THE DELAWARE VALLEY

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anateur ASTRONOMER



sharing the wonder and science of astronomy

What's New in the Night Sky?



Above: Mars passes through the center of the Beehive Cluster, M44 in Cancer, from Bryn Mawr on June 23 shortly after sunset. Photo by Mitch Berger, using an unguided DSLR with 500 mm mirror lens.

Right: The rising sun seen through wildfire smoke from Bryn Mawr on July 27. Photo by Irv Schlanger using a Canon DSLR @ 400 mm.



PLAN ON IT!

August 6-8 Dark Sky Observing at various sites. See the DVAA groups.io for more info. New Moon August 8.

August 10-13 CCAS camping event at Cherry Springs State Park. DVAA members are invited to join in!

August 14 (7:30 pm) Public Star Party at Valley Forge National Historical Park. Weather hotline: (484) 367-5278. An Observing Clinic will also be held at this event; see p. 5.

August 19-21 ALCON virtual annual meeting. Registration is free! See announcement on p. 4.

August 27 (7:00 PM) Observing Clinic for DVAA Members at Heebner Park. See announcement on p. 5.

September 10 Outreach Star Party at Norristown Farm Park.

September 14 Community Star Party at Anderson Farm Park, Upper Providence

September 17 DVAA General meeting.

FOR ALL THESE EVENTS, SEE THE WEBSITE FOR ADDITIONAL INFORMATION. More info on September events may be found in next month's issue.

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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!

Arnold Barr — Philadelphia, PA Andrew Buchan — Wayne, PA Winston Gibson — Norristown, PA Arthur Huppert — Merion, PA Andy Schwam — Havertown, PA

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
Members-at-Large	Roy Patton Tracey Trapuzzano Barry Johnson	mbratlarge@dvaa.org
Astrophotography	Lou Varvarezis	astrophotography@dvaa.org
Camping & MSSP	Nate Prentice	camping@dvaa.org
Door Prizes	Roy Patton	doorprizes@dvaa.org
Newsletter Committee	(see below right)	newsletter@dvaa.org
Night Sky Network	Al Lamperti	nightsky@dvaa.org
Light Pollution	Barry Johnson	Itpollution@dvaa.org
Observing	Andrew Hitchner	observing@dvaa.org
Outreach	Jan Rush	outreach@dvaa.org
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

For August 2021 there will be no scheduled DVAA Meeting. However, we encourage you to attend the virtual 2021 ALCON meeting (see announcement on p. 4).

DVAA Meetings will resume in September, *hopefully* back at Radnor! Our speaker will be Dr. Paul Halpern, University of the Sciences.

<u>Upcoming 2021 Meeting Dates</u>: (all Friday evenings): Sept. 17, Oct. 15, Nov. 19, and Dec. 17.

2021 Public Star Party Dates

DVAA public star parties at Valley Forge National Historical Park will be returning to our normal format as COVID-related precautions are being relaxed. They will be held at Valley Forge National Historical Park on the Model Airplane Field. (Google Maps). *Weather Hotline:* 484-367-5278.

Please wear a mask if not fully vaccinated.

Public Star Party dates for 2021 (all Saturday evenings): Aug 14 (7:30), Sep. 18 (6:30), Oct. 16 (5:50), Nov. 13 (4:15).

Note: Consistent with recommendations from Governor Wolf and the Centers for Disease Control, some DVAA events are held online, outdoors, or follow adapted formats. Monthly meetings are being held via Zoom and livestreamed via YouTube. Check the website for updates.

Follow the DVAA on Facebook!



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

If you would be interested in joining us on the Newsletter Committee, just drop us a line at newsletter@dvaa.org — we'd love to have you on board, regardless of your experience level!

Jeremy Carlo is lead editor for this issue.

They Call Us Amateurs Harold Goldner email

Ambrose Bierce said that an amateur is "a public nuisance who mistakes taste for skill, and confounds ambition with his ability." Humorist Dave Barry pointed out that a lone amateur built the Ark, but a large group of professionals built the Titanic.

Our membership comes from a variety of "professional" backgrounds, ranging from engineering fields to healthcare fields to law to manufacturing and accounting and education and I could go on, but I think the point is made. To my knowledge, only one of our members is a truly "professional" astronomer, that being the Franklin Institute's own Derrick Pitts.

No doubt, some of us face the curious inquiries of others when we talk about dashing out on a moonless night to load up our vehicles with equipment and stand outside in the dark battling with dew and mosquitos or the cold to gaze beyond our own planet's atmosphere. "What's the point? A star is a star! You can't really see anything, can you?" Of course, even without equipment, even an amateur can point out to someone the difference between stars like Betelgeuse, Antares, Sirius and Vega, and most people could see the difference naked eye, but you catch my drift (and have probably confronted such skepticism.)

Some express bemusement or even subtle jealousy towards those of us who seem to be able to interpret the heavens, as if we were some kind of sorcerers or magicians who can wave a magic wand, look up to what to the initiated is a random pattern of white dots on a dark sky and say, "there's Jupiter; no that's Venus; Saturn will be up later...."

But the truth is that while our modern perception of "amateur" suggests someone who does something poorly or with a lack of professionalism, say, for instance, the way the Phillies play baseball, the root of the word "amateur" is *amor*, the Latin word for "love."

Consider some of the following amazing astronomical accomplishments done in the name of love.

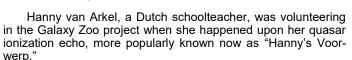
This month some of our members will head north to Stellafane. The founder of Stellafane, Russell W. Porter was an arctic explorer, surveyor, artist, builder of rental cottages. He even tried his hand at farming before becoming an amateur telescope builder and ultimately a teacher of others on how to build their own scopes.

Peter Jalowiczor holds degrees in physics and astrophysical science but has used publicly available data to discover four exoplanets.

Robert Evans graduated the University of Sydney with degrees in philosophy and modern history, ultimately training to be and becoming a Methodist Minister, serving parishes until retiring in 1998. In 1955, however, he started hunting for supernovae using his own 10" Newtonian telescope, ultimately setting the record for the most visual discoveries of supernovae.

John Dobson, also born a Methodist (and sometimes self-professed "belligerent atheist") secured a degree in chemistry, joined the Vedanta monastic order for 23 years, and ultimately invented a simple, inexpensive scope, the Dobsonian, that graces so many of our star parties, almost single-handedly launching the "sidewalk astronomy" movement.

STEVE, that is Strong Thermal Emission Velocity Enhancement, is an atmospheric phenomenon that was discovered and named by a Facebook group called the Alberta Aurora Chasers.





(Image courtesy Wikimedia commons).

More recently, amateur astronomer Kai Ly, who had rediscovered four "lost" moons of Jupiter, was able to discover yet another Jovian moon, using old telescope images, even though some of the moons can only be detected by a large telescope one month of the year.

So, yes, we may be "amateurs," but so what? Professionals? We don't need no stinkin' Professionals. Any one of us amateurs on any given night might look into the eyepiece, analyze publicly available data, post-process a ten-minute exposure, or merely stare up and point --- and see something nobody else has ever seen or detected, and thereby perpetuate the science of astronomy. And it will "count" just as much as it would have if someone with astronomy degrees as long as your arm and credentials all over their wall had published it in a stodgy old peer reviewed journal.

So, resist those bemused looks. Don't be put off by puzzled expressions from acquaintances. We know why we do what we do. We do it for love.

Join us in celebration of the League's 75th year!

ALCon 2021 Virtual!

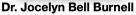
ALConVirtual.org August 19 – 21, 2021



Presented by

Your Astronomical League Free Registration!!







David Eicher



Dr. Richard Gott

Door Prizes valued at more than \$7500

Grand Prize – Explore Scientific FirstLight 127mm Mak-Cass Telescope with Twilight Mount valued at ... \$750!



Dr. David Levy



Paul Cox



Dr. David Dunham

J Kelly Beatty

ALCon Speakers and Presentations...

- Dr. Jocelyn Bell Burnell, "The Discovery of Pulsars in Context"
- David Eicher, "Galaxies"
- Dr. Richard Gott, "The Cosmic Web"Dr. David Levy, "Poetry in the Heavens"
- Kelly Beatty
- Dr. David Dunham, "Near-Earth Asteroid Occultations"
- Paul Cox, "SLOOH"
- Alan Dyer
- And móre!



Alan Dyer



- Library Telescope Drawing
- Mabel Sterns Newsletter Award
- Webmaster Award
- Peltier Award
- National Young Astronomers
- Horkheimer Youth Awards
- GR Wright Award
- Special Service Awards

Saturday Night: Global Star Party



Clinics for Beginning (and Intermediate) Observers August 14 and 27, 2021

During the past 18 months, nearly 70 new members have joined DVAA! Some of them are experienced observers, but many are new to astronomy. DVAA is fortunate to include many seasoned observers who love to share their expertise. We invite new members, and any member who would like some individualized telescope time with an expert observer, to attend an upcoming observing clinic. These will be outdoor, hands-on telescope assistance sessions.

OBSERVING CLINIC FOR BEGINNER AND INTERMEDIATE OBSERVERS (outdoors) August 27 — Heebner Park (rain date August 29)

Hands-on telescope clinic for DVAA members only. Bring your own telescope, or practice techniques using scopes set up by DVAA members. If you are contemplating a telescope purchase, you will have the opportunity to try out various types of scopes at this clinic. The clinic will take place August 27th at Heebner Park in Worcester Township, beginning at 7 pm. Watch your email and check this page (member login required) for details. Registration is required.

TELESCOPE ASSISTANCE FOR BEGINNER AND INTERMEDIATE OBSERVERS (outdoors) August 14 — Valley Forge

Conducted by DVAA members in conjunction with the monthly DVAA Public Star Party on August 14.

Open to the public: bring your telescope and set up at the designated spot for hands-on help from DVAA experts. Be sure to come on time to set up well before dark! Location: Valley Forge National Historical Park, Valley Forge PA August 14, 7:30-10 pm. Details here.

Please wear a mask if you are not fully vaccinated.



Night Sky Network Outreach Toolkits Al Lamperti email

The Night Sky Network, in partnership with the Astronomical Society of the Pacific, has made outreach toolkits available to astronomy clubs for use in their outreach activities. The DVAA has acquired several of them and are available to any member doing outreach. If you want to use them for a specific outreach activity, here is what you can do:

- Indicate to the Outreach Chairperson the name, date, time and place of the event
- Obtain the Toolkit desired
- Record demographics (a sheet will be available to you. This information allows NSN to continue requesting funding from NASA so that they may continue developing and distributing Toolkits)
- Return toolkit and demographics sheet to coordinators for use by other members

Listed below are eight Toolkits the DVAA has along with a short description of each. Please use those parts of the toolkit you feel would be beneficial to the audience and you would be comfortable using yourself. Any Power Point files included can always be modified as you see fit.

Each kit contains multiple activities which can be adapted for both indoor and outdoor settings, for large and small groups including Scouts, homeschoolers, and after-school groups. NSN also provides online guidance on how to use each toolkit, including video demonstrations.

Life in the Universe

Aliens are a favorite topic for many visitors to public astronomy events. This toolkit is designed to take science fiction questions and direct them toward scientific facts and exciting new discoveries being made in the search for life outside Earth.

Our Magnetic Sun

This Toolkit provides activities and demonstrations that explore the Sun and its powerful magnetic fields, how these fields generate the features we observe, and how the Sun's magnetic activity affects our way of life and technologies here on Earth.

Space Rocks

Our smallest Solar System neighbors are often overlooked when we think of objects in our solar neighborhood. But in fact, asteroids and comets

have had dramatic effects on Solar System bodies, including Earth. Impacts are not just a part of history. The Earth is hit all the time with literally tons of space rocks. This Toolkit explores some of our smallest neighbors, asteroids, and their significance for us here on Earth. There is even a sampling of meteorites and meteor-wrongs. Using the provided magnet, one can discorr the iron meteoric

the provided magnet, one can discern the iron meteorite. Kit also includes a 20' DVD "Cosmic Collisions".

Telescopes: Eyes on the Universe

This Toolkit provides hands-on activities to answer common questions at the telescope: Why don't I see any color? Why is the image upside down? What power is your telescope? Why doesn't it look like the photos? Can you see the flag on the Moon?

Shadows and Silhouettes

Hands-on activities on Moon phases, lunar and solar eclipses, transits, and Venus phases. Features NASA's Kepler Mission and provides activities to explore searching for planets orbiting in the habitable zone around other stars.

Supernova!

The SUPERNOVA! Toolkit tells the story of the lives of stars, cosmic radiation, and how Earth is protected from that radiation. Using marshmallows and macaroni, explain nuclear fusion and the radiation generated from a supernova explosion. Use balls in an activity that illustrates what happens when a star explodes. Find the stars in the night sky likely to go supernova. Discover the importance of supernovae in the universe.

Big Astronomy

This set of 7 activities and demos will engage visitors with dark skies, color filters, sky legends from around the world, and the people who make astronomy happen.

Moon Toolkit

To celebrate the 50th anniversary of humans landing on the Moon this July, the Night Sky Network has released Moon handouts and activities ideal for use at the telescope and beyond.

More Videos of Interest on the Astronomical League Youtube Channel

Al Lamperti email

As mentioned in the last issue, the Astronomical League <u>YouTube channel</u> has several videos of astronomical interest. Listed below are some additional topics which have been added since the last newsletter.

Any questions about ANY of the 70+ observing programs, please contact me (lamperti@temple.edu) or the Coordinator of the specific program you are interested in that is listed on the A.L. website. We are here to help you enjoy the hobby to the fullest.

Videos of Observing Programs on the YouTube Channel added since last month:

Advanced Binocular Double Star Observing

Globular Cluster Observing Program

Flat Galaxy Observing Program

Active Galactic Nuclei

Herschel II

Local Galaxy Group & Neighborhood

IMAGERS: This one is for you!

6

The July Monthly Meeting

Jeremy P. Carlo email

July represented our return to in-person meetings for the first time since February 2020, when "COVID" wasn't a word in our vocabulary. Thanks to the leadership of VP Jan Rush, we were able to assemble under an outdoor pavilion at Fort Washington State Park for an "Astronomy Fair."

President Harold Goldner welcomed all attendees to the meeting, and conducted a brief business meeting. An Astronomical League Outreach Award was given to Roy Patton, Andrew Hitchner, Wayne Reed, and Gary and Tracey Trapuzzano (as well as Mike Tucker, who could not attend) for their leadership in conducting socially distanced star parties over the past year. Harold also expressed hope that we would be able to return to Radnor for our next meeting in September, provided that COVID cases go in the right direction. (If not, we will continue holding meetings on Zoom and YouTube, as we have been doing, until conditions improve sufficiently that it is safe to return to indoor in-person meetings.)

VP Jan Rush then allowed each of the presenters to introduce their topics. Bill McGeeney gave a presentation on light pollution, and an introduction to our primary allies in the fight for dark skies, the International Dark-Sky Association (IDA) and the Pennsylvania Outdoor Lighting Council (POLC). Gary Trappuzzano gave a presentation on "basic astrophotography" - what can you do with just a camera and some simple equipment? Joe Lamb presented on solar observing, as well as the upcoming North American solar eclipses in October 2023 and April 2024. Andrew Hitchner set up a cadre of telescopes of different sorts for his "All About Telescopes" station. Al Lamperti did double duty, with a table about the Night Sky Network (including their outreach toolkits), and another about Astronomical League observing programs. Jan Rush had a station devoted to astronomy apps on your phone. Finally, Roy Patton resurrected our DVAA Door Prize drawings, and Tracey Trapuzzano ran the ever-popular refreshment stand!

After brief introductions from each of the presenters, attendees were invited to visit each of the stations and engage in small group conversations. This was followed by an observing session on the field next to the pavilion. Please see the photos on this page and next to see how the session went! Thank you to Jan, all our presenters, and all those who made this meeting possible!

All photos at right courtesy of Mitch Berger.

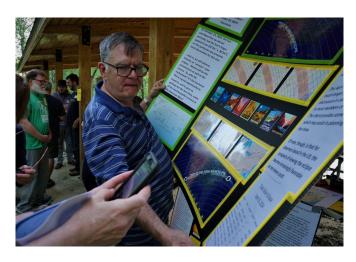
Top: Gary Trapuzzano presents "Basic astrophotography."

Middle: Astronomical League Outreach Award presentation.

Bottom: Joe Lamb presents on solar observing and eclipses.







The July Monthly Meeting (cont'd)









Top left: Tracey Trapuzzano staffs the refreshment table.

Center left: Lou Berman sharing the joy of astronomy with some attendees.

Bottom left: Andrew Hitchner holds forth with a subset of his scope collection.

Top right: Bill McGeeney shares his thoughts on light pollution.

Bottom right: Al Lamperti shows off one of the NSN outreach kits.

All photos courtesy of Mitch Berger.





Corner the Great Square of Pegasus

by David Prosper

The Summer Triangle may be the most famous seasonal star pattern, but during early August evenings another geometrically-themed asterism rises: the Great Square of Pegasus. This asterism's name is a bit misleading: while three of its stars - Scheat, Markab, and Algenib - are indeed found in the constellation of the winged horse Pegasus, its fourth star, Alpheratz, is the brightest star in the constellation Andromeda!

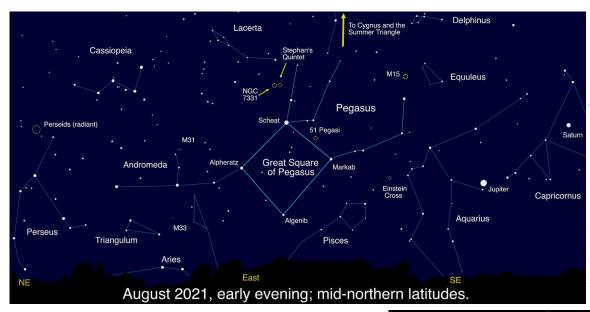
August evenings are an excellent time to look for the Great Square, as it will be rising in the east after sunset. If not obvious at first, wait for this star pattern to rise a bit above the murky air, and remember that depending on your point of view, it may appear more like a diamond than a square. Look for it below the Summer Triangle, or to the southeast of nearby Cassiopeia at this time. As the Great Square rises in prominence during autumn evenings, it becomes a handy guidepost to finding more constellations, including some of the dimmer members of the Zodiac: Aries, Pisces, Aquarius, and Capricornus. Like the Summer Triangle, the Great Square of Pegasus is also huge, but Pegasus itself is even larger; out of the 88 constellations, Pegasus is 7th in size, and feels larger as the stars in its neighboring constellations are much dimmer.

There are many notable deep-sky objects found within the stars of Pegasus - ranging from easily spotted to expert level targets - making it a great constellation to revisit as your observ-

ing skills improve. Notable objects include the densely-packed stars of globular cluster M15, a great first target. The potential "Milky Way look-alike" galaxy NGC 7331 is a fun target for more advanced observers, and expert observers can hop nearby to try to tease out the much dimmer interacting galaxies of Stephan's Quintet. A fascinating (but extremely difficult to observe) object is a gravitationally-lensed quasar famously known as the Einstein Cross. Pegasus has quite a storied history in the field of exoplanet research: 51 Pegasi was the first Sun-like star discovered to be host to a planet outside our solar system, now officially named Dimidiam.

While observing Pegasus and its surroundings, keep your eyes relaxed and ready to catch some Perseids, too! August 2021 promises an excellent showing of this annual meteor shower. The crescent Moon sets early on the evening of the shower's peak on August 11-12, but you can spot stray Perseids most of the month. If you trace the path of these meteors, you'll find they originate from one point in Perseus - their radiant. Giant planets Jupiter and Saturn will be up all evening as well. Look south they easily stand out as the brightest objects in the faint constellations Aquarius and Capricornus.

Pegasus truly holds some fantastic astronomical treasures! Continue your exploration of the stars of Pegasus and beyond with NASA at nasa.gov.



This article is distributed by NASA Night Sky Network. The Night Sky Network program supports astronomy clubs across the USA dedicated to astronomy outreach. Visit night-sky.jpl.nasa.gov to find local clubs, events, and more!

Left: While the stars of the Great Square of Pegasus are not as bright as those of the Summer Triangle, they still stand out compared to their neighbors, and make a great foundation for exploring this area of the night sky. Note that the brightness of the stars near the horizon is exaggerated in this picture.

Right: Stephan's Quintet is one of the most famous deepsky objects in Pegasus. First discovered in 1877, it contains the first galaxy group discovered (which includes 4 of the 5 galaxies making up the Quintet) — and has been studied extensively ever since. One day this group will merge into one supergalaxy! While famous, these galaxies are hard to spot in all but the largest backyard telescopes — but are a favorite target of astrophotographers. Take a virtual flyby of these galaxies with a tour created from Hubble data at: bit.ly/quintetflyby

Photo Credit: NASA, ESA, and G. Bacon, J. DePasquale, F. Summers, and Z. Levay (STScI)



Al's Observing Tips: "My Finder is No Good!

Al Lamperti email

That statement may be true for a very small number of finders that come with a telescope. Most times the finder may not "work" because it is not properly aligned. After you check your collimation, then it is time to align the finder so that the object in the center or in the cross hairs of your finder is in the center of your telescope eyepiece. These steps take just a few seconds to perform and should be done on a routine basis as you are waiting for it to get completely dark and for your telescope to cool down.

What finder do you need? It boils down to personal preference. Some observers swear by a straight-through finder, others prefer one with a right angle prism, others like the variety of 1x finders that are available. Let's look at each of the types and mention what you might expect from each.

Many finders are like a small refractor telescope and the numbers on them are identical to those we see on binoculars. They range in power from 6-10x and have diameters ranging from 25-50 mm. The most common types are 8x50s. Many of the straight-through finders give images that are upside down and match those of your atlas, if it too, is turned upside down and they also match the images seen through the telescope. If you decide to use a right-angle star diagonal so your neck feels more comfortable, then the images are erect but are reversed left to right. To achieve the correct left to right orientation, you can replace the prism in the star diagonal with an Amici prism. Personally, I find it less straining on my brain and neck if the star

patterns in the finder are oriented in the same way as my atlas and as they are oriented in the sky. When I go to the eyepiece, I then turn my atlas upside down for correct orientation with the telescope eyepiece view.

Another personal preference to consider are 1x finders such as the Telrad, Quik-Point, QuickFinder, E-Z Finder, Star Beam or Star-Pointer, though some observers feel they are not necessary. They either project an LED red dot or a series of concentric red circles on a glass projection screen that you look through and aim at the object or star that you see with your naked eye.

I find it easy to use both a Telrad (or other red dot finder) and a correct image right angle finder and both get aligned before an observing session. Then I aim the Telrad at a naked eye star near the object I am after, star-hop with the 8 x 50 finder and the object I am after should be in the center of the eyepiece. Garfinkle's book "Star-Hopping" can guide you through the process of star hopping to many favorite objects in the sky for year round enjoyment.

To help you decide which finder works best for you, try navigating with various types and combinations you may encounter at a DVAA star party or an Observing Clinic. Whatever you choose will get you to your target quickly so you have more time at the eyepiece.

Upcoming Regional Star Parties Jeremy P. Carlo email

This is a list of some upcoming star parties in the region. Note that these are NOT sponsored by DVAA; any questions should be directed to the organizers of these events, which can be found via their websites.

Stellafane Convention, Breezy Hill, VT August 5-8, 2021 https://stellafane.org/

York County Star Party, York County, PA
September 8-12, October 6-11, 2021
http://www.skyshedpodpa.com/york-county-star-party.html
See announcement by organizer Phil DeRosa at the May 2021 DVAA meeting.

Black Forest Star Party, Cherry Springs State Park, PA October 1-3, 2021 https://bfsp.org/

Staunton River Star Party, Virginia October 4-10, 2021 http://chaosastro.org/starparty/

South Jersey Star Party, Belleplain State Forest, NJ Date TBA (if it happens, usually around October) http://www.sjac.us/star-party/

Almost Heaven Star Party, Spruce Knob, WV Cancelled for 2021 2022 dates: August 26-30 https://www.ahsp.org/

Green Bank Star Quest, Green Bank, WV Cancelled for 2021 http://www.greenbankstarquest.org/

Winter Star Party, Florida Keys, FL TBA for 2022 (usually around February) https://www.scas.org/winter-star-party/index.cfm

More Photos







*Top left: "*Meteo-rights" and "Meteo-wrongs" from one of the NSN outreach toolkits presented by Al Lamperti.

Top right: Harold Goldner presides over the meeting while the refreshment table awaits.

Middle left photos: When the sun goes down is when the DVAA comes out to play!

Bottom left: Jan Rush and Roy Patton discuss astronomy apps.

Bottom right: The moon, imaged through wildfire smoke on July 20, 2021 from Wynnewood, PA.

All photos on this page courtesy of Mitch Berger.









Left: M51, the Whirlpool Galaxy in Canes Venatici, imaged by Dick Steinberg, with a Celestron C8 equipped with an Orion Parsec 8300M monochrome imager.

Below: Images from the July 2021 meeting by George Keighton. See <u>this page</u> for all of his photos!

Below left: The Pavilion at Fort Washington State Park.

Below right: Wayne Reed gets a look at Venus through Andrew's 10" Dob.

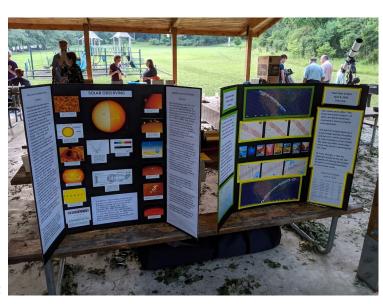
Bottom left: Jan Rush presents the Astronomical League Outreach award while attendees look on.

Bottom Right: Joe Lamb's excellent posters on solar observing and solar eclipses.











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**, usually held on Friday via Zoom.

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.usus.usu. 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/advanced.

