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# Penobscot Valley Star Gazers

An Astronomical Society of Central Maine

Light comes upon the earth in radiant showers,  
And mingling rainbows play among the flowers.  
-Ludwig Tieck



April 2024

## April Meeting

The next meeting of the PVSG will be at John Bapst Memorial High School on Monday, April 15<sup>th</sup> at 6:30 pm. Again, we assume Zoom will be available also. (Zoom meeting ID 862 9984 6478 Password: PVSG.) Thanks for last month's program go to Dave for the talk about the Messier Marathon.

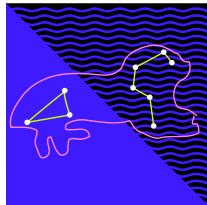


### PVSG Monthly Meeting Minutes March 11, 2024

Note: Some of the information provided in these minutes are recorded out of order to allow for organizing them according to their normal meeting section.

The March 2024 minutes were unavailable. They will be published in the May newsletter.

eclipse. The first quarter Moon is on Monday the 15<sup>th</sup> and the full Moon will be on Monday the 23<sup>rd</sup>. Mercury is in the crescent phase achieving inferior conjunction on the 11<sup>th</sup>. It re-emerges in the morning sky late in the month. Venus has disappeared from the morning sky on its way toward its conjunction with the Sun on June 4<sup>th</sup>. It was easily visible during the solar eclipse as a thin crescent. Red Mars makes an exceptionally close pass to blue Neptune on the 29<sup>th</sup> where they are only 0.04° apart. Should be an interesting telescope view. Jupiter was prominent during the eclipse but is increasingly difficult to observe in the evening sky. Yellow Saturn may be observed in morning twilight not far from red Mars. They are similar in brightness and will remain so through October. Uranus (Οὐρανός) is fading into evening twilight. It will be too close to the Sun by the end of the month. Neptune is visible with a telescope in morning twilight early and fading into the Sun's glare by the end of the month. Pluto is in Sagittarius.



### Observe The Sky This Month Some Selected Objects April 2024

**General sky comments** – Our monthly meeting will be all about the Solar Eclipse last Monday when our scheduled monthly meeting would normally have been held. My eclipse viewing was very successful. I am anxious to share my experience with everyone as I know you are. The full Moon this month has many names. Most recognize it is spring and reflect that fact in some way. The most common name is the full pink or flower Moon calling to mind the color of the abundant ground Phlox blooming at this time. Other early flowers have a tendency to also be pink. This Moon is also known as the Paschal Moon for the last Full Moon before Easter. I trust you like me enjoyed the full Moon of April. The favorable meteor shower this month is the April Lyrids with an hourly rate of 18 peaking on the night of the 21<sup>st</sup>-22<sup>nd</sup>. The origin of this shower is the periodic comet C/1861 G1 Thatcher with a period of about 415 years. The nearly full Moon will interfere with viewing. It should be viewed as it has had numerous outbursts of about 100 per hour.

**Planets this month** – Before the PVSG meeting this month on Monday the 15<sup>th</sup> of April the last quarter Moon was on Monday the 1<sup>st</sup>. The new Moon was on Monday the 8<sup>th</sup> (lunation 1253) along with a total solar

**Constellations for the month** – Antlia, the Air Pump, originally Antlia Pneumatica. It was changed to the single word by William 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 a tire or water pump but a vacuum pump. Lacaille considered it one of the important inventions of his day along with: Pyxis, the Compass, Fornax the Chemical Furnace, Telescopium, the telescope, Microscopium, the microscope, (almost as uninteresting as Antlia) and Reticulum, the Reticule. He added all of these devices to the sky. Antlia does contain a nice optical double star zeta<sub>1</sub> (ζ) Antlia along with zeta<sub>2</sub> (ζ) Antlia, also double and easily separated with small telescopes. Antlia 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 (48<sup>th</sup> brightest) 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 larger 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, even at a moderately dark site. Corvus, Crater, and Hydra are connected together in mythology (see below). 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 a large binocular but best seen with mid to large 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, Corvus, and Sextant 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, 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. 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 with any binocular. Above Leo is another inconspicuous small diamond shaped constellation Leo Minor, the Little Lion. 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 (Taliha) 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° NW 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° NNE 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 the first is in Draco and the second is in Camelopardalis. For more information on Ursa Major look at end of this article in other objects of interest.

**Featured star** – The second brightest star in Leo is gamma (γ) aka Algieba from the Arabic Al Jabhah meaning the forehead although it is in the mane of the lion. Algieba is the bright star above Regulus at the back of the head of Leo. It is a double star easily separated (4 arc/sec.) with almost any telescope. There is some evidence of another three companion stars in the system but this has not been definitely proven. One or more planets were announced to be in this system in 2009 but now one of the planets was determined to be an observation of the pulsation of the primary star and the second planet is also now under review. Both stars are giant stars no longer fusing hydrogen to helium and expanded to their current sizes. It is not clear if either of the two stars are fusing helium at the present time or if they are in a preliminary stage of helium fusion. Information through their spectra suggest they may be fusing helium. The combined magnitude of the two stars is magnitude -2.01 with a slight variability and an orbit of over 600 years so little is known about the orbit. This star is one needing more study.

**Featured Messier object** – M108 (NGC 3556) commonly known as “The Surfboard Galaxy”. This 75° edge-on barred spiral galaxy is located immediately below the bowl of the “Big Dipper” asterism 1½° SE of the

star Merak or 48' NW of the Owl Nebula. M108 was discovered by Pierre Méchain on February 19, 1781 three days after discovering the Owl Nebula. Charles Messier observed both M108 and M109 on March 24, 1781 but only added them to his handwritten notes. He never determined their positions accurately and only added the two to the personal copy of his catalogue. They were added and popularized by astronomer Owen Gingerich in 1953. In small scopes of 4" to 6" M108 appears as a faint streak with an 8<sup>th</sup> mag. star west of the galaxy center. Some hint of detail can be noted. With moderate scopes 8" to 12" the central core is mottled with numerous dark and light areas. There is one particularly dark area next to the prominent star. Larger scopes bring out the small central bar with a 13<sup>th</sup> star superimposed. The eastern end is rounded. The west end is more pointed and turns to the SSE. Numerous light and dark areas can be explored throughout. Supernova SN 1969B a type II was observed in M108 on January 23, 1969.

**Featured constellation** – Corvus, the Crow is a grouping of 3<sup>rd</sup> mag. stars in a rough trapezoid with the alpha star a few degrees south of the SE star together representing Corvus, the Crow. Because of this distinctive shape Corvus is sometimes called the Sail. Corvus is very easy to find and is distinctive even at my urban site. Ovid wrote in "The Fasti" sometimes translated as "The Book of Days" or "On the Roman Calendar". 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 almost ripe Corvus waited for them to ripen and a few days later had figs to eat. When the crow finally remembered his job and returned to Apollo with the cup full of water he also had a water serpent in his claws claiming it had kept him from getting spring water.

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 Glenah, gamma (γ) Corvus and almost makes a right triangle with the other star Algorab, delta (δ) Corvus at the top of the constellation. It is almost circular with some internal mottling. NGC 4038/4039 aka Arp 244, 3½° SW of gamma (γ) is the peculiar Ringtail or Antenna galaxy famous because of a beautiful Hubble telescope photograph. This intertwined pair of galaxies is easy enough to observe in Maine although it will be difficult to observe the extended portions. The larger the telescope the better the view. You will not be disappointed.

**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 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. (See featured M object.) 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.

Observe the sky, enjoy the view  
Bill Shackelford