

# Skylights

Newsletter of the Astronomical Society of Northern New England



**JUNE 2019**



Member of NASA's



**Astronomical League**

## ASNNE MISSION

ASNNE is an incorporated, non-profit, scientific and educational organization with three primary goals:

- 1) *To have fun sharing our knowledge and interest with others.*
- 2) *To provide basic education in astronomy and related sciences to all who are interested.*
- 3) *To promote the science of Astronomy.*

## What's Up in June

By *Bernie Reim*

**T**he month of June is named for Juno, who is the Roman queen of the gods, the wife of Jupiter, and the patroness of marriage. According to myth, Juno also had the power to see through a veil of clouds that Zeus put up to conceal Jupiter. So it is very fitting that a space craft named Juno has been orbiting Jupiter for nearly 3 years and that it performs much the same function as its mythical namesake, except that the modern Juno uses scientific instruments and the power of mathematics to better reveal the true nature of Jupiter and not magical powers and ancient spells.

Jupiter will be at its best for the year on June 10, but it does not usually reach opposition in June. However, summer always starts in June for us in the northern hemisphere. This month that will happen at 11:54 a.m. on Friday, June 21<sup>st</sup>. That marks the minute that the sun lies farthest north and highest in our sky, which is 68 degrees. That also marks the longest day and shortest night for us and the beginning of winter in the southern hemisphere. If you could photograph the sun at high noon about every other day from a fixed location for a whole year, the sun would trace out a slightly tilted figure 8 in the sky and the sun will reach that highest point this month.

Even though the nights are at their shortest now, this will be a good month to spend some more time looking at the night sky because it will be considerably warmer and there are many highlights to see during the short nights this month. Jupiter will reach opposition on the 10<sup>th</sup>, Mars and Mercury will have an extremely close conjunction in the evening sky a week later, on the 17<sup>th</sup>, a faint comet passes through Cetus the Whale, a fairly bright asteroid named Pallas reaches opposition in Coma Berenices just below the Big Dipper, and there will even be a minor meteor shower called the Bootids very close to where Pallas is on the 27<sup>th</sup>.

Jupiter has been rising about 4 minutes earlier each night all winter and spring and it will finally pass directly opposite the earth from

the sun on Monday the 10<sup>th</sup>. That means that the king of the planets will rise at sunset, reach its highest point in the sky at midnight, and not set until the sun rises. That is the best time to see any superior planet because it also has to be at its closest to us at that time, which means that it will also be at its biggest and brightest for the year. This happens every 13 months for Jupiter and Saturn and every 26 months for Mars.

Jupiter spends one year in each of the 12 zodiac constellations, since it orbits the sun once every 12 years. Jupiter is at the midpoint of its retrograde or westward loop in the sky now. Notice that it is moving a little closer to Antares, the brightest star in Scorpius and one of the largest stars in our whole galaxy at 700 times the diameter of our sun. However, Jupiter will not get there because it will start its normal prograde or eastward motion against the fixed background of the stars again on August 10.

The Juno mission that is currently orbiting this planet in highly elliptical 53-day orbits, which it has been doing very successfully for almost 3 years now, since July 4 of 2016, is continuing to discover amazing new things about this huge planet, 10 times the diameter of Earth. It had already photographed huge colorful swirls all over this planet, but especially at the poles. It saw

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

large permanent storms spinning around each of its poles and now it recently discovered that Jupiter has some more things in common with Earth other than just lots of lightning bolts every second and permanent northern and southern lights. Jupiter also has continually varying magnetic fields. That is called secular variation. It is caused by intense winds about 2000 miles below the cloud tops of Jupiter on this rapidly spinning planet which rotates once every 10 hours. That means it rotates at 28,000 mph at its equator, or 28 times faster than Earth. That is even faster than the escape velocity from Earth, which is only 17,000 mph or 5 miles per second.

Mars is slowly starting to set a little earlier each night in our evening sky. It can be found in Gemini now directly below Castor and Pollux. On Monday night the 17<sup>th</sup> and the next night, these two planets that start with the letter M will pass within a third of a degree of each other, the closest that they have been for 13 years. Notice that Mercury will be 2 magnitudes or 6 times brighter than the red planet, which is unusual, since Mars is usually much brighter, especially when it is near opposition. That is because Mars is on the far side of the sun now and Mercury is on the near side. Watch for a couple of weeks as Mercury catches up with Mars. A slender crescent moon will join the pair on June 4<sup>th</sup>. Then Mercury will sink out of sight again as Mars continues to get fainter as it gets farther away from us in the sky.

Saturn rises about 2 hours after Jupiter and can be found in Sagittarius, where it will spend a little over 2 years since it takes almost 30 years to orbit the sun once. The ringed planet will rise at 9 pm by the end of the month and will reach its own opposition in July. Then you can finish up a short night of viewing the marvels of the summer night sky and the Milky Way with its center located just below Scorpius and Sagittarius by watching Venus rise only about an hour before the sun, well into morning twilight. Notice the waning crescent moon nearby on June 1<sup>st</sup>. Then Venus slowly sinks even lower in the morning sky and we will lose it completely into the sun's glare by the end of the month.

A comet named ASASSN, discovered in 2018, will pass through Cetus the whale all month long. It will only reach 12<sup>th</sup> magnitude, so you would need at least an 8 inch telescope to see it. We have been very lucky over the past half year or more with a long string of fairly bright comets visible to us from Earth.

The third largest asteroid, 2 Pallas, at 340 miles in diameter, will reach opposition in Coma Berenices just below the Big Dipper this month. You will need a small telescope or a good pair of binoculars to see it because it will only reach 9th magnitude. That will make it 3 magnitudes or about 15 times brighter than the comet that is visible this month.

This month's meteor shower, the June Bootids, caused by Comet Pons-Winnecke, which orbits the sun every 6.4 years, will only produce a few meteors per hour, or just above the background rate of stray meteors of about 3 to 4 per hour, depending on the darkness of the sky at your location. The word meteor comes from the Latin "meteoros" which means "high in the air". Most of these meteors will burn up 50 to 70 miles above us high in the ionosphere.

June 1. The moon passes 3 degrees south of Venus this morning.

June 3. New moon is at 6:02 a.m. EDT. On this day in 1948 George Ellery Hale's 200 inch Mt. Palomar telescope, the largest in the world, was dedicated and saw first light.

June 4. The moon passes 4 degrees south of Mercury this evening. On this day in 2000 the Compton Gamma Ray telescope fell out of orbit in a controlled crash over the south Pacific after nearly 10 years in space discovering amazing things about the high energy gamma ray universe including about one gamma ray burst every day.

June 5. The moon passes 2 degrees south of Mars tonight. On this day in 1989, Voyager 2 made its closest approach to Neptune. The last transit of Venus happened on this day in 2012.

June 10. First quarter moon is at 1:59 a.m. Jupiter is at opposition at 11 a.m.

June 13. On this day in 1983, Pioneer 10 left our solar system. On this day in 2010, the Japanese Hayabusa mission returned the first sample of an asteroid to Earth.

June 16. The moon passes just north of Jupiter tonight. On this day in 1963 Valentina Tereshkova became the first woman in space and still has the only solo spaceflight by a woman.

June 17. Full moon is at 4:31 a.m. This is the Strawberry or Rose Moon.

June 18. Mercury passes within one third of a degree of Mars this evening in Gemini. The moon passes half a degree south of Saturn.

June 21. The summer solstice is at 11:54 am.

June 25. Last quarter moon is at 5:46 a.m.

June 29. George Ellery Hale was born on this day in 1868.

June 30. On this day in 1908 a comet or asteroid exploded a few miles over Tunguska, Siberia creating a day time fireball brighter than the sun. It exploded with the force of 20 megatons of TNT, or about 1000 times the force of the first atomic bomb. It downed 80 million trees over 1000 square miles, but no crater was ever found. 105 years later in nearly the same part of Russia, on February 15 of 2013, a space rock 65 feet across exploded a few miles over Chelyabinsk, but did not create that much damage.

Moon Phases

**June 3**  
New

**June 10**  
First Quarter

**June 17**  
Full

**June 25**  
Last Quarter

Moon Data

**June 1**  
Venus 3° north of  
Moon

**June 4**  
Mercury 4° north of  
Moon

**June 5**  
Mars 1.6° north  
of Moon

**June 7**  
Moon at perigee

**June 16**  
Jupiter 2° south  
of Moon

**June 18**  
Saturn 0.4° north of  
Moon

**June 19**  
Pluto 0.07° north of  
Moon

**June 23**  
Moon at apogee

Neptune 4° north of  
Moon

**June 27**  
Uranus 5° north  
of Moon

**OBSERVER'S CHALLENGE\* – June, 2019***By Glenn Chaple***NGC 5377 – Barred Spiral Galaxy in Canes Venatici (Mag: 11.3 Size: 3.7' X 1.8')**

On the evening of May 12, 1787, William Herschel came upon a nebulous object in what is now the extreme northeast corner of Canes Venatici. He considered it bright enough to qualify as a Class I object (Bright Nebulae), and it became his 187<sup>th</sup> entry in that group.

H187-1, better known by its New General Catalog designation NGC 5377, is an 11<sup>th</sup> magnitude barred spiral galaxy. It lies some 85 million light-years away, which means that the photons greeting your eye as you peer into the telescope left during the latter part of the Cretaceous period when dinosaurs still roamed the land.

With my 10-inch f/5 Dob and a magnification 141X, I found NGC 5377 to be extremely faint – an “amorphous averted vision object at best.” In all fairness to my scope (and my eyes!), I was observing under typical suburban skies with a limiting magnitude of about 5. Its appearance in a similar-sized instrument under darker skies is described in Kepple and Sanner’s *The Night Sky Observer’s Guide – Vol. 2*. They write: “This galaxy has a fairly faint 2.5' X 0.5' NNE-SSW halo containing a bright oval core with a stellar nucleus.” This would correspond to its interesting similarity to the Greek letter theta as shown in the accompanying Mario Motta image.

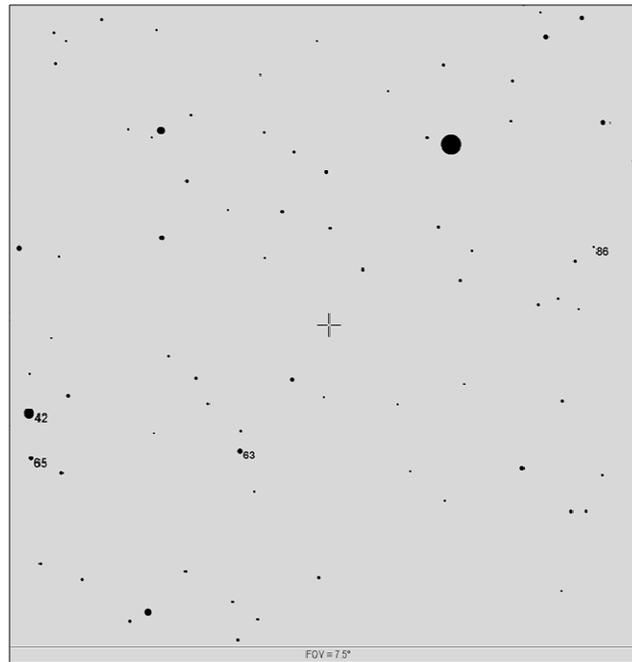
Locating NGC 5377 is somewhat of a challenge as it lies in rather barren area 2 degrees south and slightly east of Alkaid (eta Ursae Majoris). Those of you with GoTo technology can plug in coordinates R.A. +47° 14' 08", dec. 13h, 56m 16.7s. Star-hoppers can use the accompanying finder charts created using AAVSO’s Variable Star Plotter program.



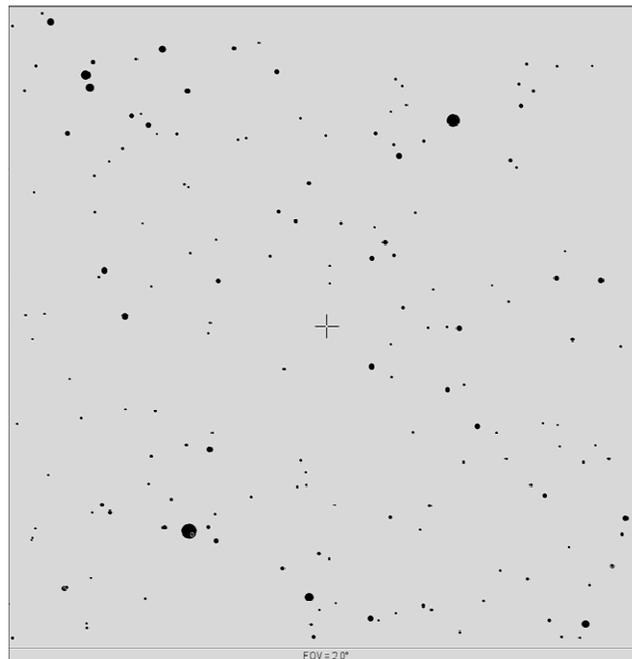
Image by Mario Motta, MD (ATMoB) North is up

“Continued on page 4”

Finder charts for NGC 5377. In each, north is up, and NGC 5377 is plotted by an + at the center.



Wide field (7.5 degrees) chart showing stars to 9<sup>th</sup> magnitude. Bright star near upper right is eta Ursae Majoris.

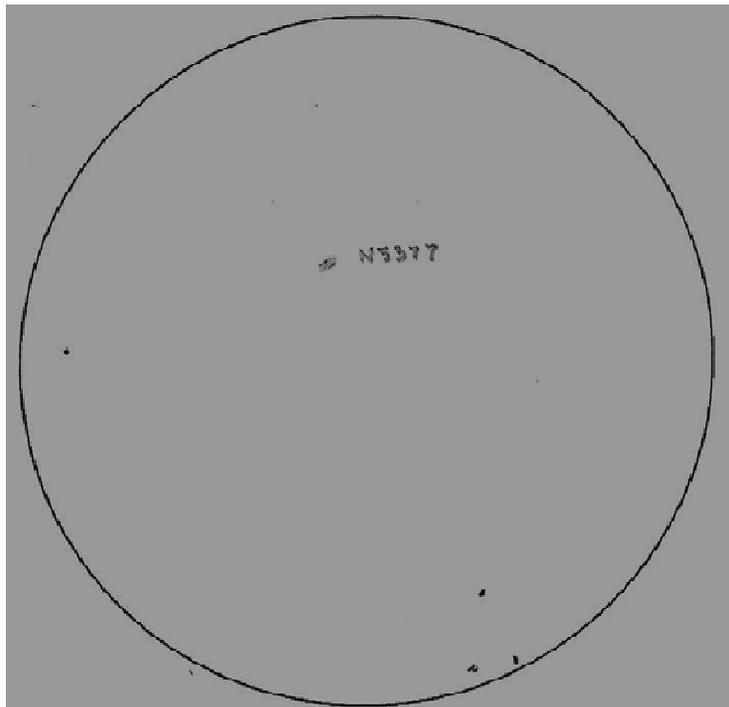


Narrow field (2 degrees) chart showing stars to 13<sup>th</sup> magnitude.

*“Continued on page 5”*



**Image by Doug Paul (ATMoB) North is up**



**Sketch by Glenn Chaple (ATMoB) 10-inch f/5 reflector at 141X North is to the right**

\*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](http://rogerivester.com/category/observers-challenge-reports-complete).

## Principal Meteor Showers in 2019

**January 4**  
Quadrantids

**April 22**  
Lyrids

**May 6**  
Eta Aquarids

**July 30**  
Delta Aquarids

**August 12**  
Perseids

**October 9**  
Draconid

**October 21**  
Orionids

**November 9**  
Taurids

**November 18**  
Leonids

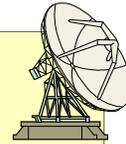
**November 26**  
Andromedids

**December 14**  
Geminids

**December 22**  
Ursids

*Note: Dates are  
for maximum*

## Got any News? Skylights Welcomes Your Input.



*Here are some suggestions:*

*Book reviews -- Items for sale -- New equipment --  
Ramblings -- Star parties -- Observing -- Photos.*

**Our Club has Merchandise for Sale at: [www.cafepress.com/asne](http://www.cafepress.com/asne)**



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

## **RED ALERT – Downward Pointing Lasers**

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



**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!

## Jupiter Shines in June

By David Prosper

**Jupiter** stakes its claim as the king of the planets in June, shining bright all night. **Saturn** trails behind Jupiter, and the **Moon** passes by both planets mid-month. **Mercury** puts on its best evening appearance in 2019 late in the month, outshining nearby **Mars** at sunset.

Jupiter is visible almost the entire evening this month. Earth will be between Jupiter and the Sun on June 10, meaning Jupiter is at **opposition**. On that date, Jupiter rises in the east as the Sun sets in the west, remaining visible the entire night. Jupiter will be one of the brightest objects in the night sky, shining at magnitude -2.6. Its four largest moons and cloud bands are easily spotted with even a small telescope.

What if your sky is cloudy or you don't have a telescope? See far more of Jupiter than we can observe from Earth with NASA's **Juno** mission! Juno has been orbiting Jupiter since 2016, swooping mere thousands of miles above its cloud tops in its extremely elliptical polar orbits, which take the probe over 5 million miles away at its furthest point! These extreme orbits minimize Juno's exposure to Jupiter's powerful radiation as it studies the gas giant's internal structure, especially its intense magnetic fields. Juno's hardy JunoCam instrument takes incredible photos of Jupiter's raging storms during its flybys. All of the images are available to the public, and citizen scientists are doing amazing things with them. You can too! Find out more at [bit.ly/JunoCam](https://bit.ly/JunoCam)

**Saturn** rises about two hours after Jupiter and is visible before midnight. The ringed planet rises earlier each evening as its own opposition approaches in July. The **Moon** appears near both gas giants mid-month. The Moon's tour begins on June 16 as it approaches Jupiter, and its visit ends on June 19 after swinging past Saturn.

**Mercury** is back in evening skies and will be highest after sunset on June 23, just two days after the summer solstice! Spot it low in the western horizon, close to the much dimmer and redder **Mars**. This is your best chance this year to spot Mercury in the evening, and nearly your last chance to see Mars, too! The two smallest planets of our solar system pass close to each other the evenings of June 17-18, coming within just  $\frac{1}{4}$  degree, or half the width of a full Moon, making for a potentially great landscape photo at twilight.

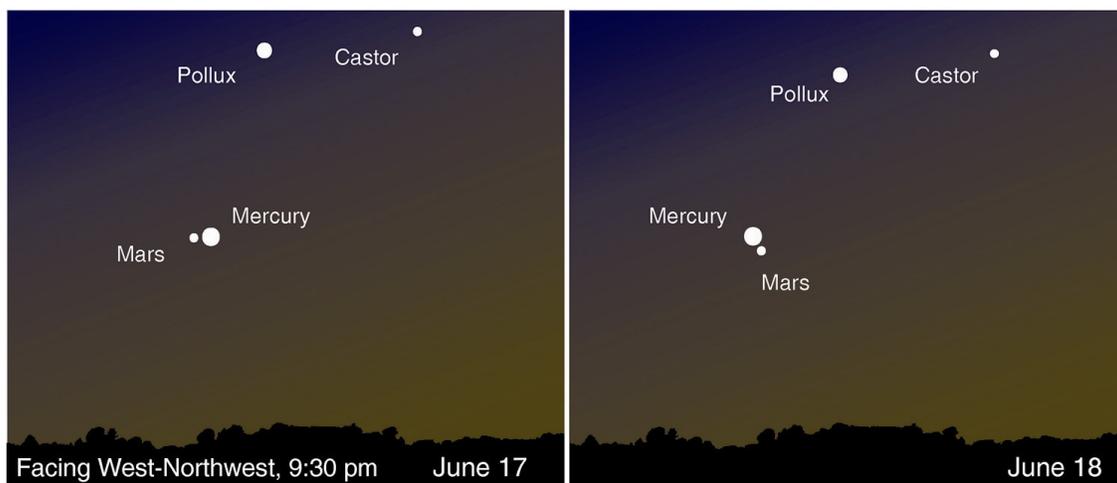
Discover more about NASA's current and future missions at [nasa.gov](https://nasa.gov)

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*Caption: A giant storm in Jupiter's north polar region, captured by JunoCam on February 4, 2019. Image processing performed by citizen scientists Gerald Eichstädt and Seán Doran.*

*Source: [bit.ly/JupiterSpiral](https://bit.ly/JupiterSpiral)*



*Caption: Mars and Mercury after sunset the evenings of June 17-18, 2019. Image created with assistance from [Stellarium](https://www.stellarium.org/).*

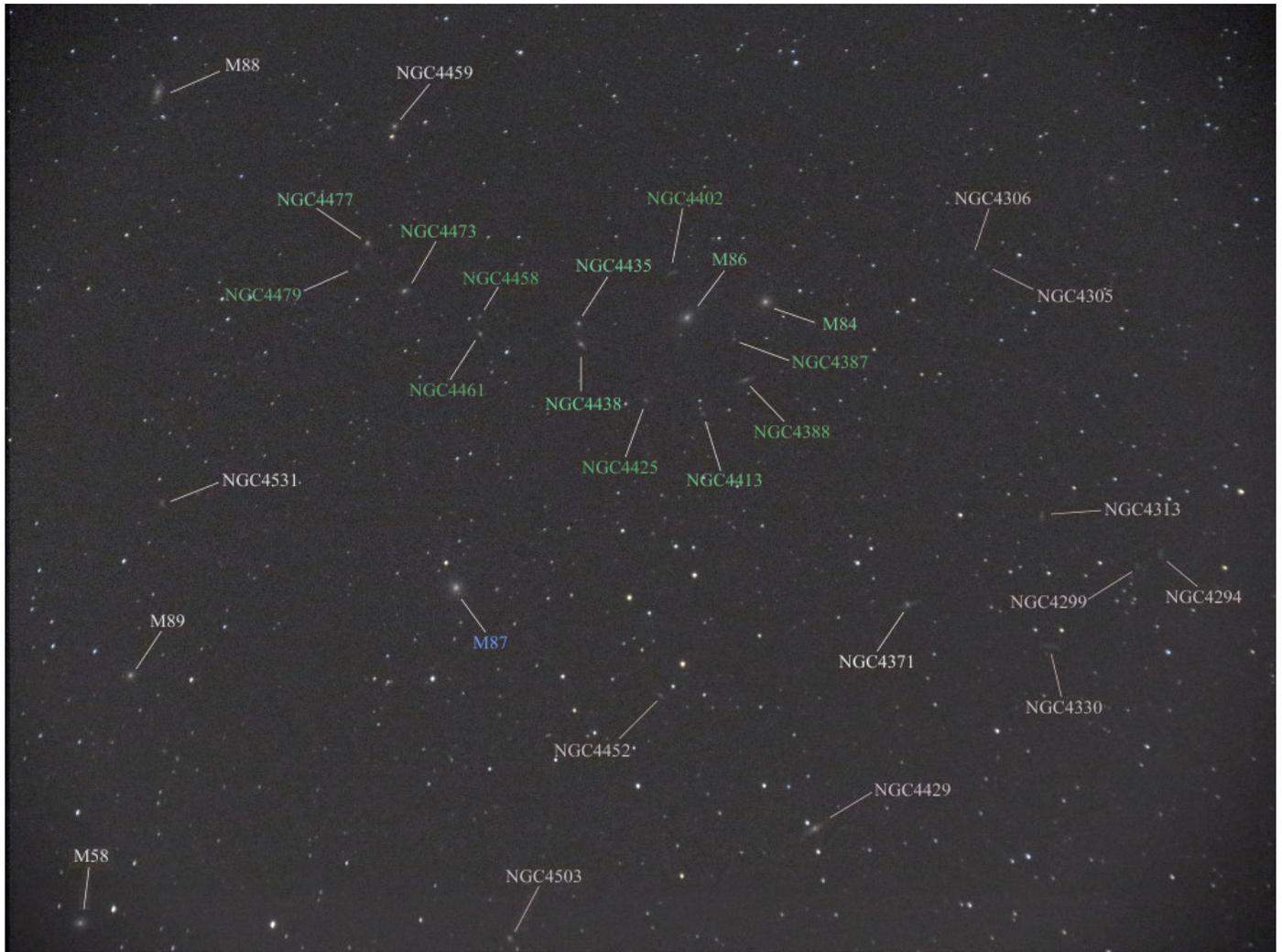
## Point and Shoot Camera Astroimaging

### Canon Powershot SX50 HS

*Image & write-up submitted by Paul Kursewicz*

Virgo Cluster & M87

Specs: RAW, f/5.6, FL 450mm, 10 x 2 min, ISO 800, 4-25-19



The **Virgo Cluster** is located in the constellation Virgo and is the closest large cluster of galaxies to the Milky Way, approximately 54 MLY away. While some of the most prominent members in the Virgo Cluster can be seen in smaller instruments, a 6-inch telescope will reveal about 160 galaxies in this region on a clear night. Shooting through a light cloud layer and a total exposure time of 20 minutes (I was hoping for 60 minutes but clouds moved in), I was able to capture **30 members** (each one is labeled). The Virgo Cluster contains about 2,000 galaxies and at its center is **M87** (labeled here in blue). It is a supergiant elliptical galaxy, one of the most massive galaxies in the local Universe. M87 has a large population of globular clusters—about 12,000 compared with the 150–200 orbiting the Milky Way—and a jet of energetic plasma that originates at the core and extends at least 4,900 ly. M87 recently made the news. Its supermassive black hole was directly imaged using data collected in 2017 by the Event Horizon Telescope, with a final, processed image released on April 10, 2019. Also near the heart of the Virgo Cluster is a string of galaxies known as **Markarian's Chain** (labeled here in green). When viewed from Earth, the galaxies lie along a smoothly curved line. Charles Messier first discovered two of the galaxies, M84 and M86, in 1781. The bright members of the chain are visible through small telescopes. Larger telescopes will be needed to view the fainter galaxies. Of note: The Virgo Cluster of Galaxies is much larger than the field of view of my picture.

# In Memoriam - Roger Gendron

## Obituary Roger Gendron

*Edited by Editor*



Roger J. Gendron, 76, of Portland, Maine passed away on May 12, 2019 at the Gosnell Hospice House in Scarborough.

Roger was born in Biddeford, Maine on March 4, 1943 the son of Normand Jean Baptiste and Gertrude Eva Pooler. After graduating from Biddeford High School, Roger went to [Ohio State University](#) for two years before he was drafted to serve his country in the U.S. Army from 1964 to 1967. Once returning home, he completed his Bachelor's Degree at the University of Maine in Gorham graduating in 1976.

Roger worked for 38 years at the Portsmouth Naval Shipyard as the Business Manager. One of his primary responsibilities was to act as a consultant with Washington D.C. for BRAC closures. While there he worked with Senators Mitchell and Cohen to ensure that PNSY stayed open saving hundreds of jobs. Prior to his retirement in 2002 many people gave Roger credit for saving the shipyard in the latest round of closures. Although Roger loved his job at PNSY and his three years as a full-time consultant, his true passion was with the 18 years as a Professor of Astronomy at USM teaching night classes.

His love of astronomy was so strong that he would travel to his children and grandchildren's classes to talk to their classmates about it. Anyone that traveled to his home can talk about his passion as he built his very own full functional one of a kind Astronomical Dome in his backyard. He belonged to the Astronomical Society of Northern New England, traveled to many Stellafane meetings in Vermont where people came from all over the world to meet many prominent Astronomy scientists and hear them speak.

Roger had something that was even more special to him, however, and that was his grandchildren, children, and wife Donna. Together Donna and Roger traveled often; attending Red Sox games in Toronto and Baltimore, trips to Alaska and Hawaii, cruises, and even to Germany to watch an eclipse. They could frequently be found at Sebago Lake Campground camping with seven couples for over 20 years always making friends where they traveled. He loved his New England sport teams always rooting them on to victory and he could always hear the roar of "Go Buckeyes!" during college football season.

Roger was the rock of his family and recently stated his family was his biggest achievement. Being the best husband, father and Grampa for his family was what Roger did. His grandchildren loved and cherished their Grampa always wanting to be around him.

## Club Meeting & Star Party Dates

Date	Subject	Location
<u>June 7</u>	<p><b><u>ASNNE Club Meeting:</u></b></p> <p><b>Business Meeting</b> 6:30 PM  <b>Beginners Class</b> 7:00 - 7:30 PM  <b>Regular Meeting</b> 7:30-9:30 PM</p> <p><b>Guest speaker/topic - Professor James Ryan.</b> A researcher on cosmic rays. Professor Ryan's talk will be on solar flares, solar cosmic rays, and superflares. He may include some history of cosmic rays.</p> <p><b>Bernie Reim</b> - What's UP  <b>Astro Shorts:</b> (news, stories, reports, questions, photos)</p>	<u>The New School, Kennebunk, Me.</u>
<u>Last Month</u>	<p><b>Professor Francois Foucart</b> talked about his main research interests; the study of very compact objects (black holes, neutron stars), and what happens when they collide (emission of gravitational waves, gamma-ray bursts, production of gold/platinum/...).</p>	
<u>TBD</u>	<p><b>Club/Public Star Party:</b> If skies are clear members may go to the observatory after the meeting.</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](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

**2019 Membership Registration Form**

(Print, fill out and mail to address above)

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

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

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

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

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

Membership (check one):

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

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

Tell us about yourself:

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

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

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

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

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

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

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

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

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

