



Penobscot Valley Star Gazers

An Astronomical Society of Central Maine

<http://www.gazers.org>

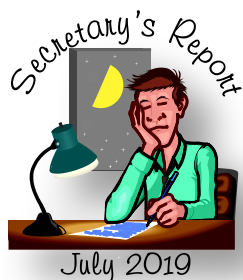
The gathering clouds bespread the sky, and gentle showers descend;
The ripening fruits we just descry, as summer is at end.

August 2019

Emera Astronomy Center Meeting

The August 2019 meeting of the PVSG will be held at the Emera Astronomy Center on Monday the 12th. The start time will be 7:00 pm rather than the usual 6:30 pm. We suspect that Shawn will provide an interesting program.

Thanks for last month's program go to Scott for his report on the characteristics and performance of Questar telescopes. Also, thanks to Ralph F., his able assistant.



Quest for Questars
PVSG Monthly
Meeting Minutes
July 8, 2019

Part I: Program

• Call to Order and Welcome

Meeting called to order at 6:37PM. There was a short discussion on use of the new (old) agenda. Phil stated that it would help with the recording of the meeting minutes.

Attendance:

Scott Burgess – Vice-President
Ralph Foss
Don Krause
Ralph Mallett
Phil Normand – Secretary
Wade & Donna Smith
Jeff Waring
Visitors: none

• Observing Reports

Phil: Observed with CMAS on June 22nd at Josh Zuckerman's home on Foss Hill Rd in Rome. Observed Jupiter, Saturn, several DSOs and tried to observe 3C-273 blazar. Not quite dark enough to say with confidence that he observed the object 2.5 billion light years away.

Wade & Donna: Thunder Bay Ontario which is about the same latitude as Presque Isle – Twilight at 11PM – morning light back at 4AM. David Thompson Observatory – not open has 20" Planewave. Tried to see how small a set of binoculars could be used to observe M51. On this night, the best he could do was a pair of 10X80 Bushnell; On 4th – saw sun pillar during evening.

Scott: Observed the moon and planets a few times.

On the Schedule

(Items Subject to Change)

PROGRAMS

August 12: PVSG meeting at Emera Center.
?September 9: Dwight's Stellafane report

STAR PARTIES

?Sometime this fall: Carver Library in Searsport star party
August 17: Machias Blueberry Festival Solar Viewing
August 23 to 24: Maine State Star Party
September 20 to 23: ASNNE Starfest (New Date!)
September 21: Stars Over Katahdin
September 25 to 29: Acadia Night Sky Festival
?October 26: Club star party at Ben Philips'
?November 2, 7, or 9: Challenger Center star party
?November 23: Bangor Land Trust

? Tentative; (rs) rain or shine; (co) clear only; (rd) rain date

Dave (via email): Used his Tele vue-85 to view Jupiter and Saturn, but mosquitos have limited his viewing time.
Wade remarked that this year has been exceptionally cloudy.

• Program

Scott talked about wanting to observe but he has been hampered with a broken bone in his foot and is unable to carry any heavy equipment while on crutches, he turned to Questar telescopes. That way his wife could help move it and set it up.

Scott thanked Ralph F. who loaned him some Questars from his collection and gave Scott a thumb drive full of information on the history of these scopes.

Scott talked about Questar telescopes. Prior to 80's everyone knew about Questar. The company did lots of advertising on the inside front

and rear covers of Sky & Telescope magazine. The ads had a large amount of information about the scopes. These scopes were made in the USA and engineered quite well and were quite expensive. The Questar company was founded by Lawrence Braymer who started designing a 5" model in 1946. He moved to a 3.5" model and made for portability. In 1954 the 1st commercial Questar was sold for \$795. Several different models were offered. Questar Came out with a 7" model in 1967. Dr. Douglass Night became CEO of company after Lawrence Braymer's death in 1965. His wife, Marguerite remained as owner. Scott displayed several 3.5" Maksutov Questars including some brought in by Ralph F. and his own. He showed how the scope has a built-in star diagonal and a removable cap to attach a camera. Scott showed several other features including the integrated finder and solar filter that showed the high degree of engineering that went into these scopes. Scott and Ralph also showed how integrated the cases were that came with the Questar. Everything had its own special compartment. These scopes typically came with 2 Brandon eyepieces that screwed into the diagonal. Another feature of these scopes is the star chart cover that also serves as a dew shield. Ralph showed several feature differences between scopes made in different decades. Those who collect these scopes look for these differences to add to their collections. Scott also talked about the different coatings that were available on the optics. Scott talked about a 1987 Duplex Model and Tripod that he purchased from Ralph. He found that both had issues and he sent the scope to Questar to be repaired. Ralph loaned Scott 3 scopes from his collection to use till his was returned. Scott's scope was returned in 3 weeks after having the clutch serviced and the baffle replaced. Scott showed a modern pelican case he purchased to hold his scope. He also purchased a star map sleeve to put on his scope to replace the moon map sleeve it came with. Scott stated that he feels the Questar may be the most user-friendly scope available and it has helped him continue observing while his foot heals. Currently the price starts at \$5000 and goes up from there.

Part II: Business

- **Secretary's Report and Acceptance of Minutes**
Last month's minutes were approved.
- **Treasurer's Report**
Dave was absent but emailed the Treasurer's Report to Scott. Check to Astronomical League

was cashed. Balance as of 6/27 is \$253.07.

- **Old Business**

Calendar review: No date or place for Sunfest this year. No update from Dwight on Kingfield Days. There is a program being put on at the Emera Center for the July 20th Apollo 11 50th anniversary.

Next Month's meeting will be at the Emera Astronomy Center with a 7PM start time. Shawn Laatsch will put on a program for the group.

- **New Business**

Call for programs beyond next month. Wade will have something hopefully by November.

- **Adjournment**

The meeting was adjourned at 8:17.

Phil

Observe the Sky This Month Selected Objects August 2019

General sky comments – It may be hot now but there are signs cooler weather is on the way. This month and the next two to three months are some of the best times to observe as several constellations are better placed for observing. The farther they appear in the western sky the more their southern latitudes rise in the sky and the southern parts we previously needed a low horizon to observe become easier.

On August 1, 1818 Maria Mitchell was born. She grew up on Nantucket Island and later became the first female professional astronomer in the United States. As a child she learned to use her teacher father William's telescope. For 20 years she worked as a librarian and observed the sky at night.

In October of 1847 Maria established the orbit of a new comet winning her a medal from the King of Denmark. In 1848 she was elected to the American Academy of Arts and Sciences thus becoming the first professional female astronomer in this country. When Vassar Female College opened in 1865 she accepted the position of professor of astronomy and director of the observatory. The observatory housed a 12" Henry Fitz refracting equatorial telescope, at the time the third largest in the United States.

The Perseid meteor shower peaks on the night of the 12th and 13th, however, the waxing gibbous moon does not set until an hour or less before morning twilight.

The Moon and Planets this month – First quarter moon is on Wednesday the 7th, full moon is on Thursday the 15th, last quarter moon is on Friday the 23rd, and new moon is on Friday the 30th. Mercury is in the morning sky until very late this month and reaches western elongation on the 9th. Venus is too close to the sun to be observed this month. Mars is also too close to the sun to be observed. Jupiter is high in the

southern sky all month. Saturn is lower in the southern sky and visible most of the month. On the 12th it passes close to the waxing crescent moon. Uranus is in Ares and the highest it has been since the 1960s and visible most of the night. 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 who had this constellation representing their god of fresh waters, Enki.

The Greek story was the goat hooved god Pan was being chased by the wind monster Typhoon. Pan leaped into the Nile to escape and was turned into a goat headed fish.

The two stars Algedi (α) and Dabih (β) 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). At magnitude 7.3 M30 is easy to find 3° east of the middle star zeta (ζ) on the eastern side of the constellation. In small telescopes M30 has a central core of unresolved stars and a surrounding edge of almost resolved stars. There is a 7th 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.

A trio of stars 3½° SSW of beta (β) Cap are interesting to observe. The top star in the group rho (ρ) cap is a complicated system of four stars of various colors visible in binoculars and small telescopes. The western star Pi (π) is a triple star best seen in a larger telescope. The other star omicron (\omicron) in the group is also double and 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 (α) Cap, then go 8½° 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° 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 10th 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 1½° NE of M73 or 2½° 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 1st 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 (δ) 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 suspected 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 – M29 (NGC 6913) is an open cluster in Cygnus consisting of about 50 stars the brightest dozen or so forming a figure resembling the

big cooling tower of a power plant. It is easily recognized in the telescope view but is not a spectacular open cluster. M29 is found 2° south of Sadr, gamma (γ) Cyg the middle star of the cross forming the constellation.

The other Messier object in Cygnus is M39 (NGC 7092) an even less interesting open cluster than M29. It is a large loose collection of 50 stars twenty of them bright but forming no definitive figure. Find M29 9° NE of Deneb or 3°N of rho (ρ) Cyg. Observe both of them as Messier objects to put on your list.

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° SSE of epsilon (ε) Cyg.

3° 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 (α) Cyg is NGC 7000 the

North American Nebula an emission nebula best observed the same way as the Veil.

From xi (ξ) Cyg the 4th mag. star on the east 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 (γ) 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 4th mag. stars omicron (ο) 1 and 2 to iota (ι) 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 (β) 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 9th 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

Our city lights they steal the night away.

A Message From Dwight

Hope you are enjoying the summer. Concert number 14 is this Monday evening. Stellafane last weekend was good; I'm sure Wade and Donna will report. Member Peter Serrada was also there. I've attached a couple photos. I'll relay my experience in September.



I just ordered 250 pens for PVSG at the same price that I originally had for 200. I'm going to suggest that we initially hand out 10 pens to each member at the September meeting for distribution as they see fit. And then the leftovers will be distributed to those that need more and as new members require. The total price was 208.36. I agreed to pay half, I'll pick up 108.36 with a reimbursement of \$100 from the club. It paid not to do it back in May.