



# Penobscot Valley Star Gazers

An Astronomical Society of Central Maine

<http://www.gazers.org>

August 2022

## Back to Zoom

The PVSG meeting of August 2022 will be held via Zoom on Monday the 8<sup>th</sup> at 6:30 pm. (Meeting ID 862 9984 6478 Password: PVSG.) Doors will open around 6:00 for some socializing before the meeting.

Thanks for last month's program go to Dave for his talk for beginners about using planispheres and other resources to plan for observing.

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### New to Observing

PVSG Monthly Meeting Minutes  
July 11, 2022  
Zoom & In Person

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 and in person at John Bapst. The meeting was brought to order by Don Ferrell at approximately 6:31 PM.

##### Attendance:

###### Members at John Bapst:

**Don Ferrell – President**  
**Andy Brown – Vice-President**  
**Phil Normand – Secretary**  
**Scott Burgess**  
**Wade & Donna Smith**  
**Mary-Francis Beesorchid**  
**Jeff Waring**

##### Online:

**Dave Clark – Treasurer**  
**Bill Shackelford**  
**Ralph Foss**  
**Ralph Mallett**  
**Don Krause**  
**Laura Quijada**

##### Guests:

None

##### Presentation

Dave shared an image of the deepest infrared image from the Webb telescope showing the gravitational lensing effect.

Dave presented how a new observer might prepare to observe the night sky. Dave stated that a planisphere is one of the best tools to have. The planispheres are made for different latitudes, so it's important to have the correct one for the latitude you are observing from. Dave

explained the parts of the planisphere and how to use it properly. Dave then mentioned the [universalworkshop.com](http://universalworkshop.com) site that lists astronomical events. Dave also mentioned the RASC Observer's Handbook that is a useful tool. Dave doesn't recommend planetarium software for new users. Dave mentioned that Dave Mitsky places a monthly list on the Cloudy Nights web site. Another site is the Skies of July web site by Dick Cookman. Dave presented those sites to the group and then mentioned the book "Turn Left at Orion" that he feels is the best book for beginner astronomers.

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

There was an issue getting the newsletter out to the members through Google Groups. (We later learned that Google groups had flagged Ralph Mallett's email as potential spam. Dave was able to administratively approve emails from Ralph in Google groups and a test email sent was successful.)

##### Treasurer's Report

Dave stated we have \$404.17 in our checking account. Dave said he paid dues to the Astronomical League. Membership dues were paid with dues paid for one family membership for 3 years. The treasurer's report was unanimously approved.

##### Club Liaison Report:

None

##### Observing Reports:

Bill saw the planet conjunction in Oklahoma. He has been doing some solar observing as well. Don F. has been observing the moon using an old sunglasses lens over the eyepiece. Scott mentioned he has been doing some astrophotography with students. Phil mentioned he was unable to see Mercury in the morning due to low clouds and ground fog. Dave mentioned that his new garage now blocks his E-SE view.

##### Old Business

Phil stated that he had not yet heard back from Dwight about contacting other clubs. In re-

sponse to an email from Scott where he was contacted by a mother with 2 young children, Dwight mentioned that Southern Maine Astronomers has instituted a rain or shine event on the second Saturday of every month for children. They have a lecture program ready in case of rain. Dwight thought that perhaps we could partner with the Fields Pond Audubon Center to present activities for children.

The Maine State Star Party will be held on August 26-28<sup>th</sup> at Cobscook Bay State Park. Stars over Katahdin on September 17<sup>th</sup>.

### New Business

The next meeting will be on August 8<sup>th</sup> as a hybrid meeting at John Babst and on Zoom. Phil tried to see what level of interest there was within the club to work on a larger scale push to get astronomy information out through the use of TV. Phil said he would try to contact the Audubon Center. Don mentioned that NASA would be releasing more Webb telescope pictures on July 12<sup>th</sup>. Don also mentioned that the Versant Power Astronomy Center would be having a presentation on the 16<sup>th</sup>. Ralph Foss asked if the ZOOM recording would have better audio than what the zoom participants were hearing. Andy explained that it likely wouldn't be any better. A short discussion was held about maybe getting a remote mic. for future meetings.

### Adjournment

The meeting was adjourned at approximately 7:43 PM

Phil

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## Observe The Sky This Month

### Some Selected Objects

### August 2022

**General sky comments** – This month is a great time to observe planets and this can happen during the time of the month when the Moon interferes with deep sky observing. Jupiter is in a great position to observe along with Saturn following soon after. On the 15<sup>th</sup> and 16<sup>th</sup> there is a double shadow transit on Jupiter of the moons Io and Ganymede. The event begins at 11:24 on the 15<sup>th</sup> and the middle of the event is around 1am on the 16<sup>th</sup>. The rings are best seen this month when Saturn is highest in the sky soon after midnight. Look in the next section for information about the rings and Saturn. Do not forget to observe Titan the largest satellite of Saturn. Saturn is in Capricorn making it a good time to observe the constellation and especially the spectacular globular cluster M30 featured below. The Perseid meteor shower peaks on the night of the 12<sup>th</sup>

and 13<sup>th</sup> but the full Moon interferes.

**The Moon and Planets this month** – First quarter Moon is on Friday the 5<sup>th</sup>, full Moon is on Thursday the 11<sup>th</sup>, last quarter is on Friday the 19<sup>th</sup> and new Moon (lunation 1233) is on Saturday the 27<sup>th</sup>. Mercury achieves the greatest elongation of the year east of the Sun on the 27<sup>th</sup> at 27°. Unfortunately it is not well placed for viewing unless you are in the Southern Hemisphere where Mercury has the best view of the year. Venus is becoming closer to the Sun in the morning sky and by month's end is only 14° from the Sun. On the 9<sup>th</sup> Mars moves from Aries in to Taurus where it remains for the rest of the year. The last quarter Moon passes 3° to the north on the 19<sup>th</sup>. Mars reaches mag. 0.00 on the 21<sup>st</sup> and 90° elongation from the Sun on the 27<sup>th</sup>. Jupiter is still in retrograde located in northeastern Cetus. The waning gibbous Moon passes 2° south on the 15<sup>th</sup>. Saturn is at opposition on the 14<sup>th</sup>. It will be 74 light-minutes (8.857 au or 824 million miles) from Earth at Mag. +0.3. The rings are exposed on the northern side at a 13° tilt and will span 43.7". The disk of the planet is 18.8" wide and 15.5" south of the celestial equator. Saturn is in retrograde in eastern Capricornus. The full Moon passes 4° to the south on the 11<sup>th</sup> and 12<sup>th</sup>. Uranus is occulted by the waning gibbous Moon on the 18<sup>th</sup>. It is a daytime event observable with a telescope, difficult but not impossible. Neptune is in Aquarius, rises in mid-evening and is visible with a telescope the remainder of the night. Pluto is in western Sagittarius.

**Constellations for the month** – In August we start our journey on the deep southern horizon out of the Milky Way in a portion of the sky less populated with stars and deep space objects. As we progress northward the Milky Way is once again crossed and a number of interesting objects are seen. Our journey begins on the southern horizon with an invented constellation Microscopium, the Microscope. It is one of fourteen small constellations invented by Nicholas Louis Lacaille to fill gaps between larger constellations. Most of the constellations commemorate scientific instruments invented during the European Enlightenment. Microscopium does not remotely resemble a microscope and the brightest star is magnitude 4.5. It is one constellation you cannot feel bad about missing. Above Microscopium is the zodiac constellation Capricornus, the Horned Sea Goat a moderately large but not very interesting constellation. It appears the Greeks made up a story for this constellation they inherited from the Babylonians. To them this constellation represented their god of fresh waters, Enki. It does resemble a two prow boat such as may be found to this day in the Near East. The Greek story was the goat hooved god Pan was being chased by the wind monster Typhon. Pan leaped into the Nile to escape and was turned into a goat headed fish. The two stars Algedi ( $\alpha$ ) and Dabih ( $\beta$ ) at the NW corner of Capricorn represent the horns of the goat. Both stars are class G stars that have ceased fusing hydrogen in their cores and have begun moving off the main sequence. Algedi is a naked eye

double but not a true double rather an optical pair the two stars being 460 light years distance from each other. Dabih is also double and both components can be seen with a binocular. Both stars are complicated systems but these companions need to be separated with a telescope. Capricorn contains a fair number of galaxies but most are not very bright. The only showcase is the globular cluster M30 (NGC 7099) see below. A trio of stars  $3\frac{1}{2}^\circ$  SSW of beta ( $\beta$ ) Cap are interesting to observe. The top star in the group rho ( $\rho$ ) cap is a complicated system of four stars of various colors visible in binoculars and small telescopes. The western star Pi ( $\pi$ ) is a triple star best seen in a larger telescope. The other star omicron ( $\omicron$ ) in the group is also double and seen better in small telescopes. Above Capricorn is the western portion of the constellation Aquarius. This constellation is a fall constellation and will be observed with more detail next month. For now we will observe a few interesting objects in Aquarius directly above Capricorn. Start at Algedi ( $\alpha$ ) Cap, then go  $8\frac{1}{2}^\circ$  west to M72 a globular cluster in Aquarius. This globular is not very bright but should be observed as a Messier object. Very near to M72 is one of the unusual Messier objects along with M40 and M24 Messier put in his list. This object is M73 a group of 4 stars in a grouping resembling an arrowhead. To find it go only  $1^\circ$  W of M72. This group is listed as a star cluster but one of the smallest you will ever see. Messier said there were 4 or 5  $10^{\text{th}}$  magnitude stars nearby but there appear to be none he would have been able to observe. M73 has an NGC number NGC 6994. Nearby is NGC 7009 the Saturn Nebula  $1\frac{1}{2}^\circ$  NE of M73 or  $2\frac{1}{2}^\circ$  ENE of M72. A planetary nebula about the size of Jupiter in a telescope and resembling the planet Saturn. North of Capricorn through the small western section of Aquarius we come to the small constellation of Equuleus, the Colt. Equuleus is the second smallest of the constellations. Only Crux the Southern Cross is smaller. It is the newest of the ancient constellations and was invented by Hipparchos the Greek astronomer and discoverer of the precession of the equinoxes. Hipparchos called it the Fore Part of a Horse. The four main stars of Equuleus form a trapezoid of faint stars. There are no myths associated with it and no bright interesting deep space objects. Continuing on north we finally come to a bright constellation Cygnus, the Swan and the  $1^{\text{st}}$  magnitude star Deneb the last star in the summer triangle. Cygnus will be our featured constellation. Continuing past Deneb we come to the constellation Cepheus, the King. I imagine Cepheus as a giant head with a big nose and a pointed crown. Others see it as a house. Cepheus is also a fall constellation and will be covered later.

**Featured star** – Deneb Algedi, delta ( $\delta$ ) Capricorn, “the kid’s tail” is similar to Vega but has been classified as A6 because of ionized calcium II lines, F2 dwarf because of hydrogen lines, F5 giant because of metal lines, and Am because of absorption lines of most metals. Metallic-line A-type stars (Am) have close companions slowing down the rotation rate of the primary star but delta had a rapid rotation. In 1905 it was suspect-

ed to have a companion and in 1836 it was discovered with a period of 1.023 days. Then in 1956 it was pronounced to be an eclipsing variable. Upon later observation the companion was suspected of being an active star causing some of the observed variations in the system but this has not been confirmed. Other observations have added more mystery to the system. To date the nature of the secondary is not known for certain adding even more mystery to the nature of Deneb Algedi, delta Capricorn.

**Featured Messier object** – At magnitude 7.3 M30 (NGC 7099) in the constellation Capricornus is easy to find  $3^\circ$  east southeast of the middle star zeta ( $\zeta$ ) on the eastern side of the constellation. It was discovered by Charles Messier in 1764, “below the tail of Capricorn. One sees it with difficulty with an ordinary telescope of 2.5 feet. It is round and contains no star.” William Herschel (1783) determined it to be a “brilliant cluster.” In small telescopes M30 has a central core of unresolved stars and a surrounding edge of almost resolved stars. There is a  $7^{\text{th}}$  magnitude star not far to the east of the core. In larger telescopes stars in the core can be seen twinkling in and out of resolution depending upon sky conditions. Under ideal conditions a large telescope shows lines of stars radiating from the center making it resemble a horseshoe crab. This globular cluster is unique and should be viewed by everyone. I think you will put on your list of favorite objects especially in larger telescopes.

**Featured constellation** – Cygnus, the Swan represents the swan Jupiter turned himself into to seduce Leda the wife of Tyndareus King of Sparta while she was bathing in a pool. Leda had twins Pollux and Helen from this affair. Tyndareus conceived Castor and Clytemnestra later on the same night so Castor was not immortal. Leda must have had non identical quadruplets. What a dysfunctional family. Helen found fame as Helen of Troy and Clytemnestra married Agamemnon all involved in the Trojan War. Castor and Pollux joined Jason and the Argonauts. Cygnus is in the most beautiful part of the Milky Way and consequently contains many objects of interest. We will look at the objects I have observed and hopefully you will find interesting. We have already discussed the two Messier objects M29 and M39. One of my favorite objects is the Veil Nebula an old supernova remnant. It is commonly divided into three segments because it is so large. The entire nebula may be observed with a large binocular such as an 8X50 but if you have a wide field telescope or a 25X100 binocular each segment can be observed individually. An OIII filter or a UHC filter will bring out the details. It must be observed at a dark site because it is rather dim. It is found  $3^\circ$  SSE of epsilon ( $\epsilon$ ) Cyg.  $3^\circ$  SW of the Veil is open cluster NGC 6940 a large impressive open cluster with a mixture of 125 bright and dimmer stars. Do not use high power or you may have trouble finding it. Messier missed this one GREAT cluster. Immediately SE of Deneb ( $\alpha$ ) Cyg is NGC 7000 the North American Nebula an emission nebula best observed the same way as the Veil. To

the east of this nebula is the Pelican Nebula IC 5070. This emission nebula appears as a separate nebula but is likely the same nebula separated by a dust band. From xi ( $\xi$ ) Cyg the 4<sup>th</sup> mag. star on the west side of the North American Nebula go 4° WNW to NGC 7062. This nice little cluster consists of a dozen brighter stars and maybe 50 dimmer background stars. From NGC 7062 go 2° NE to M39 which we have talked about earlier. From there go 3° north to NGC 7086 an open cluster of 6 or 7 bright stars over a background of maybe 40 more stars. From NGC 7086 go 5½° NW to NGC 7008 a planetary nebula called "The Fetus Nebula." It does not take much magnification to see why it is so named. NGC 6910 is an open cluster next to Sadr gamma ( $\gamma$ ) Cyg the star at the heart of the swan. It is ½° north. NGC 6910 is known as the "Stick Man" cluster although I could never find the "Stick Man" figure, maybe you can. It contains a total of about 50 stars. There is nebulosity in this cluster best seen at low power. From Deneb go down the west "wing" of the swan past two 4<sup>th</sup> mag. stars omicron ( $\omicron$ ) 1 and 2 to iota ( $\iota$ )

the first of two stars at the end of the wing. On the way you passed NGC 6826 a planetary nebula. Did you notice NGC 6826? If not go 3° SE of iota to this "blinking planetary." I have not observed the blinking phenomena but I have been told you look away from the planetary with averted vision and the background nebula can be seen. Then you look at the planetary and the background nebula disappears. Most observers have observed Albireo beta ( $\beta$ ) Cyg the star at the nose of the swan with its contrasting stars of yellow and blue. Observe Alberio again and then go 5° WNW to find NGC 6834 an open cluster of about 60 stars surrounding a 9<sup>th</sup> magnitude star. Use low power to find a line of 5 or 6 stars in a row and then use higher power to better resolve the dimmer cluster of 50+ more stars. This is probably the most difficult to find of all the objects this month.

Bill Shackelford

August is hot and long but it will soon be gone.