

amateur ASTRONOMER



sharing the wonder and science of astronomy



The Statue of Liberty Nebula, NGC 3576. Another wonderful Hubble palette image from Dan Stern, using data obtained from a remote telescope. Dan's description: "Do you see it, Lady Liberty? With an outstretched arm she is holding the torch, and if you look closely, with a little imagination, you might think she is wearing a crown (but that's just gas and dust being zapped by high-energy light from massive stars). Within the nebula there are very active star formation regions which contribute to the complex shapes and looping filaments surrounding her. I chose to frame Lady Liberty so she appears to be in flight."

Imaging details: Planewave CDK17 scope
Planewave L-500 mount - no guider
Camera Moravian C4-16000
Chroma 3nm Ha and Oiii Sii
Data capture: NINA - May 6, 7 and 9
Total integration time: 12.3 hours
Ha 47 x 300, Oiii 70 x 300, Sii x 10
RGB (10 x 300) x 3
Processing: Pixinsight SHO Palette
Location: Rio Hurtado, Chile

PLAN ON IT!

June 2 (7:00 pm) In-person General Meeting at Radnor Township Building. Featured speaker Steve Conard, John Hopkins Applied Physics Lab. Also presenting: DVAA Youth Award winners. [More info](#)

June 3 (9:00pm) Radnor's Great American Campout at The Willows Park. Telescope operators needed. [More info](#).

June 17 New Moon For dark sky observing opportunities, visit [DVAA groups.io](#) for more info.

June 23 (8:30 pm) Public Star Party at Temple University Ambler Campus. Rain/cloud date June 26. [More info](#)

June 24 (8:30 pm) Public Star Party at Valley Forge National Historical Park model airplane field. Rain/cloud date June 25. [More info](#)

July 5 (7:30pm) Astrophotography Workshop on Zoom.

July 7 (7:00 pm) In-person General Meeting at Radnor Township Building. [More info](#)

FOR ALL EVENT INFORMATION AND UPDATES, SEE THE DVAA WEBSITE www.dvaa.org. Dates of overnight star parties (non-DVAA events) are listed at www.dvaa.org or p. 9 of this newsletter.

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Welcome New DVAA Members!

Josie & Justin Licari (Huntingdon Valley)
Brian Stoveken (Lansdale)
Don D'Egidio (Springfield)
(Welcome back, Don!)

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

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President	Jan Rush	president@dvaa.org
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Observing	(TBD)	observing@dvaa.org
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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

Mark Your Calendars!

Upcoming Monthly Meetings

Friday, June 2, 2023 (7:00pm): *Speaker details on page 3.*

Monthly Meetings are held at the Radnor Township Building (except August 25, see below). All are welcome to attend in person. We gather beginning at 7:00pm; the program and the livestream on [YouTube](#) begin at 7:30pm.

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

Upcoming Meeting Dates: (all Friday evenings): June 2; July 7; August 4; August 25 (at Ft. Washington State Park); September 22; October 20; November 17; December 15.

2023 Public Star Parties

DVAA public star parties are held at Valley Forge National Historical Park on the Model Airplane Field. ([Google Maps](#)).

Public Star Party dates for 2023 (all Saturday evenings):

Jun. 24 (8:30), Jul. 22 (8:30), Aug 26 (8:00), Sep. 23 (7:00), Oct. 21 (6:00), Nov. 18 (4:30).

Backup dates: In the event of inclement weather, the Sunday following each scheduled date will be reserved as a backup option.

We will not be utilizing a telephone hotline this year. Register for the event in order to receive an email (also a text message, if enabled) regarding last-minute updates. The latest weather-related event information is always available at www.dvaa.org.

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, 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 George Keighton who was lead editor for March and April. Jan Rush is lead editor for May and June.

Follow the DVAA on Facebook and YouTube!



DVAA [Facebook Group](#)

DVAA [YouTube Channel](#)



Next Monthly Meeting: June 2, 2023

"Light Pollution 201"

Steve Conard

Johns Hopkins Applied Physics Lab

This talk will begin with a quick overview of the dark sky assets of north-central Pennsylvania, and what is being done to preserve them. There will be a brief review of the physics behind light pollution, and what guidance is available to minimize it. A number of measurement tools will be discussed and demonstrated, including a calibrated handheld spectrometer. Lastly, the speaker will show the results of a self-audit he did on his own home. If the weather permits, we'll go outside and perform some measurements live.



Steve Conard is a partially-retired optical engineer concluding a 40+ year career with John Hopkins University. He has been lead engineer for the LORRI instrument on New Horizons for over 20 years. Now living in Wellsboro, PA, he currently leads the newly formed Pennsylvania Wilds Astronomy Club. He is a member of Darkskies International, the International Dark-Sky Association (IDA) -- Pennsylvania, the Illuminating Engineering Society, and the Pennsylvania Outdoor Lighting Council.

Presentation of DVAA Youth Awards

AND, after a year of anticipation, at our June 2 meeting, the prizewinners of the DVAA Youth Awards will present their research (see below)! You will be amazed at the depth of high school student research!



DVAA Youth Awards

The DVAA is proud to announce the first 2 winners of the DVAA Youth Awards, Mohd Iftakhar Tarunno & Elise Olmstead, both of Upper Darby High School! They will each give short presentations of their research at the June 2nd meeting of the DVAA.

Iftakhar's "Identifying Lunar Lava Tubes using Thermal Inertia Mapping" won first place and Elise's "Analysis of Double Ridges on Europa" won second place. Both will receive a certificate, a check and a year's membership in the DVAA.

What Exactly Do You Do at an “Outreach” Event?

Jan Rush [email](#)



At DVAA, outreach events include everything we do to interact with folks who are not club members. The most popular events are evening “star parties,” but we also do such things as solar observing, indoor presentations, kids activities, booths at fairs, and adult education courses. In addition to our monthly public star parties at Valley Forge, we hold events with parks, libraries, schools, scouts, and other community groups. Of course, all of these wonderful events require club members to staff them, and from year to year 25-30% of our members help out at least one outreach event each year. Many more members come to events with their families, just to enjoy the event.

If you are a new observer, you might be hesitant to join one of these events with your telescope, thinking you will leave this to the “expert observers.” But the truth is, if you can find the moon with your telescope or binoculars, you are qualified to bring your scope to an outreach event and share it with the enthusiastic attendees! In fact, the moon and the planets are usually the most exciting telescope objects for attendees at public star parties.

If you are a new observer hesitant to bring your telescope to an outreach event, first attend a few without your telescope and “shadow” a member at his/her scope. Outreach volunteers do not need to bring telescopes; you can point out naked eye constellations, share hand-held binoculars, or welcome visitors and hand out DVAA brochures. If you are new to DVAA, volunteering at an outreach event is a great way to get to know your fellow members. Or, just come as a participant and bring your family!

Here are a few star party tips I’ve picked up over the years:

1. Before the event, choose a couple of celestial targets that you will focus on, and read a little bit about them in advance to share with the public (helps to build antici-

pation if there is long queue). The Andromeda Galaxy is just a fuzzy patch until you share that it’s going to collide with our own Milky Way Galaxy (in about 4.5 billion years)!

2. Bring a stool, preferably a stepstool with a handrail. Otherwise people may be tempted to grab onto your eyepiece for support or to pull themselves up!
3. Low-power eyepieces are easier for the public to use; trying adding a Barlow for a higher power view. Longer focal length eyepieces have more eye relief so eye positioning is easier for inexperienced observers or people wearing glasses.
4. Binoculars can be shared with the public while they are waiting in line for the eyepiece. An easy target to share in binoculars is the Mizar-Alcor pair. Many people can find the Big Dipper, and the “middle star of the handle” is pretty easy too.
5. If you have a tracking scope, it will be easier to keep an object in view as you work your way through the queue. But, usually people are clambering to look through the eyepiece before you have a chance to do a proper alignment, and before it is dark enough for stars to appear. I usually do a “solar system alignment” as soon as the first planet is visible. This is not as accurate as other alignment methods but may be “close enough” if you are using a low power eyepiece.
6. If you have a right-angle finderscope which is well-aligned, you can use this to re-center the object in the eyepiece with a slight tweak without jumping into the line to re-center the object.

Here are the outreach events planned for June; join us!

Date (Cloud date)	Event	Venue	DVAA Coordinator
June 3	Telescopes for campers participating in the Campout	Radnor’s Great American Campout at The Willows Park	Jan Rush
June 24 (25)	Public star party	Valley Forge National Historical Park, Model Airplane Field	Fran Jennings
June 23 (26)	Public star party	Temple University Ambler Campus	Barry Johnson

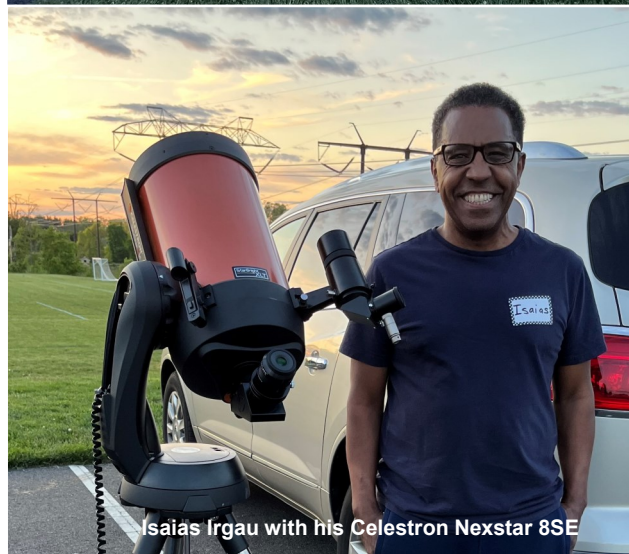
Find the specific locations, times, parking, setup information, etc. by clicking on the event at www.dvaa.org. If you are logged on, you can look up the DVAA Coordinator’s email contact information at the [Member List](#) under the Club drop-down menu.

Schmidt-Cassegrain Telescope Collimation Clinic, May 6th



Left: We lucked out with a great sky on May 6th, when DVAA held an SCT Collimation Clinic in Heebner Park. Shown in the photo (left to right) are Bill Montgomery, Dave and Dottie Hogue, Mike Harris (behind), Isaias Irgau, John and Lyn Bajtelsmit, Bob Gamache, Joe Lamb, Doug Lentz, Gary Trapuzzano, and (back to camera) Mark Firary. Missing from photo: Jan Rush, Barry Johnson

Photo credits: Jan Rush



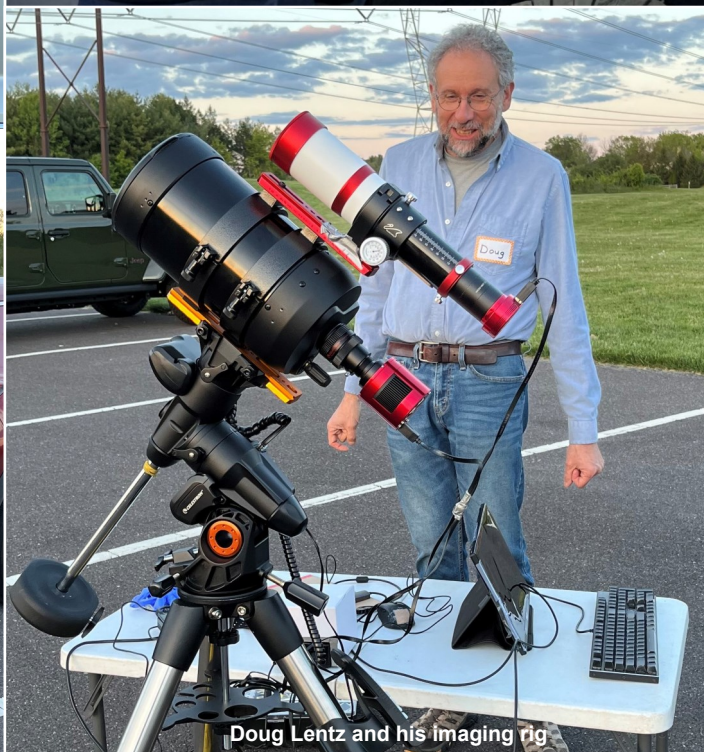
Isaias Irgau with his Celestron Nexstar 8SE



Gary Trapuzzano explains how to collimate an SCT



Dave and Dottie Hogue with their Celestron EdgeHD



Doug Lentz and his imaging rig

Scaling Things Down

Tom Nolasco [email](#)

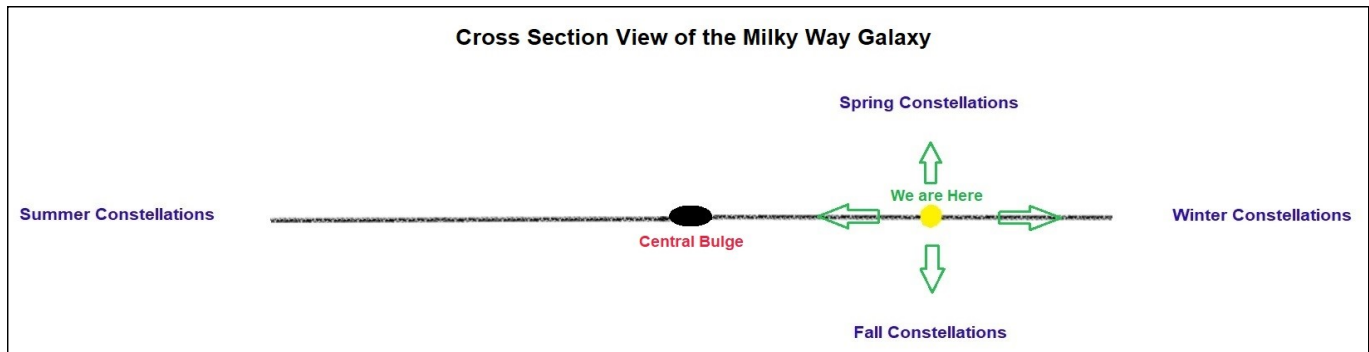


*Space is big. You just won't believe how vastly, hugely, mind-bogglingly big it is...Douglas Adams
Hitchhiker's Guide to the Galaxy*

Whenever you start talking about the size of, or distance to, galaxies, the unit of measurement is usually "light-years." Measuring distance in light-years is interesting as this lets you know how long the photons from the galaxy you're looking at have been traveling through space to reach your eye. But for me, getting a feeling for that distance is another story. How do you visualize the size of a light year? After all, one light year is almost 6 trillion miles. That's trillion with a "T." So in order to get a sense of scale as to how large and far away galaxies are, I decided to scale things way down. I set the size of our solar system, out to the diameter of Pluto's orbit, equal to 1 millimeter, roughly the size of an average grain of sand. So the Sun, and the orbits of Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, Neptune and Pluto all fit in that grain of sand.

First, let's start with our home galaxy, the Milky Way. At that scale, how large would the Milky Way galaxy be? Pretty darn big, a little over 49 miles wide. That's the distance from Radnor, Pennsylvania, where meetings are held, to Lancaster, Pennsylvania.

While spiral galaxies, like the Milky Way, can be quite large in diameter, they usually are comprised of stars, dust and gas that is spread over a relatively thin disk. In the case of the Milky Way the ratio of diameter to thickness is about a 100:1 ratio. That means, while our scaled Milky Way disk is 49 miles wide it is only about a half mile (less than 900 yards) thick for most of the disk and about 1.5 miles thick at the central bulge. As can be seen in the diagram below, it becomes pretty obvious why we have "galaxy seasons" in the spring and fall when we are looking out through part of the thin half-mile thick disk, versus the summer and winter where we must look through a length of the galactic disk to see objects which lie beyond the Milky Way, which impedes or totally blocks our visual views of the galaxies in either of those directions.



But what about the other galaxies, how do they stack up in our "grain of sand" sized solar system scaling? I've created a chart of some sample galaxies to give you a feel as to how big and how far they would be in our scaled down universe.

Galaxy	Scaled Size in Miles	Scaled Distance from Milky Way in Miles
M31 Andromeda Galaxy	75	1,247
M51 Whirlpool Galaxy	38	15,227
M81 Bode's Galaxy	47	4,747
M101 Pinwheel galaxy	83	10,315
M64 Black Eye Galaxy	26	11,838
Large Magellanic Cloud	16	80
Small Magellanic Cloud	9	101
Canis Major Dwarf the Nearest Galaxy to the Milky Way	2	21
Farthest Galaxy seen by the Webb Space Telescope as of April 2023		6,631,202

One last thing, June is still galaxy season. Although that window is slowly closing, there are a few hours after dark to hunt out some of those faint fuzzies. Start in Leo and work eastward. Have fun getting lost in the abundance of galaxies in the Coma Berenices / Virgo area. While you're at it, why not give the Astronomical League's Galaxy Challenge 2.0 a try? You'll have to work fast though, observations need to be completed by June 15th and submitted by July 15th. Check it out at :

Valley Forge Public Star Party, May 27



Top: Despite the high cirrus clouds, a good time was had by all at the Public Star Party on May 27th, with 55 attendees brandishing over 20 telescopes. In addition to the moon, Venus, and Mars, we observed M44 (Beehive cluster), M81, the Double Double, and briefly, M13 (Hercules cluster). The evening was capped off by a bright pass of the International Space Station at 10:14pm.

Above right: A young observer determined to find Venus with his new Celestron Star Sense Explorer DX.

Left: New members Josie and Justin Licari check out the moon.

Photo credits: Jan Rush

I Finally Found It! Now What?

Al Lamperti [email](#)



You've done your homework, made a list of objects to observe, and found them using your star atlases, computer apps, or go-to telescope. Now what do you do? You ask yourself what is the value of taking astro notes? There are several reasons why you should record your observations. First, it allows you to look for detail to describe what you may not have taken the time to note at first look. Second, your records may be used later as a reference if you try to remember what your impressions were, what magnifications were used and, if you upgrade to a larger telescope, how much more detail do you see now.

There are a number of ways to record your observations. Drawing a lunar or planetary feature or a deep sky object not only results in a permanent record, but also increases your skill as an observer since your eye strives to pull in more detail to draw. A second way to record is simply to write on a notepad or type on your tablet as you observe. (Beware of dew on the electronics and smears of ink). My shorthand was so bad I had a difficult time interpreting my own handwriting the next day. If that's also the case for you, try dictating your notes into a handheld tape recorder or smart phone. I found that I had more things to say than if I simply wrote them down. It also gives you the opportunity to look through the eyepiece and talk at the same time. Using a voice-to-text feature can be useful, or you can later transcribe your notes from the recording and create a more permanent record. Another suggestion is to also enter your notes in a database so that you can more quickly find a previously seen object. It beats thumbing through pages of paper notes later! Moreover, you can back it up and have your hard-earned notes in 2-3 different places.

How can you begin to describe an object? Besides the date, time, place, sky conditions, magnification, instrument and accessories used, you might record the relative ease of finding it as well as anything else that might be in the same field or be nearby. Galaxies can be described by their brightness, shapes, orientation and homogeneity. The resolution of stars or the overall shape can describe open and globular clusters. The shape and brightness of planetary nebula can be commented on both with and without any nebular filters. How much fine detail can you see on the belts of Jupiter? Can you see the shadow of Saturn on its rings or its subdivisions? What about some of those small craters on the Moon?

Whatever your observing interests, they can be documented for future reference. Happy observing!

Upcoming Astro-Events

Jeremy P. Carlo [email](#)



This is a listing of some astronomical events occurring in June through July 2023. These are mostly weekend-length star parties at dark-sky sites, and the Astronomical League Convention (ALCON).

These are not DVAA-sponsored events, so you are encouraged to check the links below and/or directly contact the sponsors of these events for more information.

Events for August 2023 and onward will appear in a future issue; for now note that registration is open for [Stellafane 2023](#) (August 17-20). The [Black Forest Star Party](#) at Cherry Springs State Park will be held Sept. 15-17; registration will be open in summer and will be sure to fill up very quickly! Unfortunately, the Almost Heaven Star Party (Spruce Knob, WV Aug. 18-22) is already sold out, the fastest ever.

York County Star Party (YCSP)	June 14-18	Susquehannock State Park, PA
Cherry Springs Star Party (REGISTRATION FULL)	June 15-18	Potter County, PA
Green Bank Star Quest	June 21-24	Green Bank, WV
Adirondack Astronomy Retreat	July 16-23	Lewis, NY
Astronomical League Convention (ALCON)	July 26-29	Baton Rouge, LA

The May Monthly Meeting

Jeremy P. Carlo [email](#)

The May 2023 DVAA meeting was opened by President Jan Rush. Jan showed a recent photo by Doug Lentz depicting one of the “Leo trios” of galaxies: M95, M96, and M105, along with two dimmer NGC companions. This led into a brief discussion of the Astronomical League’s ongoing “spring galaxy challenge,” in which you observe 10 galaxies out of a list of 20, and conduct an outreach activity related to galaxies, between April 1 and June 15 of this year. The galaxies can be sketched or photographed. Jan then presented AL awards to two DVAA members who have completed the program: John Leimgruber (who created an outreach video now posted on YouTube) and Al Lamperti (who wrote a column about this program in last month’s DVAA newsletter). Jan showed some sketches made by Al, as well as photos of a number of the galaxies taken by Tom Nolasco.

Jan reminded attendees of the return of the quarterly DVAA door prize raffle, led by new Door Prize “Czar” Ken Koeplinger, as well as several upcoming events. Upcoming star parties will be held at Valley Forge on May 27 (rain date May 28), at the Radnor Great American Campout on June 3, and at the Temple Ambler campus on June 23; you can sign up to volunteer for these star parties on the DVAA website. Upcoming overnight star parties include the York County and Cherry Springs Star Parties in June, and the Adirondack Astronomy Retreat in July; more information on these events may be obtained from their organizers.

DVAA Welcoming Chair Brian Lee welcomed three new members, as well as returning member Don D’Egidio. Camping Czar Bill McGeeney gave a report on the recent trip to the Big Dipper Lodge near Cherry Springs, which was well attended and had some good observing, despite iffy weather prospects. Plans are currently in preparation for a fall 2023 trip, and the club plans to return to Cherry Springs in spring 2024.

Next, Al Lamperti gave the observing talk for May 2023. May is of course a great time to look at galaxies, as the night sky points largely “up” and out of the Milky Way’s galactic plane (see diagram p. 6). Al focused (no pun intended) on the constellation Virgo, which is well placed in the evening sky in May. Virgo’s brightest (alpha) star is Spica, which may be found by following the Big Dipper’s handle arc to Arcturus, then speeding on to Spica. Just to the upper right of Spica is Porrima (gamma Virginis), which is a close double star with an orbital period of a little over 100 years. Sometimes the separation of the components is as little as 0.5 arc-seconds, but at present it’s closer to 3”, which can be split in most telescopes at moderate to high power. Of course, the centerpiece of Virgo is the Virgo Cluster of galaxies, the nearest supercluster to our own Local Group at approximately 50 million light-years’ distance. The Virgo cluster contains a variety of different types of galaxies, in-

cluding massive elliptical galaxies such as M87 (with its massive central black hole and jet) and spiral galaxies rich with star-forming regions. Some of the more notable spiral galaxies include M104, the Sombrero galaxy (near the border with Corvus), an edge-on galaxy with a prominent dark dust lane, M58, and M61. Prominent ellipticals include the aforementioned M87, as well as M84 and M86, which lie at the end of “Markarian’s Chain,” a roughly 3-degree long region of galaxies lying along and near a broad arc which can be swept through with a large telescope under dark skies to reveal numerous galaxies. Lying more distant than the Virgo Cluster, but also in the constellation of Virgo, is the quasar 3C273. Appearing as a star-like point at about 13th magnitude, at about 2 billion light-years away it is the most distant object reasonably accessible to (large-ish) amateur telescopes. It’s just a dim point of light, but the light you see left the quasar when the earth was only about half its current age and life was still mostly unicellular (the Cambrian explosion was still nearly 1.5 billion years in the future). Al closed with a plug for DVAA rental scopes; you can see more about them on page 19 of this newsletter.

With committee reports complete, Jan then introduced the evening’s invited speaker, John Homka of the Chesmont Astronomical Society. John is an accomplished amateur telescope maker and observer, and was invited to speak about his custom-made 24” f/3 Dobsonian, which he has outfitted with night-vision and video equipment. Many DVAA members know John from his visits to Blue Mountain Vista Observatory, where he is always happy to share views through the scope, whether with an eyepiece or one of his electronic attachments.

John started by recounting his 50 years in astronomy. His first scope was a 6” reflector on an equatorial mount which he built in the early 1980’s, which he mostly used for old-school photography, manually guiding exposures and exposing the film used. (Anybody else remember film cameras?) This was followed by a 12.5” Dobsonian, which he designed based on the book “Build Your Own Telescope” by Richard Berry. After this, John built an 18.5” f/4 Dobsonian using a Pegasus Optics mirror, which was his primary scope for about 25 years. His goal was to simulate an Obsession scope, but at a cheaper price point, and enjoyed designing and building his own telescope.

After his retirement, John set to work on his current telescope, a 24” Dobsonian with a collapsible truss-tube. He wanted the eyepiece height around 65” so he could keep his feet on the ground, which would require a very short f/ratio mirror. He wanted to get the highest-quality



(Continued on next page)

The May Monthly Meeting (continued)

(Continued from previous page)

images, and to keep the secondary obstruction below 25%. The "sweet spot" was f/3.0, which is the lowest f-ratio which has been fully tested with the Televue Paracorr, and about the lowest f/ratio he could convince mirror maker Terry Ostahowski to make! At this short focal length, about $\frac{1}{2}$ " of glass needed to be ground out of the center of a 2" thick mirror! By designing the rocker box carefully, with the minimum possible clearance of about 1.8", the eyepiece height comes to about 65 inches, perfect for "feet on the ground" observing! The primary mirror, John reported, ended up weighting 64 pounds, and the heavy upper tube assembly, which was made of Baltic birch and itself must support a full-thickness 6" secondary mirror, came to about 35 pounds. This latter consideration led John to come up with an alternate design for the upper tube assembly so that it can more easily be placed securely atop the eight truss poles. This also required a number of counterweights at the bottom to prevent the tube from being too top-heavy, and also required the addition of some springs which can be engaged at low altitude as it tends to become more top-heavy as it points lower to the ground. To keep the azimuth motion smooth, two of the traditional Teflon pads were replaced with low-friction roller bearings. Go-To and tracking capabilities were added on by placing encoders and motors on both axes. Finally, all of the hardwood was coated with about 6 layers of polyurethane stain.

Once John described the design of the telescope, he then discussed its capabilities. With nearly twice the light-gathering power of his 18", he has seen galaxies down to 17th magnitude, including a quasar 8.6 billion light-years away. That makes 3C273 seem nearby in comparison, and light we see now left that quasar 4 billion years before the earth even formed! John described the construction of the mirror and a system of several cooling fans, which provide for extremely stable imaging; he described performing "stupid high power tricks" by stacking Barlows to look at the Ring (M57) and Eskimo (NGC 2392) planetary nebulae at over 2000 power! John also constructed an off-center aperture mask, which provides an effective 9" unobstructed circular aperture, which was great for the recent Mars opposition and other planetary observing where seeing conditions weren't quite up to using the full 25" and the objects were so bright that the extra light is even undesired.

Then John got into the real fun stuff. He purchased a night-vision "bino viewer" which uses a panoramic lens and image intensifier, enabling one to see an imaged brightened by about 50,000x on a screen visible to both eyes. Your humble correspondent can report from his own experience that nebulae such as the Horsehead and Veil can be seen with an astonishing amount of detail, similar to what is seen in photographs, but in real time! The one missing aspect is color, since the output is on greenish monochromatic phosphor screen, but the level of detail is unlike anything which can be seen

through an eyepiece. It should be noted that while the image intensifier brightens the object, it also brightens the sky background by the same factor, so light pollution does matter. However, for emission nebulae, narrow-band filters can be used to dramatically cut down the background light, just as can be done for visual observing, so nebulae typically show the most dramatic appearance through this device. John showed some photos taken through the image intensifier, including the Horsehead and Flame Nebulae in Orion, the Cone Nebula, the North America Nebula, the Crescent Nebula, and the Jellyfish Nebula. He also showed something called the Cat's Paw below Scorpius, which is barely visible from our latitude, as well as "Copeland's Septet" of galaxies (just in case you find Stephan's Quintet and Seyfert's Sextet to be way too bright and easy...) Sadly, this particular night vision camera was discontinued a number of years ago, so you can't just go out and buy your own, although there are other manufacturers who make similar devices.

Finally, John talked about his adventures with video astronomy using a Mallincam. Due to the amount of wiring involved, he mostly uses this from his own home rather than BMVO, but it opens up a new facet of observing. The Mallincam produces "near real time" images, stacking exposures of about 5 seconds. John showed a number of images produced by this system, including the Dumbbell (M27), Ring (M57), the Crab (M1), the edge-on spiral galaxy NGC 891, the galaxy M64, and some more distant galaxies and quasars.

Many thanks to John Homka for an excellent presentation about his scope and its capabilities! And make sure to get up to BMVO in the coming months; maybe John will be there to share some views with you!



Photos from the May Monthly Meeting



President Jan Rush presents Astronomy League award certificates for the Spring Galaxy Challenge to John Leimgruber (left) and Al Lamperti (below).

Photo credits: Mitch Berger



Featured presenter John Homka relates how he built a custom-made 24" f/3 Dobsonian telescope (above). Camping Czar Bill McGeeney shows photos from the Spring Camping Trip at Big Dipper Lodge near Cherry Springs State Park (right).



Photo credits: Mitch Berger

Look Up in the Sky — It's a Bird

Theresa Summer

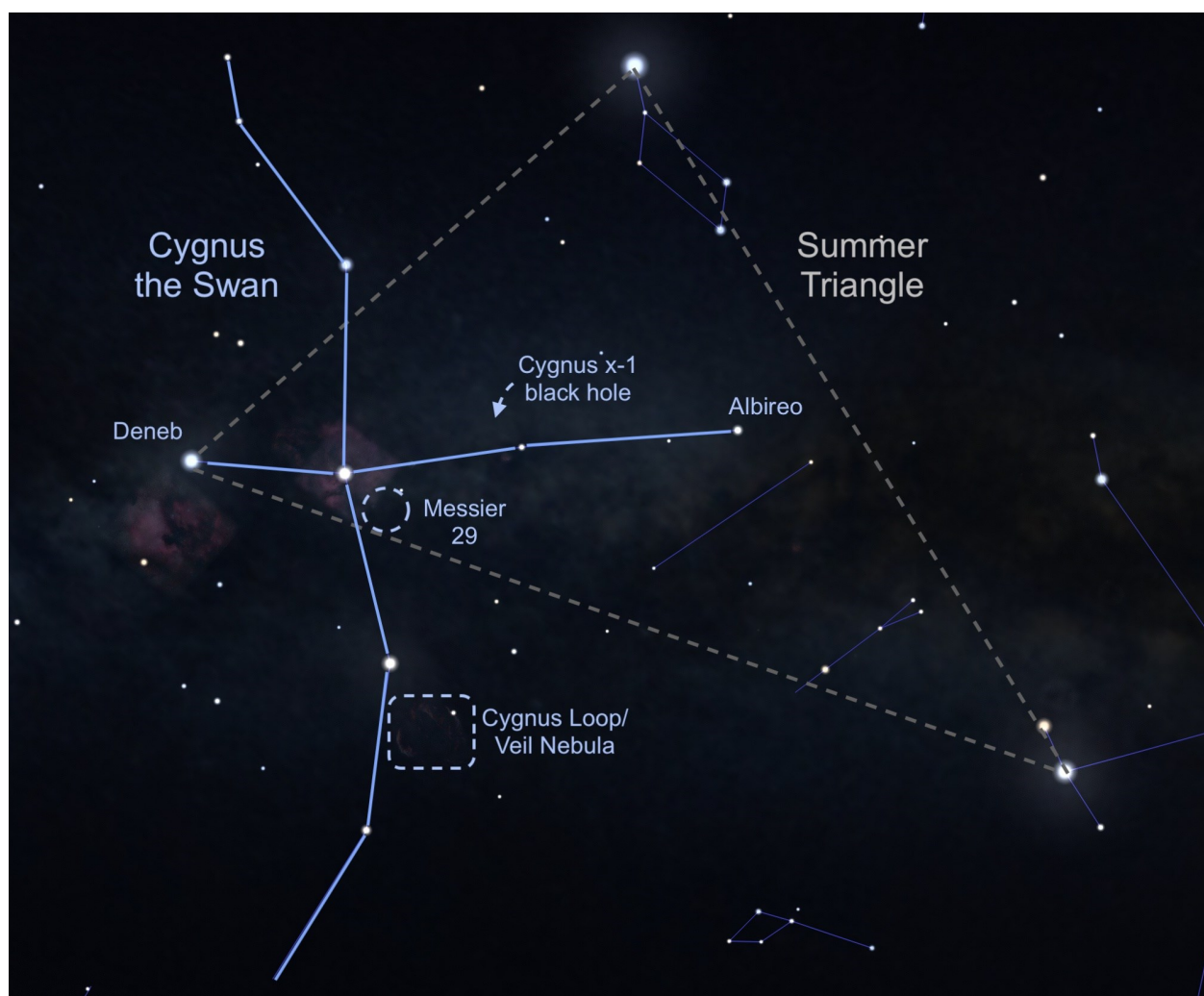


Bird constellations abound in the night sky, including **Cygnus**, the majestic swan. Easy to find with its dazzling stars, it is one of the few constellations that look like its namesake and it is full of treasures. Visible in the Northern Hem-

isphere all summer long, there's so much to see and even some things that can't be seen. To locate Cygnus, start with the brightest star, **Deneb**, also the northeastern most and dimmest star of the Summer Triangle. The Summer Triangle is made

up of three bright stars from three different constellations — read more about it in the September 2022 issue of Night Sky Notes. "Deneb" is an Arabic word meaning the tail. Then travel into the triangle until you see the star **Albireo**, sometimes called the "beak star" in the center of the summer triangle. Stretching out perpendicular from this line are two stars that mark the crossbar, or the wings, and there are also faint stars that extend the swan's wings.

From light-polluted skies, you may only see the brightest stars, sometimes called the Northern Cross. In a darker sky, the line of stars marking the neck of the swan travels along the band of the



Look up after sunset during summer months to find Cygnus! Along the swan's neck find the band of our Milky Way Galaxy. Use a telescope to resolve the colorful stars of Albireo or search out the open cluster of stars in Messier 29. Image created with assistance from Stellarium: stellarium.org

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Look Up in the Sky — It's a Bird (continued)

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Milky Way. A pair of binoculars will resolve many stars along that path, including a sparkling open cluster of stars designated **Messier 29**, found just south of the swan's torso star. This grouping of young stars may appear to have a reddish hue due to nearby excited gas.

Let's go deeper. While the bright beak star Albireo is easy to pick out, a telescope will let its true beauty shine! Like a jewel box in the sky, magnification shows a beautiful visual double star, with a vivid gold star and a brilliant blue star in the same field of view. There's another marvel to be seen with a telescope or strong binoculars – the Cygnus Loop. Sometimes known as the **Veil Nebula**, you can find this supernova remnant (the gassy leftovers blown off of a large dying star) directly above the final two stars of the swan's eastern wing. It will look like a faint ring of illuminated gas about three degrees across (six times the diameter of the Moon).

Speaking of long-dead stars, astronomers have detected a high-energy X-ray source in Cygnus that we can't see with our eyes or backyard telescopes, but that is detectable by NASA's Chandra X-ray Observatory. Discovered in 1971 during a rocket flight, Cygnus x-1 is the first X-ray source to be widely accepted as a black hole. This black hole is the final stage of a giant star's life, with a mass of about 20 Suns. Cygnus x-1 is spinning at a phenomenal rate – more than 800 times a second – while devouring a nearby star. Astronomically speaking, this black hole is in our neighborhood, 6,070 light years away. But it poses no threat to us, just offers a new way to study the universe.

Check out the beautiful bird in your sky this evening, and you will be delighted to add Cygnus to your go-to summer viewing list. Find out NASA's latest methods for studying black holes at www.nasa.gov/black-holes.



While the black hole Cygnus x-1 is invisible with even the most powerful Optical telescope, in X-ray, it shines brightly. On the left is the optical view of that region with the location of Cygnus x-1 shown in the red box as taken by the Digitized Sky Survey. On the right is an artist's conception of the black hole pulling material from its massive blue companion star.

(Credit: NASA/CXC chandra.harvard.edu/photo/2011/cygx1/)



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!

Recent Images by DVAA Members

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

IC 2944, also known as the Running Chicken Nebula, the Lambda Centauri Nebula or the λ Centauri Nebula, is an open cluster with an associated emission nebula found in the constellation Centaurus, near the star λ Centauri. It features Bok globules, which are frequently a site of active star formation. The image was captured by Dan Stern over three nights in March, 2023. This image was selected as the Astronomy Picture of the Day for April 10, 2023! Congratulations once again, Dan, for this very great honor!

Dan obtained the data for this image from a remote telescope in Rio Hurtado, Chili.



Imaging details: Takahashi TOA-130NFB, Planewave L-500 mount – no guider, ZWO ASI6200MM,
Chroma 3nm Ha and Oiii
Data capture: NINA —Total integration time: 13.8 hours over three days in early March.
Ha 86 x 300, Oiii 80 x 300
Processing – Pixinsight HOO Palette

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Recent Images by DVAA Members (continued)

There's a new supernova in the Pinwheel Galaxy! It was discovered May 19th by amateur astronomer Koichi Itagaki. The Pinwheel Galaxy is located in the constellation Ursa Major, about 21 million light-years from earth. When discovered, its magnitude was 18, and had brightened to magnitude 11 as of May 22. This image was captured by Mark Firary the night of May 21 from Woodbine, NJ (Bortle 4). If you would like to take a look for it, the coordinates are RA = 14.03.38.580 DEC = +54.18.42.10. The official name of the supernova is SN2023ixf.

In Mark's words: "21 million years ago, a star in an outer arm of M101 went nova. Two nights ago, an amateur astrophotographer captured an image on the first night the light reached earth. Yesterday, I read about it. Last night I captured these two images. Amazing!!"



Imaging Details: Orion ED80 f7.5 Apochromatic Refractor with 0.85x reducer (524mm FL)
ASI 2600MC Pro at -10°C
Svbony 60mm guide scope (240mm FL) with ASI224MC camera
iOptron CEM-40EC EQ mount
ASlair Plus

Target M101 with 0° camera rotation
75x120s Light frames with no filter (21:56 - 01:00)
Flats, Dark Flats, Darks, Bias calibration frames
Cropped from 6248x4176 to 2000x1500 pixels
Woodbine NJ - Bortle 4

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Recent Images by DVAA Members (continued)

Patience paid off for Doug Lentz who obtained this lovely image of Messier 51 at Blue Mountain Vista Observatory on May 17 after most of the other observers had given up and gone home due to smoke from the Canadian wildfires. However, according to Doug, conditions improved around 1:00AM and for a couple of hours, there was a return to good old Blue Mountain skies.



Imaging details: 23 lights at 210 seconds between 12:15 and 2AM.
Celestron C6 with focal reducer, about 1200mm focal length.
ZWO ASI 533MC camera. -10C. Stacking and processing in the Gimp.

(Continued on next page)

Recent Images by DVAA Members (continued)

Testing out his new ZWO AM5 Equatorial tracking mount, John Leimgruber captured this great view of the Black Eye Galaxy (Messier 64).



M64 "Black Eye" Galaxy in Coma Berenices
AT80ED @ f/7 ZWO ASI585MC w/ ZWO AM5 Tracking Unguided
1 hour total exposure w/ 30sec subs (20 darks) @ 256g Uncropped: 68.3' x 38.4' Resolution: 1.07"/pixel
SharpCap Pro, Stacked & Processed in Siril
John W. Leimgruber III / ubergarm © May 17, 2023 Green Lane Park, PA Bortle 5.4

Update your member profile

We are a big club with many new members, and one way to get to know each other better is through member profiles on our website, www.dvaa.org. The link below is a quick and easy video covering how to do it! In this video you can also learn how to update your preferences, view your transactions and payment history, and how to update your username and password. And don't forget to add a photo!

[How to update member profile](#)

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Capitol Center Hotel
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Baton Rouge, LA 70801

ALCON 2023

KEYNOTE SPEAKERS

- ★ David Eicher—writer, editor-in-chief of *Astronomy Magazine*
- ★ Fred Espanak—co-author of *Totality: The Great American Eclipses of 2017 and 2024*
- ★ David Levy—author, comet hunter



FIELD TRIPS

- ★ Irene Pennington Planetarium
 - ★ LIGO (Laser Interferometer Gravitational-Wave Observatory) Livingston*
 - ★ Louisiana State University Physics & Astronomy
 - ★ Highland Road Park Observatory
- *Spaces are limited for this trip!

SPEAKERS ★ Pranvera Hyseni ★ Guy Consolmagno ★ Dan Davis ★ And many more!

Brought to Baton Rouge by the **Baton Rouge Astronomical Society**

★ Online registration now open—visit alcon2023.org



Introducing Learn@ASP

<https://learn.astrosociety.org/>

The Astronomical Society of the Pacific recently launched a new site where one can access a number of astronomy resources:

“Learn@ASP is the portal to courses, workshops, webinars, and resources from the Astronomical Society of the Pacific. Throughout 2023, we'll expand our offerings for educators, scientists, interpreters, and amateur astronomers. Sign up below to receive announcements about new Learn@ASP offerings.”

Sign up for their newsletter here:

<https://bit.ly/ASPSignUpForm>



ASP

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Want to help with this newsletter?

We are 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 two 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@dva.org!

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 nonprofit 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**, held in person at the Radnor Township Municipal Building, and are 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 members-only clinics and workshops, membership in the Astronomical League (including its publications), discounted subscriptions to *Astronomy* and *Sky and Telescope* magazines, 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: Scott Vanaman, 327 Laurel Drive, Collegeville, PA 19426 or for more information contact treasurer@dvaa.org.

