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Penobscot Valley Star Gazers

An Astronomical Society of Central Maine

How just's the motions of these whirling spheres,
Which ne'er can err while time is met by years!
-Allan Ramsay, of eclipses



October 2023

October Meeting

The next meeting of the PVSG will be held by Zoom on Monday, October 9 at 6:30 pm. (Zoom meeting ID 862 9984 6478 Password: PVSG.) We don't know what the program will be. Bill is still working on his "The Star Atlas - a Short History."

There was no formal program last month, but thanks to all who contributed to the discussions.

We send our condolences to Colleen Serrada for the loss of Peter. He was a long-time member and regular Stellafane attendee.



PVSG Monthly Meeting Minutes September 11, 2023

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.

Meeting:

Call to Order and Welcome to Visitors

The meeting was held by Zoom videoconference. The meeting was brought to order by Don Ferrell at approximately 6:42 PM. Don began the meeting with a moment of silence as this day marks the anniversary of the 9-11 attacks on our country. The group shared their thoughts and memories of the day.

Attendance:

Online:

Don Ferrell – President
Dave Clark – Treasurer
Phil Normand – Secretary
Dwight Lanpher
Scott Burgess
Donna & Wade Smith
Don Krause
Ralph Mallett
Jeff Cunningham
Bill Shackelford

Presentation

Dave has a presentation ready on having a Messier Marathon. He mentioned the possibility of having a Messier Marathon in November. It is not quite as good a time as March but still fairly good. There are 110 objects to view and some objects in the west need to be viewed right at dusk. The group discussed that the Astronomical League gives certificates for those completing the marathon without using go-to scopes. Discussions at the League are underway for a certificate that would be for those using go-to scopes. The group discussed the Bortle scale and if elevation affects the number.

Secretary's Report and Acceptance of Minutes

The minutes for the August meeting were accepted unanimously.

Treasurer's Report

Dave stated that \$355.97 was in the treasury last month. Dues are due in October. Dave hopes all members will get their dues paid by the end of the year.

Club Liaison Report:

No report this meeting.

Observing Reports:

Dave reported that he did observing with binoculars for several nights and enjoyed great views of Jupiter and Venus as well as identifying many of the constellations in preparation for an upcoming star party in Northport that he and Don were planning. Dave mentioned that Venus was a thin crescent when he observed it. Dave also mentioned that the New York Times had inaccurate info on finding comet Nishimura. Jeff mentioned he had imaged the comet. Phil mentioned that theskyline.com has a map showing the comet position in relation to background stars. Wade mentioned that he showed a co-worker that he could cover up the full super-moon with a pencil eraser held at arm's length.

Old Business

Wade asked if the group had already talked about this year's Maine State Star Party at Cobcook Bay State Park. Wade mentioned that it was the best attended to date. Wade mentioned that it was quite muddy and that there were a lot of dedicated astrophotography

Dues Were Due October 1



Regular \$18.00

Family \$27.00

Junior \$9.00

send to:

Treasurer, PVSG
609 Cape Jellison Road
Stockton Springs, ME 04981

scopes this year. Wade showed a picture he won of the Trifid Nebula M20. Viewing was great on Friday night. Most left on Saturday and more rain came in on Sunday morning. Charlie Sawyer of DEAA said that the park is going to put a gravel road in through the field to make it more accessible to groups. Wade mentioned the CMAS Trischeifspiegler telescope was there and showed incredible views. Wade mentioned a trail of Starlink satellites came by and several meteors and a couple bolides were seen. There was also a circum-zenith arc formed by ice crystals directly overhead. Dwight showed a group photo of attendees stating that there were several more astronomers in attendance than were in the photo. Dwight added that there were attendees from every astronomy club in Maine.

New Business

Andy had given up his position of vice-president and Jeff may volunteer to serve. He will let us know next month. Don is reaching out to the Challenger Center to see if they are going to have some kind of event for the annular solar eclipse in October and the full eclipse next April. Dave mentioned that Shawn will be getting back to the group on local eclipse happenings.

Jeff asked if we could send an email prior to the meeting to remind folks of the upcoming meeting. The group discussed it and agreed that it might help get more folks to attend the meeting. Dwight thought 2 days would be a good time frame. Jeff felt our web site and face book page needed updating. The group discussed ideas for changes. We decided that we should look into getting Jeff access to work with the club's Facebook page.

Dwight mentioned that Stars Over Katahdin will have viewing for Astronomers on Friday, October 13th and will be having solar viewing on October 14th – the date of the annular solar eclipse and then a nighttime star party at the Stacyville campground.

Dave asked Jeff if he had received the latest Reflector magazine. Jeff said he had.

Upcoming Calendar of Events

- October 13th-14th: Stars Over Katahdin at Stacyville Campground (Evening of Oct 13th for Astronomers Only – Star Party is on 14th)

Adjournment

The meeting was adjourned at approximately 8:30 PM

Phil



Observe The Sky This Month Some Selected Objects October 2023

There are two partial eclipses visible from Maine this month. The first is the partial phase of the annular solar eclipse on the 14th. Maximum eclipse is around 1:20pm. I expect to be at or very near the centerline of the annular eclipse in Albuquerque, NM. Time of maximum eclipse there is 10:56:23 MDT. The second eclipse is a partial lunar eclipse on the morning of the 28th. The Moon rises partially eclipsed.

The recent opposition of Saturn and the opposition of Jupiter on the 3rd of next month make the two planets the object of night sky observations this month. They both can be observed on Moon-lit nights while deep sky objects are difficult to observe.

The Orionid meteor shower will peak between October 21 and 22 and will remain active until November 8th. The Moon this year will not be a problem as it is first quarter and it sets by midnight. The hourly zenith rate can be as much as 80 meteors per hour depending on conditions but expect a display rate of <30. The Orionids are caused by the debris of comet Halley. Do not forget to observe deep sky objects when the Moon is not visible.

The last opportunity to observe the Zodiacal Light this year begins on the 12th and lasts for two weeks. Look to the eastern horizon one half hour before the beginning of morning twilight. The October full Moon is the Hunter's Moon.

The Moon and Planets this month – Before the October meeting on the 8th the last quarter Moon was on Friday the 6th, New Moon (lunation 1247) is on Saturday the 14th, first quarter Moon is on Sunday the 22nd and full Moon is on Saturday the 28th.

Mercury was difficult to observe early in the month. Superior conjunction is on the 20th.

Venus is now a beautiful morning star. On the 10th the star Regulus is 2° south along with the Moon at 6° south. Venus is at greatest western elongation on the 23rd at 46°. With a telescope watch Venus grow from crescent to half to gibbous during the month.

Mars is too close to the Sun to observe this month.

Jupiter is now prominent in the sky all night. The almost full Moon passes close on the 29th. On Friday the 20th the shadows of the moons Io and Ganymede both begin transiting Jupiter before midnight.

Saturn is well above the eastern horizon starting at evening twilight and continuing through the night setting shortly before sunrise. The planet now casts a shadow on the rings making an almost three-dimensional look.

The planet Uranus (Οὐρανός) is in the constellation Aries and at opposition next month on the 19th. Neptune is just past opposition and is in the sky in Pisces. It is viewable most of the night.

Pluto is too close to the Sun to observe.

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 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 previously 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 the Cepheus, the King covered last month and Cassiopeia, 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 – Deneb Kaitos, Beta (β) Ceti is the brightest star in the constellation Cetus, the Sea Monster (Whale). It is almost one-half magnitude brighter than the alpha (α) star Menkar located on the opposite end of the constellation. Deneb means the tail and is used in the name of several stars. In this case it means tail of the sea monster. Diphda is an alternate name for this star from the Arabic name meaning “second frog”. Arab astronomers originally called Fomalhaut “first Frog” before adopting the Greek name. Deneb Kaitos is a type KO bright giant similar to Arcturus but hotter. This is not overly unusual except for the high X-ray emissions not normally found in a star of this type. X-ray emissions are generally considered to be produced by a rapidly rotating magnetic field heating an extended chromosphere. There is a problem. Deneb Kaitos is a slow rotator with a rotation period of about 115 days. The magnetism could have come from the time it was a main-sequence star with an unusual magnetic field. However, the chemical composition shows Deneb Kaitos is well into the helium burning phase, ascending the red giant phase of its evolution and not recently leaving the main-sequence. More study is needed.

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). Next 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 in Cassiopeia this month start with M103. [See above] 1.2° E of M103 is NGC 659, NGC 663 is $\frac{1}{2}^\circ$ NNE, then NGC 654 is $\frac{1}{2}^\circ$ NW. These open clusters 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 $1\frac{1}{2}^\circ$ 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 $1\frac{1}{2}^\circ$ NW to NGC 381, then $1\frac{3}{4}^\circ$ NW to NGC 225 followed $1\frac{1}{4}^\circ$ 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 $2\frac{1}{4}^\circ$ 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 $\frac{1}{2}^\circ$ 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 ob-

serving 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