



Penobscot Valley Star Gazers

An Astronomical Society of Central Maine

Look! the massy trunks are cased in the pure crystal;
Each light spray nodding and tinkling in the breath of heaven.

-William Cullen Bryant, of trees glazed with ice



<http://www.gazers.org>

December 2020

Last and Latest

The December 2020 meeting of the PVSG will fall on the 14th, the latest that one can be in the year. It will be through Zoom and start at 6:30 pm. Doors will open at about 6:15 if you want to arrive early for some socializing. Dwight's vision for the meeting is:

At this time I am not planning on a guest speaker for our annual holiday meeting. Any member that would like to present a program is heartily welcomed; just drop me a note. [We have since learned that Bill has an astrobit entitled "Ancient bronze and brass mirrors, mirror mythology, and speculum metal mirrors."] For the rest of us, please consider bringing an astronomy story you'd like to share. I do have a plan on a couple door prizes and I'm working on a way to do the drawing. Please bring some refreshments to the meeting so that we can have a video toast to say goodbye to 2020, a year unlike any other. It appears with the announcement of two vaccines that we should be able to resume in person meetings and star parties in the spring. Finally, I have selected a 10 minute video I'd like to share with the group.

Thanks for last month's program go to Brian Blau and Roland Albers of the Tri-Valley Stargazers for sharing their story of the tragic loss of their observatory to wildfire and their plans to rebuild.



Tragedy to Opportunity
PVSG Monthly Meeting Minutes
November 9, 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.

Brian Blau, Fundraising Chairman, Tri-Valley Stargazers

Visitors:

Richard Lueke, Gloucester Area Astronomy Club
Ralph Pass, North Shore Area Astronomy Club, Boxford, MA

Al Disabatino, Southern Maine Astronomers
Deborah Shapley, New Hampshire Astronomical Society

J. Kaiser, Acadia Astronomical Society
Terri-Ann Anderson, Past PVSG Member
Jon Silverman, President, CMAS

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

Jim Nordhausen, NJ and GAAC

Pete Coughlin, Central Maine Astronomical Society
Kelly Beatty, Amateur Telescope Makers of Boston & Senior Editor for Sky & Telescope Magazine.

Meeting:

Call to Order and Welcome to Visitors

The meeting was held by Zoom video-conference and called to order by Dwight Lanpher at approximately 7:00 PM. Dwight went through the list of folks on the zoom call and asked each person to give some information about themselves and how they got into stargazing.

Attendance:

Dwight Lanpher – President
Scott Burgess – Vice-President
David Clark - Treasurer
Phil Normand – Secretary
Alan Davenport
Bill Shackelford
Ralph Mallett
Ralph Foss
Don Krause
Wade & Donna Smith
Andy Brown
Jill McDonald

Presenters:

Roland Albers, Vice-President, Tri-Valley Stargazers

Programs and Astro Shorts

Astro Short: Dwight Shared a Video on Sidewalk Astronomy which showed the reactions of people looking at the moon through a telescope for the first time.

Program: Roland Albers and Brian Blau from Tri-Valley Stargazers spoke of losing their H2O (Hidden Hill Observatory) observatory to a wildfire on August 19, 2020 and what they are doing to fund and re-build.

Summary: The Tri Valley Stargazers club was established in Livermore, California in 1977. It

started as an employee only group from the Lawrence Livermore National Laboratory. One of the founders was Jack Marley who worked at LLNL and later started Lumicon, a company making astronomical filters. Brian gave us the history of their club. They maintain 2 dark sky viewing sites: The Del Valle Regional Park; and the H2O (Hidden Hill Observatory) site that was comprised of a domed observatory and a roll off roof observatory. The club has monthly meetings, participates in STEM educational events, hosts public star parties, offers certified observing programs, offers loaner scopes to club members, hosts online discussion groups and prints a monthly newsletter called the PrimeFocus.

The fire that destroyed the H2O location was called the SCU lightning Complex Fire. It was the 3rd largest in California, burned 400,000 acres over 47 days destroyed 22 buildings but remarkably, caused no deaths.

The club had to clean up the site and figure out how to recover. They started a Go Fund Me page which has raised \$40,000 so far. They also have been gifted some equipment and were included in a Sky & Telescope article about the fire and the professional observatories in the area that were affected by the fire. The club hopes to develop building plans by the end of 2020, construct an observatory and purchase equipment in 2021, and re-open in 2022.

Note: Since the presentation, the club has announced that they were donated a 20" Plane-wave telescope, a Mathis Mount and a 3.5 meter motorized dome.

Secretary's Report and Acceptance of Minutes

Minutes were unanimously accepted.

Treasurer's Report

Dave reported that our club has \$545.87 in cash and in our bank account. The Treasurer's report was unanimously accepted.

Observing Reports

Wade & Donna Smith observed Jupiter, Saturn, Mars and the ISS. **Jill McDonald** observed Mars and Cetus. **Dave Clark** has been observing the Orion Nebula. **Jim Nordhausen** viewed a moon transit on Jupiter. **Dwight Lanpher** used his Televue 102mm Refractor to view Mars. **Roland Albers** used his 12" telescope to view Mars and M33 from his club's dark sky location. He also viewed NGC 457.

Dwight mentioned that Maine has 2 great dark sky locations with Acadia being a Bortle class 3

site and the Katahdin Woods and Waters site which is a Bortle class 2 site.

Old Business

None

New Business

Dwight announced that we have 2 new members. Jill McDonald, who is also a member of the Downeast Amateur Astronomers, and Mary Beesorchid.

Adjournment

The meeting adjourned at approximately 9:00PM.

Phil

Observe The Sky This Month

Some Selected Objects

December 2020

General sky comments – The winter solstice is on Monday December the 21st at 5:02 am EST. If you are vacationing in the resort cities of Villaricca and Pucón in Chile on the 14th lucky you. On that nice warm sunny late spring day you will be able to observe the only total solar eclipse of 2020. The eclipse has a duration of 2min. 8.5sec. This is close to the maximum time of 2min. 9.7sec. for this eclipse and the sun is overhead at 71°. The night before would also be a good night to observe the Geminids meteor shower at its peak. No matter where you are on the 21st you can observe the closest conjunction of the planets Jupiter and Saturn since the year 1623. The planets are 0.1° apart on this date. The two planets are less than 30° from the sun leaving a narrow window to observe this conjunction after sunset. It would be a good idea to also observe this conjunction on the evening of the 20th. The separation will be close to identical on both dates. The two planets are so close together in the sky you will need at least a binocular to observe this event.

Planets this month –The last quarter moon is on Tuesday the 8th, new moon is on Monday the 14th, first quarter is on Monday the 21st and full moon is on Tuesday the 29th. The Geminids meteor shower peaks in the late evening of Sunday the 13th. Observe them then and on the morning of the 14th. The Moon will not be a problem. Mercury is too close to the sun to observe. Venus is receding from earth and falling rapidly out of the morning sky to 20° from the sun at the end of the month. The moon passes close on the 12th and occults Venus on the west coast. Mars is still bright in the evening sky but falling from mag 1.1 on the first to mag 0.2 on the 31st. Jupiter and Saturn are difficult to see in the early evening sky (see above). Uranus (OYPAHOΣ in classic Greek) is in the evening sky in Aries. Neptune is in Aquarius and setting before midnight. Pluto is too close to the sun to observe.

Constellations for the month – Once again starting

at the southern reaches of the Maine sky we begin with the constellation Caelum, the Engraving Tool. This constellation lies at the same latitude as Canis Major which we will note next month. If you live at a location where the Big Dog is visible you may be able to observe some members of this constellation. Caelum may be the most obscure constellation in the sky. It is one of the 14 constellations created by Nicholas-Louis de Lacaille for his planisphere of the southern stars, published in 1756. The alpha (α) star is magnitude 4.5. Above is the next constellation Eridanus, the River, the longest constellation in the sky. Eridanus is so long it starts with its beta (β) star Cursa only 5° south of the celestial equator and winds through the sky as a path of stars ending with its alpha (α) star Achernar at -63° S. Cursa is 3° NNW above Rigel, (β) Orion and offers a contrast between beta stars of different constellations. Achernar is well below our horizon. Above the first straightaway of Eridanus is the constellation of Taurus, the Bull, with the open cluster Hyades. Don't miss the open clusters NGC 1647 and NGC 1746 between the horns of Taurus. NGC 1746 is one of my most favorite open clusters because it is actually 3 open clusters in one and somewhat of a challenge. I first noticed it with a large binocular (25 x 100). Start with your lowest power to view NGC 1746 and then try to pick out the small concentrations of stars listed as NGC 1750 and NGC 1758 within NGC 1746. NGC 1746 is the grouping of around 20 bright stars. NGC 1750 is the concentration of dimmer stars within NGC 1746. NGC 1758 is the grouping of even dimmer stars partly outside of NGC 1746. Some observers call the whole cluster of stars NGC 1746. Observe this grouping and see if you think it should be one large cluster of stars from very bright to very dim or separate open clusters. The total of all the stars in the three groups is in excess of 75 stars. Included in Taurus is probably the most famous open cluster in the sky M45 aka Pleiades. Also in Taurus is M1 the "Crab Nebula." It is found 1° NE of zeta (ζ) Tauri. Perseus, the Hero, is above Taurus (see below). Above Perseus is the dim constellation Camelopardalis, the Giraffe, with its brightest star only at mag. 4.5. This is the beta (β) star. The most interesting Camelopardalis view is the asterism "Kemble's Cascade" a string of 8th mag. stars starting with open cluster NGC 1502 forming an equilateral triangle with beta (β) and alpha (α) Camelopardalis then proceeding to the NW. Get out a binocular for this one. While in this area of the northern sky note Polaris and how Ursa Minor, the Little Bear, hangs down toward the North horizon at this time of year.

Featured star – Algol, beta (β) Perseus is the most famous eclipsing variable star in the sky. It consists of a primary star and a secondary star in a close orbit only 6 million miles apart. The primary is a white star 100 times brighter than our sun and the secondary is only two or three times as bright as our sun. Because they are eclipsing stars their period and time of eclipse can be measured and predicted very accurately. The eclipse is 10 hours long (5 hours in and 5 hours out) and can sometimes be completely observed in one night. It has a period of 2 days, 20 hours, 48 minutes,

and 56 seconds. There is a slight secondary dip in brightness midway through the period phase when the primary star eclipses the secondary but it is only evident photoelectrically. The two stars shine at a combined magnitude of 2.1 most of the time but dip to 3.4 during the eclipse phase. There is also a third and possibly fourth star in the system but they are far enough away from the other members to not participate in the eclipse.

Featured Messier object – M76, The Little Dumbbell, was discovered by Pierre Mechain in September of 1780 and then six weeks later re-discovered by Messier. It is usually called the "Little Dumbbell or Barbell Nebula" because of its resemblance to the larger Dumbbell Nebula, (M27) in Vulpecula. William Herschel gave it two numbers then Dreyer changed the Herschel numbers to NGC 650 and 651. In small telescopes M76 looks like a small oblong object and using averted vision it can be seen to have two distinct lobes. In larger scopes more detail can be seen. The following is my perception using my 12" telescope. "A pretty blue planetary. It is elongated with a bar on each side. One end is brighter than the other and slightly angled to the other bar." M76 in even larger telescopes can be seen to have an outer shell. The interior shows two distinct lobes connected by a less bright bridge.

Featured constellation – Perseus, the Hero. Last month it was mentioned Perseus saved the maiden Andromeda by turning Cetus, the Sea Monster, to stone with the Gorgon, Medusa's head covered with serpents. Perseus was able to cut off Medusa's head by looking at her head in his brass shield and not being turned to stone himself. Perseus the constellation is in the winter Milky Way and thus contains numerous open clusters, diffuse nebula, and surprisingly numerous galaxies. It also contains two Messier objects, the open cluster M34 and the planetary nebula M76. M34 is located 5° ENE of the variable star Algol, beta (β) Persei. M76 the little dumbbell (see above) is located 1° above phi (ϕ) Persei.

Other objects of interest – Also located in Perseus is the famous double cluster of NGC 869 and NGC 884. Known to ancient Greeks and Babylonians as the scimitar Perseus used to decapitate the Gorgon, Medusa. For some reason Messier did not include the Double Cluster in his catalog.

Stars should be seen without a light in view.
Bill Shackelford

