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# Penobscot Valley Star Gazers

An Astronomical Society of Central Maine

Hark! on the frozen ear of night,  
The sleighs with silver bells—On yonder hill top's snowy height,  
The merry music swells.  
—Richard George Holland



December 2023

## November Meeting

The next meeting of the PVSG will be held by Zoom on Monday, December 11<sup>th</sup> at 6:30 pm. (Zoom meeting ID 862 9984 6478 Password: PVSG.)

Thanks for last month's program go to Jeff for his presentation on astrophotography.



### PVSG Monthly Meeting Minutes November 13, 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 6:35 PM.

#### Attendance:

##### Online:

**Don Ferrell – President**  
**Jeff Cunningham – Vice-President**  
**Dave Clark – Treasurer**  
**Phil Normand – Secretary**  
**Scott Burgess**  
**Wade & Donna Smith**  
**Pete Coughlin**  
**Ralph Mallett**  
**Bill Shackelford**

#### Presentation

Jeff Cunningham gave a presentation on his astrophotography workflow. Jeff is always looking for spots that look like good places to take pictures. Jeff has often talked with folks about using their land to take pictures and they usually allow him to do so. Jeff many times shoots from his home, at Hermon pond or Plymouth lake. Jeff has also shot from Treworgy Orchard. Jeff talked about how he plans his shots and what he's trying to capture in the sky and for a background.

Jeff says he uses many web sites for sky forecasts like Earthsky, Clear Sky, 30 Minute Aurora Forecast and others as a knowledge base for astrophotography like [www.photopills.com](http://www.photopills.com). Other sites like Stellarium help Jeff determine what will fit in his camera's field of view.

Jeff displayed a wide-angle picture, a picture taken with a zoom lens and a compound pic-

ture that was a combination of many pictures of the moon.

Jeff recommends long pants and long sleeve shirts to combat bugs and warm clothes for cold weather so that your night doesn't end too soon.

Jeff uses a Canon Rebel T6 camera on a star tracker mount to move his camera along with the stars' movement. Jeff talked about all his preparations including a dew strip when trying to avoid condensation. Jeff uses RAW picture format for maximum flexibility with digital changes.

Jeff talked about ISO and f-stop combinations for taking pictures in manual mode. He also talked about the rule of 500 for determining how long of an exposure you can take without the help of a star tracking mount. Jeff then talked about post-shoot file processing.

There was a brief discussion about using cell phones to do some astrophotography versus using a DSLR.

#### Secretary's Report and Acceptance of Minutes

The minutes for the October meeting were accepted unanimously.

#### Treasurer's Report

Dave stated that \$791.97 is in the treasury currently. Dues are now due. The Northport presentation given by Don and Dave yielded a donation of \$250.00.

#### Club Liaison Report:

No report this meeting.

#### Observing Reports:

Dave and Don viewed several Messier objects from Dave's house with Don's Dob. Dave also observed this past Saturday with his 85mm refractor. Wade and Donna went to Florida last week and saw a rocket launch from the Kennedy Space Center. Last Saturday, Wade's daughter saw the trail of starlink satellites.

### Old Business

October Star Party for the Bucksport Elementary school was cancelled. Don received forms from the school principal to be filled out if the club wants to have a star party there. Dave voiced concerns if the school asked to be put on our insurance policy. In the past Hampden had asked to do that. Jeff asked about getting in touch with the person who updates the Facebook page.

### New Business

Dave mentioned that Dwight wanted to bring up making money for the club by hosting star parties for private parties.

There was a quick discussion on what folks were doing for the April 8, 2024 full solar eclipse. Don Krause has a house rented in Houlton and Shawn Laatch will be in the Jackman area. Peter mentioned that traffic will be terrible the day of the eclipse. Bill is planning to be in Texas for the eclipse.

The club had a brief discussion of astrophotography with cell phones through eyepieces and alone.

Dave announced that he has received Principle Lecturer Emeritus status at the University of Maine.

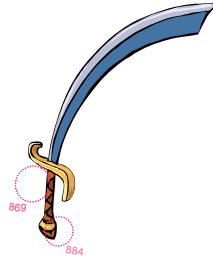
### Upcoming Calendar of Events

Nothing announced at this meeting.

### Adjournment

The meeting was adjourned at approximately 8:50 PM

Phil



## Observe The Sky This Month Some Selected Objects December 2023

### General sky comments –

The winter solstice is on Thursday December the 21<sup>st</sup> at 10:27 pm EST. The Geminids meteor shower peaks in the early evening of Wednesday the 14<sup>th</sup>. Observe them both before and after the 14<sup>th</sup>. The Moon was new only two days earlier and will not interfere. The Ursids meteors peak on Saturday the 23<sup>rd</sup>. The Moon will be a problem as full moon is four days later. Merry Christmas, Happy Holidays.

**Planets this month** – Last quarter is Tuesday the 5<sup>th</sup>, before the PVSG meeting on the 11<sup>th</sup>. New moon (lunation 1249) is on Monday the 11<sup>th</sup>, first quarter is on Tuesday the 19<sup>th</sup>, and full Moon is on Tuesday the 26<sup>th</sup>. Mercury achieved maximum eastern elongation of 21° on the 4<sup>th</sup> when it shone at mag. -0.3, 20° east of the Sun. By mid-month Mercury will be too close to the Sun to observe. Venus remains prominent through the end of the year in the morning sky. It is in the gibbous phase (observe with large binoculars or a telescope). Mars is too close to the Sun to observe. Saturn is now 10.0 au from Earth and sets by mid-evening. It is in conjunction with the Moon on the 17<sup>th</sup>. The planet Uranus (OYPAHOΣ in classic Greek) is in the evening sky in Aries. Neptune is in the SW evening sky in Aquarius. Pluto is too close to the sun to observe.

**Constellations for the month** – Once again starting at the southern reaches of the Maine sky we begin with the constellation Caelum, the Engraving Tool. This is one of the constellations invented by Nicholas Louis de Lacaille. This constellation lies at the same latitude as Canis Major which we will note next month. If you live at a location where the Big Dog is visible you may be able to observe some northern members of this constellation. Another constellation also invented by Nicholas Louis de Lacaille is Fornax the Furnace and visible about 15° above the horizon. He called it Fornax Chemica, the Chemical Furnace. Fornax is obscure and not very bright. The alpha star is only Mag. 3.9 but worth observing. It is a double star with two yellow stars. If you are a deep sky galaxy observer The Fornax I Galaxy Cluster is for you. Use the next constellation Eridanus, the River, the longest constellation in the sky to find Fornax. It is found in the second bend of Eridanus about 40° below the head of Cetus which we observed last month. Eridanus is so long it starts with its beta (β) star Cursa only 5° south of the celestial equator and winds through the sky as a path of stars ending with its alpha (α) star Achernar at -63° S. Cursa is 3° NNW above Rigel, (β) Orion (covered next month) and offers a contrast between beta stars of different constellations. Achernar is well below our horizon. Above the first straightaway of Eridanus is the constel-

lation of Taurus, the Bull with the open cluster Hyades. Don't miss the open clusters NGC 1647 and NGC 1746 between the horns of Taurus. NGC 1746 is one of my most favorite open clusters because it is actually 3 open clusters in one and somewhat of a challenge. I first noticed it with a large binocular (25 x 100). Start with your lowest power to view NGC 1746 and then try to pick out the small concentrations of stars listed as NGC 1750 and NGC 1758 within NGC 1746. NGC 1746 is the grouping of around 20 bright stars. NGC 1750 is the concentration of dimmer stars within NGC 1746. NGC 1758 is the grouping of even dimmer stars partly outside of NGC 1746. Some observers call the whole cluster of stars NGC 1746. Observe this grouping and see if you think it should be one large cluster of stars from very bright to very dim or separate open clusters. The total of all the stars in the three groups is in excess of 75 stars. Included in Taurus is probably the most famous open cluster in the sky M45 aka Pleiades. Also in Taurus is M1 the "Crab Nebula." It is found 1° NE of zeta (ζ) Tauri. Perseus, the Hero is above Taurus (see below). Above Perseus is the dim constellation Camelopardalis, the Giraffe with its brightest star only at mag. 4.5. This is the beta (β) star. The most interesting Camelopardalis view is the asterism "Kemble's Cascade" a string of 8<sup>th</sup> mag. stars starting with open cluster NGC 1502 forming an equilateral triangle with beta (β) and alpha (α) Camelopardalis then proceeding to the NW. Get out a binocular for this one. While in this area of the northern sky note Polaris and how Ursa Minor, the Little Bear hangs down toward the North horizon at this time of year.

**Featured star** – Algol, beta (β) Perseus is the most famous eclipsing variable star in the sky. It consists of a primary star and a secondary star in a close orbit only 6 million miles apart. The primary is a white star 100 times brighter than our sun and the secondary is only two or three times as bright as our sun. Because they are eclipsing stars their period and time of eclipse can be measured and predicted very accurately. The eclipse is 10 hours long (5 hours in and 5 hours out) and can sometimes be completely observed in one night. It has a period of 2 days, 20 hours, 48 minutes, and 56 seconds. There is a slight secondary dip in brightness midway through the period phase when the primary star eclipses the secondary but it is only evident with photometry. The two stars shine at a combined magnitude of 2.1 most of the time but dip to 3.4 during the eclipse phase. There is also a third and possibly fourth star in the system but they are far enough away from the other members to not participate in the eclipse.

**Featured Messier object** – M76, The Little Dumbbell was discovered by Pierre Mechain in September of 1780 and then six weeks later re-discovered by Messier. It usually is called the "Little Dumbbell or Barbell Nebula" because of its resemblance to the larger Dumbbell Nebula (M27) in Vulpecula. William Herschel gave it two numbers then Dreyer changed the Herschel numbers to NGC 650 and 651. In small telescopes

M76 looks like a small oblong object and using averted vision it can be seen to have two distinct lobes. In larger scopes more detail can be seen. The following is my perception using my 12" telescope. "A pretty blue planetary. It is elongated with a bar on each side. One end is brighter than the other and slightly angled to the other bar." M76 in even larger telescopes can be seen to have an outer shell. The interior shows two distinct lobes connected by a less bright bridge.

**Featured constellation** – Perseus, the Hero. Last month it was mentioned Perseus saved the maiden Andromeda by turning Cetus, the Sea Monster to stone with the Gorgon, Medusa's head covered with serpents. Perseus was able to cut off Medusa's head by looking at her head in his brass shield and not being turned to stone himself. Perseus the constellation is in the winter Milky Way and thus contains numerous open clusters, diffuse nebula, and surprisingly numerous galaxies. It also contains two Messier objects, the open cluster M34 and the planetary nebula M76. M34 is located 5° ENE of the variable star Algol, beta (β) Persei. M76 the little dumbbell (see above) is located 1° above phi (φ) Persei. Also located in Perseus is the famous double cluster of NGC 869 and NGC 884. Known to ancient Greeks and Babylonians as the scimitar handle Perseus used to decapitate the Gorgon, Medusa. For some reason Messier did not include the Double Cluster in his catalog. Maybe because they would not be confused with any comet. We can imagine these two cluster are decorations on a tree since the Christmas Tree Cluster and bright nebula are not viewable this time of year.

Stars should be seen without a light in view  
Bill Shackelford