The Observer

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WARREN LANDIS © ORANGEMAZ

Everyone, please welcome Bill Malkames to the LVAAS Board of Governors! Bill has agreed to be appointed as Chairman of the Light Pollution Abatement Committee, a post last held by David Moll. Bill is a new member of LVAAS this year, but he brings some excellent qualifications to this assignment. As an attorney he has experience in working

with local governments on zoning and land use issues, and his interest in astronomy and in preserving our dark skies long predates his involvement in LVAAS. Thank you, Bill, for joining the team!

As I reported in the March Observer, Dave Moll had stepped down from the Light Pollution position as well as his position as Chairman of the Risk Management Committee, and the Board was considering an amendment to our Bylaws to remove both positions. Today, I am happy to report that we have decided not to eliminate either position, as they are both important to LVAAS' mission. And I am delighted to announce that Dave has agreed to be re-appointed as Chairman of the Risk Management Committee. David has extensive experience in this area which is very valuable to LVAAS, and his commitment to our organization has continued to be in evidence even while he was serving in an unofficial capacity. Thank you, Dave, for once again agreeing to be a member of the Board!

Every organization faces various risks, and ones like LVAAS that own property and hold public events usually carry insurance to protect against the losses from accidents and other occurrences. And, increasing light pollution is a threat to our hobby in all populated areas of the world. But in this, our year of perils and challenges unprecedented in recent memory, when our health, our economy, and our lifestyle has been subject to many unexpected threats, astronomy was uniquely impacted by several unusual conditions.

**Commercial satellites.** Several organizations, SpaceX chief among them, have begun launching large populations of communications satellites to Low Earth Orbit, in such numbers that they are expected to impact both photographic and visual astronomy.

**Fireworks.** The enhanced availability to the general public of pyrotechnical entertainment prevented at least one LVAAS astro-imager from capturing celestial photons for several evenings early this summer, as his neighbors filled the skies with bright chemical flashes.

**Smoke.** The devastating wildfires several thousand miles away filled our skies with the products of combustion, and ruined what would otherwise have been some excellent nights of observing.

I don't mean to minimize or trivialize the horrific impact of these events, especially the latter, to many outside our community. But it occurs to me that there are a number of things that could still get us this year, but have not, at least so far. If you will indulge me, I thought I would mention a few potential threats to successful stargazing that 2020 has not yet seen, in hopes that a reverse-jinx effect will head them off.

**Unrealized Potential Threats to Astronomy** 

In weaker moments, my imagination tends to run wild, and I mention the following in the fervent hope that none of them come to pass. But if any of them do, at least I can claim that I called it.

**Volcanism.** A good volcano can throw a lot more junk into the stratosphere than any wildfire. Perhaps some believed-dormant volcano, such as Mauna Kea, will fool us, converting some of the world's finest observatories into even finer atmospheric particles that will render the remaining ground-based telescopes useless.

**Birds.** It has been over a century since passenger pigeons, now extinct, literally darkened the skies with the astronomical numbers of their migrating flocks. But currently extant species such as the Snow Goose are increasing. If crowded daytime conditions should force them into traveling at night, then they could unexpectedly eclipse our target nebulae and galaxies at key moments.

**Giant Bats.** I wonder if there is some enormous population of large flying mammals, lying dormant in caves around the world, but ready to emerge to decimate the world's already-endangered population of insects, as well as the visibility of our favorite stars? This definitely seems like a more-likely nighttime threat than the geese.

**Vampires.** I am writing this for the October issue, so it seems like a good time to mention my conviction that there really are "creatures of the night" and that they are about to emerge. One could hope that the roughly cruciform outline of a German equatorial mount will discourage them from approaching, but it is more certain that those of use using reflecting optics will be less affected by this nuisance than our refractor enthusiasts.

On the other hand, if it's **witches**, then we're all out of luck.

**Extraterrestrials.** The U.S. government earlier this year seemed to be starting to let the E.T. cat out of the classified bag, allowing some military videos of unexplained airborne phenomena to become public. Could this in turn inspire the aliens to throw open the doors, allowing any galactic citizen with a recreational flying saucer to indulge in the attractions of touring Earth's night skies? I foresee our view of the heavens becoming as cluttered as Lake Nockamixon on a sunny Labor Day weekend, making it impossible to find our favorite planets between the annoying visitors from out-of-system.

**Jet packs, flying cars, and floating cities.** The certainty that non-Earth-dwellers possess this impressive technology reminds me that we are on the threshold of acquiring it ourselves. Our wanderlust-infested brethren, freed from the constraints of the Interstate Highway System, are sure to be found careening through the skies of our favorite observing sites, with their faux-neon undercarriage luminaries advertising their egos and ruining our views.

**Balloons and confetti.** When the first approved COVID-19 vaccine becomes widely accepted, I'm sure the mood for celebration will fill the air with its by-products. Hopefully we'll refrain from too many of those dangerous "Chinese sky lanterns." I also imagine that, on the first clear evening after we finish building the 40-inch telescope, we'll be so wildly jubilant that we'll have to close the mirror shutters against flying champagne corks, only coming to our senses in time for the sun to come up and three more weeks of cloudy weather to roll in. But that won't be until next year.

**Rogue Moons.** I hereby presage that the Earth may capture 2 or 3 planet-sized, undiscovered wandering asteroids, which will populate widely-separated points in the orbital ellipse occupied by Luna, so that there will everafter always be a mostly full Moon in the sky. This will be a serious impediment to deep-sky observing, though on the bright side we'll have some new natural satellites to study and catalog.

I really have a strong feeling that this is about to happen. And when it does, I want one of the craters named after me.

Ad Astra!

## Minutes from the LVAAS General Meeting September 12, 2020

The September 2020 LVAAS General Meeting was held both outdoors at the Pulpit Rock dark sky site as well as utilizing an on-line service. Approximately 50 people were in attendance both online and at Pulpit Rock. Director Rich Hogg and Membership Director Gwyn Fowler opened the meeting at 8:20 p.m. The meeting started with LVAAS business.

### **Treasurers Report: Scott Fowler**

General Fund	\$44,624.80 as of August 8th
Income	\$306.54
Expenses	\$(6,471.62)
General Fund Balance	\$38,459.72 as of September 12th

Several donations were received for Priscilla Jacobsen.

\$5,300.00 was transferred to the Roof Fund for a total of \$16.000. An additional \$4,000 was budgeted for FY21, taking the Roof Fund up to \$20,000.

## **FY21 Budget Vote:**

Scott Fowler presented the FY21 Budget to the membership in attendance at the September General Meeting. The FY21 Budget was approved at the last Board of Governors Meeting and is now up for a vote by the membership. Motion to approve the FY21 Budget was made by Judy Parker and seconded by Peter Detterline. The FY21 Budget was unanimously approved by a vote of the members present at the September General Meeting.

## Membership: Gwyn Fowler

2nd Readings:

- John Wirth
- Melissa Wirth
- Michael Huber
- Kelly Stever
- Avery Huber
- Jim Blanford
- Karen Blanford
- Kaitlyn Breloff

1st Readings:

- Ryan Huber
- Carl Picco
- Frank B. Schuler II
- John Folk

Gwyn mentioned as a reminder that there are still some dues owed by members who have done their 2nd reading.

## **General Comments**:

Another huge thank you goes out to Rich and Gwyn and all of the others involved for making the in person/online hybrid meeting a great success, specifically supporting the effort at Pulpit Rock with the gates, the telescopes and observatories, the site tours, the meeting set up and troubleshooting, fielding questions and providing wonderful hospitality to all our guests and members.

## **Election Announcement: Bill Dahlenberg**

Elections will be in October. Candidates were announced at the September General Meeting. All Candidates are standing for elected office unopposed. The Candidates are as follows:

- Director Tom Duff
- Assistant Director Rich Hogg
- Treasurer Gwyn Fowler
- Secretary Dennis Decker/Kelly Decker

## Priscilla Jacobsen: Rich Hogg

Priscilla Jacobsen's family wished to have a small remembrance at South Mountain on August 30, 2020. It was an unusual request for LVAAS, but LVAAS was an important part of her life and she in turn contributed a lot to the Society. LVAAS attendees at Priscilla Jacobsen's remembrance at South Mountain were Bill Dahlenburg, Rich Hogg, Carol Kiely, and Earl Pursell. There is a wonderful tribute to her in the September issue of the Observer written by Star Party Coordinator Carol Kiely as well as a link to her obituary.

After the LVAAS business concluded, the meeting moved to the evening's presentation. The evening's presentation, "Comet Imaging Debriefing" was hosted by Peter Detterline. Peter teaches part time as an Astronomy Professor at local colleges and universities and was Planetarium Director at Boyertown Area School District. He is an active LVAAS member. Peter has a Bachelors Degree from Kutztown University and a Masters Degree from West Chester University. Peter has worked with the Mars Society where he designed and helped to construct the Musk Observatory for the Mars Society. He is also a member of the Astronomy in Chile Educator Ambassador program. As an amateur astronomer he has traveled the globe observing.

The presentation consisted of observers showing their images of Comet NEOWISE and talking about how they captured and processed the images.

C/2020 F3 or Comet NEOWISE (Near Earth Object Wide Field Infrared Survey Explorer) is a long period comet (6800 to 7000 years) discovered on March 27, 2020. Comet NEOWISE is the brightest comet in the northern hemisphere since Comet Hale– Bopp in 1997. It was widely observed and photographed by professional and amateur observers and was even observed by people living near areas with light pollution. Under dark skies, it could be seen with the naked eye and remained visible to the naked eye throughout July 2020. After July 2000, binoculars were required to locate the comet.

Comet NEOWISE is approximately 3 miles in diameter and is traveling at a speed of 40 miles per second.

The following shared their images of Comet NEOWISE:

- Peter Detterline
- Eric Loch
- Lauren Scorzafava
- Chris Aman
- Melissa Wirth
- Frank Lyter
- Lynn Krizan

## **Next General Meeting:**

The next General Meeting is scheduled for Sunday, October 11th at 7:00 p.m. Meeting format and location to be determined.

The meeting was adjourned at approximately 9:40 p.m.

Submitted by Dennis Decker, Secretary

# **UACNJ Reminder**

LVAAS is a member organization of the **United Astronomy Clubs of New Jersey**, (uacnj.org) which means that LVAAS members may acquire observing privileges at the UACNJ observatories at **Jenny Jump State Park**, near Hope, NJ.

There is a fee of \$50.00 per year, plus a commitment to assist at UACNJ Public Nights. Normally, this commitment is for five Public Nights during the year, but it has been reduced to four this year, due to the shortened observing season. The 2020 Observer Form can be found on their website:

http://www.uacnj.org/observers/2020ObserverForm.pdf.

LVAAS liaison is Earl Pursell.

Also check out the **Meteor Shower Calendar** courtesy of Ken Taylor of UACNJ and thrillist:

https://www.thrillist.com/news/nation/meteor-shower-calendar



*Cover image:* M31 Andromeda Galaxy imaged by Warren Landis using A ZWO ASI1600mm-cool, ZWOASI183mm, and the QHY163m. I used my ZWO RGB filters along with the Chroma Ha 3nm; 40 x 90s of each RGB filter 40 x 180s of each RGB filter 28 x 600s of Ha (Orangemaze)

# **LVAAS General Meeting Sunday, October 11 at 7 p.m.**

- Meeting will be held at Pulpit Rock and on-line -

**Important!** This meeting will include a Business Meeting to finalize elections of 2021 officers, and approve a change to the dues structure for 2021.

# Program: "Astro-Image Processing 101"



# Warren Keller

Internationally known astrophotographer, author, and teacher, Warren Keller has the ability to reduce the difficult concepts of astro-imaging to the essentials and to effectively teach them to others. His video tutorial business, IP4AP.com (named a Sky & Telescope Hot Product), has given thousands of clients the world over a quick start on taking their own great images. In 2016 and 2018, he wrote the definitive book(s) on PixInsight, Inside PixInsight for Springer Nature (Patrick Moore Practical Astronomy series.) The first edition of the book was Springer's top seller in 2016, and was also named a Hot Product by Sky & Telescope in 2018. Warren is proud to have been published as an author and photographer in Sky & Telescope, Astronomy, Sky at Night, Astronomy Now, CNA (China), Amateur Astronomy, IDA's Nightscape, and many places on the World Wide Web, most prestigiously, NASA's APOD. Three large format prints were chosen for 2012's Starstruck: The Fine Art of Astrophotography traveling exhibit, which opened at Maine's Bates College. He was Atik/QSI Camera's North American representative, and was a consultant to Celestron where he co-designed their AstroFX software. Warren has presented at the Advanced, the North East, the Midwest, RAW, and CAPS astro-imaging conferences, and was host and coordinator of SWAP in 2013 and 2014 in Tucson. In 2015, he was asked to the board of directors of the Advanced Imaging Conference, where he is VP of exhibitor sales. He continues to lead virtual workshops and provides one-on-one training in the art and science of astrophotography. Please find Warren's web links on the LVAAS website.



Comet C/2020 F3 (NEOWISE) Imaged by Harry Orlind from East Norriton PA July 17, 2020



Sunrise at Pulpit Rock Imaged by Harry Orlind



# From the LVAAS Archives: Happy Birthday, LVAAS, and Why We Meet When We Do

## by Sandy Mesics

October marks LVAAS's 63rd birthday, making us one of the oldest astronomy clubs in the U.S. Over the years, LVAAS has generally had birthday celebrations every 5 years, usually with a gala that featured an invited guest speaker and the awarding of a life membership to an LVAAS member.

Over 100 people attended the 10th anniversary celebration on October 14, 1967 at the Hotel Bethlehem. Dr. Peter van de Kamp from Sproul Observatory was the guest speaker. Distinguished guests included environmentalist, engineer and educator Gertrude Fox, Peter Espensheid of the Naval Observatory, and Sarah Lee Lippincott of Sproul Observatory. Life memberships were awarded to Marguerite Braymer of the Questar Corp., and Henry Kawecki for the recent donation of Pulpit Rock.

Five years later, to celebrate LVAAS's 15th anniversary, an event was held at the Hotel Bethlehem on October 21, 1972. The guest speaker was the legendary Walter Scott Houston, writer for Sky & Telescope Magazine.

You are cordially invited to Lehigh Valley Amateur Astronon <b>20th ANNIVERSARY B</b> Saturday - October 29,	attend the nical Society's ANQUET 1977
Cocktail Hour (cash bar) 7:00 p.m.	Dinner 8:00 p.m.
Guest Speaker – Dr. Louis Green (H \$9.50 Per Person	laverford College)
Deadline - October 15,	1977
To be held at: The Village Inn 4140 Tilghman St. (near Allentown, PA	Rt. 309)
Maise check payable to LVAAS and mail to NEIL LERNER 22 Third St Mansfield, PA 16933	Treasurer's Signature

On October 29, 1977, fifty members and guests attended the 20th anniversary event at The Village Inn on Tilghman Street near Route 309. The guest speaker was Dr. Louis Green of Haverford College. At this event,

# Astronomy Unit Names 3 Speakers

There will be awards, movies and talks at the Lehigh Valley Amateur Astronomical Society's 10th anniversary dinner at 6 p.m. Saturday.

Three persons will speak at the dinner to be held in the Hotel Bethlehem.

Dr. Peter van de Kamp, director of the Swarthmore College Observatory, will talk and show movies on the 1967 International Astronomical meeting in Prague.

Peter Estenscheid of the U.S. Naval Observatory and Gertrude Fox, assistant to the director at the Lehigh County cultural Center, will also speak.

Estenscheid will speak on the moon and star movements. A plaque and scroll will be presented to Henry Kawecki who donated land for the Pulpit Rock Observatory near Hamburg.

A scroll will be presented to Margaret Braener, who con tributed a Questar 3-inch refracting telescope to the society, and to George Philson, who donated a 6-inch refracting telescope to the Pulpit Rock Astronomical Park.

Ralph Schlegel received a life membership for his 20 years of service to LVAAS.

The awarding of life memberships became a normal part of these anniversary festivities. In 1982 at the 25th anniversary, George Maurer was honored with a life membership. This event was held on October 29, 1982 at the Lehigh Valley Club in Allentown. Tickets to the event went for \$12.50 per person, and 45 members attended. The keynote speaker was Dr. Harry Shipman from the University of Delaware.



1. Clyde Tombaugh, center, visits LVAAS. scholarship fund.

LVAAS celebrated 30 years of astronomy on September 20, 1987 at Lehigh University. Clyde

Tombaugh, discoverer of Pluto, was the honored guest and keynote speaker. Bill McHugh received a life membership at this event. There were reportedly 105 attendees, and a part of the proceeds of the \$25 tickets went toward the Tombaugh Scholarship to support astronomy students at New Mexico State University. LVAAS raised \$1150 for the

The 35th anniversary was celebrated at the Iacocca Center on Lehigh University's Mountaintop Campus on October 17, 1992. Forty-two members and guests attended to hear keynote speaker Dennis Di Cicco from Sky & Telescope. Tickets were \$35 a person, \$60 a couple. Mary Sue Ubben, LVAAS librarian, was given a life membership.

Carrying on the tradition, the 40th anniversary celebration was held on December 27, 1997 at the Day's Inn Conference Center at Routes 22 & 309. The special guest was Alan Hale, co-discoverer of Comet Hale-Bopp. This event was a huge success: reportedly more than 200 people attended, and Gary

Becker was awarded a life membership.

Five years later, on November 3, 2002, LVAAS celebrated its 45th anniversary: Robert Zubrin of the Mars Society delivered an engaging talk on colonizing Mars. The admission price was \$45 and the event was again held at the Day's Inn Conference Center. Peter Detterline was honored with a life membership.

The 50-year anniversary celebration was



held on October 13, 2007 at Iron Lakes Country Club. The 67 attendees who paid \$50 per person heard noted author and comet hunter David Levy give the keynote address. Bill Dahlenburg was awarded a life membership. In 2012, LVAAS took a break from the five-year cycle, and no event was held to commemorate the 55th anniversary. But in 2017 the 60th anniversary banquet was again held on November 3 at the Iacocca center, Lehigh University. About 100 attendees were treated to a keynote address by LVAAS friend Dr. Bonnie Buratti, who spoke about NASA's explorations of Saturn. The cost to attend was reduced to \$45 per person.





2. L-R Rich Hogg, Bonnie Burrati, Carol Kiely

## Why We Meet When We Do

I believe in the history of LVAAS, we have never had to be more creative with our meetings than during the current Covid-19 pandemic. We have become comfortable with Zoom meetings in place of our usual monthly face-to-face gatherings, usually on the second Sunday of the month. Did you ever wonder why we meet on this day? During its first 13 years, LVAAS had general meetings on the first Sunday of the month. The switch to the second Sunday of the month was reported 50 years ago in the October 1970 issue of The Observer.



In 1968 Congress passed the Uniform Monday Holiday Bill, which moved some federal holidays to Mondays, so that workers had a number of long weekends throughout the year. Labor Day would continue to clash with LVAAS meetings every year. It is interesting to note that in 1970, this change required a change to the LVAAS bylaws, which mandated specific meeting times. As seen below, the current constitution and bylaws give the Board of Governors much more leeway in the scheduling of

LVAAS meetings.

#### Section 2 – GENERAL MEETINGS

General Meetings shall be held each month on a date, time, and location determined by the Board and published in advance on the Society's website. General Meetings shall include announcements and





The waning crescent moon, above, and the Milky Way, left, imaged by Mike Waddell from Macungie, PA



The project has other stuff going on, but nothing that adds up to a sensible report right now. So, this is a good month to summarize the paint scheme designs that were suggested using the PaintThe40 web app.

We received a total of 27 submissions from 15 members. Since I gave each user the option of choosing a "nickname" to identify themselves, I'll refrain from going further than that here, since some of us may prefer to remain as more-or-less mysterious as we originally chose. But since it's me I will reveal that I used the name "RichH."

Here are the submissions, roughly categorized as I see them, with some commentary.





Starting off, we have two attempts to render the color scheme that existed on the 'scope before we began stripping it down for refinishing. The basic colors are the same, gray and black, though we had some differences of opinion in which would have eventually been assigned to what. In my attempt, I used a white shade to represent the bare aluminum part of the mirror cover "petals," and black for the door panel covers, since I think we'll be making them out of black plastic.





We have a few more submissions that fall into the "black and gray" category. "Connie" entered two designs, both named "Milestone," so I think it is possible that this one was unintended. But I decided to keep it in this summary.

At lower left, we have "Nebulous.". "jkmetz" added the comment "M27 Green" to this submission. I like the concept, and I like the idea of using really dark colors, even though they may disappear to black when the lights are out. There is another interesting idea that we might use to include depictions our favorite celestial sights in this project, described later in this report.

At lower right, we have "Simple black" by "Robert Mohr" (who I think we can safely assume is long-time LVAAS member and ATM Robert Mohr.) Bob's comment is that we should use this scheme to





light scattering. Personally, I agree with respect to all of the components that are forward of the mirror cover, namely the truss components, the forward frame, and the secondary mirror housing. I think we can get away with some color on the rest of the instrument.



Next we have some sports-and-academic-themed entries. My "UMich" submission was originally just a color concept; for a long time I've been thinking I would like a super-dark-blue for the truss paired with a pale but bright yellow on other parts of the scope, in some combination, and everyone I described it to wanted to cast it as the University of Michigan colors, so that's what I named it. I'm not really a fan of the school, I just like the colors. The other submissions in this category reflect obvious local or regional affinities.

"EJP" was the most prolific contributor to use the PaintThe40 app, creating designs in several of my categories. Some of his entries deserve a category of their own, which I'll call "Themes from the DC Comics Universe."



In his "Batgirl" post, "EJP" wrote "Would be nice if we could put constellations of the zodiac on the door panels. I realize there are 12 in the zodiac and only 8 panels, but I'm sure we could work out a compromise." More about this idea later.







Next, we have a few selections that I would classify as "Miscellaneous." Some of them were posted with some commentary that is worthy of being reproduced here.

First, we have "Blue Giant" by "Jeff L." "A blue giant is a huge, very hot, blue star. It is a post-main sequence star that burns helium." "Eric" submitted "Eric's crazy color scheme," writing "Wild and crazy. Would be nice if either sky maps or astro images would go on the panels and the Milky Way on the back plate. Have fun with whatever you decide." (See image, below left.) As some of you may recall, a couple of years ago we refurbished the sign at Pulpit Rock, using a technology that is most commonly used for advertising graphics on commercial trucks and vans: a sheet of heavy-duty self-stick vinyl is decorated with whatever graphics we would like, using an over-sized ink-jet printer. I inspected the sign a few days ago and it is holding up very well! So, we are considering using a similar vinyl to decorate parts of the telescope, in which case it can be anything we want, not just a solid color.



"RonK" suggested the same idea in his "Basic black with vinyl accents," above right. He wrote, "Door panels (blue) would actually be vinyl, each showing a different constellation." (I will note that our Pulpit Rock Maintenance Director, Ron Kunkel, worked with me on the sign refurbishment, and that some of us have been talking about the idea of using the vinyl on the 40" for a while now.)

"thedobman" created a design entitled "LVAAS HUBBLE," image at right.





Below left, we have "Logo Image" by "Dave." I think the intention may have been to capture the colors used in the LVAAS logo, but due to the monitor-settings issue it might not come through that way for you. (Note, this is probably not the "Dave" you are thinking of. Only he, and I as the project admin, know which "Dave" it really is, and it isn't that one. Or is it?)





The second of two submissions entitled "Milestone," by "Connie," is a very appealing black-and-white scheme. To me it is also evocative of the Hubble Space Telescope.

Below left, we have another similar idea, "Harmony" by "Old Sage." He writes, "The theme is of Black & White working together to move our understanding of the universe forward." A beautiful sentiment!

"Patriotic" by "EJP" needs no explanation.







I entered this design into the app because I thought Gwyn was going to do it, but I got impatient. There is another unfinished telescope, currently stored in the shed at Pulpit Rock: a 20" Cassegrain system that was removed to make room for the 18", and it was painted this striking blue color. Somebody told me that the paint had been purchased with the 40" in mind, but then it was used for the 20".

Finally (on this page and the next) we have a category that was the most popular in terms of design submissions: red and black. It has some things going for it.

First, it works well with the practical idea of finishing the forward components in a flat black, and it looks sharp. Also, the red color would not darken as much when the white lights are turned off and only the red observing lights remain illuminating the observing deck.

"Inferno Orange" by "Bill" was posted with the comment "2016 Toyoda Tacoma" (sic). I think many of us are familiar with seeing a truck that fits that description at LVAAS events.

One day, driving along Kistler Valley Road towards Pulpit Rock, I saw a beautiful Cadillac convertible painted in black and a metallic candy-apple orange-red. I decided to copy that for a proposed design.







Finally, we have three variations on the red-and-black concept that were posted by "EJP," and I am again going to include "Go Flyers" by "Jeff L" (previously shown in the "sports" category) because it also fits in here.

So that's it! Thanks to everybody who tried out the app and submitted some ideas. If I had to guess, I would say that we will probably start off with a base finish that is all-black, using a combination of paint and powder coating, and then we will accent certain areas with some graphics that we'll design and have printed on vinyl. And, we'll lean towards red being a predominant color in those graphics.

Stay tuned for more news on the 40" project, next month.

# by Gary A. Becker

StarWatch



# **Be A Mars Watcher**

If there ever was a planet that humans might migrate to and inhabit, concurrent with our present state of technological development, it's got to be Mars. It has the basic ingredient to sustain human life, water. There is no need to spend billions of dollars transporting the most common molecule in the universe to its surface from Earth. Water is present in a frozen state in the soil, and as a liquid in cavernous expanses beneath its surface.

Water, composed of two hydrogen atoms and one oxygen atom, can be dissociated into oxygen to breathe. Hydrogen mixed with oxygen can also power internal combustion engines. Combined with Mars' carbon dioxide atmosphere, the atoms can be chemically rearranged to produce an abundant supply of rocket fuel. In other words, humans going to Mars can "live off the land," including the growing of crops, in indoor structures. They do not have to take everything with them.

Elon Musk of Space-X wants to die on Mars, and not in a failed attempt to land on the planet or in an accident after establishing residency there. He wants to die of old age on the Red Planet, and at the rate his company is making progress in the entrepreneurial space race, he could very well be on his way, travelling to Mars in the next decade or two to fulfill his dream.

Right now, humanity's next best address to expand its potential for survival is easily visible in the eastern sky, a brazenly bright, pinkish, starlike object rising just after sundown, but better placed higher in the east by 10 p.m. Because of orbital characteristics, Earth and Mars are at their closest distance on October 6 when the two planets will be separated by a mere 38.6 million miles.

Seven days later on the 13th, Earth passes directly between Mars and the sun, positioning Mars 180 degrees from Sol. Mars will be at opposition, rising when the sun sets and setting when the sun rises. The full moon does this each month, but for Mars, we have to wait a lengthy 780 days between oppositions.

Plus, not all oppositions are favorable. Because Mars circles Sol in a more oval-shaped orbit than the Earth, oppositions can occur when Earth passes Mars near to the Red Planet's greatest distance from the sun. The 2012 March 3 opposition saw Mars at a distance of 62 million miles, an aphelion opposition, occurring when Mars was almost at its greatest distance from the sun. Mars was bright, but fainter than the brightest luminary of the nighttime sky, Sirius the Dog Star, which was also visible at the same time.

The October 13 opposition occurs near perihelion, meaning that Mars will be near to its closest position to the sun. Mars will appear about four times brighter than it did in 2012, but not as bright as during the year 2003 when the August 28 opposition brought Earth and Mars to within 34.64 million miles, the best positioning in 60,000 years (September 24, 57,617 B.C.). That record won't hold for much longer, however. Jupiter's gravity is influencing the Martian orbit, causing it to become more elongated, producing closer perihelion oppositions. The new record will be set on August 29, 2287 when Mars will be 43,244 miles closer to us. For those hearty souls, you can enter that date into your long-term day planners.

© Susan B. and Gary A. Becker for StarWatch <u>beckerg@moravian.edu</u> or <u>garyabecker@gmail.com</u> <u>astronomy.org</u> <u>facebook.com/StarWatchAstro/</u>



# Night Sky Notebook for October by Peter Detterline



http://nightskynotebook.blogspot.com/



# Exciting, New, Live-Action Game!!!

# **RED SHIFT REVENUE**

- Operate an Astronomy Club Gift Shop!
- Optimize product lines!
- Purchase inventory!
- Manage production!
- Complete sales!
- **Report revenue and expenses to the Board!**
- Help a great organization do a valuable public service!

As our LVAAS Member Services Director, you will enjoy the challenge of operating the Red Shift Gift/Snack Shop at LVAAS Public Star Parties.

> The only way to lose is to not play! Contact <u>director@lvaas.org</u> to sign up!



Looking for something to read? Looking to share the experience with fellow LVAAS members? Join our book club!

# Here's the Plan:

<u>Step One: Express your interest.</u> If you are interested, let me know either in person, or via email: <u>blaine@ieee.org</u>. I will add you to our private Facebook group. If you don't have Facebook, let me know, we can setup an email list and communicate that way too.

<u>Step Two: Choose a book</u>. We will do this via our private Facebook group and email (if there are any who do not use Facebook.) So far the following are in the running:

- 1. The Big Picture, by Sean Carroll (\*current choice)
- 2. Astrophysics for People in a Hurry, by Neil deGrasse Tyson
- 3. Moonshot: What Landing a Man on the Moon Teaches Us About Collaboration, Creativity, and the Mind-set for Success, by Richard Wiseman
- 4. The Trouble with Gravity: Solving the Mystery Beneath Our Feet

<u>Step Three:</u> <u>Set the meeting schedule</u>. Our plan is to meet in the library, but we can augment that with online conversations.

<u>Step Four: Read, enjoy, discuss, and learn!</u> We can do this both in-person and through online discussions.

This is the first time we are doing this, so I consider it "experimental." I am completely open to suggestions and changes as we go.

Thank you!

Blaine Easterwood, Education Director

Sky Above 40°33'58"N 75°26'5"W Wednesday Oct 14 2020 00:00 UTC



*Your Sky was implemented* by John Walker in January and February of 1998. The calculation and display software was adapted from Home Planet for Windows.

The GIF output file generation is based upon the ppmtogif module of Jef Poskanzer's pbmplus toolkit, of which many other components were used in creating the images you see here.

ppmtogif.c - read a portable pixmap and produce a GIF file

Based on GIFENCOD by David Rowley

Lempel-Zim compression based on "compress"

Modified by Marcel Wijkstra

Copyright © 1989 by Jef Poskanzer.

Customize Your Sky at http://www.fourmilab.ch/yoursky/

### **OCTOBER 2020**

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	
				Full Moon <u>01</u>	<u>02</u>	<u>03</u>	
04	05	<u>06</u>	<u>07</u>	08	Last Quarter Moon 09	10	
General Meeting - <u>11</u> held on-line 7:00 PM	12	13	14	Astro Imaging - 7:00 <u>15</u> PM - CANCELED	New Moon <u>16</u>	17	
Deadline for <u>18</u> submissions to the Observer	<u>19</u>	20	21	22	First Quarter Moon 23	Star Party - 24 CANCELED	
LVAAS Board of 25 Governors Meeting	26	27	28	<u>29</u>	<u>30</u>	Full Moon 31   LVAAS member   wedding party photos	

## NOVEMBER 2020

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY		
<u>01</u>	<u>02</u>	<u>03</u>	<u>04</u>	<u>05</u>	<u>96</u>	<u>07</u>		
Last Quarter Moon <u>08</u> General Meeting - South Mountain 7:00 PM	<u>09</u>	<u>10</u>	ш	Astro Imaging - 7:00 <u>12</u> PM - CANCELED	13	<u>14</u>		
New Moon <u>15</u>	<u>16</u>	17	<u>18</u>	<u>19</u>	<u>20</u>	First Quarter Moon 21   Star Party CANCELED 21		
Deadline for 22 submissions to the Observer	23	24	<u>25</u>	<u>26</u>	27	<u>28</u>		
LVAAS Board of 29 Governors Meeting	Full Moon <u>30</u>							

# 2020 LVAAS Event Calendar

### \* Due to the COVID pandemic, please see the website for updates on all events

2020 LVAAS Event Calendar												
	Sundays			Thursday Saturday Mondays	Mondays	Multi-Day	Moon Phase					
	Gener time	al Meeting Date/location	Board meeting	Observer submission deadline	Astro Imaging	Star Parties	Scouts at S. Mountain	Weekends Scouts at Pulpit R.	New	First	Full	Last
January	2:00 PM	12 Muhlenberg	26	19	16	no mtg		no camping	24	2	10	17
February	2:00 PM	9 Muhlenberg	23	16	13	no mtg		no camping	23	1	9	15
March	2:00 PM	8 Muhlenberg	29	22	12	7		6 - 7 - 8	24	2	9	16
April	7:00 PM	5 S.M.	26	19	18	4		10 - 11 -12	22	1 30	7	14
Мау	7:00 PM	3 S.M.	31	24	16	2		8 – 9 – 10	22	29	7	14
June	7:00 PM	14 S.M.	28	21	13	27		5-6-7	21	28	5	13
July	5:00 PM	11 S.M.	26	19	18	25		3-4-5 31	20	27	5	12
August	7:00 PM	8 Pulpit	30	23	15	22		1 – 2	18	25	3	11
September	7:00 PM	13 S.M.	27	20	12	26		4 - 5 - 6	17	23	2	10
October	7:00 PM	11 S.M.	25	18	15	24		2-3-4 30-31	16	23	1 31	9
November	7:00 PM	8 S.M.	29	22	12	21		1	15	21	30	8
December		12	27	20	10	no mtg		no camping	14	21	29	7

July, Aug & Dec are Saturday meetings with rain date on Sunday Jan, Feb & March meetings are at Muhlenberg College

August meeting is at Pulpit Rock December meeting / Holiday Party \*\* check website for time

NEAF Cherry Springs S.P. Stellafane Black Forest S.P. MegaMeet

April 4 – 5 June 18 – 21 Aug 13 – 16 Sept 18 - 20 (not confirmed) May 22-24

# **Publishing images is a balancing act!**

When preparing your images for publication in The Observer, please consider the following guidelines:

### Put the quality in:

- Considering the "print" size of the image, make sure you have at least 150 pixels/inch.
- Use a reasonably good quality for the JPEG compression ratio.

### But watch the "waistline"!

- Don't go too much above 200 pixels/inch max.
- Use the lowest JPEG quality that still looks good!
- Shoot for <300KB for a 1/2 page image or <600KB for a full page.

**Tip:** If you're not Photoshop-savvy, you can re-size and compress undemanding images ("human interest" not astroimages), with an online tool such as:

<u>https://www.ivertech.com/freeOnlineImageResizer/freeOnlineImageResizer.aspx</u>. It will also tell you the pixel size and file size of your original, even if you don't download the processed copy.

*The Observer* is the official monthly publication of the Lehigh Valley Amateur Astronomical Society, Inc. (LVAAS), 620-B East Rock Road, Allentown, PA, 18103, and as of June 2016 is available for public viewing. Society members who would like to submit articles or images for publication should kindly do so by emailing The Observer editor, Frances Kopy at editorlvaas@gmail.com. Articles submitted prior to the Sunday before the monthly meeting of the board of governors (please see calendar on website) will appear in the upcoming month's issue. PDF format is preferred. Early submissions are greatly appreciated. Articles may be edited for publication. Comments and suggestions are welcome.

LVAAS members please feel free to submit ads for astronomy equipment you have for sale, and additionally you may sponsor a maximum of three ads from non-members per year. Every attempt will be made to include submissions in a timely manner.

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