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Penobscot Valley Star Gazers

An Astronomical Society of Central Maine

April 11

1960: Project Ozma started.
1970: Apollo 13 launched.
1980: Viking 2 lander mission ends.
1984: Challenger retrieves Solar Max.
1986: Halley's Comet closest to Earth.



April Meeting

The PVSG will meet remotely via Zoom on Monday, April 11, 2022 at 6:30 pm (**Meeting ID 862 9984 6478 Password: PVSG**). Doors will open around 6:00 for some socializing before the meeting. We do not know what the program will be. Thanks for last month's program go to Wade for his talk about finding and using a suitable holder for his cell phone so he could take astrophotos with it.

Also, don't forget that next month is election month. The offices on the ballot are secretary, treasurer, and member at large.



Hold the Phone

PVSG Monthly Meeting Minutes
March 14, 2022
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 to Visitors

The meeting was held by Zoom videoconference. The meeting was brought to order by Don Ferrell at approximately 6:38 PM.

Attendance:

Members Online:

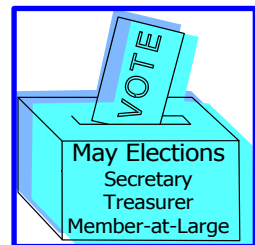
Don Ferrell - President
Andy Brown - Vice-President
David Clark - Treasurer
Phil Normand - Secretary
Dwight Lanpher - Member at Large / Club Liason
Bill Shackelford
Mary-Frances Beesorchard
Don Krause
Wade & Donna Smith
Ralph Mallett
Ralph Foss

Presentation

Dave was going to give a talk on filters but since no one new was in attendance, he thought it would be best to wait for another meeting.

Wade gave a presentation on his search for a new cell phone holder that would allow him to take pictures with his Galaxy S21 cell phone through an eyepiece. Wade showed a few pictures that he had taken with his cell phone.

Wade showed a couple of different holders he had tried along with a small tripod and a monopod. Wade then showed a holder made by Gosky that he purchased on Amazon. Wade showed how it attached to the phone and how it clamps on to the eyepiece.



Dave gave a quick presentation on women of astronomy. Dave mentioned that Caroline Vose used to bring questions to the meetings every month. Dave listed information about Annie Jump Cannon and Henrietta Leavitt. Annie Jump Cannon attended Oxford and Henrietta Leavitt related Cepheid luminosity to the period distance which is how we can determine how far away stars are. Dave also mentioned John Goodricke who determined that Algol was an eclipsing binary and that variable stars were of at least two different types: Cepheids and eclipsing binaries when he was only eighteen years of age. Dave then asked for guesses on what these three people had in common. They were all nearly completely deaf.

Secretary's Report and Acceptance of Minutes

Last month's minutes were approved unanimously.

Treasurer's Report

Dave stated we have \$326.17 in our checking account. Nothing pending until June when the Astronomical League dues need to be paid.

Observing Reports:

Wade and Donna viewed the ISS passing over. **Don K.** asked about the rocket that was supposed to hit the moon. **Dwight** went to

Somes Sound to see where Orion would be in March so that he could take pictures of it with his Stellina telescope. Now he said he just needs to wait for clear weather. Dwight also mentioned a friend who has a Unistellar EV Scope and compared a couple differences between the two intelligent scopes. **Don F.** said he viewed the moon from his house the previous evening at about 9PM and the waxing Gibbous moon was very bright.

Old Business

Phil mentioned that he would not be leaving the area for the time being and would be happy to continue to serve as secretary if voted in.

New Business

Dave mentioned that Don should appoint a nominating committee to reach out to the membership to see who would be interested in running. Dave suggested that the 2 Dons should be the committee. Both Dons said they would accept being on the committee.

Dwight mentioned that at the end of June he will be travelling to Halifax, NS to attend a large performance of Brass bands and he will attend presentations by the Deep Sky Eye Observatory which is about a half hour from Yarmouth. The group has a 14 inch Celestron and platforms for other scope setups. They do have lectures and image projection from the observatory equipment.

Dave mentioned that he had sent out a question to the club by email to see if we wanted to do something in concert with the upcoming James Webb Telescope first light event. Dave mentioned that Shawn Laatch is working with the Challenger Center and we need to check with Shawn to see if he needs any help.

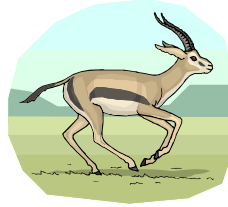
Dwight said that he had to delete the gmail account that he was using as PVSG president, so we will need to create a new one.

Bill stated that he felt that the group needs to have presentations at each meeting to attract members to attend.

Adjournment

The meeting was adjourned at approximately 7:45 PM

Phil



Observe The Sky This Month Some Selected Objects April 2022

General sky comments – On March 11, the Webb team completed the “fine phasing” portion of optical alignment for the telescope. If you have not seen the alignment picture it was APOD for March 19. The Near Infrared Cam (NIRCam) is the primary imager and has been aligned and focused to better than “anticipated.” To me that means diffraction limited or better. The remainder of the instruments now will be aligned. These include in addition to the now aligned NIRCam, the Near Infrared Spectrograph (NIS), Mid-Infrared Instrument (MIRI), Near Infrared Imager (NII), and Slitless Spectrograph (SS). When full cooldown is completely achieved the instruments will be checked again and any needed fine tuning done. There will be a “key decision meeting” to confirm the alignment process is complete followed by commissioning of each instrument for scientific operations. The program of early science (Cycle 1) is anticipated to begin about June 1. This will be followed by “Cycle 2” in mid - 2023. The Webb telescope was aligned with a new technique called wavefront sensing specifically developed for this telescope. If you have recently had laser vision correction performed this technique may have guided the laser surgery. As a result your corrected vision could be as good as 20/10 or better. One of the first uses of technology developed for this telescope.

Planets this month – Before the PVSG meeting this month on Monday the 11th of April the new Moon (lunation 1228) was on Friday the 1st and the first quarter Moon was on Saturday the 9th. Full Moon will be on Sunday the 17th and last quarter is on the 23rd. At mid-month Mercury appears in the evening sky to begin the best apparition of the year for us in the Northern Hemisphere. Maximum eastern elongation of 21° is on the 29th having faded slightly to magnitude +0.2. Mercury will be in conjunction with the Pleiades on that date making for a rich binocular field. Venus is slowly pulling away from Mars and Saturn this month. On the 27th of the month comes a real challenge for telescope observers. Venus at magnitude -4.2 will be 0.2° south of magnitude 7.9 Neptune. On the 30th Venus will pass just 0.2° south of Jupiter in a dawn sky only 43° ahead of the Sun. Mars was 0.3° south of Saturn on the 4th. It passed from Capricornus into Aquarius on the 11th. The waning crescent Moon will pass 4° to the south on the 25th. Jupiter will also have a very close conjunction with Neptune on the 12th at 0.1°. It will also be a real challenge for telescope observers. Jupiter moves from Aquarius to Pisces and has a close conjunction with Venus on the morning of the 30th when the two brightest planets are only separated by 0.2°. This will be a favorable conjunction since the two planets will be in a dark sky. Saturn started the month between Venus

and Mars in the morning sky. By the third week of the month it starts a parade of the four naked-eye planets about 10° apart. The waning crescent Moon makes a far south 5° pass on the 24th-25th. Uranus is fading into evening twilight. Neptune (Οὐρανός) is visible with a telescope in morning twilight in northeastern Aquarius. It has extremely close conjunctions with Jupiter on the 12th and Venus on the 27th. See above for details. Pluto is in the morning sky in eastern Sagittarius.

Constellations for the month – Antlia, the Air Pump, originally Antlia Pneumatica. It was changed to the single word by William Herschel. Antlia (Latin for pump from the Greek *ἀντλος*, *bucket on a rope used to bail a ship*) has been said to be the least interesting of all the constellations by several astronomy guide authors. This air pump is not a tire or water pump but a vacuum pump. Lacaille considered it one of the important inventions of his day along with: Pyxis, the Compass, Fornax the Chemical Furnace, Telescopium, the telescope, Microscopium, the microscope and Reticulum, the Reticule. He added all of these devices to the sky. Antlia does contain a nice optical double star zeta₁ (ζ) Antlia along with zeta₂ (ζ) Antlia, also double and easily separated with small telescopes. Antlia contains a lot of galaxies but they are too far south and dim for most of us to observe. Higher in the sky after the dim stars of Antlia we soon find an easily seen star Alphard, alpha (α) Hydra mag. 1.98 the next eastern part of Hydra, the Water Snake after the head we located last month. Alphard “The Solitary One” is aptly named due to the absence of bright stars in the area and its red orange color a fitting color for the heart of the snake. This portion of Hydra contains an easily seen planetary nebula NGC 3242, “The Ghost of Jupiter” because it has a blue disk almost the same size as Jupiter. The central star can be seen in larger scopes. See if you can pick it out. This planetary is locate 1.5° SSW of mu (μ) Hydra mag. 3.82, the third bright star east of Alphard in the constellation. Continuing on down Hydra visually and after a couple of stars you should see a rather distinctive constellation attached to the back of Hydra. It actually looks like its namesake: Crater, the cup, a circle of dim stars and two brighter stars connecting it to the back of Hydra. When I first saw Crater I was surprised how easy it was to identify, especially at a dark site. Corvus, Crater, and Hydra are connected together in mythology (see below). Above the middle of Hydra and to the northwest of Crater is another small and mostly obscure constellation Sextans, the Sextant. It was created by the Polish astronomer Hevelius to commemorate the large Sextant he used at his observatory. He was probably the last major astronomer to use the sextant to visually plot the positions of the stars. It does contain a fair number of galaxies but the only one we will consider is NGC 3115, the Spindle galaxy a lens shaped galaxy visible in a large binocular but best seen with mid to large telescopes. To find it go 7° south of alpha (α) Sextans or 3° east of delta (δ) Sextans. It should be visible in any optical finder. Above the constellations Crater, Corvus, and Sextant is one of the most recognizable constellations in the sky, Leo,

the Lion. It is noted for the distinctive asterism of the sickle a backward question mark forming the head of the lion. Leo, the Lion is a Zodiac constellation with its origin in ancient Babylonia where the lion was sacred to the goddess of love and war Ishtar. The Greek equivalent was Aphrodite becoming Venus for the Romans. Babylonians used both lions and bulls and the conflict between the two in many stories. Leo is found away from the Milky Way and consequently contains numerous galaxies. Fortunately for us many are particularly bright and Messier used a lot of them in his famous list. The brightest star in Leo is the heart of the lion Regulus, the alpha (α) star. The next brightest star in the sickle, Algieba, gamma (γ) is a two shades of yellow double star visible with small scopes. We will next consider the Messier galaxies of Leo and also find some of the galaxies Messier could have used as well. Start at Regulus alpha (α) Leo and go 9° east to find a group of bright galaxies, two side by side and two closer together 1° ENE above the left galaxy. This is the M96 group of Leo galaxies. M95 (NGC 3351) is on the right and M96 (NGC 3368) is on the left. Above M96 1° NE is M105 (NGC 3379). You should also observe the first of the near Messier galaxies NGC 3384 next to M105. It would not surprise me if Messier thought these two galaxies were one nebula or a star and a nebula. From this group go 8° east and the M66 (NGC 3627) M65 (NGC 3623) group should appear. Above these two galaxies is NGC 3628 another near Messier galaxy. All three galaxies are spiral galaxies inclined at different angles to the viewer and less than 1°, apart aka the Leo Triplet. The other near Messier galaxy (NGC 2903) is located quite distant from the Messier galaxies but still very much in Leo. To find NGC 2903 go to the end bright star in the sickle, epsilon (ε) Leo. Then proceed 3° WSW to the 4.31 mag lambda (λ) Leo. 1½° south is NGC 2903. NGC 2903 is one of the nicest galaxies for small telescopes and is easily visible in binoculars. Above Leo is another inconspicuous small diamond shaped constellation Leo Minor, the Little Lion. Above Leo and Leo Minor is an interesting asterism we will need to look up into the sky with no aid but our eyes to find. Look above the hind quarters of Leo and you should see a pair of third magnitude stars. Using your fist as a measuring tool go a little over one fist width to the NW to another pair of stars and then about the same distance to another pair. Arab cultures know this asterism of three pairs of stars (Alula), (Tania), and (Talitha) as “the three leaps of the gazelles.” One version of the story is a lion (Leo) is sitting beside a pool (Coma?) the lion switches his tail disturbing the water in the pool thus frightening some gazelles who leap off away from the pool leaving these star tracks in the sky. We recognize these gazelle tracks in the sky as the feet of our next constellation north, Ursa Major, the Great Bear. Because Ursa Major is the third largest constellation we will break it into parts and consider only the far northern portion this month. This portion contains many galaxies including the M81, M82 group many of us have observed. To find M81, M82, and NGC 3077 start at the bright star Dubhe, alpha (α) Ursa, the star at the upper right corner of the dipper

asterism. From Dubhe go 10° NW to this group visible in most finder views. Or start at 23 Uma the bright star 10° to the east of Dubhe and go 6° NNE to the group. There are several other galaxies on my observing list in this area including NGC 2976, NGC 2787, NGC 2985, NGC 3147, and NGC 2655 although the first is in Draco and the second is in Camelopardalis. For more information on Ursa Major look at end of this article in other objects of interest.

Featured star – The second brightest star in Leo is gamma (γ) aka Algieba from the Arabic Al Jabhah meaning the forehead although it is in the mane of the lion. Algieba is the bright star above Regulus at the back of the head of Leo. It is a double star easily separated (4 arc/sec.) with almost any telescope. There is some evidence of another three companion stars in the system but this has not been definitely proven. One or more planets were announced to be in this system in 2009 but now one of the planets was determined to be an observation of the pulsation of the primary star and the second planet is also now under review. Both stars are giant stars no longer fusing hydrogen to helium and expanded to their current sizes. It is not clear if either of the two stars are fusing helium at the present time or if they are in a preliminary stage of helium fusion. Information through their spectra suggest they may be fusing helium. The combined magnitude of the two stars is magnitude -2.01 with a slight variability and an orbit of over 600 years so little is known about the orbit. This star is one needing more study.

Featured Messier object – M108 (NGC 3556) commonly known as “The Surfboard Galaxy.” This 75° edge-on barred spiral galaxy is located immediately below the bowl of the “Big Dipper” asterism 1½° SE of the star Merak or 48’ NW of the Owl Nebula. M108 was discovered by Pierre Méchain on February 19, 1781 three days after discovering the Owl Nebula. Charles Messier observed both M108 and M109 on March 24, 1781 but only added them to his hand written notes. He never determined their positions accurately and only added the two to the personal copy of his catalogue. They were added and popularized by astronomer Owen Gingerich in 1953. In small scopes of 4” to 6” M108 appears as a faint streak with an 8th mag. star west of the galaxy center. Some hint of detail can be noted. With moderate scopes 8” to 12” the central core is mottled with numerous dark and light areas. There is one particularly dark area next to the prominent star. Larger scopes bring out the small central bar with a 13th star superimposed. The eastern end is rounded. The west end is more pointed and turns to the SSE. Numerous light and dark areas can be explored throughout. Supernova SN 1969B a type II was observed in M108 on January 23, 1969.

Featured constellation – Corvus, the Crow is a grouping of 3rd mag. stars in a rough trapezoid with the alpha star a few degrees south of the SE star together representing Corvus, the Crow. Because of this distinctive shape Corvus is sometimes called the Sail. Corvus

is very easy to find and is distinctive even at my urban site when I am out of sight of my horrible lighting. Ovid wrote in “The Fasti” sometimes translated as The Book of Days or On the Roman Calendar. Apollo sent Corvus with his cup to bring pure water back to him for a sacrifice to Jupiter. Corvus found a fig tree on the way to get the water and as the figs were almost ripe Corvus waited for them to ripen and a few days later had figs to eat. When the crow finally remembered his job and returned to Apollo with the cup full of water he also had a water serpent in his claws claiming it had kept him from getting spring water. Apollo saw through the deception and put both Corvus and the water snake Hydra in the sky with the cup on the serpents back. Apollo also put Corvus just out of reach of the cup full of water. This is why crows have such a raspy voice because they are always thirsty. The planetary nebula NGC 4361 is 2½° SE of Glenah, gamma (γ) Corvus and almost makes a right triangle with the other star Algorab, delta (δ) Corvus at the top of the constellation. It is almost circular with some internal mottling. NGC 4038/4039 aka Arp 244, 3½° SW of gamma (γ) is the peculiar Ringtail or Antenna galaxy famous because of a beautiful Hubble telescope photograph. This intertwined pair of galaxies is easy enough to observe in Maine although it will be difficult to observe the extended portions. The larger the telescope the better the view. You will not be disappointed.

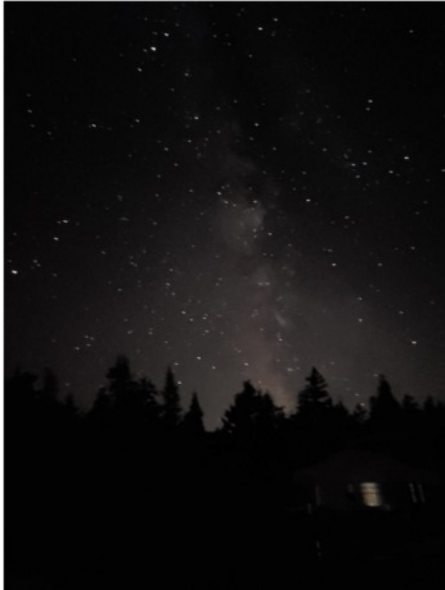
Other objects of interest – Starting at the last leap of the gazelle (Talitha), iota (ι) UMa the front paw of the bear go 3° NE to NGC 2841 a spiral galaxy at least twice as long as it is wide and there is a bright central area slowly fading to the edge. The Hubble space telescope has taken a beautiful detailed picture of this galaxy with the Wide Field Camera 3. Go to Merak beta (β) UMa the bottom right star of the big dipper. From Merak go 1½° SE to M108 (NGC 3556) an edge-on spiral with quite a bit of detail. (See featured M object.) Continue less than 1° SE to the Owl Nebula, M97 (NGC 3687) a planetary nebula with two dark spots looking like eyes. Again from Merak go 10° WNW to epsilon (ε) UMa then 1° W to NGC 2950 a dim oval galaxy but easily resolved with an 8” telescope. Just 4° WNW from here is NGC 2768 and NGC 2742 both ovals resolved with an 8” telescope.

Take the night, enjoy the view
Bill Shackelford

Wade's Attempts at Cell Phone Holders

Cell phone cameras have now advanced to the point of being able to take some adequate night time photos. Sometime about 2020, I got a Samsung with those capabilities.

My first attempts were handheld to laying the phone down on the windshield of my truck.



Then I tried to mount my phone to a SteadyPix deluxe. Too gaummy.



Then Dwight suggested going on Amazon to get a Cell Phone holder. So that is what I did. Now I could mount the cell phone easily to a tripod or piggyback it to one of my scopes,



and Voila! Much better photos.



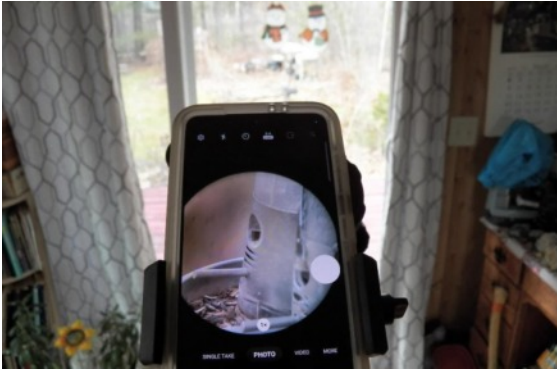


One final step was to get a Gosky Cell Phone holder that attaches to an eyepiece.



With that done, attach the phone to the holder.





Good Luck!