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Penobscot Valley Star Gazers

An Astronomical Society of Central Maine

Ruffling the colors of the forest leaves,
The winds make music as they come and go.
-John Critchley Prince



October 2024

October Meeting at JBMHS

The October 2024 meeting of the PVSG will be held at John Bapst Memorial High School on the **second** Monday of the month, the 14th, 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 Shawn for inviting us to the Versant Power Astronomy Center. And this reminder: the dues are due this month.



PVSG Monthly Meeting Minutes September 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 September minutes were unavailable.



Observe The Sky This Month

Some Selected Objects
October 2024

General sky comments – The Orionid meteor shower will peak between October 21 and 22 and will remain active until November 7th. The waning gibbous Moon this year will be a problem and will cut the normal zenith rate of 20 per hour in about half. The Orionids are caused by the debris of comet Halley. Do not forget to observe the Moon and Jupiter as they are in conjunction on the 21st. Saturn is also in the southeastern sky. The October full Moon is the Hunter's Moon. It is the largest of 2024 and would be considered a "super" Moon. When we leave the meeting on the 14th note how close Saturn is to the Moon. Saturn was occulted earlier today in much of the Eastern Hemisphere. Neptune was also occulted at the same time but it is a telescopic object.

The Moon and Planets this month – Before the October meeting on the 14th the new Moon (lunation 1259) was on Wednesday the 2nd, first quarter Moon was on Thursday the 10th, full Moon is on Thursday the 17th and last quarter Moon is on Thursday the 24th. Mercury is slowly distancing itself from the Sun. On the 24th it achieves maximum magnitude of -0.3° at 15° from the Sun. Venus is in the night sky low in the southwest as it distances itself from the Sun. Mars remains in the morning sky around 90° from the Sun and continues to brighten. It is in the sky almost half the night in the constellation of Gemini. It moves into Cancer on the

30th. Jupiter is now prominent throughout the night. It is in retrograde making it have the best viewing season in memory. Saturn is well above the eastern horizon starting at evening twilight and continuing through the night setting before sunrise. The planet now casts a shadow on the rings giving it an almost three-dimensional look. The planet Uranus (Οὐρανός) is in the constellation Aries and at opposition next month on the 17th. Neptune is just past opposition and is in the sky in Pisces. It is a telescopic view most of the night. Pluto is in Capricorn shining at around magnitude 15. October is the end of the summer viewing season for Pluto.

Constellations for the month – To the east of Fomalhaut and Pisces Austrinus, the Southern Fish we noted last month is the dim constellation Sculptor. This constellation was named by the French cleric and southern sky observer Lacaille around 1760. He originally called it "The Sculptor's Workshop". Later it was shortened to Sculptor. It contains a handful of stars magnitude 4 or less. However, Sculptor contains two objects of note NGC 253 a galaxy and NGC 288 a globular cluster. Above Sculptor is the constellation of Cetus. Start at mag. 2.0 Deneb Kaitos, Beta (β) Ceti [See below] the brightest star in the constellation and go almost 3° SSE to NGC 247 a barred spiral with a field star at one end and an oval lighter area at the other end. NGC 247 is the second brightest galaxy in the Sculptor group of galaxies. To find the brightest galaxy in this group NGC 253 go 4.4° S of NGC 247. NGC 253 is a galaxy claimed by numerous people as the third most notable galaxy in our sky. Only M31 the Andromeda Galaxy (NGC 224) and M33 (NGC 598) in Triangulum are better. NGC 253 (Caldwell 65), known as the "Silver Coin" or more properly the Sculptor Galaxy, was discovered by Caroline

Dues Were Due October 1



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Herschel in 1789. It is the largest member of the Sculptor Group of Galaxies and truly spectacular. Do not miss this galaxy! You will be truly impressed and for most people it is easier to observe than M33. Both of the above galaxies are easily seen in almost any telescope or binocular. The other object NGC 288 is a globular cluster located 1.8° SSW of the “Silver Coin Galaxy”. It is class X (10) being less populated than most globular clusters. Cetus, the Sea Monster (Whale) is so large we will cover the western half this month and the eastern half next month. Also in this part of Cetus is a planetary nebula NGC 246. It was discovered by William Herschel on November 27, 1785. This planetary nebula is sometimes called the skull nebula because of the internal dark spots. To find it go 6.2° N from Deneb Kaitos. NGC 246 is a bit faint but can be found with a 4” telescope. Above Cetus some 25° is an asterism known as the “Great Square” of Pegasus. It consists of a very distinctive square of stars one of which is in the constellation Andromeda, the Princess to be covered next month. This square of stars represents the wings of the great flying horse with the front portion we covered last month. Within this square of stars is a galaxy only 2½° WNW of the star Algenib, gamma (γ) Pegasus at the SE corner. This galaxy is “The Little Sombrero Galaxy”, NGC 7814 (Caldwell 43) a brighter galaxy than I expected to see when I first located it. In Greek myth Perseus was able to cut off the Head of Medusa, the Gorgon monster whose look turned mortals into stone, by looking at her reflection in a shiny metal shield given to him by Athena. As the blood of Medusa fell onto the sand of the beach out of the ocean foam appeared Pegasus. Perseus mounted Pegasus and rode off to rescue Andromeda from her fate. Pisces, the Fishes will be covered next month [along with Perseus] although it is spread through several constellations we have previous noted. Moving north we pass through the western portion of Andromeda to arrive at two northern constellations now very prominent in the overhead sky and in prime position for viewing. These are Cepheus, the King covered last month and , the Queen. [See below] The best way to observe northern constellations is to lie back on a lounge chair and use a binocular which allows you to observe the rich star fields of this region of the sky. Use a telescope for fine details.

Featured star – Tau (τ) Ceti is a Sun type star in the constellation of Cetus The Sea Monster (Whale). It is the closest Sun type star (G8.5) at 12 light years distant. It has about 78% of the mass of the Sun. It would appear slightly dimmer than Sol at the same distance. In April of 1960 Frank Drake listened to radio signals from Tau Ceti using the radio telescope in Green Bank, West Virginia. He called it “Project Ozma” hoping to receive messages from an advanced civilization. This was the first step in the search for extraterrestrial intelligence, SETI. All he received was noise. Tau Ceti has lately been found to possibly have a retinue of at least four or five planets with two of the planets located in the habitability zone. The largest detriment to habitability is the absence of large outer

planets to shield the inner planets from bombardment with asteroids and comets. Tau Ceti has been used as a location in many works of science fiction. Star Trek and Barbarella come to mind. Some are also familiar with the novel *Aurora* by Kim Stanley Robinson where Tau Ceti is the destination for 2,000 Earth colonists. Tau Ceti is a frequent star mentioned in UFO discussions and online blogs.

Featured Messier object – M103 (NGC 581) an open star cluster located 1° NE of Ruchbah in Cassiopeia. It was discovered in 1781 by Pierre Méchain and was included by Messier as one of the last entries in his catalog. Harley Shapley considered M103 a loose and poor cluster and went as far as to call it not even a cluster but an accidental grouping of unrelated stars. I observed M103 as a handful of bright stars over 30 to 40 dimmer stars. Some observers see a fan or wedge shape formation of stars within the cluster. Of the bright stars all but one are moving in the same direction. The brightest star is variable and a triple star system. It can be resolved using a little power and their separations have changed little from their observations in 1827 and 1901. Upward of 172 stars are believed to be members of this open but scattered cluster. This cluster is estimated to be between 7,150 and 9,800 light years distant. One of the most distant of the Messier catalog.

Featured constellation – Cassiopeia, the Queen of Ethiopia. The distinct shape of the constellation is recognized by most people as the letter “W” or “M” and if they are familiar with the mythology as the throne of the queen Cassiopeia. Next month we will attempt to make sense of the mythology of the vain Cassiopeia, her family, and the Greek gods. To orient ourselves we will first locate and name the stars starting with the western star Caph, Beta (β). The most southern is Schedar, Alpha (α). The next star east is Gamma (γ), [the brightest star in the northern hemisphere without a formal name] followed by Ruchbah, Delta (δ) and finally Segin, Epsilon (ε). The selected objects by NGC only in Cassiopeia this month start with M103. [See above] 1.2° E of M103 is NGC 659, NGC 663 is ½° NNE, then NGC 654 is ½° NW. These open galaxies were all observed by me with the Clark 8” telescope at the old observatory on the University of Maine campus. 2° N slightly W is NGC 637 and 1½° SE is NGC 559. The easiest way to observe the next open clusters is to begin at the unnamed middle star of Cassiopeia. From this star go 1½° NW to NGC 381, then 1¼° NW to NGC 225 followed 1¼° ESE to NGC 136 then 1° S to NGC 129. For the next open clusters we will observe this time go to the western star Caph, Beta (β) then 2¼° NNE to NGC 7790. For the last two open clusters in this area we will observe return to Ruchbah, Delta (δ) and go 2° SW to NGC 436 followed by ½° SW to NGC 457. All these open clusters of Cassiopeia can easily be observed in one night. May I urge you (if you do not already do so) to record the observations you make. Personally I take a notebook with me when observing and record what I see at the eyepiece for the date and

the time of each observation. Later I transcribe the field notes into a more permanent record both in written form and electronic.

Other objects of interest – NGC 7789 is visible as a hazy spot to the unaided eye and was discovered by Caroline Lucretia Herschel in 1783 after being missed by Messier several years earlier. It is known as the Magnificent Cluster, the White Rose Cluster, and Caroline's Cluster. NGC 7789 is larger and has more stars than either M52 or M103. It is one of the finer objects to observe with moderate size telescopes. It contains

upward of 300 stars and in my 12" telescope I could easily count at least 150 stars. To find this cluster go $2\frac{1}{2}^\circ$ SW of Caph, beta (β) Cassiopeia. NGC 7662, the Blue Snowball is a planetary nebula. Its name describes it quite well. It is a blue-green color, not quite round, lighter in the middle, and the central star is visible at 14th mag. in my 12" telescope. Find it in the far western side of Andromeda not far from the group of stars ψ , λ , κ , ι , $2\frac{1}{2}^\circ$ WSW of ι .

Bill Shackelford

Come view with me and we will rule the skies