



Penobscot Valley Star Gazers

An Astronomical Society of Central Maine

The genuine food / Of every plant is earth:
hence their increase,
Their strength and substance.
-Robert Dodsley



<http://www.gazers.org>

November 2020

The Tri-Valley Story

The next meeting of the PVSG will be on November 9, 2020 at 7:00 pm through Zoom. Doors will open at about 6:45 if you want to arrive early for some socializing. The starting time is later than usual to accommodate our guest speaker, Brian Blau, who will be joining us from the west coast. Details below.

Thanks for last month's program go to Dwight for his follow-up about the Leviathan of Parsonstown.

Hello PVSG,

Many of you have heard about the recent close call at the historic Mt. Wilson observatory in California. Fortunately, a crew of fire fighters were able to save that observatory from the flames of the Los Angeles "Bob Cat" fire. However, the Tri-Valley Stargazers H2O (Hidden Hill Observatory) near San Jose was not so fortunate and on August 19, 2020 it burned to the ground destroying all contents including their custom 17.5" telescope. I have contacted their President, Roland Albers, asking if they would be willing to tell their story. TVS Publicity and Fundraising Chairman, Brian Blau, has volunteered to give a Zoom presentation about the history of their club, the destruction of their main observatory, and their future plans to rebuild.

Because of the west coast time difference, I am moving our Monday, November 9, 2020, meeting to 7:00 pm when we will discuss regular club business. Brian Blau will be on at 8:00 pm (5:00 pm PST) for a 30 - 45 minute talk. Our Zoom doors will open for socializing at about 6:45 pm. I will be inviting members from other clubs from Maine and New England to attend this special presentation.

This is a unique situation and I don't ever remember hearing about another club in the US suffering the loss of their observatory. So come join us Monday evening for what will no doubt be a unique and interesting presentation. Zoom credentials will be sent out on Sunday. ---Dwight

Secretary's Report



October 2020

Leviathan II

PVSG Monthly Meeting Minutes
October 12, 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.

Programs and Astro Shorts

Dwight gave a short presentation on the Mars Opposition.

Summary: Dwight shared photos of Mars made by astronomers from the New England area. He also showed a couple sketches of Mars and the famous sketch from Percival Lowell showing what was believed to be canals on Mars.

Alan shared some information on astronomical algorithms that he hadn't seen available for a while. He found a free app called Daff Moon which he said is like having an ephemeris in your pocket. It only works on Android phones. Dave mentioned an iPhone app called ePhe-meris that sells for a couple dollars.

Dwight also gave a presentation he called the Leviathan of Parsonstown Part 2.

Summary: Dwight gave more details as to how the telescope was operated by the Third Earl of Rosse. Dwight tried to answer three questions that were asked when he first presented this topic that he couldn't answer. He had been in contact with the people at Birr Castle and they sent him a video which Dwight shared with the group. Along with a discussion of the telescope that was the largest in the

Meeting:

Call to Order and Welcome

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

Attendance:

- Dwight Lanpher – President**
- Scott Burgess – Vice-President**
- David Clark - Treasurer**
- Phil Normand – Secretary**
- Alan Davenport**
- Bill Shackelford**
- Ralph Mallett**
- Don Krause**
- Don Ferrell**
- Visitors:**
- Jill McDonald, Downeast Amateur Astronomers**

world until 1917, the video showed that there is now a LOFAR radio telescope installation at Birr castle. Dwight first spoke about the function of the lever pit. He found that the pit was only about 18 inches wide. The levers provided some force pulling on the telescope when the scope was straight up. Dwight then spoke about the functioning of the azimuth mechanism. He described a series of gears and rods that were used to move the scope east and west. Dwight showed how a windlass was used to pull a chain through a tunnel, lowering a counter weight and raising the lower viewing cart. Dwight also explained how the upper viewing gallery was accessed. He was not sure how the upper gallery was positioned for viewing.

Discussion of using ZOOM along with in person attendance for future meetings

Dwight stated that future meetings would likely continue on ZOOM due to the current Pandemic situation and even when we feel that it is safe to meet in person again, it would be nice to have a combined live/ZOOM meeting for those not able to attend in person. Scott then announced that his classroom in John Bapst was set up for exactly that scenario. More discussion on this will occur in the coming months.

Secretary's Report and Acceptance of Minutes

Minutes were unanimously accepted.

Treasurer's Report

Dave reported that our account has a current balance of \$275.87. This is an increase of \$40 from dues payments. Dwight said that an additional \$40 would be coming from a donation given at a touchless star party. Dues are currently due and Dave said that those not paying their dues would be removed from the club roster after December.

Observing Reports

Don Ferrell observed Mars this past Friday and then attended the University of Maine Explorers presentation on Mars using Slooh. He also observed the moon during the previous week.

Bill Shackelford said he had observed Mars 5 or 6 times while making use of the Sky & Telescope Mars Presenter Program, and Jupiter and Saturn as well. **Jill McDonald** observed Mars, Saturn & Jupiter, and also observed the stars in the tail of the Big Dipper. **Dave Clark** has been observing the planets with 10X50 and 10X75 binoculars through an open door.

Alan Davenport mentioned that he saw the Moon and Mars very close together early on October 2nd. **Scott Burgess** mentioned he had

been observing Mars and he showed a picture of Mars taken with an eight inch Cassegrain. Scott also said that he had been given a telescope to use for his students by Gideon Knapp. It is a 17" dobsonian telescope with a very good mirror made by Jerry Wilkenson. John Bapst paid for a deep space USB camera that Scott can use on this scope to stream to his students. **Dwight Lanpher** mentioned he had given a star party for a family of 4 from out of state. He used his Stellina scope and showed them approximately 10 objects. Jill discussed the touchless star party at reversing falls state park. This was put on by the Downeast Amateur Astronomers and a local conservatory group. Dwight had his Stellina telescope and people viewed through iPads and phones. Charlie Sawyer used his laser pointer to point out constellations and other night sky objects. There were 19 people who attended.

Old Business

None

New Business

None

Adjournment

The meeting adjourned at approximately 8:30PM.

Phil

Observe The Sky This Month

Some Selected Objects

November 2020

General sky comments – You have likely heard that the star Betelgeuse is going to become a supernova. Because of the recent two times it has dimmed some have wondered if this is about to happen. This event would be spectacular, but according to a study by an international team of researchers it may be another 100,000 years before this will happen. This study, led by Dr. Meridith Joyce from Australian National University shows Betelgeuse smaller and closer to Earth than thought. The first dimming was caused by a dust cloud. The second dimming was likely caused by star pulsation. Co-author Dr. Shing-Chi Leung from The University of Tokyo using hydrodynamic and seismic modeling confirmed pressure waves were the likely cause of the pulsations of Betelgeuse. Co-author Dr. László Molnár from Konkoli Observatory in Budapest stated the actual size was only 530 times the radius of the Sun. Once you know the physical size the distance can be determined. The results of the study show Betelgeuse is only 530 light years away, still too far from Earth to concern Earth with any supernova explosion. The Leonid meteor's peak is on the 17th. There will be no Moon to interfere. The ZHR (zenith hourly rate) is 20.

Planets this month –The first quarter moon was on

Sunday the 8th, new moon is on Sunday the 15th, and full moon is on Monday the 30th. Mercury is emerging in the morning sky early in the month to reach greatest western elongation on the 10th and a good view for the Northern Hemisphere. Venus is prominent in the constellation of Virgo in the morning sky. The waning crescent Moon passes 3° north on the mornings of the 12th and 13th. Venus fades to Mag 3.9 by the end of the month. This is half the brightness it had in the spring. Mars is fading from the opposition of last month to mag -1.1 on the 30th. It is now too small to be of interest to most telescopic viewers. The waxing gibbous Moon passes 5° south of Mars on the 24th and 25th. Jupiter is low in the southwest sky in early evening. The gap between it and Saturn closes during the month from 5° at the first of the month to 2.25° at the end of the month. The waxing crescent Moon passes by Saturn and Jupiter to the south on the 18th and 19th. The planet Uranus (Οὐρανός), the only planet based on a Greek name, rises early in the eastern sky well placed in Aries for viewing and visible most of the night. Neptune is in the evening sky in Aquarius and sits well placed for viewing. Pluto is still in western Sagittarius between Jupiter and Saturn.

Constellations for the month – At the far southern range of our sky is located the constellation Fornax, the Furnace. It was originally called Fornax Chemicæ the Chemical Furnace. Nicolas Louis Lacaille originated and dedicated this new constellation in 1752 to the French chemist Antoine Laurant Lavoisier, the father of modern chemistry. Fornax contains many galaxies. If you have a moderate to large telescope you might want to explore this area of the sky. Above Fornax is the large constellation Cetus, the Whale. It is known as a whale in the modern sky but in reality it is the sea monster of Andromeda fame turned to stone by Perseus with the severed head of Medusa. Cetus spans over 3 hours in right ascension but is easily seen at this time of the year. We looked at the western part of Cetus last month and we will observe the eastern part this month. It contains mostly galaxies many of them bright including M77. Now is the time to observe M77 as it is easier to find now than next year when you might want to find it low in the west during a Messier marathon. The hexagonal star pattern including the alpha (α) star Menkar forming the tail (head?) of Cetus makes a convenient star pattern to locate M77. It is found just to the SE of the star gamma (γ) connecting the body of Cetus to the tail pattern. 6° SW of gamma (γ) is the variable star Mira, omicron (ο). Mira is the featured star this November. Above Cetus is the eastern “fish” of Pisces, the Fishes, a Zodiac constellation. The alpha (α) star Alrescha indicates the “knot” between the cords joining the two fish. (The Greeks likely thought Mira in Cetus as the “knot” star). To the west under the square of Pegasus is the better defined “fish” a circle of 6 stars. Pisces also contains one Messier object, M74, a face on spiral galaxy found 1° WNW of eta (η) Pisces observed last month. To the west of the western fish of Pisces is the constellation Aries, the Golden Ram, a Zodiac constellation. See featured constellation below.

North of Aries is the constellation of Triangulum, the Triangle. Triangulum is a convenient way to locate the galaxy M33 located 4° WNW of alpha (α) Triangulum. Triangulum has been covered extensively before. M33 is the third largest galaxy in the local galaxy group but is difficult to view because of its low surface brightness. It can be located without any visual aids in a dark sky and can be used as a gauge to judge sky darkness. To observe M33 use a wide field telescope at the lowest power or a large binocular. Above the west fish of Pisces and connected to Pegasus is the constellation Andromeda. Andromeda is best known as the constellation of the Andromeda Galaxy, M31. It is usually found by starting at 2nd mag. Mirach, beta (β) Andromeda, and following 3rd mag. mu Andromeda to the galaxy. I employ a simple method by using the eastern three stars of Cassiopeia as an arrowhead shaped pointer to the galaxy 15° away. It points slightly south of the galaxy but the galaxy is sufficiently bright to be easily seen. I will not cover M31 here because there are extensive articles already written about this galaxy, the largest galaxy in our local group. Please observe it this month. The story of Andromeda in mythology has also been told previously. Above the constellation Andromeda is Cassiopeia easily recognized by most people from its “W” shape. This constellation has been extensively covered before.

Featured star – Mira, Omicron (ο) Ceti is the first known periodic variable star. Mira is a Latin word meaning “The Amazing One.” Some people interpret it as “The Wonderful.” Mira is credited to be discovered by David Fabricius an amateur astronomer and clergyman (1564-1617). He observed the star from August 3, 1596 to August 21, 1596 when it brightened from magnitude 3 to 2. He could not find it plotted on any chart he could find. It faded in September and disappeared completely in October. He suspected it was a nova but it reappeared in February of 1609. The star was nearly forgotten until being rediscovered in 1638 by Johann Fokkens Holwarda who had determined its period as 11 months (modern value of 332 days). On November 7, 1639 it was observed by Johannes Hevelius and he called it Mira (Historiola Mirae Stellae) in his catalog Prodomus Astronomiae of 1690 along with his atlas of the stars published by his wife Elisabetha after his death in 1687. Mira is a pulsating red giant variable star with a white dwarf companion.

Featured Messier object – M77 in the constellation Cetus, the Whale, is the archetype for Seyfert 2 galaxies. In Maine many people think of and try to observe M77 when participating in a Spring Messier marathon. At this time M77 is low in the southwest sky and is only viewable for a short time before disappearing below the horizon. This is the best time of year to observe M77 as it is well placed for viewing, easy to find, and able to be observed in almost any size telescope including scopes as small as 100 millimeters (4 inches). The larger the scope the better the galaxy appears. With my 25x100 binocular M77 appeared as an oval galaxy with a bright center and a hint of mottling. This was at

a very dark site. Using a 10 inch telescope at the same site the mottling appeared on one side only. It was an obvious spiral galaxy one arm separating a detached central area brighter than the rest of the galaxy. Most observers will need a scope of 12 inches or larger to see this much detail. M77 was discovered by Pierre Méchain in October of 1780. Messier observed it in December of the same year describing it as a cluster of small stars which contains some nebulosity. Observing M77 in 1848 Lord Rosse using the Leviathan referred to it as "a blue spiral." Seyfert galaxies have a spectra of an active nucleus as described by Carl Seyfert. Type 1 and 2 Seyfert galaxies are similar but have different viewing perspectives.

Featured constellation – Back when Aries contained the sun on the spring equinox it had a lot of importance and represented several things for many cultures. For the Egyptians it represented the god Ammon Ra, the god of Fertility and Creative Life and briefly the actual Sun. Most of the time the god was depicted as a man with a ram's head. Aries rescued the children of the king of Thessaly from their cruel stepmother. Later one of the children, Phryxus, sacrificed the ram and placed its fleece in a sacred grove where it turned to gold. Later it was sought and found by Jason and his Argonauts. As it contained the Sun the Greeks and Romans called the vernal equinox the "first point of Aries." This name still persists although the sun has moved from Aries to Pisces. From west to east the stars of Aries are called Mesarthim, gamma (γ), Sheratan, beta (β), and Hamal, alpha (α). These stars easily fit in a 10x50 binocular field. Mesarthim is the official name for this star although you will see it spelled Mesartim (in-


cluding spell check). It is a pair of equal bluish-white stars resolved at 125x. 2° west of Hamal is lambda (λ) Aries a pair of yellowish-white and pale blue stars resolved at only 75x. The only galaxy worth observing in Aries is NGC 772. It has a bright central area with one side curved and brighter than the other. Of interest to people of Maine, this galaxy is known as the "Fiddle Head Galaxy." Look a little over 1° slightly south of east from Mesarthim to find this galaxy.

Other objects of interest – NGC 1055, a slanted edge on spiral, is very interesting in a large telescope and located $\frac{1}{2}^\circ$ NW of M77 in Cetus. There are two bright stars one slightly brighter than the other above this galaxy making it look like a winking smiley face or grinning black cat except in reflector telescopes it is upside down. NGC 936 is located 3° SW of delta (δ) Cetus or 1° west and slightly south of 6th mag 75 Cetus. NGC 936 is a barred spiral I noted looked longer than wide but not much else. The European Space Agency (ESO) has posted a photo of this galaxy and it has a strong resemblance to a Star Wars TIE fighter giving this galaxy the name "The Darth Vader Galaxy." While using the star Mirach, beta (β) And. to find M31, use a power of about 100x to 150x and observe NGC 404 in the same field as Mirach. This irregular galaxy is surprisingly easy to observe. It is round with a brighter center. If you have trouble seeing this galaxy put Mirach just outside your field of view. NGC 404 is also known as "The Ghost of Mirach."

Our city lights, they steal the night away.

Bill Shackelford

Dues Were Due October 1



Regular \$18.00
Family \$27.00
Junior \$9.00
send to:
Treasurer, PVSG
609 Cape Jellison Road
Stockton Springs, ME 04981