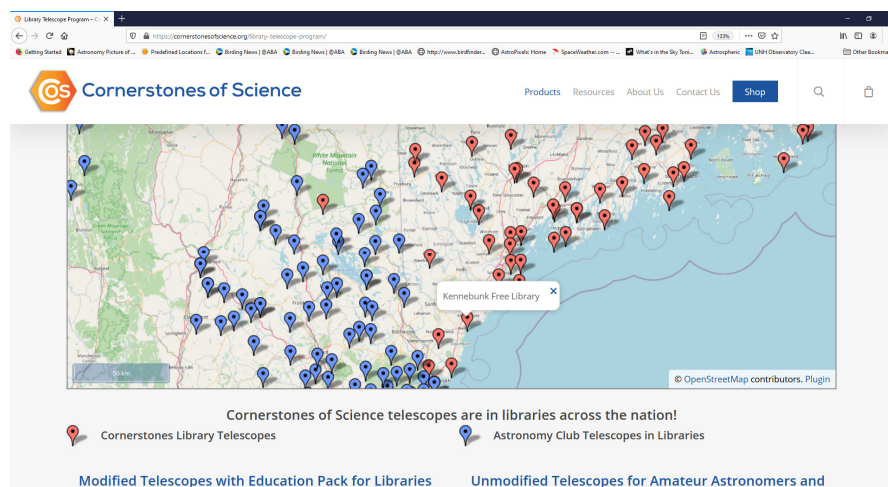
Our club has a library of astronomy books which are stored at The New School in Kennebunk, Maine (our monthly club meeting location). To request a book(s), contact one of the club officers. A listing of books is provided here: <https://www.librarything.com/profile/asmne> . After clicking on the link, 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.



The screenshot shows the LibraryThing website interface. The user is logged in as 'asmne'. The page displays a list of books in the user's library. The first book is 'NightWatch: A Practical Guide to Viewing the Universe' by Terence Dickinson, published in 2006. Other books include 'Comet of the Century: From Halley to Hale-Bopp' by Fred Schaaf (1996), 'Oasis in Space: Earth History from the Beginning' by Preston Cloud (1988), and 'Exploration of the Universe: 1993 Version' by George O. Abell (1993). The page also shows navigation options like 'List', 'Covers', and 'Tags', and a search bar.

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 screenshot shows the Cornerstones of Science website. The main feature is a map of the United States with numerous red and blue location markers. A pop-up window for 'Kennebunk Free Library' is visible. Below the map, there is a legend and text: 'Cornerstones of Science telescopes are in libraries across the nation!'. The legend indicates that red markers represent 'Cornerstones Library Telescopes' and blue markers represent 'Astronomy Club Telescopes in Libraries'. At the bottom, there are two categories: 'Modified Telescopes with Education Pack for Libraries' and 'Unmodified Telescopes for Amateur Astronomers and...'

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 _____

