



Penobscot Valley Star Gazers

An Astronomical Society of Central Maine

<http://www.gazers.org>

November 2019

November Meeting

The PVSG will meet at John Bapst Memorial High School at 6:30 pm on Monday, the 11th of November, 2019. We are not sure what the program will be.

Thanks for last month's program go to Dwight for his astrobit on recent astrophotos from New England amateur astronomers and his report on the numbers for this year's Acadia Night Sky Festival.

PVSG Monthly Meeting Minutes – October 14, 2019 John Bapst Memorial High School

Meeting:

- **Call to Order and Welcome**

Meeting called to order at 6:40PM.

Attendance:

Dwight Lanpher - President
Scott Burgess – Vice-President
Andy Brown
Dave Clark
Ralph Foss
Don Krause
Ralph Mallett
Phil Normand – Secretary
Wade & Donna Smith
Jeff Waring

- **Secretary's Report and Acceptance of Minutes**

Last month's minutes were approved. Correction on spelling: Dr. Neil Comins

- **Treasurer's Report**

Dave reports that the balance is: \$493.07 now that several dues have been paid. Yearly Insurance runs approx.

- **Observing Reports**

Dwight: Took wind speed reading at top of Cadillac and got 15-24 mph with a gust of 31mph.

Phil: Observed through other's scopes at the Seal Cove Auto Museum Star Party at ANSF. Saw a beautiful veil nebula through a very large Obsession DOB.

Wade & Donna: Purchased 1980's 60mm Tasco refractor (NIB) gave to Daughter's family. Set up and it was better than the 60's version. Observed Jupiter and Saturn with 127mm Orion MAK. Went to top of Cadillac Mtn at ANSF. Wind was quite high.

- **Program**

Astro Shorts:

Dwight: Presented some summary information from the Acadia Night Sky Festival: 3 whale watch cruises were cancelled. Dwight did go on a cruise on Sunday night. Stars over Sand Beach was cancelled as well. Cadillac Mtn Star Party was also cancelled. Dr. Jackie Faherty gave the keynote presentation. At Seal Cove Auto Museum, there were 30 scopes and 1 binocular station, and 752 people counted. Excellent parking. Jackson Lab Solar Party: 4 scopes, 1 radio telescope, 1 spectroscope. 3,500 attendees, down from 8000 peak a couple years ago. Dwight showed some figures on numbers of amateur astronomers attending from different New England groups.

On the Schedule

(Items Subject to Change)

PROGRAMS

November 11:

STAR PARTIES

?November 14: Challenger Center Mars Open House

November 23: Club star party at Don Krause's, set-up 4:00 pm

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

Dwight showed astro photos from New England amateurs.

- **Old Business**

Rachel from the Challenger Center contacted Wade and said she'd keep us informed on Challenger Center Star Party.

Dave went to the Carver Library in late July or early August and gave a talk to about 5 people about what was up in the sky. 7-8PM.

Brochures: Voted to reimburse \$50 to Dwight. Dwight wrote Phil a check for \$100. Total cost for 500 brochures was \$162.05.

Calendar review:

October 26 - Star Party at Ben Phillips' House in Hermon.

November 14 - Star Party for the Challenger Center.

November 23 – Star Party at Don Krause's house in Levant.

We have an invitation from Shawn Laatsch to set up scopes and observe at the Emera Center after Friday night shows.

- **New Business**

Dwight stated that he wanted to have a budget worked up for the club and was working with Dave on that.

Phil gave out tri-fold brochures to those wanting them.

After discussion, we determined that some of our web information on sites like the Night Sky Network and the Astronomical League site are out of date.

There was some discussion on possible topics of interest and potential speakers including uMaine graduate students.

Andy suggested that we might want to have presentations geared towards newer amateur astronomers. Dwight suggested having a new astronomer night in January or maybe in conjunction with the Challenger Center. It was also mentioned that club members could set up on public showing nights near the Clark Observatory.

Dave mentioned that he will be having some surgery on his knee and won't be attending meetings for the first 3-4 months of next year.

- **Adjournment**

The meeting was adjourned at 7:56.

Phil

Observe The Sky This Month

Some Selected Objects

October 2019

General sky comments – On November 11 the planet Mercury transits the Sun. The entire transit is visible from Maine starting within seconds of 7:36 EST. This is shortly after sunrise. You will need a low horizon with a clear sky to completely observe this event. Unfortunately for me the transit will already have begun at sunrise. I have a public viewing scheduled in the parking lot of my local library although the library is closed for Veterans Day. In the July and November issues of Astronomy magazine there are articles adapted from the book by David J. Eicher and Brian May “Mission Moon 3-D: A New Perspective on the Space Race”. I have been interested in 3-D images since writing an article on taking 3-D X-rays for a technical journal while in X-ray technician school so I bought the book. It turned out to be a coffee table style book with high quality illustrations. A 3-D viewer is included although the images can be viewed without a viewer. The book contains 150 3-D images most never before published in 3-D. It is a 150 page fairly comprehensive history of the space race including US and Soviet efforts. The 3-D images are not anaglyphs requiring colored glasses but high quality black and white and color images some made especially for this book.

Planets this month –The new moon is on Tuesday the 26th, first quarter is on Monday the 4th, full moon is on Monday the 12th and last quarter is on Tuesday the 19th. Mercury is fading into the evening twilight toward conjunction with the sun and transit on the 11th. Then Mercury speeds away to greatest western elongation on the 28th and the best morning view of the year. Venus is low in the evening sky early in the month dropping closer to the sun making it difficult to observe. Mars is in Boötes moving away from the sun. It is too small to be of interest to telescopic viewers. The Moon passes 4° south of Mars on the 24th. Jupiter is low in the southwest sky moving from Ophiuchus joining Saturn in Sagittarius mid-month. Look for the Moon and Venus to join Jupiter for a nice trio on the 28th. Saturn is in the southwest and disappears in the evening this month. The Moon passes Saturn on the 2nd and the 29th. The planet Uranus (Οὐρανός), the only planet based on a Greek name, is in the eastern sky well placed in Aries for viewing and visible most of the night. Uranus can be glimpsed as a 5.7 mag “star” with no optical aid at a dark site. Neptune is in the evening sky in Aquarius and sits well placed for viewing. Pluto is still in Sagittarius low in the SW sky.

Constellations for the month – At the far southern range of our sky are located the constellations Sculptor, the Sculptor and Fornax, the Furnace. The claim to fame for Sculptor is it is the location of the southern galactic pole, the south pole of the Milky Way galaxy. The north galactic pole is in Comae Berenices. Sculptor does contain many galaxies but they are too far south to be easily seen at our latitude. Like Sculptor, Fornax contains many galaxies but they are even less conspic-

uous than those in Sculptor. Above these two constellations 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 easily seen at this time of the year. Cetus 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 (\omicron). Mira is the featured star this November. Cetus contains a nice planetary nebula NGC 246 known as the Skull Nebula but it looks more like a doughnut with a bite taken out. NGC 246 looks transparent because several stars can be seen in it. The star in the middle is the central neutron star. To find it start at Deneb Kaitos, beta (β) Cetus, and go 6° north to a line of three stars. The skull Nebula is located immediately east. There are numerous galaxies (NGCs 779, 615, 596, 584, 157, 720, 988, 1042 and 1052) in Cetus on my observing list. You might try observing some of them before I get to them. I do encourage you to observe one I have observed and really like, NGC 247. It is located also from beta (β) Cetus. From this star go only 3° SSE to NGC 247. You will be surprised how large this galaxy appears. Above Cetus is the eastern “fish” of Pisces, the Fishes. The alpha (α) star Alrescha indicates the “knot” between the cords joining the two fish. Pisces also contains one Messier object M74 a face on spiral galaxy found 1° WNW of eta (η) Pisces. This is one of the most difficult Messier object to observe. 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 sto-

ry 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 (o) Ceti is the first known periodic variable star. Mira 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 rams 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 (including spell check). It is a pair of equal bluish-white stars resolved at 125x. 2° west of Hamal is gamma (γ) 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. Look a little over 1° slightly south of east from Mesarthim to find this galaxy.

Other objects of interest – Try this galaxy if you are successful finding NGC 247. NGC 253 is located another 4½° south in Sculptor. In the southern USA this galaxy can be observed easily and is one of the very best galaxies. NGC 1055 a slanted edge on spiral is very interesting in a large telescope and located ½° 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".

Dark sky, returns the night that we have lost
Bill Shackelford