

amateur ASTRONOMER



sharing the wonder and science of astronomy



Astronomy Fair 2022

On August 19th, around 50 DVAA members and friends got together for a "Take Your Observing to the Next Level" Astronomy Fair and picnic in Fort Washington State Park. This event took the place of our August Monthly Meeting: See pp. 7-8 for more photos.

Photo credit: Mitch Berger

PLAN ON IT!

Sept. 3 (7:30 pm - 10:30 pm) Public Star Party at Valley Forge National Historical Park model airplane field. Free and open to the public (pre-registration encouraged). Backup date Sept. 2. [More info.](#)

Sept. 7 (7:30 pm) Astrophotography Workshop on Zoom. See p. 5.

Sept. 9 (7:30 pm) In-person General Meeting at Radnor Township Building; will also be livestreamed. See p. 5. [More info.](#)

Sept. 21-25 York County Star Party #2 at Susquehannock State Park. See p. 18 for more information on this and other regional star parties.

Oct. 2 (1-4 pm) Fall Harvest and Great Pumpkin Patch. Community event at The Willows in Radnor. Telescope operators needed for solar observing; white light & H-alpha. [More info.](#)

Oct. 8 (6:30 pm - 9:30 pm) Public Star Party at Valley Forge National Historical Park model airplane field. [More info.](#)

Oct. 12 (7-9 pm) Anderson Farm Park Star Party [More info.](#) Cloud dates Oct. 13 14.

Oct. 15 (5:30 pm) Dark Sky & Telescope Clinic #2 for Beginning and Intermediate Observers at Green Lane State Park. Rain/cloud date Oct. 16. See p. 9. To register go to www.dvaa.org.

FOR ALL EVENTS, SEE THE DVAA WEBSITE www.dvaa.org FOR ADDITIONAL INFORMATION AND UPDATES.

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A link to Dave Mitsky's Celestial Calendar can be found at dvaa.org on the Home Page.

Welcome New DVAA Members!

Rebecca G. Cornacoff (Collegeville)
Brian Crozier (Philadelphia)
Phaedra Doukakis-Leslie (Media)
Mathew, Emerson, & Kaia Leslie (Media)
Utkarsh P. Singh (Audubon)
Richard C. Torrance Jr. (Philadelphia)
Aalap Verma (Philadelphia)
Kristy Walsh (Philadelphia)
Aditya Nathan (Exton)

We welcome all new members to enjoy the most our club has to offer by participating in DVAA activities. You are encouraged to ask questions and pursue your interests in astronomy through the club.



We suggest that new members attend our observing events and special interest group meetings, or volunteer to help with an outreach event or committee. Participation can advance your skills and enjoyment of the hobby and help you get to know your fellow members. New members are entitled to all benefits of membership.

Brian Lee
Welcoming Committee Chair
welcoming@dvaa.org

DVAA Board & Committee Chairs

Title	Name	Email
President	Harold Goldner	president@dvaa.org
Vice-President	Jan Rush	veep@dvaa.org
Secretary	Mike Tucker	secretary@dvaa.org
Treasurer & Astronomical League Coordinator	Louis Berman	treasurer@dvaa.org
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Newsletter Committee	(see note at right)	newsletter@dvaa.org
Night Sky Network	Al Lamperti	nightsky@dvaa.org
Light Pollution Abatement	Barry Johnson	lpollution@dvaa.org
Observing	Andrew Hitchner	observing@dvaa.org
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Programs	Jeremy Carlo	programs@dvaa.org
Publicity	Bill McGeeney	publicity@dvaa.org
Scope Rentals	Joe Lamb	rentals@dvaa.org
Website	Louis Berman	website@dvaa.org
Welcoming	Brian Lee	welcoming@dvaa.org
Women of DVAA	Jan Rush	women@dvaa.org

Mark Your Calendars!

Upcoming Monthly Meetings

Friday, September 9, 2022: Dr. Dave Goldberg from Drexel on Gravitational Lensing. *Details on p. 5.*

Monthly Meetings have returned to the Radnor Township Building. All are welcome to attend in-person. Meetings will also be livestreamed on [YouTube](#).

Meeting Location: Radnorshire Room
301 Iven Avenue, Radnor, PA 19087

Upcoming Meeting Dates: (all Friday evenings): Sept. 9, Oct. 14, Nov. 11, and Dec. 9.

2022 Public Star Parties

DVAA public star parties are held at Valley Forge National Historical Park on the Model Airplane Field. ([Google Maps](#)). **Weather Hotline: 484-367-5278.**

The monthly star party has returned to the traditional public telescope viewing format. The Board will continue to monitor the pandemic status throughout the year. Check the website (www.dvaa.org) for updates.

Public Star Party dates for 2022 (all Saturday evenings): Sept. 3 (7:30), Oct. 8 (6:30), Nov. 12 (5:00).

New this year: Backup dates will be designated the Friday preceding each date above. Check your email or the website, or dial the hotline, for the final weather call.

Newsletter Editorial Committee: Jeremy Carlo, George Keigh-ton, Tom Nolasco, Dana Priesing, Jan Rush and Barclay Thorn.

If you would be interested in joining us on the Newsletter Committee, or serving as guest editor for one month, just drop us a line at newsletter@dvaa.org — we'd love to have you on board, regardless of your experience level! Online tutorials are available to get you quickly up to speed.

Thanks to Jeremy Carlo for taking the lead for the July and August issues. Jan Rush is the lead editor for September.

Follow the DVAA on Facebook and YouTube!



[DVAA Facebook group](#)
[DVAA Photo Enthusiasts](#)
[YouTube Channel](#)



Not a Viewing Report

Harold Goldner [email](#)



So I'm sitting talking with Phil who is still in his work uniform (he's a shop steward at a manufacturing plant down on Route 6) and we've each bought each other a few beers by this point (he's drinking Busch, I'm drinking Blue Moon...complete with mandatory orange) and we're talking about Mustangs, and rebuilt Ford F150's and his half brother he never knew about and I'm thinking that I don't know anything of his world, other than we've clearly overlapped in physical space several times in Hatfield, in Coudersport and in Virginia.

Meanwhile, I'm reading Janna Levin's delightful little book (really, it's little, you can fit it in a pocket in cargo pants and pull it out to read anywhere) "Black Hole Survival Guide," and, spoiler alert, there's no surviving a black hole. Once you cross the event horizon, the outside world will appear to move incredibly quickly, you'll see entire stars and solar systems and galaxies evolve and die until you are spaghetti-fied and ripped to shreds as you approach the singularity. And the book is sitting right there on the bar as I chat with Phil, as relevant to him as my entire life might be. Phil, whose en-

tire family lives in Coudersport and always has, versus me, whose family is spread from Cambridge, MA south to North Carolina and west to Portland, OR could not be further apart than, oh, let's say M22 and Earth (9,785 light years) and yet here we are at Vinny's Pub in Coudersport sharing a few beers together.

Hours before I spent my third consecutive night on the Astronomy Observing Field of Cherry Springs State Park. I've long since learned the lesson from Janet Rush. Sure, set up that tent, but get yourself a room in town and park across the street from the astronomy field so you can sleep in a normal bed. The tent becomes the equivalent of an equipment shed. I had spent the entire day studying Gary Seronik's excellent "Binocular Highlights" (make sure you have the second edition; it has ten more entries than the original). I had run into the Dollar General near the Sheetz in Coudersport and picked up (among other things) post-it flags and spent breakfast at Fezz' Diner annotating all the targets I planned to locate that night. I used one color for the targets I needed to hit earlier

in the night, another for the targets that are up all night, yet a third color for the targets not up until after midnight (the Pleiades, for example) and a fourth tab for the targets which I had no idea of their location (I have only slightly fewer fingers and toes than constellations I can recognize in the sky),

The night had gone well, very few of us on the field on a Sunday evening, until my new friend, Mark Casazza, skilled astrophotographer and curator of ClearSkyAlarmClock.com and several other reliable websites for amateurs like us, cautioned me that my headlamp, albeit taped with red, was illuminating the entire field. "Sir, Sir," as Jeremy would say. He loaned me weak batteries and I stopped referring to all my tabbed sites (and then promptly lost my pen in the darkness so I couldn't keep my logs anyway.) Mark had just completed *six straight nights of clear skies* at the park and he was admittedly exhausted and facing a long drive back to Dayton, OH (but I'm looking forward to great photographs).

It had been a good night, as had been the other two, even with their mandatory headaches and frustrations . . . (Why can't I calibrate my finder scope? Why did my one of my heater bands start sparking and nearly start an electrical fire? Why didn't my second battery fully recharge? Where did I put that shorty Barlow? Why don't I just use the Badinov mask to focus my Zoom lens at full magnification? And where the hell is Mars?)

I was in heaven. Really, for all of it. For every frustrating moment and despite every annoyance. I recognize that a proper viewing report should include targets acquired and how, and there were lots of them; most of the planets, several dozen Messier objects, many captured in my binoculars, which is, for me, quite an accomplishment. But I don't



Continued on next page

Not a Viewing Report (cont.)

Continued from previous page

write those types of columns, leaving it to the members more qualified to do so.

Yeah, I broke my solar filter the next day breaking camp in anticipation of thunderstorms (which I enjoyed watching from the porch of my cabin). I finally found a real “red” LED headlamp at the Korner Store on Route 44, paying way too much for it. Also picked up that great Cherry Springs State Park license plate only to realize that I don’t have a license plate holder on the front of my car. There are always these little annoyances, but that’s what makes it all fun. You never know what will happen.

It isn’t the slightest bit perplexing that I didn’t think about any of my clients. I didn’t think about any of the pressing “to-do’s” that need to be addressed when I return. I didn’t even think about what I was going to do tomorrow after sleeping late. I was perfectly happy just to stare up at the sky, that bright, Cherry Springs State Park sky and ponder, “I don’t know what most of all that is, but it sure is pretty, shiny and bright.”

For hours, until well after midnight for three nights I lay back in my “anti-gravity” lounger, gazed up, and with very little effort saw the sky in three dimensions --- the scattered stars in the foreground of the bright Milky Way; Andromeda, the Double Cluster, and many other Messier objects merely naked eye targets --- feeling myself spinning on the edge of a colossal Merry-go-Round roughly 7,917.5 miles in diameter looking outwards into the universe, into the past, at least 3.4 millions years of it.

All these many hours (and three beers) later I get it that we *are* all together on that Merry-go-Round. You, me...and Phil.

Clear skies.



Announcing the DVAA Youth Astronomy Awards for 2022-2023

Cash prizes for elementary, junior high and high school students!

Click on the “Youth Awards” button on the home page. www.dvaa.org.

Next Monthly Meeting: Sept. 9, 2022

Gravitational Lensing: A View of the Warped Universe

Dave Goldberg, PhD
Professor of Physics, Drexel University



About a century ago, Albert Einstein developed his theory of general relativity. It not only explained already observed phenomena like the anomalous precession of Mercury, but also described a universe in which light would trace paths through the folds and curves of spacetime, resulting in distorted images -- an effect known as "gravitational lensing." In this talk, I'll describe how space and time get bent, how gravitational lensing was first confirmed, and how it has become an important tool in our measurement of the dark universe. I'll delve a little into my own work, and finally, I'll talk about how the exciting new images from the James Webb Space Telescope (JWST) can be analyzed with gravitational lensing to provide inside into some of the earliest cosmic structures.

Dave is a cosmologist specializing in gravitational lensing. He has written two popular science books on the interface between cosmology and particle physics in the early universe

[The Universe in the Rearview Mirror: How Hidden Symmetries Shape Reality](#), D Goldberg. Dutton. (2013)

[A User's Guide to the Universe: Surviving the Perils of Black Holes, Time Paradoxes, and Quantum Uncertainty](#), D Goldberg & J Blomquist. Wiley & Sons: Hoboken. (2010)

*The meeting will be held in-person at the Radnor Township Building.
Informal gathering at 7:00, program begins at 7:30pm.*

*The meeting will be live-streamed on the DVAA YouTube Channel:
www.youtube.com/DelawareValleyAmateurAstronomers*



Astrophotography Workshop on Zoom

Wednesday, September 7 at 7:30 PM
[Zoom Link](#)

This will be an informal open session. Anyone who has any questions which they would like addressed can send an email to astroimagers@dvaa.org. Or just show up!

[Youtube recordings of past
Astrophotography Workshops](#)

Congratulations to Us!

If you have received the Autumn 2022 issue of the Astronomical League's quarterly publication, *The Reflector*, you might have noticed the happy news that the DVAA Newsletter came in third place for a Mabel Sterns Newsletter Award! Special congratulations to George Keighton and Tom Nolasco who were lead editors of the two issues submitted for consideration.

Would you like to help with this newsletter?

We are currently looking for additional people interested in serving on the editorial board for the **award-winning** *Delaware Valley Amateur Astronomer*.

Generally this would involve being the "lead editor" for approximately 2 issues per year. (You choose which months!) For the rest of the year, you provide advice/feedback to the lead editor for that month.

Editing is done in Microsoft Publisher (the Club will get you a copy if you don't have one!), which is similar to Microsoft Word but has some additional features. All distribution is through the club website (no printing / folding / mailing / licking stamps)!

If interested, contact us at newsletter@dvaa.org!

Astronomy Course: Main Line School Night

(Adult Continuing Education)

Al Lamperti and Jan Rush will be teaching an introductory astronomy course, "Astronomy: Celestial Wonders." Three 90-minute sessions on Monday evenings Oct. 10, 17, 24. [Registration and more info.](#)

2022 Astronomy Fair



The 2022 DVAA Astronomy Fair was held August 19th at Fort Washington State Park. Festivities took place in a large covered pavilion and an adjacent field.

Photo: Mitch Berger



Forty-seven attendees circulated among the exhibits covering a variety of topics along the theme of "Take Your Observing to the Next Level."

Photo: Mitch Berger

2022 Astronomy Fair (cont.)



Exhibits included Observing Solar Eclipses (Joe Lamb), Solar Photography (Tom Nolasco), Big Binoculars (Louis Berman & Joe McCormick), Big Dobsonians (Al Lamperti), Astrophotography (Gary Trapuzzano), Observing Tools (Andrew Hitchner), Light Pollution Abatement (Bill McGeeney) and Celestron Gizmos and Gadgets (Jan Rush).

Photo: Mitch Berger

In addition to the exhibitors, many thanks are due to Brian Lee for welcoming everyone to the event, Louis Berman for setting up a DVAA slide presentation, Tracey Trapuzzano and Anne Lamb for staffing the refreshments table, and Mitch Berger for the photography.

Photo: Mitch Berger



In an ironic twist, the top door prize, a 60 mm refractor, was won by Vita Lamperti, who was delighted to acquire her own telescope!

*Photo credits:
Jan Rush (left)
Al Lamperti (right)*

Dark Sky Observing Clinic #2 for Beginning and Intermediate Observers

Green Lane Park

Oct. 15, 2022, 5:30-9:00 pm (Weather backup date Oct. 16)

On August 20th, 11 attendees (9 telescopes) and 7 DVAA staffers were treated to a beautiful dark sky at Green Lane Park. If you missed this clinic, or if you attended on Aug. 20th and would like another dose, we will be offering one more observing clinic for members and their families before the weather turns colder.

Like the previous one, this clinic will be personalized to your level of experience and address your specific questions. Bring your telescope or binoculars and your questions about setup, alignment, viewfinders, eyepieces, observing tools, and celestial targets. Master Observer Al Lamperti will point out the season's constellations and the locations of October's best celestial objects.

Provided the skies cooperate, many of August's celestial targets will still be visible, but we will be adding Jupiter and Mars (maybe even Uranus and Neptune), a better-placed Andromeda galaxy, and the autumn constellations.

The clinic will take place at the field adjacent to Red Trail Parking at [Green Lane Park, 2067 Knight Road, Pennsburg PA 18073](#) (approximately 40 minutes' drive from Radnor). Advance registration for attendees is essential to ensure that we have the right number of DVAA staff on site. During the registration process you will have the opportunity to provide information on any equipment you will be bringing to the clinic to ensure that expert help for your specific scope (or binoculars) will be available. This clinic is open to DVAA members and their immediate family members. Any seasoned DVAA observers who would like to join the staff are welcome; please email veep@dvaa.org if you would like to participate. Please arrive on time by 5:30 pm in order to allow setup during daylight.

We invite newer observers, and any members who would like some individualized telescope time with an expert observer, to join us! To register: [Telescope Clinic #2](#)

Below: Last month's dark sky observing clinic at Green Lane Park. Photo credit: Fran Jennings



Stellafane 2022

Tom Nolasco [email](#)

The first Stellafane star party was held on July 3, 1926 with 29 people attending. Today, close to a thousand attend. Stellafane is unlike any other star party you are likely to attend.

The Stellafane Convention is sprawling in size, divided into a Stellafane East and West. You can take a pleasant, though hilly, walk through the woods, or take the bus which is provided free of charge between the two venues. The West side is the site of the original Stellafane and it is where the famous Pink Clubhouse (a treasure trove of early amateur telescope making photographs), Porter Turret telescope and the Simoni Solar observatory are located. The Porter Turret, with its 12 inch f/17 newtonian reflector, was open during the day with excellent projected views of sunspots, and at night for views of the night sky. The Simoni observatory, with its restored 1930's spectrohelioscope, was open both Friday and Saturday for hydrogen alpha views of the solar chromosphere. Stellafane East is home to the McGregor Observatory, with its 13 inch f/10 Schupmann telescope, Breuning Domed Observatory, Flanders Pavilion, Amphitheater, and a permanent kitchen facility along with over 10 acres of camping sites. Both observatories were open for nighttime viewing. Stellafane East also had a large tent set up for the telescope making classes.

Unlike most star parties where there are only a few daytime activities, during the daytime Stellafane is hopping. There were technical talks in the Flanders pavilion for the beginner, intermediate and advanced amateur. I attended two excellent talks on Friday, one by Kevin McCarthy on his new twist on the Polar Equatorial Telescope and one by Phil Harrington reviewing the progression of amateur telescopes from the early 1900's to present day.

Telescope making demonstrations ran on both Friday and Saturday from 10AM thru 5PM. I stopped by during the pitch lap demonstration (I always love the smell of hot pitch). If you have ever thought about making your own telescope mirror this is a great place to take a crash course to see if this is something you might want to try. The Springfield Telescope Makers also had their mirror testing station up and running. Anyone can bring their own mirror to be tested.

The timing was good for white light solar observing with the Porter Turret, as a nice sunspot group was crossing the face of the Sun. There was also a few nice prominences visible through the Cook Spectrohelioscope in the Simoni observatory.

The, non-commercial, swap tables opened early Saturday morning (like 6:30 AM early). This provided an opportunity to pick up an eyepiece, telescope mount, mirror blank, classic astronomy book, binoculars, and miscellaneous telescope parts and accessories. Unlike last year, there were a fair number of glass mirror blanks for sale. I picked up a dovetail I had been thinking about at a good price.

After the swap tables I attended one of my favorite parts of Stellafane, the mechanical telescope competition. This is where telescope makers show off the mechanical aspects of their telescope or accessories that they made or restored. This year there were ten entrants in the competition, which is fewer than usual,



Photo: Springfield Telescope Makers, Inc.

but still a good time.

The optical competition was held on Friday night. This year however, there were only three entries in the competition. That is unheard of, usually there are nine or ten entrants. Two of the 3 won optical awards.

Saturday evening was clear and dry, allowing the closing activities to be held at the outdoor amphitheater. The evening began with a children's raffle followed by the famous Stellafane raffle which culminates with several Televue eyepiece bags each valued at over \$1,000.

Next were the award presentations for the winners of the telescope optical & mechanical competitions. This was followed by two excellent talks. First, a brief presentation by Dr. Kristine Larsen of Central Connecticut State University, entitled "Holding up Half the Sky: Women in Astronomy," followed by the keynote address speaker, Dava Sobel, on "Building the Glass Universe." Dava, a former New York Times science reporter, has written several best selling books including "Longitude" and "Galileo's Daughter." Her keynote address was based on her recent book "The Glass Universe" which chronicles the women who worked at the Harvard College Observatory in the nineteenth century classifying and measuring the stars.

While not as dark as Cherry Springs, Stellafane enjoys Bortle 4 skies. This year it was cloudy on Thursday night, Friday was clear until about 1AM and Saturday night was clear all night.

Stellafane is a place where you will see many familiar faces from previous conventions and you can find people who are knowledgeable in many aspects of the hobby. Telescope makers love to talk about the latest scope they have built or what they are working on. I always learn many new things at each convention, and it's a place where I get fired up and recharged to try new things.

Here is a link to a short, bird's eye view video, taken with a drone camera during the 2022 convention.

https://www.youtube.com/watch?v=nosydDoP_s0

The next page is a small collection of some of the scenes at this year's convention (*Photo credits: Tom Nolasco*).

Stellafane 2022 (cont.)



August Images

Doug Lentz captured this fantastic view of the Trifid Nebula (Messier 20), a large star-forming region in the constellation Sagittarius. The Trifid Nebula consists of an open cluster surrounded by an emission nebula, a reflection nebula, and a dark nebula within the emission nebula. The open cluster in the upper left is known as Webb's Cross (Messier 21).

Acquired August 24th at Green Lane Park. Williams Optics ZWO ASI 533MC. Optolong L-pro filter. 16 two-minute exposures. Stacked in Siril. Denoising, sharpening, and "much unethical manipulation of stars" in GIMP according to the imager.



Saturn is now appearing in prime time! Tom Nolasco captured this lovely view on August 24th with his homebuilt 10-inch f/8.62 Newtonian reflector.

If you would like to participate in DVAA's active astrophotography community, visit the [Astrophotography Resource Page](#) on the DVAA website.

Test Your Observing Skills

Al Lamperti [email](#)

As you accumulate more and more experience at the eyepiece, you begin to realize that your eye perceives objects fainter than you originally were able to see. Whether you now see that really faint companion of your challenge double star or can now see faint arms in a galaxy, you constantly strive to push the limits.

A combination of factors, besides experience, play into this equation. Accurate collimation of your telescope, dark skies, a non-turbulent weather pattern over your observing site and excellent transparency combine to make your observing session an unforgettable experience.

One easy project that can be done almost anywhere is to carefully observe the moons of Jupiter. Europa and Io are approximately the same diameter (3,130 and 3,630 km) with Callisto and Ganymede 35-50% larger, respectively (4,800 and 5,260 km). These diameters translate into approximate angular diameters of 1.0", 1.2", 1.6" and 1.7". Can your eye appreciate the differences?

Io and Europa also have nearly identical albedos, i.e. the same degree of reflectance (0.6) yet Ganymede is a bit "darker" with an albedo of 0.4 and Callisto the "darkest" with a very low albedo of 0.2. Can you detect those differences? Interestingly these differences in albedos can make the moons still visible as they

transit across Jupiter. The difficulty arises when the background clouds of Jupiter are light or dark, almost matching that of the moon itself. Yet if Callisto is placed in front of a lighter cloud, we see it easier than if it were in front of a darker cloud. The reverse is also true if Io or Europa, being relatively light, are placed in front of a darker cloud (equatorial belt).

You can challenge yourself with Jupiter's moons in either one of two ways. First, observe and record where you think Io, Ganymede, Callisto and Europa are in relation to Jupiter that evening. Then later check yourself with the information available in a monthly astronomy magazine or your favorite planetarium program. Two, on each of four small post-it notes, write down the name of the moon, its diameter and albedo. Then check the positions of the moons for that evening and arrange the post-it notes on a larger piece of paper accordingly. Bring this information with you to the eyepiece and determine whether you can actually pick out any differences.

As with any difficult object, keep persisting and try again another night when the combination of factors may be more to your advantage. (It worked for me when finally observing the Horsehead Nebula in Orion after 4 unsuccessful attempts.)

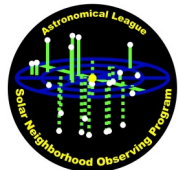


News from the Astronomical League

New Observing Programs

Two new Observing Programs were recently adopted, and are now live on the Astronomical League Website.

The Solar Neighborhood Observing Program (Marie Lott is the interim Coordinator): This is a program designed to educate the participants about the stars that are the sun's nearest neighbors. <https://www.astroleague.org/content/solar-neighborhood-observing-program>



Bennett Observing Program (Al Lamperti is the interim Coordinator): This is a program of deep space wonders that is a southern sky equivalent of the Messier Observing Program. It is a complete (107 objects) Observing Program of its own, but it will also be a southern sky alternative to the Messier Observing Program as a requirement for the Master Observer Award. <https://www.astroleague.org/content/bennett-observing-program>

Program Coordinators Needed

It is once again time to search for [Coordinators for some of our Observing Programs](#). We will begin the selection process in January 2023, but you may submit your name now, noting for which Coordinator roles you are applying. Currently we are looking for members who are interested and willing to help as a Coordinator for the following programs:

- Bennet Observing Program
- Galileo's TOES Certification
- Galileo's TOES-II Certification
- Jupiter Observing Program
- Mentor Award
- NASA Observing Challenge Certification
- Solar Eclipse Special Observing Award - 2024 (planned, not yet approved)
- Solar Neighborhood Observing Program
- And potentially others . . .

The Summer Triangle's Hidden Treasures

David Prosper



This article is distributed by NASA's Night Sky Network (NSN). The NSN program supports astronomy clubs across the USA dedicated to astronomy outreach. Visit nightsky.jpl.nasa.gov to find local clubs, events, and more!

September skies bring the lovely **Summer Triangle** asterism into prime position after nightfall for observers in the Northern Hemisphere. Its position high in the sky may make it difficult for some to observe its member stars comfortably, since looking straight up while standing can be hard on one's neck! While that isn't much of a problem for those that just want to quickly spot its brightest stars and member constellations, this difficulty can prevent folks from seeing some of the lesser known and dimmer star patterns scattered around its informal borders. The solution? Lie down on the ground with a comfortable blanket or mat, or grab a lawn or gravity chair and sit luxuriously while facing up. You'll quickly spot the major constellations about the Summer Triangle's three corner stars: Lyra with bright star Vega, Cygnus with brilliant star Deneb, and Aquila with its blazing star, Altair. As you get comfortable and your eyes adjust, you'll soon find yourself able to spot a few constellations hidden in plain sight in the region around the Summer Triangle: **Vulpecula the Fox**, **Sagitta the Arrow**, and **Delphinus the Dolphin**! You could call these the Summer Triangle's "hidden treasures" – and they are hidden in plain sight for those that know where to look!

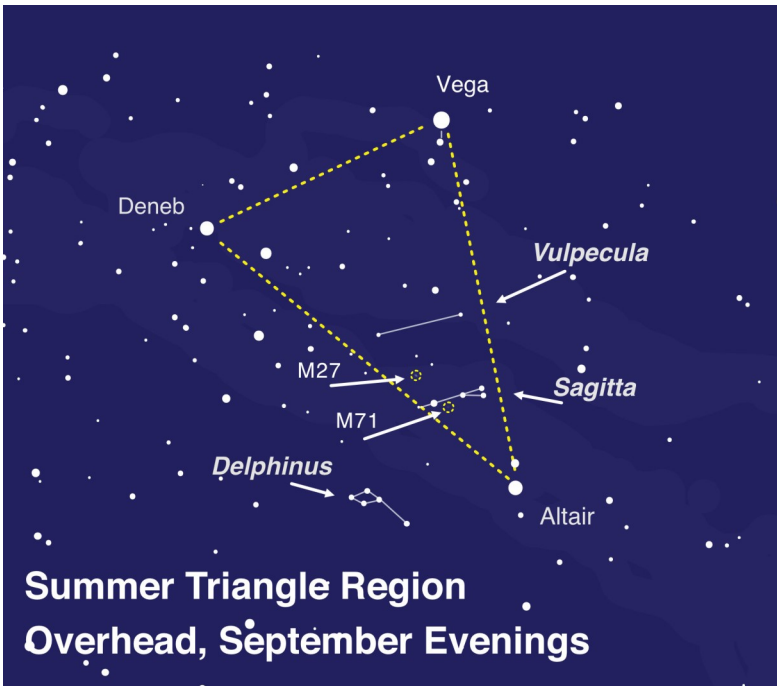
Vulpecula the Fox is located near the middle of the Summer Triangle, and is relatively small, like its namesake. Despite its size, it features the largest planetary nebula in our skies: M27, aka the Dumbbell Nebula! It's visible in binoculars as a fuzzy "star" and when seen through telescopes, its distinctive shape can be observed more readily - especially with larger telescopes. Planetary nebulae, named such because their round fuzzy appearances were initially thought to resemble the disc of a planet by early telescopic observers, form when stars similar to our Sun begin to die. The star will expand into a massive red giant, and its gasses drift off into space, forming a nebula. Eventually the star collapses into a white dwarf – as seen with M27 - and eventually the colorful shell of gasses will dissipate throughout the galaxy, leaving behind a solitary, tiny, dense, white dwarf star. You are getting a peek into our Sun's far-distant future when you observe this object!

Sagitta the Arrow is even smaller than Vulpecula – it's the third smallest constellation in the sky! Located between the stars of Vulpecula and Aquila the Eagle, Sagitta's stars resemble its namesake arrow. It too contains an interesting deep-sky object: M71, an unusually small and young globular cluster whose lack of a strong central core has long confused and intrigued astronomers. It's visible in binoculars, and a larger telescope will enable you to separate its stars a bit more easily than most globulars; you'll certainly see why it was thought to be an open cluster!

Delicate **Delphinus the Dolphin** appears to dive in and out of the Milky Way near Aquila and Sagitta! Many stargazers identify Delphinus as a herald of the fainter water constellations, rising in the east after sunset as fall approaches. The starry dolphin appears to leap out of the great celestial ocean, announcing the arrival of more wonderful sights later in the evening.

Want to hunt for more treasures? You'll need a treasure map, and the Night Sky Network's "Trip Around the Triangle" handout is the perfect guide for your quest! Download one before your observing session at bit.ly/TriangleTrip. And of course, while you wait for the Sun to set - or skies to clear - you can always find out more about the objects and science hidden inside these treasures by checking out NASA's latest at nasa.gov.

The Summer Triangle's Hidden Treasures (cont.)



Search around the Summer Triangle to spot some of its hidden treasures! To improve readability, the lines for the constellations of Aquilla, Lyra, and Cygnus have been removed, but you can find a map which includes them in our previous article, *Spot the Stars of the Summer Triangle, from August 2019*. These aren't the only wonderful celestial sights found around its borders; since the Milky Way passes through this region, it's littered with many incredible deep-sky objects for those using binoculars or a telescope to scan the heavens. Image created with assistance from Stellarium: stellarium.org



M71 as seen by Hubble. Your own views very likely won't be as sharp or close as this. However, this photo does show the cluster's lack of a bright, concentrated core, which led astronomers until fairly recently to classify this unusual cluster as an "open cluster" rather than as a "globular cluster." Studies in the 1970s proved it to be a globular cluster after all – though an unusually young and small one! Credit ESA/Hubble and NASA. Source: <https://www.nasa.gov/feature/goddard/2017/messier-71>

From the DVAA Archives: Marilyn Michalski

Published in "Amateur Astronomy" magazine, Winter 2003.

Marilyn was President of DVAA 1990-1992 and 2000-2002.

Star People

Real People in Astronomy

by Robert Reeves

Names: Marilyn Michalski
Occupation: Retired school teacher
Hometown: Kimberton, PA
Astronomer since: Childhood

An early interest in astronomy has bloomed into a full-time retirement activity for Marilyn Michalski. This is her story...

"Like most astronomers, I was drawn to dark skies at an early age, mesmerized by constellations and galaxies, and wondering where the spirals were hiding. When I looked at a dark sky, I couldn't see any galaxies which piqued my curiosity. Ever since then, I felt challenged to find out where they were and why I couldn't see them! As an adult, I got back to astronomy after I had established my home life. My quest for those elusive galaxies has been amply rewarded.

"I am blessed with an understanding husband, to whom I have been married for 24 years. Cas supports my astronomical pursuits and has even traveled with me on astronomical ventures a good number of times.

"I was lucky to find the Delaware Valley Amateur Astronomers. Once I became connected with them, I learned more than I imagined was possible. The DVAA had advertised a viewing session for Halley's Comet back in 1986, and I attended. I joined on the spot. It was then I became addicted to the meaningful pursuits of amateur astronomers. I'm aware now how important it is for astronomy clubs to reach out and provide opportunities for others, young and old, to connect with a group and learn about astronomy, to answer questions, use telescopes properly, and be encouraging.

"When I was in college, I majored in English and American literature, an original area of interest. I minored in chemistry, so my connection to the sciences has always been strong, even though they didn't generate a career selection. In 1998 I completed a satisfying career spanning 28 years of teaching grades 9 through 12 in English, public speaking, journalism, and art appreciation. Since retirement, I have been giving full rein to my interest in astronomy.

"When I attended an observing clinic early in my DVAA years, I learned how to buy, and NOT buy, a telescope. I needed a powerful telescope, yet one that was simple to operate. And the answer was obvious, purchase a Dob. The day I placed an order for the Coulter 10" was one of the most exciting days of my life. While waiting 8 months for the scope to arrive, I searched the sky using a pair of 10 x 50 binoculars, which I still own and use. Knowing the constellations is a bedrock for astronomical progress.

"I began to serve the DVAA as an officer and committee chairperson shortly after joining. In 1989, I was asked to run for President and felt honored to serve. By the end of 2002, I had completed a second three-year term as President. The job of President, in any astronomy club, gives that individual unique opportunities to assist others and to keep members motivated. As President, I discovered that there are many citizens in our communities who are eager to learn about astronomy, wanting to use a telescope, needing to find objects in the sky, and searching for answers. The problem they face is where to find support for their aspirations. This is where astronomy clubs and their officers fulfill a great need. Thus, the most exhilarating aspect of being an astronomy club officer is the ENABLING you do to help so many people find joy and beauty in the heavens. We have all been there when a young person looks through our eyepiece and sees Saturn for the first time. We all revel in their spontaneous joy of discovery as the 'Oooo's' and 'Oh, Wow!' come unhindered from their lips when they catch sight of the object we have captured.

"I don't spend all my time helping others. I find time to make my own telescopes. I started back in 1991 making an 8" mirror, my 'learning blank'. The process of rough grinding, fine grinding, pouring the pitch lap, polishing and figuring was an incredible journey of discovery. Several years later, I purchased a 10-inch mirror-making kit from Willmann-Bell. As a member of an ATM class, I had people to confer with and I benefited from knowledge shared by the group. The 10-inch mirror took me two years to complete and it tested out well. I used a five zone

mask. With plans from Barry Peckham of LITEBOX TELESCOPES, I had the base constructed. I purchased a fiberglass tube from Parks Optical and the mirror cell and secondary from Novak. These and other components were assembled in my basement. The ATM group never lets any member say, 'I don't think I can do this.' When a small group shares a common goal, its knowledge and efforts result in achievement far beyond the capability of one individual. My 10-inch f/6.7 telescope, named the Emerald, won first prize in the optical competition for mirrors under 12.5-inch at Stellafane in 2002.

"The most difficult aspect for me has been astrophotography. I use a Cam-trak drive, which I employ with my 300mm Tamron telephoto lens mounted on a 35mm Nikon N2000. The system works well, but the deterrent to astrophotography is that it takes time; I would rather be out there looking at objects directly, studying them and taking notes. There are good things to be said about 'instant gratification', what you get when you look through an eyepiece. You are lifted up and out into space, where you travel for hundreds and millions of light years. I will never, as long as I live, give up this amazing and inspiring activity.

"I earned my Honorary Messier certificate a number of years back, and I'm currently in the middle of the Double Star Observing Program. With the new scope I plan to build, a 14-inch f/6, I'll be able to do the Herschel list.

"The most significant development for me in amateur astronomy is the evolution of the Dobsonian telescope. I don't think we are finished evolving this design. There has got to be yet another way to construct this scope; I'm thinking collapsible tube, maybe folding tube. I'm searching for ideas, and I'm on the lookout for possible materials. Just a year ago, the ATM class took a field trip to one of the largest metal scrap yards in the country. You've got to keep your mind open to all kinds of possibilities. Portable telescopes are 'where it's at' in my opinion. True, I have the ATM virus. And even though there's no cure for this disease, it's not fatal. In fact, it is proving to prolong life and restore youthful optimism.

"My advice to newcomers: Read, READ, READ. The number of outstanding books, articles, and publications on astronomy could fill the Library at Alexandria. I'm also impressed with the benefits of computers and the Internet. In doing research for my astronomy column, I find the most current information on web sites. Through cyberspace, experts can speak to us without much of a time delay and you are in touch with the best and latest information.

"The catch is after you have done all that reading, you may find you are ready to write a book yourself. So, yes, that's my next venture. After researching so many articles for the DVAA newsletter, I, along with Al Lamperti and Bart Thorn, the current Observing Chairperson of the DVAA, have decided to publish a book about astronomy.

"The greatest hurdle for me is winter observing. Oh, those lovely crystal skies in the dead of winter... and how brutal on the body. Even with all that clothing, can I go out there and love it when my fingers are stiff and my face is so cold I can hardly talk? The answer is YES!"



Mallon Planetarium Shows

Join Mallon Planetarium Director, Adam Chantry, for public shows the **third Wednesday of every month!** The public planetarium show schedule will be released in early September.

SAVE THE DATES

September 21st
October 19th

November 16th
December 21st

SHOWTIMES

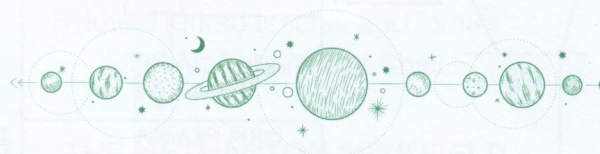
5:30pm
7:00pm

TICKETS

Adults: \$8
Students & Senior Citizens: \$6

LASER LIGHT SHOWS RETURN

Mark your calendars! Mallon Planetarium Laser Shows return in February 2023!



RESERVE YOUR SEATS: www.methacton.org/planetix

Tickets MUST be reserved and paid for in advance via www.methacton.org/planetix to guarantee a seat. Any unreserved seats, will be sold on a first come, first serve basis the evening of the show. ONLY cash or check are accepted at the door for unreserved seats.

ABOUT THE MALLON PLANETARIUM

The Mallon Planetarium is located inside Arcola Middle School (4001-A Eagleville Road, Eagleville, PA 19403) in Methacton School District. Built in 1974, the planetarium has continuously provided unique learning experiences for ALL Methacton students. Our goal, as once stated by the original director and namesake of the planetarium Dr. Gerald Mallon, is to be a laboratory NOT to produce astronomers for the world, but to produce people who are aware of the world around us. The Mallon Planetarium provides co-curricular, extracurricular, and community opportunities for all life-long learners.

+3600 students visit annually
+1230 community members visit annually

SCHEDULE AN ASTRONOMY LESSON!

The Mallon Planetarium offers lessons to Methacton School District classes, outside district school classes, and non-profit community groups. Lessons can be scheduled in our planetarium, in an Arcola building classroom, or just about any location in, and around, Methacton School District. We also offer virtual presentations for groups that meet online.

To get more information on scheduling your group's lesson, please fill out the form at www.methacton.org/planetix.

WE'RE ON TWITTER!



@MSDPlanetarium

Regional Star Parties

Black Forest Star Party

Registration now sold out!

Black Forest Star Party
At Cherry Springs State Park, Potter County, PA

BFSP 2022 IS SCHEDULED FOR
SEPTEMBER 23RD – 25TH!!
MAIL-IN REGISTRATION WILL OPEN ON JULY 20TH AND ONLINE ON JULY 27TH.

York County Star Party

SkyShed Pod PA is proud to sponsor the
York County Star Parties now scheduled

**ATTENTION !
PLEASE NOTE:**

Two star parties:
CAMPING FEES INCLUDED!

Spring party
June 22-26, 2022

Fall Party
September 21-25, 2022

2022 DATES:

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SkyShed Pod PA

Kopernik AstroFest


ASTROFEST 2022
September 30 / October 1
Dark Skies! Excellent speakers & workshops
20-inch RC, C-14 EDGE HD, 6-inch Astro-Physics APO
Camping/RV sites available
Kopernik Observatory & Science Center
698 Underwood Rd., Vestal NY 13850



South Jersey Star Party

The [South Jersey Astronomy Club](#) hosts two annual Star Parties.


The **2022 Fall Star Party** is scheduled for October 27th – 30th on the recreation field in Belleplain State Forest. This is a rain or shine event.

DVAA Telescope Rentals

Celestron NexStar 5SE



Orion 6" Dossinian



DayStar 60mm Solar Scope



Ioptron Tracker



Orion 6" StarBlast Dobsonian



All scopes include tripod/base, eyepieces, manuals, power, etc. Rental is \$10/month with \$20 deposit. More info at www.dvaa.org under the OBSERVING tab. To rent one of these scopes, contact Joe Lamb at rentals@dvaa.org.

The Delaware Valley Amateur Astronomers

Since 1976, the DVAA, a non-profit corporation, has **shared the wonder and science of astronomy** with thousands of amateur astronomers and the public in the Philadelphia area. Each month we host dark-sky and local star parties, telescope workshops, science & astronomy lectures, educational outreach sessions, and more. To learn more or to join DVAA, please visit www.dvaa.org.

Check the schedule for our **free monthly meetings open to the public**, now returning to face-to-face meetings in Radnor, and available on [YouTube](https://www.youtube.com).

get in on the fun:
JOIN the DVAA TODAY!

Dues are \$40 per year for an individual, \$60 for a Family Membership, or \$10 for a Junior or Student Membership. **Membership benefits** include our monthly newsletter, membership in the Astronomical League (including its publications), access to our dark-sky observing sites, and inexpensive rentals of fine telescopes. You can join or renew online at www.dvaa.org. If paying by mail, include a note stating what you are paying and membership category desired. Make checks payable to "DVAA" and send to our treasurer: Louis Berman, 477 Turner Avenue, Drexel Hill, PA 19026, or for more information contact treasurer@dvaa.org.

