Penobscot Valley Star Gazers

An Astronomical Society of Central Maine

http://www.gazers.org

Arise, New Year! Receive our earnest greeting,
Our promises to do the best we may.
-Georgiana Bennet

January 2020

Space Center Tour

Happy New Year! The January 2020 meeting of the PVSG will be held at John Bapst Memorial High School on Monday the 13th at 6:30 pm. The program will be Wade Smith's, "A Day at the Kennedy Space Center."

Thanks for last month's program go to Dwight for arranging the dinner meeting at Kosta's, showing a video about the recently released black hole photo, and paying for dessert.

Dinner Meeting at Kosta's

December 9, 2019

Meeting:

•Call to Order and Welcome
Meeting called to order after dinner and a raffle put on by Dwight for several prizes.

Attendance:
Dwight Lanpher - President
Scott Burgess – Vice-President
Andy Brown & Son Ken
Dave (Treasurer) & Ann Clark
Phil (Secretary) & Laurie Normand
Wade & Donna Smith
Jeff Waring
Stephen & Carolyn Vose
Alan & Beth Davenport
Ralph Mallett
Don Ferrell

- **Ben Phillips Star Party in October –** Don reported that the group viewed Saturn, Jupiter, Neptune, Uranus, Blue Snowball, M13, M92, Almach double star.
- **November Star Party –** Ended up being canceled. Dwight sent out email but got no responses.
- List of astronomical events and meeting dates and other events handed out.
- Dwight spoke about several possible meeting ideas for 2020. He is looking for additional ideas, as well as observing events for our area and from other clubs.
- Dwight announced that Phil volunteered to update the club web site at gazers.org.
- Dwight announced that he will be hosting another Mont Megantic excursion. It will be in July or August at the new moon. More news on this to come. Dwight will cover cost of admittance to the observing session and members will be responsible for their own travel there and hotel accommodations.
- Phil asked about having a scope clinic after finding some old information in the web site directories. Wade mentioned that the Challenger Center might want to host this in February or March.
- Wade mentioned that there was a possibility to have a star party in mid to late May up in Fort Fairfield. Dwight wondered if we could get a good turnout that far away.
- **Secretary's Report and Acceptance of Minutes**
No minutes as last month's meeting was canceled due to weather.
- **Treasurer's Report**
Dave reported that the balance is: $547 or $347. Dave also talked about updating our Night Sky Network page and updating the membership roles and assigning coordinators. Phil said he'd get with Dwight to get him set up as a coordinator.
- **Program**
Dwight: showed a YouTube video of a talk by Dr. Katie Bouman who worked with team that imaged a black hole this past year. You can watch the video on YouTube at https://www.youtube.com/watch?v=zq3gks4CUU4
- **Adjournment**
The meeting adjourned after the presentation.

Phil

On the Schedule

(Items Subject to Change)

PROGRAMS

January 13: Wade Smith, "A Day at the Kennedy Space Center."

February 10: Russel F. Pinizzotto, Ph.D., "The Color of Stars." (See description at end of newsletter.)

STAR PARTIES

April 17, April 24, May 15, May 22 (co): Emera Astronomy Center.

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

Observe The Sky This Month

Some Selected Objects

January 2020

General sky comments – When I was in High School "Sky and Telescope" magazine was less than 20 years old and unavailable in my area plus I did not know it existed. The astronomy guide most familiar was "The Monthly Evening Sky Map." It was founded in 1905 by Leon Bartlett and published in Rutherford, N. J. At the time it was the largest circulation Amateur Astronomical Journal in the world. It had basic astronomy information and it was cheap at $2.00 per year or 60¢ a copy. When a new magazine "Astronomy" came out in August of 1963 I bought the first issue at a newsstand and subscribed soon after. I read every issue cover to cover and it renewed my interest in astronomy. At some point I also subscribed to "Sky and Telescope".

Planets this month –The new moon is on Friday the 24th, first quarter is on Thursday the 2nd, full moon is on Friday the 10th and, last quarter is on Friday the 17th. There is a penumbral eclipse of the Moon on the 10th but to see it you will have to travel to the other side of the Earth or go way north above the Arctic Circle where it is dark this time of the year at the time of the eclipse. The full moon is larger than average this month because it is full only three days before it is closest to the Earth (perigee). Mercury is too close to the Sun to observe until late in the month when it may be seen close to the western horizon. Observe Mercury next month. Venus is climbing higher in the southwest sky. Mars is in the morning sky and is close to Antares on the 17th. Antares obtained its name "Rival of Mars" from Mars. This will give you a chance to directly observe if the name is appropriate. Mars is slightly brighter. Jupiter is too close to the Sun to be observed most of the month but might be observed late in the month close to the morning horizon. Saturn is too close to the Sun to be observed. Uranus (Οὐρανός) is in the constellation Aries and well placed for telescope viewing in the southwest. Neptune is in Aquarius and sets just before midnight. Pluto is too close to the Sun to be observed.

Constellations for the month – Low in our sky at this time of the year but easily observed is the small constellation of Lepus, the Hare. Immediately above Lepus is one of the best known constellations Orion, the Hunter. Orion, the Hunter was to the Greeks and Romans a giant of a man who could walk through any depth of water and not get his head wet. He had no fear of any animal and threatened to kill all the animals on the Earth. When Gaia the goddess of the Earth heard this she became angry and sent a scorpion to kill Orion. He was gravely poisoned but Aeschulapius/Ophiuchus the founder of medicine saved him by administrating an antidote. All three are memorialized in the sky and this is why Orion and Scorpius are in opposite parts of the sky with Ophiuchus standing above the scorpion with it under his foot. Many cultures had various names for the giant usually referring the pattern of stars to someone of importance. Orion contains three Messier objects, M42 (NGC 1976), M43 (NGC 1982), and M78 (NGC 2068). M42 is the Great Orion Nebula perhaps the finest diffuse nebula in the sky. If you have observed this diffuse nebula before observe it again because there is always something you missed before. M43 is located next to M42 and probably part of M42 being only separated by an intervening dust lane. Taken together and viewed with a wide field view the two resemble some giant bird soaring through the sky with its wings outspread. M78 is an emission and reflection nebula located 2½° NNE of Alnitak, zeta (ζ) Orion the eastern star in the belt of Orion. Not as spectacular as M42 or M43 it is unique in its own way and should be observed. Orion contains numerous multiple star systems. Most of them are blue-white stars because they have been recently born in the Orion Complex. I will let you discover these on your own. Higher in the sky directly above Orion is the constellation of Auriga, the Charioteer. Before we say too much about Auriga (see below) we must note the easiest way to find and observe the first object M1, (NGC 1952) on the not comet list of Messier. The star which one might think to be the bottom star of Auriga is not. Rather it is the northern of the two stars forming the tips of the horns of Taurus, the bull, a constellation we observed last month. The brighter star has a name Elnath and is the beta (β) star of that constellation. The other star zeta (ζ) Taurus is the guide star to M1. Once you have found this star, M1 is just over 1° NW. Until 1930 when the constellation boundaries were fixed the star Elnath was also the beta (β) star of the constellation Auriga, the Charioteer.

Featured star – Betelgeuse is a red supergiant irregular variable star in the constellation Orion. It is listed as the Alpha (α) star in the constellation varying from magnitude 0.4 to 1.3. Historically it has not varied from this range. However, early in December of 2019 Betelgeuse was approaching its historic lowest magnitude and by Dec. 23, 2019 an update from The Astronomer's Telegram went out notifying Betelgeuse had become fainter than it had ever been since it had been observed by electronic measurement and it seems to be getting even fainter. It is expected to reach its lowest magnitude sometime this month. No, it is not going to become a supernova anytime soon as some wonder but if it did it would not physically affect us in any way. It would become visible both day and night and about as bright as half the brightness of the full moon. For us it is exciting to know Betelgeuse is so dim and we have an opportunity to observe it. Get out there and do it.

Featured Messier object – M78 (NGC 2068) is an emission and reflection nebula found 2° NNW of Alnitak Zeta (ζ) Orinis. Located in the constellation Orion, it is often overlooked being in the same constellation as M42 and M43. It should not be overlooked. Contained within M78 are two 10th magnitude stars located in a patch of nebulosity. The northern outer edge is defined with a dark streak of nebulosity. Across from it is another bright nebula NGC 2067. With a telescope of moderate size M78 looks much the Halloween costume of a ghost made with a sheet with two eye holes cut out and the two bright stars peering out. Some observ-

ers say M78 resembles a comet split into two pieces with the two 10th magnitude stars the new comet heads. Continue on NNW of M78 4' to find another patch of nebulosity NGC 2071.

Featured constellation – Auriga, the charioteer has numerous mythological stories connected to it. Capella the alpha (α) star of Auriga is the sixth brightest star in the sky and the third brightest in the northern hemisphere. Only Vega in Lyra and Arcturus in Boötes are brighter. Auriga is usually shown as a man in a kneeling position sitting on a bench (the Milky Way?) holding a female goat with two kids under his right arm and he is holding reins and a whip in his left hand. This is the view seen on a typical celestial globe but Auriga is also shown the other way. Depending on the civilization Auriga is a charioteer, a rein holder or other type of driver, goat herder, or driver of some vehicle (wagon, cart, etc.). Auriga contains three Messier objects M36 (NGC 1960), M37 (NGC 2099), and M38 (NGC 1912) all open clusters.

Other objects of interest – In Orion, NGC 1788 a mixture of emission and dark nebulae similar to M78 located 5° NNW of Rigel, NGC 2024 the flame nebula, NGC 2022 a planetary located 2° SE of lambda (λ) the center star of the naked eye open cluster forming the head of Orion. (Not as good as the Pleiades but worth observing.) In Auriga, NGC 1907 a little jewel of an open cluster ½° SSW of M38, NGC 1931 a diffuse nebula 1° slightly north of east from M36, NGC 1857 an open cluster with three bright stars, less than 10 dimmer stars, and up to 40 even less dim stars depending on the size of your telescope found less than 1° south of lambda (λ). Also in Auriga NGC 1664 2° east of epsilon (ε) an open cluster with strings of stars resembling a flying kite, NGC 2126 an open cluster halfway between Menkalinan, beta (β) and delta (δ) the top star of Auriga an open cluster of about 30 stars including one bright star. Finally NGC 2281 an open cluster of perhaps 30 stars with around a dozen brighter located 1° SW of psi (ψ^7) one of the stars in the "reins" of Auriga.

Bill

Coming Attraction: February 10, "The Color of Stars" by Russel F. Pinizzotto, Ph.D.

An amazing amount of information can be gleaned from stars by breaking their light into its component colors. We can learn a star's mass, its point in its lifecycle, and its future fate. Spectroscopy is a powerful tool that has even been used to tell us about the fate of the Universe! One of the most useful of all scientific charts, the Hertzprung-Russell diagram, is based on the colors of stars. This talk will briefly discuss the HR Diagram to allow amateur observers to appreciate the colors of the stars they observe in the eyepiece.