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Penobscot Valley Star Gazers

An Astronomical Society of Central Maine

Hence, let me haste into the mid wood shade,
Where scarce a sunbeam wanders through the gloom.
-James Thompson



August 2020

Birr Castle Mysteries Solved

Uranus will be in conjunction with the moon when the PVSG meets on August 10, 2020 at 6:30 pm through Zoom. Plan on sharing stories and photos of Comet NEOWISE, discussing the possibility of a Covid safe star party, and hearing a Leviathan of Parsonstown update from Dwight.

Thanks for last month's program go to Andrew Bossie, Director of The Katahdin Woods and Waters National Monument and Susan Adams, of Elliotsville Foundation for the program, How Katahdin Woods and Waters National Monument got its Dark Sky designation.



Officially Dark

PVSG Monthly Meeting Minutes
July 13, 2020
Zoom

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

The meeting was held by video-conference and called to order at approximately 6:40PM.

Attendance:

Dwight Lanpher – President

David Clark - Treasurer

Phil Normand – Secretary

Andrew Bossie – Presenter

Susan Adams - Presenter

Ralph Foss

Alan Davenport

Wade & Donna Smith

Bill Shackelford

Ralph Mallett

Don Krause

Don Ferrell

Andy Brown

Visitors:

Earl Raymond – So. Maine Astronomers

Richard Luecke – Gloucester Astronomy Club

Rene DesRoberts – Astronomical Society of Northern New England

Michael Marion - Acadia Astronomical Society and Acadia National Park, Director of Interpretive Rangers

Nancy Hathaway – Stars over Surry & Stars over Katahdin

Program

Andrew Bossie, Director of The Katahdin Woods and Waters National Monument and Susan Adams, of Elliotsville Foundation gave

the program, How Katahdin Woods and Waters National Monument got their Dark Sky designation.

Summary: Elliotsville Foundation gifted land to the Katahdin Woods and Waters National Monument. It took several years and many contacts to get the Monument designated as a dark sky site. A lot of effort went into building a community of support and education in the area. Light meter data was collected over an extended period of time. Early on, work was done to advertise the Monument as a Night Sky adventure and vacation location. The type of Dark Sky Designation sought was for a Sanctuary instead of Reserve to lessen the time needed to complete the process. The time from the first official IDA application to the application that was finally approved spanned approximately a year and a half. The designation was awarded this past March. The presentation ended with a discussion of what went right and what didn't go so well and then there was a question and answer session.

Additional presentation from Dwight

Dwight presented some pictures that he took using his new Vaonis Stallina telescope. He showed pictures of the Lagoon Nebula, the Whirlpool Galaxy, and the Ring Nebula that he took from the top of Mount Cadillac. Dwight hopes to have a touchless star party in the near future in Stonington.

Secretary's Report and Acceptance of Minutes

Minutes were accepted unanimously.

Treasurer's Report

Dave Clark reported that the club has \$222.87 in the checking account. A check for Astronomical League Dues for \$120 was sent.

Observing Reports

Several members have been trying to view the Neowise comet. Wade and Donna saw Sun Dogs. Bill saw the ISS go by. Dave observed Saturn & Jupiter with binoculars. Richard Luecke got a good view of Jupiter with his dob. Richard also mentioned he has been viewing with a 3 inch Unitron he's been fixing up for a friend. Andy mentioned that he, Phil and friend set up at the Veazie school ball field for an observing session.

Old Business

None

New Business

- Dwight is looking for an old Guy Ottewell yearly calendar from 2007 that had an HR diagram on the cover.
- The group discussed issues with coming into the state from other states and needing tests. Richard mentioned that a group from the Gloucester Club are thinking of coming up this fall and having their own star party since Acadia won't be hosting one. There was some discussion about large star parties not happening in Acadia on park land due to the amount of resources used.
- There was discussion about the timed entry permits that will likely be in place in the future. A test will be held this October.
- The August meeting will also be held by video conference using ZOOM.

Adjournment

The meeting adjourned at approximately 8:47PM.

Phil

Observe The Sky This Month

Selected Objects

August 2020

General sky comments – Here it is August. The “dog days” of summer. It all began when the Dog Star, Sirius was first seen in the eastern sky before sunrise known as “heliocal rising”. To the Greeks and Romans it marked the time of plague and suffering due to drought and heat. They also thought the light of Sirius caused dogs to become ill or torpid giving rise to the expression. To the Egyptians it meant the Nile River was about to flood. The Perseid meteor shower peaks on the night of the 12th and 13th, however; the last quarter moon interferes somewhat the last part of the night. There are sufficient meteors in this shower to

give a good show the complete night and the radiant is well placed. Get out there and enjoy the meteors.

The moon and planets this month – Full moon was on Monday the 3rd, last quarter moon is on Tuesday the 11th, new moon is on Wednesday the 19th, and first quarter moon is on Tuesday the 25th. In September before the meeting full moon will be on Wednesday the 2nd, and last quarter moon will be on Thursday the 10th. Mercury is in the morning twilight early this month and then approaches too close to the sun to be seen reaching superior conjunction on the 17th. After that Mercury pulls away from the sun becoming visible in the evening sky late in the month. Venus is brilliant this month in the morning sky reaching greatest western elongation on the 13th. Mars is prominent in the late evening and overnight sky continuing to brighten toward the October opposition. Jupiter is high in the evening sky at nightfall and in the night sky all month. Saturn is to the east of Jupiter in the southern sky and visible all night. 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 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 – 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 $5\frac{1}{2}^\circ$ 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 $\frac{1}{2}^\circ$ 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 (\omicron) 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 phe-

nomena 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

Summer seems long but it will soon be gone.