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Penobscot Valley Star Gazers

An Astronomical Society of Central Maine

February 14

1972: Luna 20 launched.

1980: Solar Max launched.

1990: Voyager 1 solar system portrait.

2000: NEAR orbits asteroid Eros.

Happy Valentine's Day
February 2022

Tech Specs, Maybe

The PVSG will meet remotely via Zoom on Monday, February 14, 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, though Dwight mentioned a possible talk about equipment specifications and standards.

Thanks for last month's program go to all who shared a bit of knowledge.



Pay Up, Pal?

PVSG Monthly Meeting Minutes
January 10, 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.

Secretary's Report and Acceptance of Minutes

Last month's minutes were not discussed.

Treasurer's Report

Dave stated that our liability insurance bill is due. It is approximately \$325.00. The group had a brief discussion about the benefits of having the insurance. The group asked what our balance was in the treasury and Dave stated we have \$649.37. The group voted in favor of paying the insurance bill.

Phil asked if we had received any new memberships. Dave said we hadn't. Mary-Francis asked if there was a way the group might start taking dues online. Shawn said one option we might use is PayPal. Shawn explained how the Dark Sky Maine group uses their PayPal account. Dave wondered if PayPal would be worth it for our small membership roster. Dave asked if anyone else wanted to be responsible for setting up the PayPal account. Andy suggested that the officers might want to discuss it offline.

Don asked if there were any other bills to pay. Dave didn't know of any. Phil mentioned that he has covered the cost of the software to update the website and for our domain name registration. Andy mentioned the Astronomical League yearly dues and Dave said that it will be approximately \$125.00.

The club discussed whether we might be considered non-profit or not for profit. Shawn talked about the difference between 501c(3) and 501c(6). No one knew of any paperwork being filed in the past for either of these designations.

Observing Reports:

Dave reported that he had observed Comet Leonard very low on the horizon in 10X50 binoculars. **Bill** reported that he was unable to see the comet from his location in 10X50 due to light pollution. **Phil** mentioned he saw the comet on Christmas Eve. **Don F.** said he got his dobsonian out and viewed the moon.

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 6:31 PM.

Attendance:

Members Online:

Don Ferrell - President
Andy Brown - Vice-President
Dwight Lanpher - Club Liaison & Member-At-Large
David Clark - Treasurer
Phil Normand - Secretary
Scott Burgess
Bill Shackelford
Mary-Frances Beesorchard
Don Krause
Shawn Laatsch
Michael Harrington

Presentation

Don started the meeting asking if anyone had an Astro short to present to the group. Bill discussed that Sky & Telescope Magazine had purchased the resources of Willmann-Bell and were offering their books in their on-line store: Shopatsky.com. Shawn mentioned that a lot of consolidation has been taking place in the astronomy field and with book publishers in general. Don K. wanted to know what was happening with the Space X satellites. Phil mentioned that they were still launching batches of the satellites.

Old Business

There was no old business discussed.

New Business

Bill asked if there would be a speaker for the next meeting. Don K. said we should get an update on our status as a non-profit or not for profit. Dwight said he should be able to have a talk on commonly asked questions on telescopes like what accessories fit on different common scopes. Don F. said he was working on a presentation on the moon. Phil mentioned he was working on a presentation on messages we have sent into space on probes like Pioneer and Voyager. Shawn said the Planetarium was open and he could present something to the group as well and have an in-person meeting. The month of May will be busy due to a planned Middle Atlantic Planetarium Association Conference. Shawn also mentioned that part of the conference will be a trip to the Maine Mineral and Gem Museum in Bethel. The museum has the largest Mars meteorite and one of the largest collections of meteorites in general. Dwight mentioned that he was contacted by Melissa who is trying to start a dark sky program in Stonington and is trying to get things going by having a couple Star Parties. Dwight suggested doing something in May. He will be giving a Laser Pointer tour and will have his Stellina telescope there as well. Andy mentioned a Lunar Eclipse on May 15th.

Adjournment

The meeting was adjourned at approximately 7:54 PM.

Phil



Observe The Sky This Month

Some Selected Objects February 2022

General sky comments – If you have never observed the Zodiacal Light (caused by interplanetary dust in the ecliptic) this might be a good time to observe if you have a dark site. Starting on the 18th and for the next two weeks the Moon will not interfere and it will be visible after twilight ends for about ½ hour. It appears as a large cone of light with the base centered directly west. It is such a large object it can only be observed with the naked eye. Do not confuse it with twilight or ignore it thinking it should be much smaller. If you can see the Milky Way well you should be able to see the Zodiacal Light. The Webb telescope is now at Lagrangian point 2 (L2) and will spend the next two months aligning its optics. Last month I was able to observe Moon rise at a dark site where the sky and ground were both completely black. I can confirm without any reference objects the

Moon appears the same size rising as it does high in the sky.

Planets this month – The new Moon (lunation 1226) was on Tuesday the 1st, the first quarter Moon was on Tuesday the 8th, full Moon is on Wednesday the 16th, and last quarter Moon is on Wednesday the 23rd. Mercury emerges early in the month into the morning sky. It reaches maximum western elongation of 26° on the 26th at mag. 0.0 when it forms an isosceles triangle with Mars and Venus to the west. It remains well elongated and at the same brightness for the rest of the month. The waning crescent Moon passes 4° to the south on the 28th. Venus is bright in the dawn sky and reaches its greatest illumination on the 12th. At this time it will be at mag. -4.9 at nearly 40° elongation from the Sun just five weeks from inferior conjunction. Venus is in conjunction with Mars on the 13th although it is 7° to the south and 6 mag. fainter. Mars and Venus remain close to the same distance apart all month and slowly move to the east in Sagittarius. The waning crescent Moon joins them on the 27th. Mars is in Sagittarius all month and by mid-month overtakes Venus and Mercury where it will be for the rest of this month and part of next month. Mars is in conjunction with Venus on the 13th 7° apart to the south. The waning crescent Moon passes even farther to the south on the 27th. Hunt for Jupiter low in the southwest sky early in the month. It will be gone by mid-month. Saturn is in conjunction with the Sun. You might be able to detect it in morning twilight at the very end of the month. Uranus is in Aries. Neptune is in conjunction with the Sun. Pluto is in the morning sky in Sagittarius with the three inner planets.

Constellations for the month – The northern portion of Puppis, the ship's stern, protrudes into the Maine sky adjacent to the left portion of Canis Major, the Big Dog, and contains 3 Messier open star clusters (M46, (See below) M47, and M93), 60 - some other open star clusters listed in *Star Catalog 2000*, bright and dark nebulae, emission nebulae, and planetary nebulae. I have observed all the Messier objects, many open star clusters, and one planetary nebula (NGC 2438) in Puppis. (See other objects of interest below.) I have quite a few more available to observe. Canis Major contains one Messier object, M41, an open cluster, and the brightest star in the sky, Sirius. Canis Major, the Big Dog, is one of the two hunting dogs of Orion. Canis Major sits beside Orion with his big eye Sirius looking at Lepus, the Hare, at the feet of Orion. Canis Major is not a very big constellation, only 380 square degrees of sky but contains many interesting objects. These include the open star cluster M41 (NGC 2287) at the top of the list. I noticed a couple of red stars along with the majority of blue-white stars. I have also observed open cluster NGC 2204 with 3 other open clusters on my observing list, NGC 2354, NGC 2360, and NGC 2362. The Big Dog also contains numerous double stars. Above Puppis and Canis Major is the constellation of Monoceros, the Unicorn. Monoceros, the Unicorn was named by an unknown observer but it showed up first

on a star globe made by the Dutch cartographer Petrus Kaerius in 1613. It has no pattern representing anything except maybe with a lot of imagination a unicorn. There are no bright stars but it is full of interesting items including open clusters, various nebulae of many different types, and even one spectacular triple star system Beta (β) Mon. Monoceros is dim but not hiding, mostly located west and northwest of Sirius. From Sirius start exploring Monoceros by going 8°NE of Sirius and you should find the Gum1 nebula and a couple of open clusters one on the right and one on the left sides of the nebula. If you have already found M50, Gum 1 is 2°SSE along with NGC 2335 and NGC 2343. Do not confuse the two with the nebula. NGC 2335 has more stars. If you have trouble finding Gum 1 look for the two open cluster less than 1° apart. To find two of the most interesting objects in Monoceros it is easier to start with stars in the constellation Gemini, the Twins. Begin at the foot of the twin Pollux. (Note the feet of both Castor and Pollux are formed by a line of 2nd, 3rd, and 4th magnitude stars). Begin at the lowest of the stars mag. 3.33 xi (ξ) Gemini and mag. 4.5 30 Gemini then proceed 3° SE to NGC 2264 an emission nebula complex in Monoceros below the feet of Gemini comprising the Christmas Tree Cluster, the Cone Nebula, and Trumpler 5. The complete complex is best viewed with a 10X50 binocular or finder scope. With a reflector telescope under low power it resembles a Christmas tree with the cone nebula the topper. A non-reversing binocular makes the tree effect go away. Below NGC 2264 is the Rosette Nebula surrounding NGC 2244 an easily seen open cluster. NGC 2244 contains about three dozen stars. The Rosette has low surface brightness thus best seen with a 10X50 binocular or a wide field telescope on dark nights at low power. It is almost 2° in size covering four times as much area as the moon. It has one Messier object M50 (NGC 2323), many nebulae, and open star clusters. For a real treat get out your binoculars, if you have more than one each of a different power and aperture so much the better, and observe this constellation. Proceeding upward from Monoceros we come to the constellation Canis Minor containing the stars Procyon, "Before the Dog", alpha (α) CMi magnitude 0.4 along with Gomeisa (an old Arabic name for Procyon) beta (β) CMi magnitude 2.9. These two stars comprise almost all of the constellation Canis Minor. Next above is the constellation Gemini, the Twins. Gemini is an ancient constellation and one of the members of the Zodiac. The twins are characterized by the two stars Castor and Pollux representing the twin's heads and parallel strings of stars their bodies. Gemini contains one Messier object M35 (NGC 2168), numerous open clusters, and several planetary nebulae. Especially notable is NGC 2392, the Eskimo or Clown Face nebula. Above Gemini is a modern era constellation Lynx, created by Johannes Hevelius. This constellation is long, covering almost 3 hours of R. A. but because it is so high in the sky toward the north all of it is easily observed. Lynx is dim but at a dark site easily traced in the sky. It contains some beautiful galaxies and many multiple star systems. If you have a dark sky Lynx is a real treat to ob-

serve and even part may be observed with binoculars. Among the galaxies in Lynx are NGC 2859 a barred spiral located next to a 7th magnitude star less than 1° ENE from alpha (α) Lynx and NGC 2683 an edge-on spiral galaxy located 6° WSW of alpha (α). If you have trouble finding NGC 2683 look a degree or so NW of the star grouping of 1-4 sigma (σ) Lynx, it can be seen with binoculars. Multiple star systems in Lynx include 5, 19, and 38. Do not dismiss this constellation it is one of my favorites. Above Lynx is another modern era constellation, Camelopardalis, the Giraffe. (See below)

Featured star – Sirius, the Dog Star is the brightest star in the sky with an apparent magnitude of -1.46. Its name came from the Greek name Σείριος loosely translated as "the scorching one." It is in the constellation of Canis Major and found 2.6 parsecs (8.6 ly) distant. It is a class A1 star that is fairly young at around 237 million years old. It is expected to live for another 270 million years. Sirius was important for several ancient groups of people. For the Greeks the appearance of Sirius in the morning sky marked the beginning of the summer months and the so-called "Dog Days." In the Iliad Achilles called Sirius Orion's hound. For the Egyptians its appearance forecast the flooding of the Nile and the renewing of the land. Since ancient times the appearance of Sirius just before the rising sun hides it (known as the heliacal rising) has now changed due to precession to early August. The Polynesians used this later date of late July or early August for the appearance of Sirius as the beginning of winter and the start of the sailing season when it was an important navigational tool. The native people of the American plains also used the later late July to early August appearance to know it was time to leave the cool mountains and return to the prairie. Sirius is a double star with the companion being discovered on January 31, 1862 by Alvin Graham Clark while testing an 18.5" lens being built for the University of Mississippi. Finally in 1889 the lens was installed in a new telescope in the Dearborn Observatory under the directorship of the Chicago Astronomical Society and the old telescope mount transferred to the Adler Planetarium. The ownership of the telescope has been transferred to Northwestern University where it is used to this day for astronomy classes and public observing on Friday nights much like the University of Maine uses their Clark telescope. The primary star Sirius A and the secondary Sirius B were likely originally a pair of blue-white stars with Sirius B slightly larger. Sirius B became a red giant star and eventually evolved into a white dwarf in orbit with Sirius A. It may be during this transformation Sirius A became rejuvenated into the younger star we see today.

Featured Messier object – M46 is an open cluster in the constellation of Puppis, the Ship's Stern. It was discovered by Messier in March 1771. It is a companion to and east of M47 and not difficult to observe. Both clusters are very large and bright with M46 noted for its rich collection of uniform sized faint stars. Observe these two open clusters with 10x50 binoculars to compare and appreciate the differences. Close up with

small telescopes 4/6" M46 is fainter than M47 but more impressive. It shows about 75 stars at 50x uniform in brightness. The planetary nebula NGC 2438 can be noticed as a fuzzy "star." With larger 8" to 10" scopes at 75x there are more faint stars visible. The slightly annular planetary nebula is easily seen along with two stars within. These two stars are not the central star. It is not visible with most amateur scopes.

Featured constellation – Camelopardalis, the Giraffe, was apparently invented in 1613 by the Dutch astronomer and clergyman Petrus Plancius. He introduced the figure as a giraffe on a celestial globe he designed around the year 1612. The constellation's two brightest stars are mag. 4.3 for the Alpha (α) star and mag. 4.0 for the Beta (β) star. Both are supergiant stars. Alpha would be at least one magnitude brighter if it were not hidden behind interstellar dust. Beta has a mag. 7.4 optical double companion lying 1.4 arcminutes to the WSW. They are slowly separating but it has hardly been noticed in 100 years of observing. There is also another star located 15 arcseconds away from the secondary star which may also be a companion. Camelopardalis contains one very fine open clus-

ter NGC 1502 consisting of a mag 7 double star surrounded by 30+ 9th to 12th magnitude stars. Also a bright planetary nebula NGC 1501 located slightly more than 1° south of NGC 1502 and many galaxies including an easily observed one, NGC 2403. I recorded it as a nice open face spiral with a hint of structure. There are several other galaxies on my observing list. It is detectable with 10x50 or larger binoculars. From NGC 1502 follow a string of ninth and tenth magnitude stars upward to the NW. Canadian Friar Lucian Kemble noticed this string of stars in 1980 with a 7x35 binocular and saw it tumbling down to NGC 1502. He reported it to Walter Scott Houston who mentioned it in the 1980 Sky & Telescope in his column "Deep Sky Wonders." He named it Kemble's Cascade.

Other objects of interest – Monoceros also contains open clusters NGC 2232, 2286, 2324, and 2301 that I have observed. There are a couple of other items on my observing list.

Lens cover removed, enjoy the night
Bill Shackelford