



Penobscot Valley Star Gazers

An Astronomical Society of Central Maine

<http://www.gazers.org>

Hail, April with her smiling face has come to cheer the plain;
The grass is seen to start apace, as does the needful grain.

April 2019

April Snowstorm Meeting

The April 2019 meeting of the PVSG will be held at John Bapst Memorial High School on Monday the 8th at 6:30 pm. We are not sure what the program will be.

Thanks for last month's program can go to Dwight for his 2019 star party review.

A Year of Star Parties

March 11, 2019



Back from the February meeting at the Emera Center, the PVSG returned to John Bapst Memorial High School for the March 2019 meeting on Monday the 11th. Eight members attended. Dwight opened proceedings at about 6:40 pm with a call for any changes

to last month's minutes. None were heard, and the minutes were accepted as published in the newsletter. The treasurer's report was presented via an e-mail and placed the bank account the same as last month: \$703.07. Also from the treasurer was a reminder that the insurance bill of \$320 needed to be paid soon. The club voted to pay it, and Scott then e-mailed the approval to the treasurer.

Under observing reports, Wade said he had been watching Venus and Jupiter lately. He also had seen a fisher run through his yard recently. Dwight noted that people in other clubs had been watching a couple of current comets, Iwamoto being one of them.

Next Dwight began the discussion about the deaf individual who had approached him about attending the meetings. The club would need a signer or some technology to enable him to participate. Scott noted that the going rate for a signer was in the \$65 to \$75/hour

range. Alan said that when he had looked into the issue for the planetarium he couldn't find any organization or charity that provided the service for free. A second option would be to explore speech-to-text software and see if that would be practical. Wade offered to loan Dwight a USB microphone with which he could experiment.

Moving on, Dwight presented his "PVSG 2019 Tentative Observing Schedule" for review. He went down the list and the group discussed each one:

3/30 Club party. Give it a try despite likely weather. The suggestion that the location be the Audubon clubhouse was accepted.

4/6 - 4/7 Northeast Astronomy Forum. Dwight might go.

4/26 or 5/3 rain date Emera Center party. Everyone was cool with that.

5/11 Astronomy Day. Perhaps it could be at the Challenger Center.

6/1 Club party at Don Krause's. Verified.

7/20 50th anniversary of Apollo 11. Emera and Challenger likely collaborating. One or the other as the party location.

7/27 or 7/28 Good dates for Sunfest? Just need a host.

8/1 - 8/4 Stellafane. Wade is going, Dwight might. Wade hopes to present a Dobsonian telescope using a potato barrel as the shroud.

8/23 - 8/24 Maine State Star Party. Wade will

On the Schedule

(Items Subject to Change)

PROGRAMS

STAR PARTIES

- ?May 11: International Astronomy Day Event
- ?July 20: Challenger Center, 50th anniversary of Apollo 11 lunar landing event
- ?November 23: Bangor Land Trust

? Tentative; (rs) rain or shine; (co) clear only; (rd) rain date



Presidential elections are in May. Will Dwight and Scott go or stay? Perhaps you'd like to join the fray. Be sure to come and have your say.

speak about his potato barrel scope.

9/21 Stars Over Katahdin. They haven't had good luck with the weather in the past.

9/25 - 9/29 Acadia Night Sky Festival. Cadillac reservation system drove too many people to Seawall last year. Safety people having reservations; rumor has it that they may not hold the Seawall party this year. If so, it could reduce astronomer attendance at the festival.

10/26 Club party at Ben Philips'. Perhaps the main date could be a week earlier and the 26th could be the rain date.

11/23 Bangor Land Trust Party. Better to have it in the chilly fall rather than the buggy spring.

Globe at Night Observing Nights. These were not discussed in any detail.

After the star party review Dwight floated the idea of buying pens with the club's contact information printed on them. The intention was to use them as promotional items for the club. Members could carry a few to have ready to give to anyone who showed a serious interest in the club. Dwight has such pens for his business, and he would obtain the club pens from the same source. He suggested buying 200 pens for \$193.00, and he offered to pay half of it. As an enticement, he gave each of the members one of his pens so they could see what they were like. [See photo on last page.] The response was generally favorable, though there was some skepticism that the club would gain enough new members to justify the expense. In the end, the group voted to allow Dwight to proceed.

The last item was whether or not the officers wanted their e-mail addresses on the club Web site. Those present didn't seem to mind, and Dwight recommended that they be included as JPEGs so bots couldn't find them. The meeting closed after that at 8:10.

Ralph M.

Observe the Sky This Month Some Selected Objects

April 2019

General sky comments – We made it through both the time change and the spring equinox. I can look out my kitchen window facing directly west and see the setting sun. Every evening it is easy to see it setting farther and farther north. The days are getting longer and the nights shorter with less time for observing. Personally I like the warmer nights

better than I dislike the loss of observing time. Also I get tired of observing before the night turns to day. The Lyrid meteor shower peaks on the 22nd only a few hours before prime observing time on the morning of Monday the 23rd. The moon is still at the full phase that night and will interfere with viewing. Fireball and bright meteors are possible this night from two sources. The Lyrids not only are bright they also produce long lasting trails. Additionally the April Fireballs have been active since the 15th and remain active to the end of the month. This shower is capable of producing a fireball at any time.

Planets this month – The Moon is new on Friday the 5th, first quarter on Friday the 12th, full on Friday the 19th, and last quarter on Friday April 26th. Mercury is in the morning sky all month. On April 11th Mercury reaches the farthest distance west of the sun when it will be most visible. Unfortunately Mercury rises at an acute angle to the sun and remains low in the sky. In the southern hemisphere it is almost vertical and very high in the sky. Waxing gibbous Venus is low in the morning sky. Mars is visible in the evening sky in Taurus giving us a comparison with the orange star Aldebaran. The two are closest on the 16th but Aldebaran is twice as bright as Mars. Jupiter begins retrograde on the 10th and is visible for more than half the night. Saturn is in the morning sky in Sagittarius. The waxing crescent Moon passes very close on the 25th. It is stationary on the 30th and begins its western retrograde thereafter. Uranus is too close to the Sun to be observed. Neptune is visible with a telescope in morning twilight. Pluto is in the morning sky in eastern Sagittarius.

Constellations for the month – Antlia, the Air Pump, originally Antlia Pneumatica, it was changed to the single word by Herschel. Antlia (Latin for pump from the Greek *άντλος*, *bucket on a rope used to bail a ship*) has been said to be the least interesting of all the constellations by several astronomy guide authors. This air pump is not only what we think but known then as the new scientific invention the vacuum pump. Lacaille considered it one of the important scientific inventions of his day along with: Pyxis, the Compass, Fornax, the Chemical Furnace, Telescopium, the telescope, Microscopium the microscope, and Reticulum, the Reticle. He added all of these devices to the sky. Antlia does contain a nice optical double star zeta₁ (ζ) Antlia along with zeta₂ (ζ) Antlia, also double and easily separated with small telescopes. Antlia also contains a lot of galaxies but they are too far south and dim for most of us to observe. Higher in the sky after the dim stars of Antlia we soon find an easily seen star Alphard, alpha (α) Hydra mag.1.98

the next eastern part of Hydra, the Water Snake after the head we located last month. Alphard "The Solitary One" is aptly named due to the absence of bright stars in the area and its red orange color a fitting color for the heart of the snake. This portion of Hydra contains an easily seen planetary nebula NGC 3242, "The Ghost of Jupiter" because it has a blue disk almost the same size as Jupiter. The central star can be seen in some scopes. See if you can pick it out. This planetary is located 1.5° SSW of mu (μ) Hydra mag. 3.82, the third bright star east of Alphard in the constellation. Continuing on down Hydra visually and after a couple of stars you should see a rather distinctive constellation attached to the back of Hydra. It actually looks like its namesake: Crater, the cup, a circle of dim stars and two brighter stars connecting it to the back of Hydra. When I first saw Crater I was surprised how easy it was to identify, especially at a dark site. Immediately to the east of Crater is a grouping of 3rd mag. stars in a rough trapezoid representing Corvus, the Crow. Corvus is very easy to find and is distinctive even at my urban site. Corvus, Crater, and Hydra are connected together in mythology. The Roman version says Apollo sent Corvus with his cup to bring pure water back to him for a sacrifice to Jupiter. Corvus found a fig tree on the way to get the water and as the figs were not yet ripe, Corvus waited for them to ripen to get figs to eat. When the crow finally returned to Apollo with the cup full of water he also had a water serpent in his claws. Corvus used the serpent as a reason for the delay but Apollo saw through the deception and put both Corvus and the water snake Hydra in the sky with the cup on the serpents back. Apollo also put Corvus just out of reach of the cup full of water. This is why crows have such a raspy voice because they are always thirsty. The planetary nebula NGC 4361 is 2½° SE of Gamma (γ) Corvus. NGC 4038/4039 is 3½° SW of gamma. This is the peculiar Ringtail or Antenna galaxy famous because of a beautiful Hubble telescope photograph. Above the middle of Hydra and to the northwest of Crater is another small and mostly obscure constellation Sextans, the Sextant. It was created by the Polish astronomer Hevelius to commemorate the large Sextant he used at his observatory. He was probably the last major astronomer to use the sextant to visually plot the positions of the stars. It does contain a fair number of galaxies but the only one we will consider is NGC 3115, the Spindle galaxy a lens shaped galaxy visible in binoculars but best seen with larger telescopes. To find it go 7° south of alpha (α) Sextans or 3° east of delta (δ) Sextans. It should be visible in any optical finder. Above the constellations Crater and Sextans is one of the

most recognizable constellations in the sky, Leo, the Lion. It is noted for the distinctive asterism of the sickle a backward question mark forming the head of the lion. Leo is noted for the large number of bright Messier galaxies and near Messier galaxies. Leo will be discussed extensively later. Above Leo is another inconspicuous small diamond shaped constellation Leo Minor, the Little Lion invented by Hevelius to fill a gap in the sky above Leo. It does have several galaxies on my viewing list, one I have observed. This NGC 2859 is not too difficult to find. Locate the top of the head of Leo and start at the brighter of the stars epsilon (ϵ). Go 12° NNW to the next bright star alpha (α) Lynx this is the far eastern star of the constellation Lynx we located last month. From this star go less than 1° slightly north of due east to find this galaxy. It is a small compact galaxy with an elongated center and a hint of arms in a halo surrounding the galaxy. There are several other galaxies I have not yet viewed in Leo Minor but not much else. Above Leo and Leo Minor is an interesting asterism we will need to look up into the sky with no aid but our eyes to find. Look above the hind quarters of Leo and you should see a pair of third magnitude stars. Using your fist as a measuring tool go a little over one fist width to the NW to another pair of stars and then about the same distance to another pair. Arab cultures know this asterism of three pairs of stars (Alula), (Tania), and (Talitha) as "the three leaps of the gazelles". One version of the story is a lion (Leo) is sitting beside a pool (Coma) the lion switches his tail disturbing the water in the pool thus frightening some gazelles who leap off away from the pool leaving these star tracks in the sky. We recognize these gazelle tracks in the sky as the feet of our next constellation north, Ursa Major, the Great Bear. Because Ursa Major is the third largest constellation we will break it into parts and consider only the far northern portion this month. This portion contains many galaxies including the M81, M82 group many of us have observed. To find M81, M82, and NGC 3077 start at the bright star Dubhe, alpha (α) Ursa Major, the star at the upper right corner of the dipper asterism. From Dubhe go 10° NE to this group visible in most finder views. Or start at 23 Ursa Major the bright star 10° to the east of Dubhe and go 6° NNW to the group. There are several other galaxies on my observing list in this area including NGC 2976, NGC 2787, NGC 2985, NGC 3147, and NGC 2655 although 3147 is in Draco and 2655 is in Camelopardalis. For more information on Ursa Major look at the end of this article in other objects of interest.

Featured star – Xi, Ursa Major (ξ) [53 Ursae Majoris] at mag 4.27 is the southern of the two stars

forming the first leap of the Gazelle or the back left paw of the bear. The official names of the two stars are Alula Borealis (northern) and Alula Australis (southern) from the Arab for first spring, jump, or leap (of the gazelle). It is a double star first found by William Herschel on May 2, 1870 and the first visual star to be found to be a physically related double star. It also was the first double star to have the orbit calculated. This was accomplished by Félix Savary in 1828. The period is now recognized to be 59.878 years. The two stars are a golden yellow in the telescope and now they have each been discovered to be spectroscopic doubles. The A component has at least one companion a brown or more likely red dwarf and the secondary star is also variable and may be orbited by one, two, or three either red or brown dwarf stars. The system is so involved it still is uncertain to what type of star is present. Currently the two main stars are separated by 1.6 arcseconds. They were last closest in 1992. Xi, Ursa Major can be resolved with a 4" telescope but is easier with a 6" or larger scope.

Featured Messier object – One of the many galaxies in Leo, the Lion is the barred spiral galaxy, M66 (NGC 3627). On November 2, 1773 Charles Messier was following the Great Comet of 1773 so intently he apparently missed the group of galaxies surrounding what would be later known as the M66 Galaxy Group. It took Pierre Mechain on March 1, 1780 to find this group and later report it to Messier who added it to his famous list. It is the brightest member of the group of galaxies found south of the vertex of the right triangle formed by the beta (β) star Denebola, the tail of Leo, delta (δ) Zosma, and theta (θ) Chertan together forming the hind quarters of the lion. You will know you are at the correct place when you find the group of three galaxies M66, M65, and NGC 3628. M66 is a spiral galaxy with a weak central bar. The two main arms come off the bar but this takes a large scope to resolve. M65 is larger than M66 but not as bright. It has a bright central area with a dark band close. NGC 3628 is the dimmer of the three galaxies and you might notice the dust band down the middle.

Featured constellation – Leo, the Lion is a Zodiac constellation with its origin in ancient Babylonia where the lion was sacred to the goddess of love and war Ishtar. The Greek equivalent was Aphrodite becoming Venus for the Romans. Babylonians used both lions and bulls and the conflict between the two in many stories. Leo is found away from the Milky Way and consequently contains numerous galaxies. Fortunately for us many are particularly bright and Messier used a lot of them in his famous list. The brightest star in Leo is the heart of the lion Regulus, the alpha (α) star. The next brightest star

in the sickle Algieba, gamma (γ) is a two shades of yellow double star visible with small scopes. A triple star system a bit harder to find is 90 Leo. Look 4° NW of Denebola, beta (β) Leo, the tail star of Leo to find this close pair of blue-white stars and a blue star 63" away to the SW. We will next consider the Messier galaxies of Leo and also find some of the galaxies Messier could have used as well. Start at Regulus alpha (α) Leo and go 9° east to find a group of bright galaxies, two side by side and two closer together 1° ENE above the left galaxy. This is the M96 group of Leo galaxies. M95 (NGC 3351) is on the right and M96 (NGC 3368) is on the left. Above M96 1° NE is M105 (NGC 3379). You should also observe the first of the near Messier galaxies NGC 3384 next to M105. It would not surprise me if Messier thought these two galaxies were one nebula or a star and a nebula. From this group go 8° east and the M66 (NGC 3627) M65 (NGC 3623) group should appear. Above these two galaxies is NGC 3628 another near Messier galaxy. All three galaxies are spiral galaxies inclined at different angles to the viewer and less than 1°, apart aka the Leo Triplet. The other near Messier galaxy (NGC 2903) is located quite distant from the Messier galaxies but still very much in Leo. To find NGC 2903 go to the end bright star in the sickle, epsilon (ϵ) Leo. Then proceed 3° WSW to the 4.31 mag lambda (λ) Leo. 1½° south is NGC 2903. NGC 2903 is one of the nicest galaxies for small telescopes and is easily visible in binoculars. It is one of my favorite galaxies and I think Messier missed a real jewel. Of course he was not looking for galaxies.

Other objects of interest – Starting at the last leap of the gazelle (Talitha), iota (ι) UMa the front paw of the bear go 3° NE to NGC 2841 a spiral galaxy at least twice as long as it is wide and there is a bright central area slowly fading to the edge. The Hubble space telescope has taken a beautiful detailed picture of this galaxy with the new Wide Field Camera 3. Go to Merak beta (β) UMa the bottom right star of the big dipper. From Merak go 1½° SE to M108 (NGC 3556) an edge-on spiral with quite a bit of detail. Continue less than 1° SE to the Owl Nebula, M97 (NGC 3687) a planetary nebula with two dark spots looking like eyes. Again from Merak go 10° WNW to epsilon (ϵ) UMa then 1° W to NGC 2950 a dim oval galaxy but easily resolved with an 8" telescope. Just 4° WNW from here is NGC 2768 and NGC 2742 both ovals resolved with an 8" telescope.

Bill

Maine/New England Astronomy Events

Northeast Astronomy Forum, Sat & Sun, April 6-7
Rockland Community College Field House, Suffern, New York
<http://www.rocklandastronomy.com/neaf.html>

Margaretta Days Festival & Crafts Fair, Saturday June 15, 9:00 - 3:00
University of Maine Machias, Central Quad
Maine solar observing event
<https://www.crazycrow.com/site/event/margaretta-days-festival-and-crafts-fair/>

Stellafane Convention, Thu-Sun August 1-4
Springfield Vermont.
<https://stellafane.org/convention/>

Machias Wild Blueberry Festival, Saturday August 17, 9:00 - 3:00
Maine solar observing event, beside Helen's Restaurant, 111 Main St, Machias, ME
<https://www.machiasblueberry.com>

50th Anniversary of the Apollo 11 Moon Landing, Saturday, July 20, 2019
I'm sure there will be many local celebratory events by multiple clubs

MARS, Maine Astronomy Retreat and Symposium Sun-Sun July 28 - Aug 3

Maine State Star Party, Fri & Sat August 23-24
Cobscook Maine State Park
<https://www.facebook.com/Downeastaa/>

The Conjunction, Fri & Sat August 23-24 (tentative)
Connecticut River Valley Astronomers Conjunction
<http://www.philharrington.net/astroconjunction/index.htm>

Acadia Night Sky Festival, Wed-Sun, September 25-29
Mount Desert Island, ME
<http://www.acadianightskyfestival.org/events/>

ASNNE Starfest, Fri-Sun, September 6-8
The Talmage Observatory at Starfield, Alewife Road, Kennebunk, ME
Astronomical Society of Northern New England
<http://www.asnne.org>

NEFAF, New England Fall Astronomy Forum, September ?
This year's event has not yet been confirmed.
University of New Hampshire Observatory, Spinney Ln, Durham Campus
<http://www.nefaf.com>

Stars Over Katahdin, Saturday, September 21, 2019
Katahdin Woods and Waters National Monument
Amateur astronomer viewing under the darkest skies in Maine
Contact mailto:Kala_Rush_kala@friendsofkw.org

The Lanpher Pen

