

# Skylights

Newsletter of the Astronomical Society of Northern New England



**JUL 2022**



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 July

By *Bernie Reim*

**T**he month of July is named for Julius Caesar. This is always the first full month of summer for us in the northern hemisphere. The nights are already getting longer again even as the days are getting shorter since the summer solstice. There will be many interesting highlights this month, even though it won't quite be able to match all the drama that occurred last month.

The great morning planetary lineup in order from Mercury to Saturn is still with us for only one more week, but it will spread out over 118 degrees from its most closely packed arrangement of just 91 degrees back in early June. Make sure you see it at least once early this month if you have not already seen it last month. Also try to photograph it if at all possible. This will not happen again until 2040, but then the last two planets, Uranus and Neptune will not be included among the other 5 as they are now.

The other highlights include some nice lunar conjunctions with all the planets in the morning sky starting on July 16 with a nearly full moon and Saturn and lasting right through July 26 when the moon will have faded to a slender waning crescent as it finally catches up with Venus.

The remaining highlights include the opposition of an asteroid named Aquitania in Ophiuchus the Serpent Bearer and Comet C/2017 K2 (PanSTARRS) will also be visible in that same constellation just a little farther north of Aquitania and on the other side of M14, a nice globular star cluster containing about a quarter of a million stars located about 30,000 light years away.

Then the first good meteor shower since early May will peak on Saturday morning, July 30. That is the Southern Delta Aquarid shower. You can only expect about 12 meteors per hour emanating from western Aquarius, near Capricorn. People in the southern hemisphere will see about twice as many since Aquarius will be higher in the sky for them. They are caused by Comet 96P/Machholz. That comet, along with near earth asteroid EH1 which causes the Quadrantid meteors in early January each year, can be traced back to a comet that broke up about 9500 years ago.

The great parade of planets marching in perfect order now begins a little earlier each night as Saturn starts the month rising at 11 pm and ends it by rising 2 hours earlier. The ringed planet will reach opposition next month on August 14 when it will rise exactly at sunset.

Then there will be a gap of about two hours before Jupiter will rise in Cetus the whale. The King of the

Planets will begin its own retrograde motion on July 29 and reach opposition on September 26 of this year.

Then there is a gap of about one hour as Mars will begin the month rising at 2 am in Pisces. Notice that all 3 of these superior planets will be getting slightly closer and brighter and larger in our sky with each passing morning. The red planet will not reach opposition until December 8 of this year when it will be just 38.6 million miles away, about twice as close as its average distance. Unlike the other superior planets which reach opposition every 13 months, Mars only reaches opposition every 26 months.

Now we get to the inferior planets, inside the earth to the sun. Venus rises at 3:45 a.m. to begin the month just above Aldebaran in Taurus the Bull. Then the other inferior planet, Mercury, finally finishes this great parade as it rises in the east just 45 minutes before sunrise. Mercury will drop out of this great line up by the end of the first week of this month, only to reappear in the evening sky by July 25.

The last two planets in our solar system, Uranus and Neptune, will also line up in order, but only with each other and not with the other 5 planets we just covered. Uranus will show up about evenly spaced between Venus and Mars and Neptune is located between Jupiter and Saturn, but much closer to Jupiter. You will need at least a

*"Continued on page 2"*

## *Inside This Issue*

<b>Club Contact List</b>	<b>pg. 2</b>
<b>Moon Data Observer's Challenge</b>	<b>pg. 3,4,5</b>
<b>Meteor Showers in 2022 Club Merchandise for Sale</b>	<b>pg. 6</b>
<b>Find Hercules and His Mighty Globular Clusters</b>	<b>pg. 7,8</b>
<b>Astroimaging with a Point &amp; Shoot</b>	<b>pg. 9,10</b>
<b>Rare Five—Planet Alignment</b>	<b>pg. 11</b>
<b>Sunrise Photos</b>	<b>pg. 12,13</b>
<b>Club Info &amp; Directions to ASNNE</b>	<b>pg. 14</b>
<b>ASNNE Club &amp; Library Resources</b>	<b>pg. 15</b>
<b>Become a Member</b>	<b>pg. 16</b>

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## **What's Up "Continued from page 1"**

small telescope to see those two last planets in our solar system. Uranus glows with a subtle greenish light and Neptune is a pale blue.

It is always nice to see at least one or two planets and the moon at the same time to get a much better sense of our ecliptic plane in space and how we are really orbiting the sun. Now we can see all 7 of our planets at the same time while we are standing on the eight one, Earth. Of course you will need a telescope for Uranus and Neptune, but you can see them in your mind's eye if you know where they are in this line-up and what they look like through a telescope.

That will really give you a great sense of our whole solar system as it is being constantly flung around the sun in a helical pattern as the sun itself is being flung around the center of our Milky Way galaxy in a spiraling vortex at about 500,000 miles per hour. The speed of our planets around the sun ranges from 30 miles per second for Mercury to just 3.4 miles per second for Neptune. Then our whole galaxy is racing towards the Andromeda Galaxy at over one million miles per hour, heading for a sure collision in about 5 billion years.

Beginning July 16 you can watch our only natural satellite point out each of those 7 planets as if to highlight each one in turn and draw more of your attention to that particular one. The waning gibbous moon will be 3 degrees to the left of Saturn on the 16<sup>th</sup>. Then, as it moves 12 degrees per day, it will almost reach Jupiter two days later. Then it will be just to the right of Mars on the 21<sup>st</sup> at last quarter. It continues its journey finally reaching Venus, the last one in this lineup since we lost Mercury early this month, on July 26 when it will have faded to a slender waning crescent.

The moon will always pass fairly near any given planet once a month, but it is particularly impressive when they are all nicely lined up and you can get a good sense of its speed and its shape along the ecliptic with so many markers on its path. The moon moves its own width, half a degree, eastward every hour. The moon is 2160 miles in diameter, so it is moving through space around the earth at about that speed.

The only time you can really see and sense how fast that is, other than flying in a fighter jet at Mach 3, is during a total solar eclipse as the immense shadow of this rapidly moving moon plunges you into near total darkness instantaneously as it engulfs you and the entire landscape all around you for just a few short moments as it continues on its pre appointed and perfectly predictable path. When I experienced all of this and much more on the morning of August 21, 2017, the moon's shadow raced across this entire country in just 90 minutes, about the time it takes the ISS to orbit all the way around the earth one time. A similar eclipse will track from Mexico to Canada and pass right over parts of Maine on April 8 of 2024.

The Southern Delta Aquarid meteor shower will start in mid July when the moon begins to point out all of our planets. It will peak during the morning of Saturday, July 30. These meteors tend to be fainter than the Geminids and other meteors because they are smaller particles of dust than other showers create and they are hitting our upper atmosphere at slower speeds, only about 25 miles per second. The Perseids are much faster at 40 miles per second. By comparison, the earth is always moving around the sun at 18.6 miles per second, or exactly 10,000 times slower than the speed of light.

July 1. Venus passes just one degree north of Aldebaran in Taurus this morning.

July 3. On this day in 1935, Harrison Schmitt was born. He, along with Gene Cernan, were the last two humans to ever walk on the moon with Apollo 17 on December 11 of 1972.

July 4. Earth is at aphelion or farthest from the sun for the year at 94.5 million miles today. That is only 3.4% farther than it was at perihelion on January 4. On this day in 1054 a supernova exploded in Taurus. Actually, that happened 6500 years earlier than 1054, since that is the distance to the Crab nebula, also known as M1 in Charles Messier's catalog of 110 objects. This event was witnessed and documented by cultures all across the world from the Anasazi in Chaco Canyon in New Mexico to Europe to China and Japan. That shell is still expanding rapidly into space and is now 10 light years across. The star that exploded turned into a neutron star only the size of a city that is spinning 30 times per second, ejecting twin beams of powerful radiation, trillions of times more powerful and impressive than all of the fireworks we have ever created and launched on Earth during the last 1000 years. Gunpowder was first made in China at about the same time that this supernova exploded. The Deep Impact probe purposely hit Comet Tempel 1 on this day in 2005. It created a crater 100 meters across and 30 meters deep.

July 6. First quarter moon is at 10:14 pm EDT. Isaac Newton published his Principia on this day in 1687.

July 7. The Mars Opportunity Rover was launched on this day in 2003. It enjoyed great success and discovered many unexpected things on Mars over 14 years, along with its twin, the Spirit Rover, far outlasting its expected life of only 3 months.

July 10. The waxing gibbous moon is near Antares in Scorpius this evening. Antares, similar to Betelgeuse, has a discernible orange hue and is about 500 light years away and is about 700 times the diameter of our own sun.

July 12. Buckminster Fuller was born on this day in 1895. He was known as the planet's friendly genius and invented many useful things including the geodesic dome.

July 13. Full moon is at 2:38 pm. This is also known as the Hay or Thunder Moon. Venus will pass very close to M1, the Crab Nebula in Taurus this morning.

July 16. The moon passes near Saturn.

July 17. The moon passes near Neptune this morning. The first photograph of a star was taken on this day in 1850.

July 18. India became the 7<sup>th</sup> nation to launch its own satellite on this day in 1980.

July 19. The moon is near Jupiter this morning.

July 20. On this day in 1969 the first humans landed on the moon. They were Armstrong and Aldrin with Apollo 11. We would only go there 5 more times with only 10 more astronauts walking on the moon until December 11 of 1972. We are planning to go back on a permanent basis with the Artemis mission within the next 5 or 6 years. Pluto reaches opposition in Sagittarius today. It takes Pluto 248 years to orbit the sun once. It only orbits at 3 miles per second and is located 40 astronomical units from the sun on the average, ranging from 30 to 50 astronomical units, each one of which is 93 million miles. It takes light over 5 hours to reach Pluto. It will only reach 14.3 magnitude, or 15 million times fainter than Venus.

July 21. The moon is near Mars this morning.

July 28. The Southern Delta Aquarids peak this morning.



Moon Phases

**July 6**  
First Quarter

**July 13**  
Full

**July 20**  
Last Quarter

**July 28**  
New

Moon Data

**July 13**  
Moon at perigee

**July 15**  
Saturn 4° north  
of Moon

**July 17**  
Neptune 3° north  
of Moon

**July 18**  
Jupiter 2° north  
of Moon

**July 21**  
Mars 1.1° south  
of Moon

**July 22**  
Uranus 0.2° south  
of Moon

**July 26**  
Venus 4° south  
of Moon

Moon at apogee

**OBSERVER'S CHALLENGE\* – JULY, 2022**

by Glenn Chaple

**NGC 6210 Planetary Nebula in Ursa Hercules (Magnitude 8.8; Size 20" X 13")**

A majority of the non-Messier deep sky objects featured in the Observer's Challenge were discovered by the German-English astronomer William Herschel during surveys conducted in the latter part of the 18<sup>th</sup> century and early years of the 19<sup>th</sup>. One of Herschel's more notable "misses" was this month's Challenge, the bright planetary nebula NGC 6210 in Hercules. Perhaps its relatively small size (a mere 20 by 13 arc-seconds and almost stellar-looking when viewed with low magnification) was to blame. But Herschel was able to detect the non-stellar appearance of Uranus when he discovered the planet in 1781, and its disc is just 4 arc-seconds across. Whatever the reason, NGC 6210 remained undetected until stumbled upon by the German-born Russian astronomer Wilhelm Struve while searching for double stars in 1825.

NGC 6210, nick-named the "Turtle Nebula" for its appearance in astroimages and visually through large-aperture scopes, is situated south of the "Keystone" of Hercules at 2000.0 coordinates RA 16<sup>h</sup>44<sup>m</sup>29.5<sup>s</sup> and Dec +23°47'59.5". It's about 4 degrees northeast of the 3<sup>rd</sup> magnitude star beta (β) Herculis, a good starting point for star-hoppers working with a low-power eyepiece (refer to Finder Chart B). You'll know you've hit the mark when you arrive at a thin triangle 18 arc-minutes long and comprised of two 7<sup>th</sup> magnitude stars and a slightly out-of-focus 9<sup>th</sup> magnitude object (NGC 6210).

Even the smallest of astronomical telescopes will pick up NGC 6210. I first saw it on the evening of May 27, 1978, using a 3-inch f/10 reflector. In my logbook, I wrote, "At 30X, this object is still nearly star-like. At 60X, it seems more diffuse, and at 120X is definitely nebulous." I saw no indication of color.

Recently, I returned to NGC 6210 with a 10-inch f/5 reflector. Again, low power (this time, 40X) revealed little more than a near-stellar image. A switch to higher magnification (208X) brought out a slightly bluish hue, but there was no sign of the outer extensions that form the "Turtle's" head and appendages. I also failed to pick out the 13<sup>th</sup> magnitude central star. Darker skies (mine had a limiting magnitude of 5) and/or more aperture would have done the trick.

After giving NGC 6210 its due respect, turn your gaze to the 7<sup>th</sup> magnitude triangle member that lies 18 arc-minutes south and slightly west. This is the tight double star Struve 2094 (Σ2094). Its magnitude 7.5 and 7.9 component stars are just 1.1 arc-seconds apart, so I recommend using a scope with minimum aperture of 4 inches and a magnifying power of at least 200X on an evening when the seeing conditions are as steady as possible. An 11.7-magnitude third component lies 25 arc-seconds northwest of the main pair.

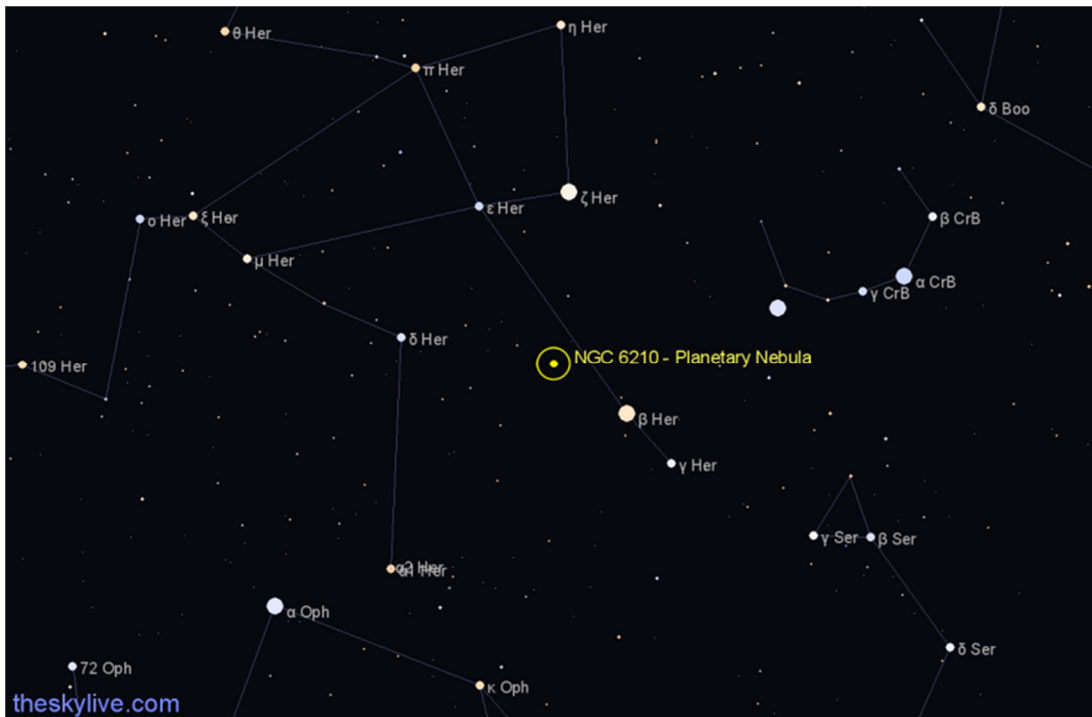
NGC 6210 is about 6500 light years away. The bright central portion is roughly one-half light year in diameter, while the "Turtle" spans 1.6 light years.

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

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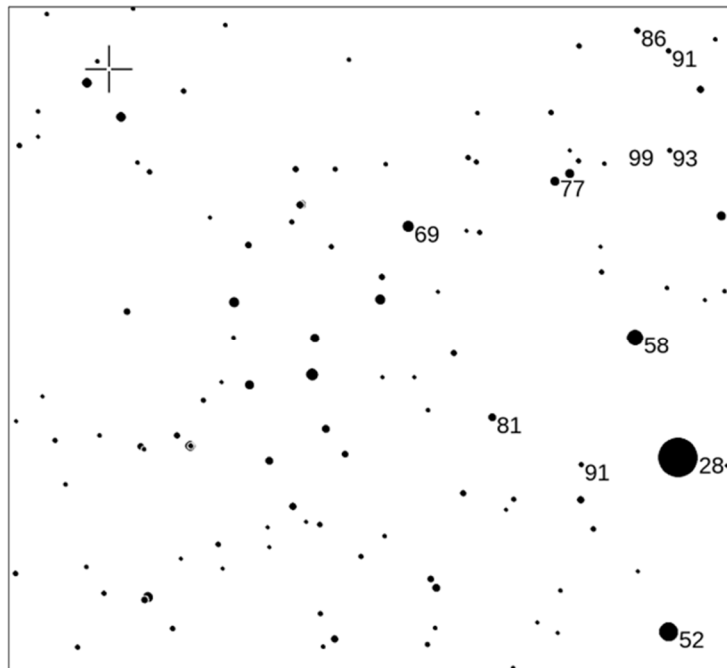
## NGC 6210 Finder Charts

### A



### B

Chart created using the AAVSO's Variable Star Plotter (VSP). The location of NGC 6210 is marked with a crosshair. Numbers are stellar magnitudes, decimals omitted. The 2.8 magnitude star is beta ( $\beta$ ) Herculis. Stars plotted to 10<sup>th</sup> magnitude. North is up in this 4 X 4 degree field. The star just below and slightly right of NGC 6210 is Struve 2094.



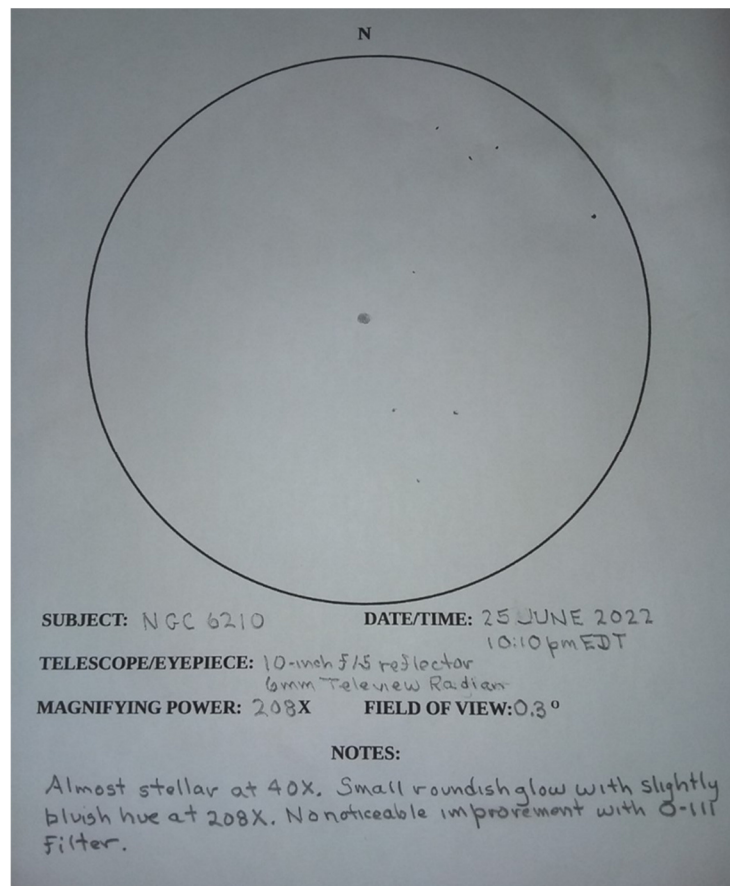
*“Continued on page 5”*

## NGC 6210 Images

Image by Mario Motta, MD (ATMoB) taken with H alpha and O3 filters, each about 1 hour, through 32 inch scope with an ASI 6200 camera.



Sketch by Glenn Chaple (ATMoB)



## 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

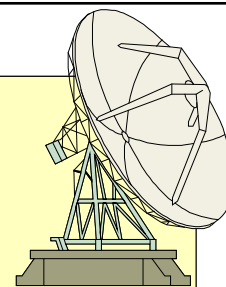
**December 14**  
Geminids

**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](http://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](mailto: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](https://nightsky.jpl.nasa.org) to find local clubs, events, and more!

## Find Hercules and His Mighty Globular Clusters

By David Prosper

Hercules is one of the standout heroes of Greek mythology, but his namesake constellation can be surprisingly hard to find - despite being one of the largest star patterns in our night skies! Once you find the stars of Hercules, look deeper; barely hidden in the space around his massive limbs and “Keystone” asterism are two beautiful globular star clusters: M13 and M92!

Since the constellation itself is relatively dim but bordered by brighter constellations, you can find the stars of Hercules by looking between the bright stars Vega and Arcturus. They are fairly easy to identify, and we have tips on how to do so in previous articles. Vega is the brightest star in the constellation Lyra and one of the three stars that make up the Summer Triangle (*June 2020: Summer Triangle Corner: Vega*). Arcturus is the brightest star in the constellation Boötes, and can be found by “arc-ing to Arcturus” from the handle of the Big Dipper (*May 2021: Virgo’s Galactic Harvest*). You may be able to Hercules’s “Keystone” asterism first; this distinct pattern of four stars is traditionally shown as the torso of the great hero, though some illustrators prefer marking the Keystone as the head of Hercules. What pattern do *you* see in the stars of Hercules?

Globular star clusters appear “fluffy,” round, and dense with stars, similar to a dandelion gone to seed, in contrast to the more scattered and decentralized patterns of open clusters. Open clusters are generally made up of young stars that are gradually spreading apart and found inside our Milky Way galaxy, while globular clusters are ancient clusters of stars that are compact, billions of years old, bound to each other and orbit around our galaxy. Due to their considerable distance, globular clusters are usually only visible in telescopes, but one notable exception is M13, also known as the Great Cluster or Hercules Cluster. During very clear dark nights, skilled observers *may* be able to spot M13 without optical aid along the border of the Keystone, in between the stars Zeta and Eta Herculis - and a bit closer to Eta. Readily visible as a fuzzy “star” in binoculars, in telescopes M13 explodes with stars and can fill up an eyepiece view with its sparkling stars, measuring a little over half the diameter of a full Moon in appearance! When viewed through small telescopes, globular clusters can appear orblike and without discernable member stars, similar in appearance to the fuzzy comae of distant comets. That’s why comet hunters Edmund Halley and Charles Messier discovered and then catalogued M13, in 1714 and 1764 respectively, marking this faint fuzzy as a “not-comet” so as to avoid future confusion.

While enjoying your view of M13, don’t forget to also look for M92! This is another bright and bold globular cluster, and if M13 wasn’t so spectacular, M92 would be known as the top celestial sight in Hercules. M92 also lies on the edge of naked-eye visibility, but again, binoculars and especially a telescope are needed to really make it “pop.” Even though M92 and M13 appear fairly close together in the sky, in actuality they are rather far apart: M13’s distance is estimated at about 25,000 light years from Earth, and M92’s at approximately 27,000 light years distant. Since M13 and M92 appear so close together in our skies and relatively easy to spot, switching between these two clusters in your scope makes for excellent star-hopping practice. Can you observe any differences between these two ancient clusters of stars?

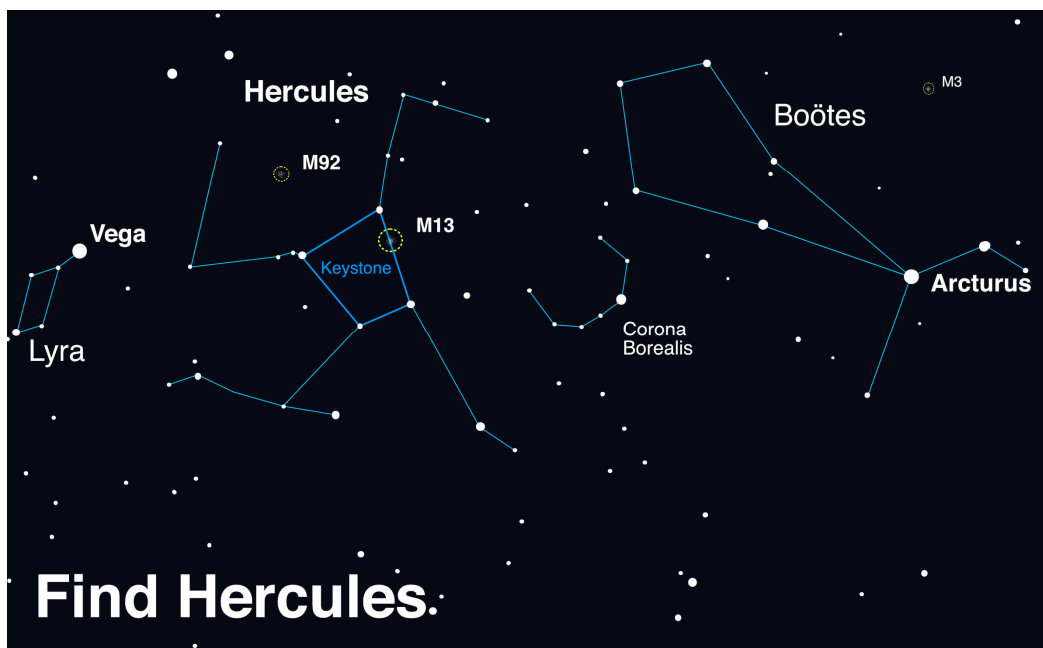
Globular clusters are closely studied by astronomers for hints about the formation of stars and galaxies. The clusters of Hercules have even been studied by NASA’s space telescopes to reveal the secrets of their dense cores of hundreds of thousands of stars. Find their latest observations of globular clusters - and the universe - at [nasa.gov](https://nasa.gov).

*“Continued on page 8”*



*Composite image of the dense starry core of M92 imaged in multiple wavelengths. While your own views of these globular clusters won't be nearly as crisp and detailed, you might be able to count some of its member stars. How far into their dense cores can you count individual stars? Credits: ESA/Hubble & NASA; Acknowledgment: Gilles Chapdelaine. Source:*

<https://www.nasa.gov/feature/goddard/2017/messier-92>



*Look up after sunset during summer months to find Hercules! Scan between Vega and Arcturus, near the distinct pattern of Corona Borealis. Once you find its stars, use binoculars or a telescope to hunt down the globular clusters M13 and M92. If you enjoy your views of these globular clusters, you're in luck - look for another great globular, M3, in the nearby constellation of Boötes. Image created with assistance from Stellarium: [stellarium.org](http://stellarium.org)*



## Point and Shoot Camera Astroimaging (no telescope)

**Canon Powershot SX50 HS**

*Image & write-up submitted by Paul Kursewicz*

### Whale & Hockey Stick Galaxy

RAW mode, f/4, FL 1200mm, ISO 3000, 30 x 1 min 30 sec, cropped, 4-2-22.

Baader Moon & Skyglow Filter.

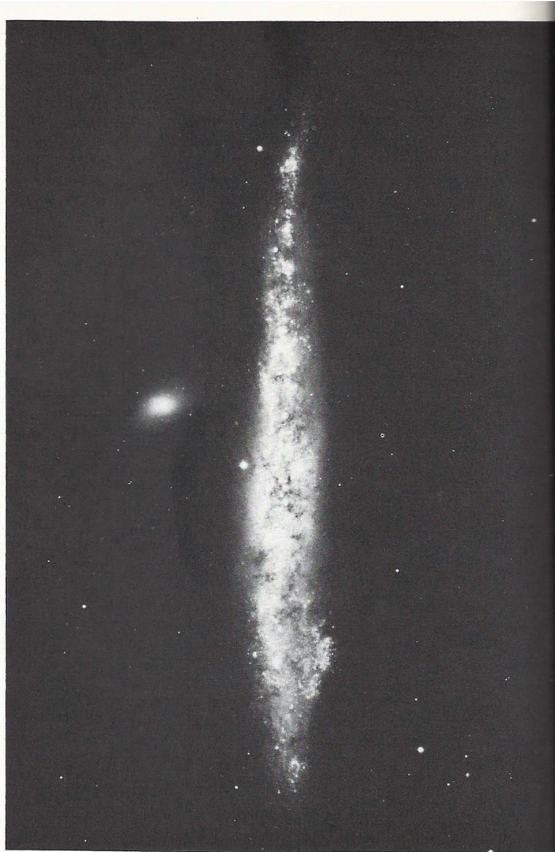


NGC 4631 (top left) & NGC 4656 (bottom center) are known as the Whale Galaxy and Hockey Stick Galaxy, respectively. The Whale is distorted due to its interaction with galaxy NGC 4627 just to its left. It is about 25 million light years away and similar in size to our own Milky Way Galaxy. The Hockey Stick, lying about 30 million light years distant, is distorted by a small galaxy just off the tip of the “blade” (just able to distinguish its fuzzy separation—zooming in will help). Both galaxies are located in Canes Venatici. This cosmic duet of galaxies are best seen with telescopes of at least 8” (or 200 mm) of aperture.

*“Continued on page 10”*

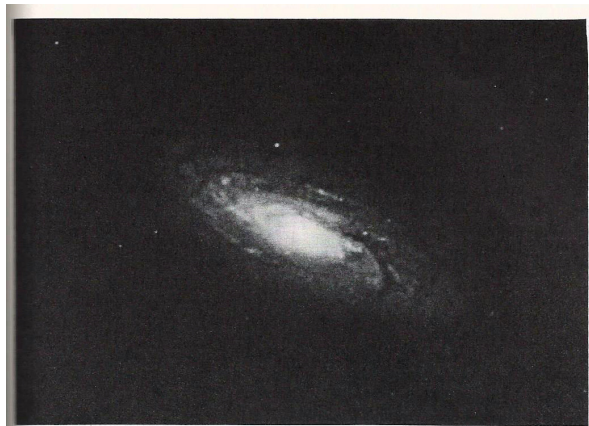
## From the pages of "Burnham's Celestial Handbook" copyright 1978

### Whale & Hockey Stick Galaxies



NGC 4631. One of the largest of the edge-on galaxies, believed to be an Sc type spiral. Palomar Observatory 200-inch reflector photograph.

378



GALAXIES in CANES VENATICI. Top: The fine spiral NGC 5005, photographed with the 100-inch telescope. Below: Irregular system NGC 4656, photographed with the 60-inch telescope.

Mt. Wilson Observatory

379

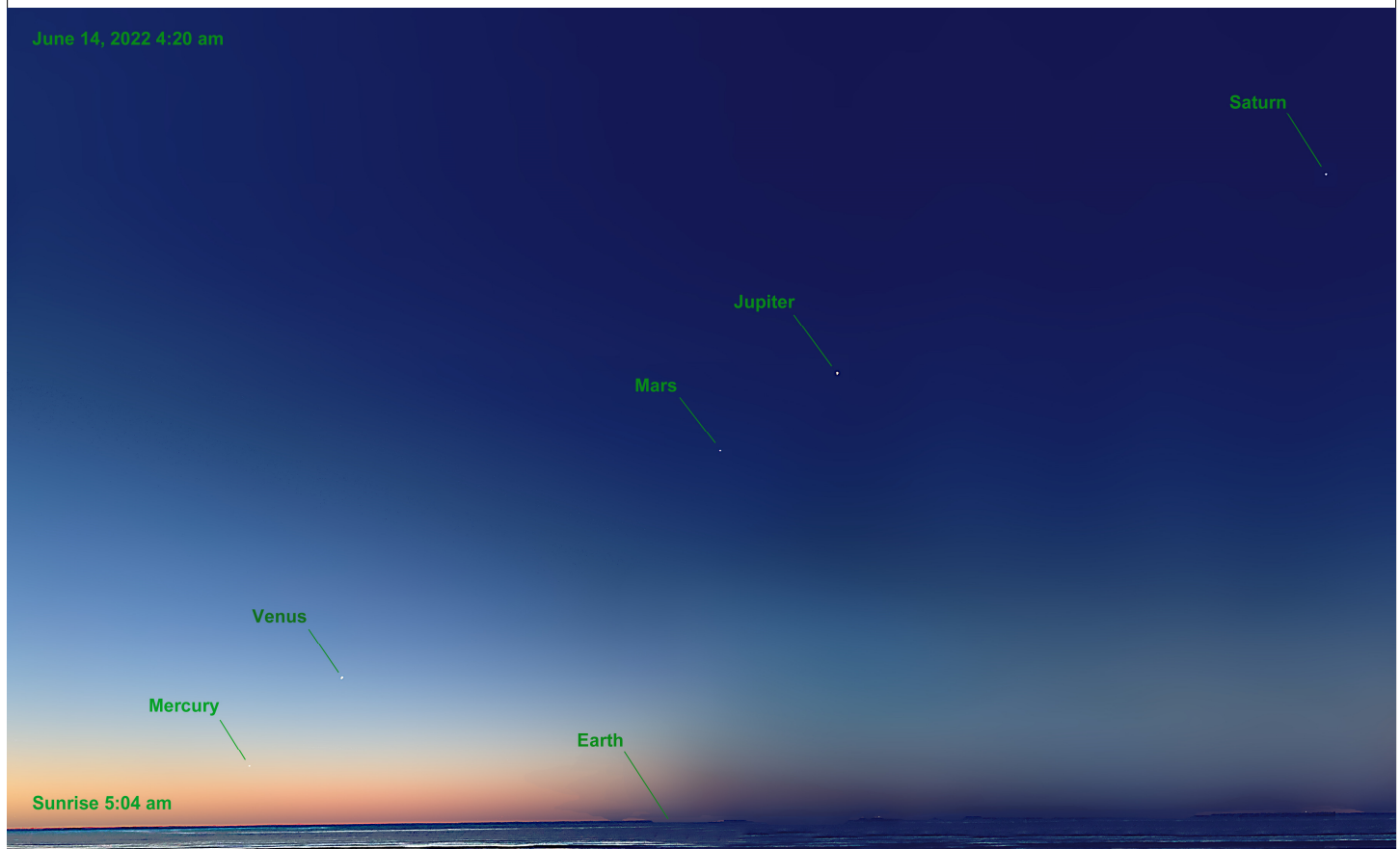
The photo of the Whale Galaxy (left) was taken with the 200-inch reflector from Palomar Observatory. The Whale has a nearby dwarf elliptical galaxy, NGC 4627, as a companion. The photo of the Hockey Stick Galaxy (bottom right) was taken with the 60-inch telescope from Mt. Wilson Observatory. This image does a nice job of showing the small galaxy at the tip of the blade which is distorting the Hockey Stick Galaxy (a highly warped barred spiral).

# RARE 5-PLANET ALIGNMENT

Camera: iPhone

*Image & write-up submitted by Paul Kursewicz*

These five planets appeared in the same sequence in the sky as they are in their respective orbits around the Sun.



On June 14, my wife and I went to the seacoast to view the planetary alignment. We arrived at 3:45 am. Amazingly, the sky was pretty bright at this time of morning. Mercury would rise at 4:05 am. I took my composite picture at 4:20 am. Yes, a composite picture because the five planets were stretched out at a great distance across the sky which did not allow me to get them all in one shot. Mercury spent all of its time in the orange haze. And the only way that we could see it was by the use of binoculars. I was able to capture Mercury in my picture. But it required me stacking 40, 1/4 sec exposures. The last time the five naked-eye planets were line-upped like this was 18 years ago.

*“Continued on page 12”*

**Then there was Sunrise! Pictures taken with my Canon Powershot SX50 HS**



Zooming In

*“Continued on page 13 ”*



## Club Meeting & Star Party Dates

Date	Subject	Location
<u>July 8</u>	<p><b><u>ASNNE Club Meeting:</u></b></p> <p><b>Business Meeting</b> starts at 7:00 PM</p> <p><b>Club Meeting 7:30 to 10:00PM</b></p> <p><b>Guest Speaker:</b> TBD</p> <p><b>Bernie Reim</b> - What's UP</p> <p><b>Astro Shorts:</b> (news, stories, jokes, reports, questions, photos, observations etc.)</p>	The New School, Kennebunk, Me.
Last Month	<p>We had our club meeting at The New School. It was a combination of a business meeting and roll over into our regular meeting. Several members joined us on Zoom. There was no keynote speaker. Bernie did his "What's-Up" presentation and certain club members contributed to Astroshorts. A date was set for Starfest: Sept 23,24,25.</p>	
<u>July 22</u>	<b>Club/Public Star Party:</b> Weather permitting. Check before heading over.	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](http://nightsky.jpl.nasa.gov/club-view.cfm?Club_ID=137)

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

**From North:**

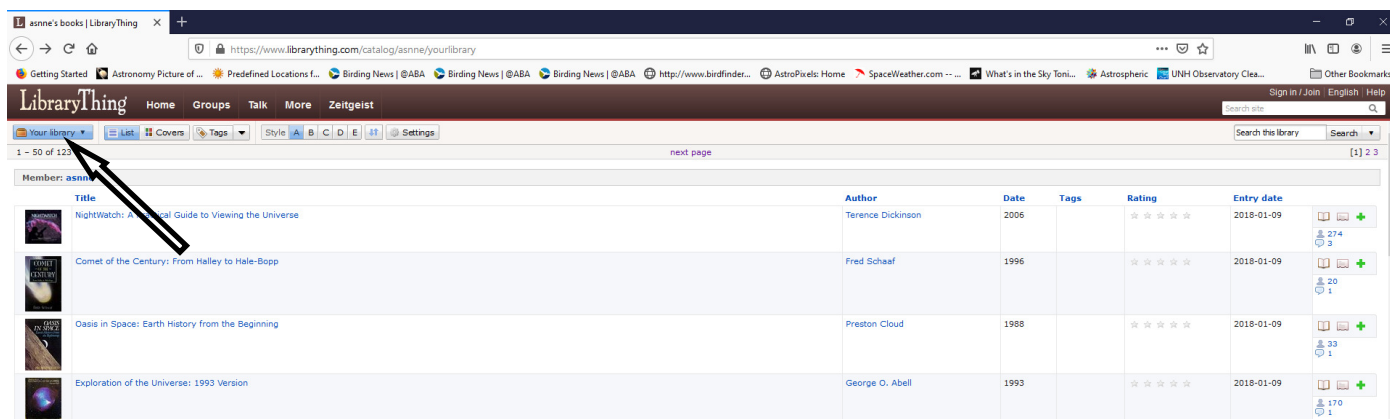
Get off turnpike at exit 32, (Biddeford) turn right on Rt 111. Go 5 miles and turn left on Rt 35. Go 2 miles on Rt 35 over Kennebunk River to very sharp 90 degree left turn. The entrance to the Starfield Observatory site is at the telephone pole at the beginning of the large field on the left. Look for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

**From South:**

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

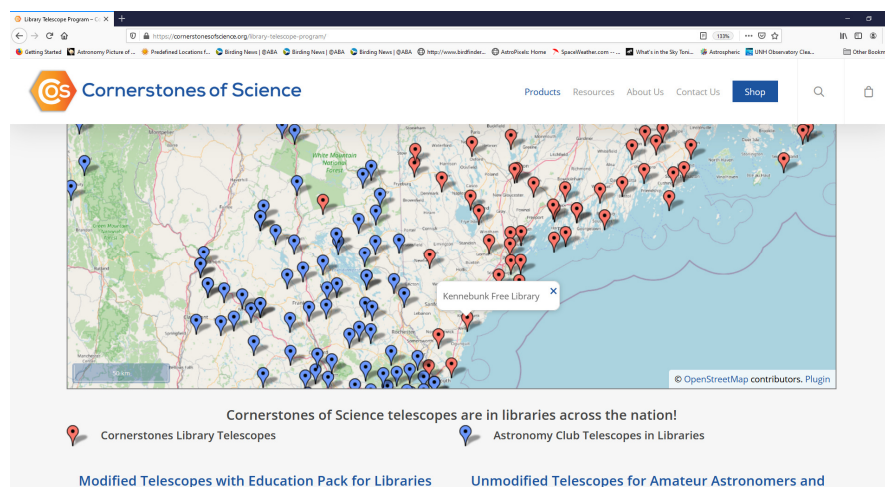
# Astronomy Club & Library Resources

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



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

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



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

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



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

**2022 Membership Registration Form**

(Print, fill out and mail to address above)

Name(s for family): \_\_\_\_\_

Address: \_\_\_\_\_

City/State: \_\_\_\_\_ Zip code: \_\_\_\_\_

Telephone # \_\_\_\_\_

E-mail: \_\_\_\_\_

Membership (check one):

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

Total Enclosed \_\_\_\_\_

Tell us about yourself:

1. Experience level: Beginner \_\_\_\_\_ Some Experience \_\_\_\_\_ Advanced \_\_\_\_\_

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

3. Do you have any special interests in Astronomy?  
 \_\_\_\_\_

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

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

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

Yes \_\_\_\_\_ No \_\_\_\_\_

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

Yes \_\_\_\_\_ No \_\_\_\_\_

