



<http://www.gazers.org>

Penobscot Valley Star Gazers

An Astronomical Society of Central Maine

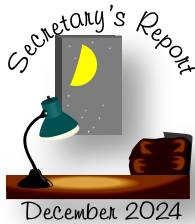
Now dreary winter's piercing cold,
floats on the northern gale,
and trees, though green, look dry
and old; snow covers hill and dale.



January 2025

January 2025 Meeting Happy New Year!

As far as we know, the January 2025 meeting of the PVSG will be held at John Bapst Memorial High School on Monday the 13th at 6:30 pm. Zoom will likely be available. (Zoom meeting ID 862 9984 6478 Password: PVSG.) Thanks for last month's program go to whoever presented something.



PVSG Monthly Meeting Minutes December 9, 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 December minutes were unavailable.



Observe The Sky This Month Some Selected Objects January 2025

General sky comments – This month Mars makes its closest opposition since December of 2022 when it was slightly closer. The next showing will not be until the opposition of February of 2027 when it is even farther away. We will have to wait until August of 2035 for Mars to be as bright and close as it was in July of 2003. Mars will be occulted on the evening of the January meeting around 9:20 pm. The Moon is considerably brighter than Mars. You will need a telescope or a large power binocular to watch Mars slowly disappear behind the Moon. It may take as much time as a minute for the disk of Mars to disappear behind the edge of the moon. It may be interesting to note where Mars disappears behind the disk of the Moon. Look for interesting pictures to be taken and published. The full Moon this month is the Wolf Moon. Where there are Wolves this would be the month they would be expected to howl at the Moon.

Planets this month – The first quarter Moon was on Monday the 6th before the meeting on the 13th. Full Moon is on that day Monday the 13th, last quarter Moon is on Tuesday the 21st, and new Moon (lunation 1263) is on Wednesday the 29th. Next month before the meeting on the 10th first quarter Moon will be on Wednesday the 5th. Mercury began 2024 18° elongation from the Sun in the morning sky shining at mag -0.4. Its elongation will be 15° from the Sun on the 15th

as it continues to brighten. Venus reaches greatest elongation of 47° east of the Sun on the 9th. Its elongation remains near there as its angular diameter increases from 22" to 31". At the same time its phase angle goes from 55% to 38% becoming more crescent. Mars had its closest approach to Earth on the 12th. It can be seen near the border of Cancer and Gemini where it shines at magnitude -1.3 with a 14.6" disk. It is at opposition on the 15th because of the asymmetrical nature of its orbit. Look for Mars to be occulted on the evening of the 13th near 9pm. Jupiter is mag. -2.7 and still in retrograde in Taurus high in the south. Saturn is in Aquarius and is becoming closer to the Sun being 63° away on the 1st and 34° on the 31st. This will be the last time to observe the north side of the rings until 2039. The viewing season ends this month as the rings pass the ring plane in March while too close to the Sun to observe. Uranus (Οὐρανός) is in the constellation Aries and well placed for telescope viewing in the south. It is 15° north of the celestial equator at mag. +5.7 and visible to the naked eye from a dark site. Neptune can only be found with optical aid in Pisces. Pluto is in conjunction with the Sun on the 21st.

Constellations for the month – Low in our sky at this time of the year and easily observed is the small constellation of Lepus, the Hare. To the left of Lepus is the constellation of Canis Major. We will concentrate more on this constellation and its bright star Sirius next month. Immediately above Lepus is one of the best known constellations Orion, the Hunter. Orion, the Hunter was to the Greeks and Romans a giant of a man who could walk through any depth of water and not get his head wet. He had no fear of any animal and threatened to kill all the animals on the Earth. When Gaia the goddess of the Earth heard this she became angry and sent a scorpion to kill Orion. He was gravely poisoned but Aeschulapius/Ophiuchus the founder of medicine saved him by administering an antidote. All three are memorialized in the sky and this is why Orion and Scorpius are in opposite parts of the sky with Ophiuchus standing above the scorpion with it under his foot. Many cultures had various names for the giant usually referring the star pattern to someone of importance. I have wondered for many years if the Hopi tribe inspiration for their Kachina spirit is represented in the sky as the Orion sky pattern. Notice Betelgeuse is di-

rectly south at midnight on New Year eve. This New Year eve I verified this is true. Orion contains three Messier objects, M42 (NGC 1976), M43 (NGC 1982), and M78 (NGC 2068). M42 is the Great Orion Nebula perhaps the finest diffuse nebula in the sky. If you have observed this diffuse nebula before observe it again because there is always something you missed before. M43 is located next to M42 and probably part of M42 being only separated by an intervening dust lane. Taken together and viewed with a wide field view the two resemble some giant bird soaring through the sky with its wings outspread. The two should be observed with a low F stop telescope with a lot of light gathering power and a field of view of at least 2 degrees. Less than $1/2^\circ$ north of the M42 – M43 complex is Reflecting Nebula NGC 1977. Between these two bright areas is a Dark Nebula with the designation Sharpless 279. It is also known as the Running Man Nebula. Using a large binocular or a low power wide field telescope and not letting the bright stars overpower your observation see if you can observe The Running Man. From this area in Orion's sword go to the first star in Orion's belt Alnitak. M78 is an emission and reflection nebula located $2\frac{1}{2}^\circ$ NNE of Alnitak, zeta (ζ) Orion the eastern star in the belt of Orion. Not as spectacular as M42 or M43 it is unique in its own way and should be observed. Orion contains numerous other multiple star systems many listed at the end of this article. Most of them are blue-white stars because they have been recently born in the Orion Complex. I will let you discover others on your own. Higher in the sky directly above Orion is the constellation of Auriga, the Charioteer. Auriga, has numerous mythological stories connected to it. (See below.) The star which one might think to be the bottom star of Auriga is not. Rather it is the northern of the two stars forming the tips of the horns of Taurus, the bull, a constellation we observed last month. The brighter star has a name Elnath and is the beta (β) star of that constellation. We must note the easiest way to find and observe the first object M1, (NGC 1952) on the not comet list of Messier. Start at Elnath and go to the other star zeta (ζ) Taurus at the tip of the other horn of Taurus. This is the guide star to M1. Once you have found this star, M1 is just over 1° NW.

Featured star – Hind's Crimson Star is a variable carbon star R Leporis found $3\frac{1}{2}^\circ$ WNW of mu (μ) Lepus. It was discovered in October of 1845 by John R. Hind of London. It is one of the most vivid red stars in the sky and varies between magnitudes 6 and 11.5 over a period of about 430 days. This magnitude difference corresponds to an actual difference in brightness of 300 times. Like other carbon stars R Leporis is most red when it is at minimum brightness. Its spectrum has very strong bands of carbon which makes it a strong absorber of blue light. It is also very cool with a surface temperature of 2600° Kelvin or less.

Featured constellation – Auriga, The Charioteer. Capella the alpha (α) star of Auriga is the sixth brightest star in the sky and the third brightest in the northern hemisphere. Only Vega in Lyra and Arcturus in Boötes are brighter. Auriga is usually shown as a man in a

kneeling position setting on a bench (the Milky Way?) holding a female goat with two kids under his right arm and he is holding reins and a whip in his left hand. This is the view seen on a typical celestial globe but Auriga is also shown the other way. Depending on the civilization Auriga is a charioteer, a rein holder or other type of driver, goat herder, or driver of some vehicle (wagon, cart, etc.) Auriga contains three Messier objects M36 (NGC 1960), M37 (NGC 2099), and M38 (NGC 1912) all open clusters. From East to West they are M37, M36, and M38. Also in Auriga, NGC 1907 a little jewel of an open cluster $\frac{1}{2}^\circ$ SSW of M38, NGC 1931 a diffuse nebula 1° slightly north of east from M36, NGC 1857 an open cluster with three bright stars, less than 10 dimmer stars, and up to 40 even less dim stars depending on the size of your telescope found less than 1° south of lambda (λ). NGC 1664 2° east of epsilon (ϵ) an open cluster with strings of stars resembling a flying kite, NGC 2126 an open cluster $4\frac{1}{2}$ between Menkalina, beta (β) and delta (δ) a small open cluster in Auriga made up of about 30 stars, one brighter, in a shape sometimes known as the striding man cluster. NGC 2281 an open cluster of perhaps 30 stars with around a dozen brighter located 1° SW of psi (ψ^7) the bottom left of the stars in the "reins" of Auriga.

Featured Messier object – M78, NGC 2068 is a fan shaped bright bit of nebulosity found $2\frac{1}{2}^\circ$ NNE of Alnitak, Zeta (ζ) Orionis. Embedded within are two 10^{th} magnitude stars. It has a sharp northern border fading southwest into a fan shape. The two stars resemble a Halloween costume of a sheet draped over a child with two eyes staring out. To some it also resembles a double headed comet. No wonder Messier added it to his catalog as number 78.

Other objects of interest – In Orion, NGC 1788 a mixture of emission and dark nebulae similar to M78 located 5° NNW of Rigel, NGC 2024 the flame nebula, NGC 2022 a planetary located 2° SE of lambda (λ) the center star of the naked eye open cluster (Cr 69) forming the head of Orion. [Not as good as the Pleiades but worth observing.] If you are game to visually look for the "Horsehead Nebula" Barnard 33 located $\frac{1}{2}^\circ$ SSE of Alnitak. You will need excellent sky transparency, a telescope of at least 12", and an O-III filter which will greatly help. I have tried several times and have yet to detect it with my 12" telescope at a very dark viewing site. Another challenge object is the Witch Head Nebula [IC 2118] a reflection nebula located west of Rigel in the constellation Eridanus the River. It is illuminated with the light from Rigel and you do not need any filter. You do need a wide field big binocular or a low power wide field telescope. With a bit of imagination it does look like an imaginary witch head in profile with a long nose and chin. It is as easy to see as the Orion nebula with no bright stars, only Rigel illuminating the profile. The book 10 in the series: Annals of the Deep Sky by Jeff Kanipe has the Witch Head Nebula on the cover.

Bill Shackelford

When you cannot observe the stars. Observe the Moon.