



THE FOCUS

NEWSLETTER OF THE DELAWARE ASTRONOMICAL SOCIETY

VOLUME 67 ISSUE 1

JANUARY 2025

ON THE MERIDIAN

- All month—Four planets will be visible every night
- Mars at opposition—mag -1.4
- 1/17 Saturn and Mars in conjunction
- 1/29—New Moon
- 2/2—Venus shines at mag -4.6, 37% illuminated, 39 Deg altitude
- Full Snow Moon-2/12

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“Protect the Night” Outreach

During this past holiday season, while visiting the Carlisle, PA area, we had the opportunity to go to the Holiday Open House at the Cameron-Masland Mansion at the [Kings Gap State Park](#).

The Friends of Kings Gap, in partnership with the PA DCNR, decorate the mansion for Christmas and runs an excellent holiday program on two weekends in December.

The mansion is set on a mountain that overlooks part of the Cumberland Valley and is accessed via a winding road through the state park. Although our visit was in Winter, the road is a scenic beauty. The Cameron-Masland mansion was built in 1908 by James McCormick Cameron, a wealthy businessman,

who owned it until his death in 1949. In 1951 the C.H. Masland carpet company purchased the mansion, and in 1973 the mansion and surrounding land were purchased and became a state park in 1974. But I digress.

Our visit to the mansion was one of the best state park facilities that I can remember, but as we were touring the mansion, whose individual rooms were sponsored by local organizations, I was struck by something that, as an amateur astronomer, caused great and unexpected joy.

On the tables in this particular room were brochures provided by Dark Sky PA ([darkskypa.org](#)).

Finding material regarding improving and conserving our skies was heartening, and it

seems that this type of outreach can morph into a greater awareness of a seemingly public underappreciation of the effects of light pollution.

After seeing the outreach effort by Dark Sky PA at this single venue perhaps we should have the DAS consider our outreach events to help spread the word on unmitigated light pollution, not just for our members, but for the public at large.

You can find more information on Dark Sky International further down in this month's FOCUS.

In the meantime, Happy New Year and Clear (Dark) Skies.

-Mark

January Monthly Meeting—1/21

This month, we will be treated to two demonstrations by DAS members. Mike Cimorosi will demonstrate one of his analog computer simulations, and Scott Jackson will give a planetarium show. Note that due to the nature of these talks, the Zoom session will only last through the

announcements, and will not be available for the main talks.

More details [here](#).

OOPS...

If you forgot your 2025 membership dues (still \$30) it's not too late to catch up [HERE](#).

WELCOME NEW MEMBERS

Christian Willauer
Robert and Diane Lee
Douglas Norton
Michael Trythall
Taylor Frederlein
Maryann Yarram

MESSAGE FROM THE PRESIDENT

Dear DAS Members,

Welcome to a new year in the Delaware Astronomical Society! We start the new year stronger than ever, with a near record number of members, great loaner gear, and other equipment for members to enjoy, excellent resources for making a difference in astronomy, and plans to do lots of events for both the public and our club members to spread the joy of astronomy. Although it does tend to be rather cold in the winter time and that can discourage many from venturing outside at night, some of the best objects to observe can be viewed now during some of the most clear and long nights of the year. Also, we are currently in the midst of a Mars Opposition, so it's worth taking a peek at the red planet. If it helps, we do have multiple pieces of club gear (including a new club SeeStar) that will let you observe astronomical objects from the comfort of the warm inside environment. Also, you can observe during Tuesday Night Astronomy Workshops where your DAS pals will hang out in the cold with you to observe the stars.

I hope you got a chance to attend our DAS Holiday party in December. We had a great time with a large number of people in attendance, fantastic food, and great company. Many people sold their old gear that was collecting dust in closets and/or got some great deals on new (to them) astronomy gear. Our Silent Auction was a great success, as we got simple to use scopes in the hands of some budding astronomers, got historical scopes to people who would appreciate them, gained some valuable storage space, and even raised some money for the club. All of this was only possible because of the heroic work of Dave Groski, Greg Weaver, and a plumber, who fixed a last minute water leak that threatened to shut down the party so thank you very much to them for their service! We did not record the holiday party, so you can't see it on YouTube, but you can access all of our other past meetings on our club [YouTube Channel](#). This month we will have a double feature. Mike Cimorosi will present: "An Analog Computer Space-Themed Simulation" and Scott Jackson will be running a Planetarium Program. As usual, a Zoom link will be sent before the meeting and the board meeting will be at 7 pm while the main meeting will start at 8 pm. You can attend both meetings if you like, since our board meetings are open meetings, or you can show up (or log in) a little before 8 pm to attend the main meeting.

Remember that we are still holding DAS Astronomy Workshops every Tuesday, working on projects, and doing observations. All of you are welcome to attend and if you have any questions about astronomy, need help with a telescope, need help with an astronomy project, want to observe with club telescopes, or just want to talk with your DAS friends, these meetings are a great place to do all of that. We also have monthly AP-SIG meetings and Book Club meetings, please watch for announcements on Groups.io. As we move forward into the new year we will have a number of outreach events (though not so many in the Wintertime). Please consider bringing a telescope out to help at one of the events, since it is a lot of fun! We are also planning on having more member star parties and deep sky sessions any time it is clear and people want to observe. Please stay tuned for details for more of these sessions or events via groups.io. I hope to see you at some of our events!

Thank you,
Rob Lancaster
DAS President

A FASTER THAN THE SPEED OF LIGHT TOUR OF OUR SOLAR SYSTEM

BY SCOTT JACKSON

In my never ending frustration to please children and adults alike while attempting to "entertain" them in the planetarium, a massive project was undertaken to tour the entire solar system --even out to the Oort cloud and the helio-pause (now what is that?) using our digital planetarium. Since we are not relegated to staying on earth using our planetarium, I elected to travel very quickly through all the major bodies that make up the greater environment of our home. Very quickly here means traveling greater than the speed of light. I promise that you

won't gain weight or get shorter or not get older (all this due to special relativity). So in our haste to break the laws of physics we will travel to the Oort cloud and back within about a 40 minute period of time. There are lots of cool motions (flying by the sun without getting burned) to keep the littlest



of the kids (and some adults) fully entertained. Along the way we will learn about some astronomy stuff that most amateurs already know -- but hey -- this is a program for the general public. Please come out to be entertained by this show.

Funding for the development of this program was made possible by my Pension and Social Security checks.

No animals were harmed in the creation of this program.

January Monthly Meeting Topics

DESTINATION EUROPA: LASER POWER BEAMING THROUGH AN OCEAN WORLD (AN ANALOG COMPUTER SPACE-THEMED SIMULATION) BY MIKE CIMOROSI

Consider a hypothetical space probe, propelled horizontally by laser power beaming, that is designed to explore just beneath the surface of an alien ocean. With no heavy-duty battery required on board to power the thrusters, a small battery is sufficient to run the probe's sensors. For simplicity, the probe is assumed to be neutrally buoyant.



designed to estimate the speed, v , of the probe as a function of distance traveled, x . Keep in mind that laser power decreases as it travels through the ocean.

The analog computer constructed for this project was

LINKS TO KINGS GAP, AND OTHER ITEMS

- [Visit Cumberland Valley](#)
- [Michaux State Forest](#)
- [Kings Gap Environmental Education Center](#)
- [Michaux State Forest Maps](#)
- [Best Trails in Kings Gap State Park](#)
- [Carlisle, Pa events](#)
- [State Parks.com Along Rt 11](#)
- [Army WarCollege](#)
- [Cameron-Masland Mansion Visitors Guide](#)
- [Northgate Antique Mall](#)
- [Bedford Street Antiques](#)

Although the Carlisle area is not specifically known for dark sky spots, this list is interesting. Michaux State Forest, about 16 miles from Carlisle, is mentioned.

- [25 Best PA Stargazing Spots](#)



More Dark Sky...



From a brochure provided by Dark Sky International

If anyone knows the effects of light pollution it is us, amateur astronomers. We see the direct results of too much light in the environment since it impacts our ability to enjoy the night sky but we may be less aware of the overall impacts of light pollution:

- Destruction of critical wildlife habitat
- Wastes energy and money
- Harms human health
- Decreases safety and security
- Robs us of our night sky heritage
- Inhibits scientific research.

Protecting the night isn't usually top-of-mind even for us, but it is gratifying to know that there is an organized international entity whose mission is to eliminate light pollution. Dark Sky International has local chapters scattered across the U.S. and the world and working in and with those chapters are

Five principles for responsible outdoor lighting

Before adding another light, check to see if you're protecting the night

Is it useful? +1

All light should have a clear purpose. Use lights only when and where they are needed.

Is it targeted? +1

Shield and aim your light so it only falls downward and where it is useful.

Is it low-level? +1

Lights should be no brighter than necessary to save money and reduce glare.

Is it controlled? +1

Lights should only be on when needed. Use timers and motions sensors.

Is it warm-colored? +1

Warm-colored light reduce light pollution. Use amber-toned lighting when possible.

SCORE: __ / 5

Dark Sky outreach handout

thousands of volunteer advocates and delegates that take a more active role in Dark Sky's mission. (Sorry, Delaware doesn't have either. Closest chapter is in PA).

As we do outreach, we may find, or create, opportunities to bring the subject of light pollution into the conversation. We should, as an astronomy club, be aware of the effects of light pollution and be prepared to have discussions among ourselves and the general public.

Our planet will thank you.

[Dark Sky International](#)

[Dark Sky PA](#)

NEW SPACE/ASTRONOMY APPS OF NOTE

BY ANDY ROKITA

I have recently downloaded several interesting apps for astronomy, and I wanted to recommend them to you. I have been looking at apps related to the Moon and Sun and they are quite fun, to say the least, plus they are free with in-app purchase options; I believe that the Google Play Store will also have these apps available.

Totality by Big Kid Science (Germinate LLC)

I downloaded Totality last year before the April 8, 2024 eclipse. It will use your phone's GPS to show you what you will see (partial/total along with a timeline from first contact to last contact) during the eclipse period. You can also use the app to see where the longest eclipse time period will be, the nearest center line point from your location, and you can even enter a specific address to see the eclipse times. It is a very useful tool especially if you have friends and fellow members in specific locations; it currently has interactive maps for solar eclipses to 2030 and previous eclipses including 2024 and 2017.

Solar Eclipse Live (Hanno Rein)

I just downloaded this one and it is very interactive. It will use your GPS and list all solar eclipses for a specific time frame up to the year 2200 and if you will be able to view the particular eclipse from said location. You can also filter visible and non visible eclipses, types of solar eclipses, and show eclipse paths for all eclipses in a particular time period. It is quite informative and is a nice resource to see what you can expect to see; if it had a travel guide the circle would be complete.

Moon Phases and Lunar Calendar (Business City s.r.o)

I recently downloaded this app to get more information to prepare for the March 14 lunar eclipse. It is a very easy and interactive app that uses your GPS to show the current phase of the moon along with the next lunar eclipse date. The app also includes a calendar that will show the specific phase of the moon, percentage of fullness, and specific moonrise and moonset times. Very easy to use and gives you a quick reference when you need it.

Sky Guide (Fifth Star Labs LLC) and ***Stellarium*** (Noctua Software Limited)

I have noticed a lot of times at our public outreach events that the general public have asked us about good apps to view the night sky or a quick reference to see what is in the sky at any given time. I definitely recommend these two apps for easy viewing; both apps will use your GPS to show you the sky and have search engines where you can enter an astronomical object to see where it is located in the sky; both apps also have night mode so you can still view it outside without losing your night vision. Sky Guide features news stories and a calendar which shows specific events (oppositions, conjunctions, etc.), while Stellarium will show more real time objects such as starlink satellites and a date and time search to see what the sky will look like either in the past or in the future. Both apps are solid and trusted for any astronomer and have won awards including editor's choice and are popular downloads.

Enjoy the technology and happy observing

Andy

SCENES FROM DEATH VALLEY

BY RYAN GILBERT



Moonlight at Zabriskie Point (Death Valley, October 2024) -

This overlook on a ridge above Death Valley is popular during sunrise, but I found that moonrise was pretty great, and I had the whole place to myself. As the moon crested above the mountains behind the camera it progressively lit the scene starting at the peaks and working into the valleys, just as would happen during sunrise. The sky portion of the image is a stack of 10-second exposures taken just before moonrise, and the landscape portion is a single exposure taken after moonrise when I judged the light to be most dramatic. The camera didn't move between exposures, allowing for relatively easy compositing.



The Salt at the Bottom of the Continent (Death Valley, October 2024) -

This area is called Devil's Golf Course. At 270 feet below sea level, it's just a few feet higher and a few miles away from the lowest point in North America. These jagged formations are the remnant salt accumulations from the former inland lake that covered what is now Death Valley. It's a dark and quiet place for stargazing, except that airborne dust and salt crystals create a haze that blurs some of the finer astronomical details. Both sky and foreground are image stacks for noise reduction, and I provided the foreground lighting with a flashlight.



AP-SIG Meeting Report for December 2024

by Bill Hanagan, AP-SIG Founder

Elephant Trunk detail by
Mark Mitchell

At 1 PM on Saturday, December 14, the AP-SIG met on-line, via Zoom. We began with the Presentation of Astrophotos. I started off with my latest version of the Leo Trio of galaxies (NGC 3628, M65, and M66), which appears elsewhere in this issue of the FOCUS. I also showed recent images of Jupiter and Mars based on data acquired by Agapios Elia from an observatory on Cyprus. Ben Frederick presented a wide-field view of the Pacman Nebula which showed dust clouds reaching far beyond the main nebula. Lou and I also showed our own versions of the Pacman nebula to illustrate the level of detail present in the nebula. Robert Tuttle showed a high resolution image of the sun acquired with his 50 mm Lunt H-alpha solar scope, which featured plages, filaments, fibrils, active regions, and prominences. Jeff Miller showed images of both M42 and M31 to illustrate the new mosaic functionality recently added to the Seestar.

In the category of Equipment and Techniques, Hari Doraisamy showed a version of Jupiter he has been working on and asked for suggestions on how to capture more detail, which several members were able to provide. Ben also showed us some 3D printer parts he made for a Newtonian telescope he is building. Bob Trebilcock shared some photos of the West Virginia observatory he is currently building. We paused briefly to acquire the group photo below. The next meeting of the AP-SIG is tentatively scheduled for Saturday, January 25.



Astrophotos by AP- SIG & DAS Members

The Leo Triplet (NGC 3628, M65 and M66) in LRGB—by Bill Hanagan

This galaxy group is a perennial favorite of deep sky imagers as well as big Dob users. NGC 3628, on the left, is also known as the “Hamburger Galaxy” and alternately known as “Sarah’s Galaxy”, a tribute to Sarah Williams, author of [The Old Astronomer](#), a poem whose lines are often quoted in reference to deceased astronomers.

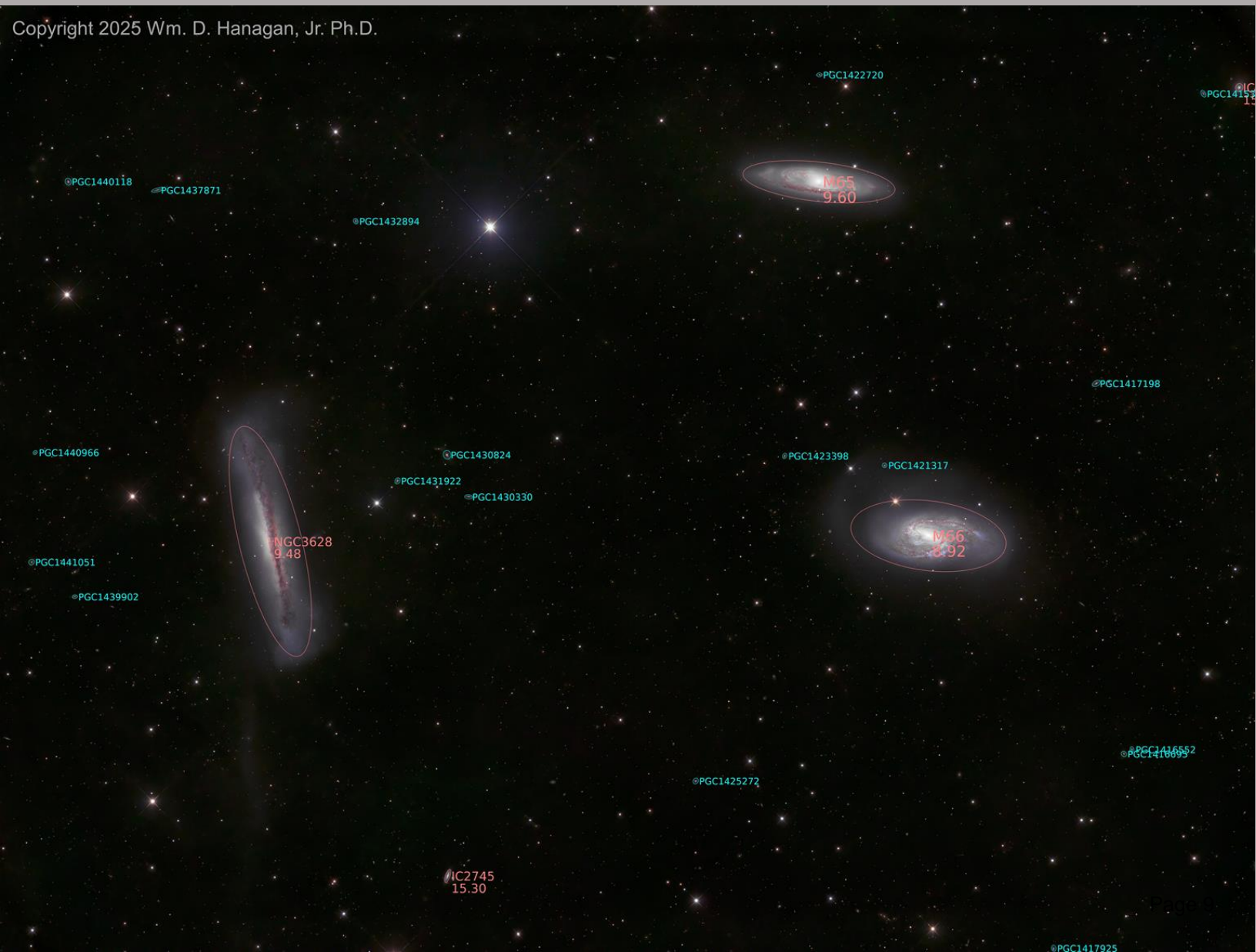
Copyright 2024 Wm. D. Hanagan, Jr. Ph.D.

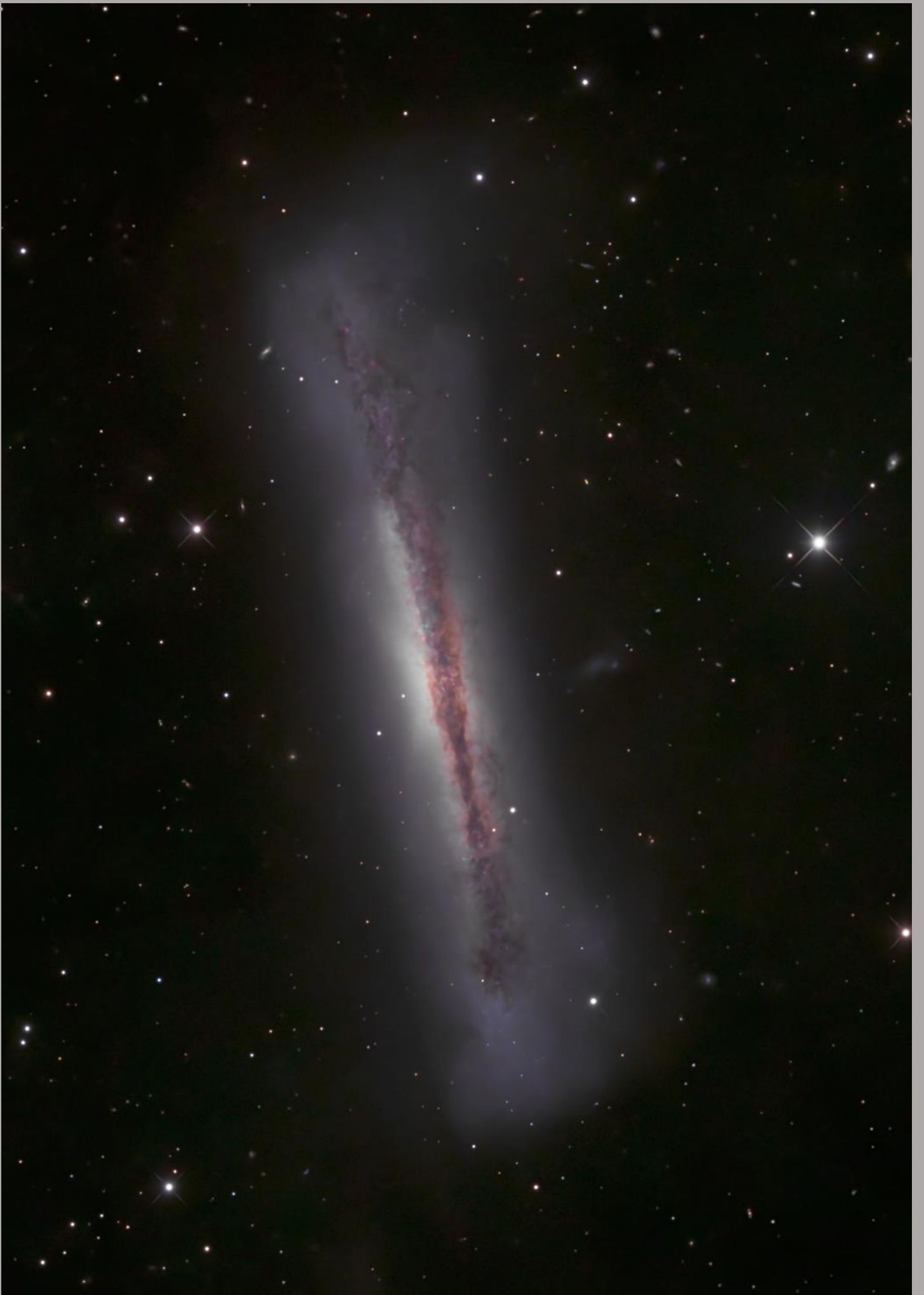


An annotated version of the image appears below. Several interesting unlabeled galaxies can be found in the image in addition to the 23 that are labeled. Designations from 4 different astronomical object catalogs appear here. In rough order of object size and brightness, they are: M (Messier), NGC (New General Catalog, 1888), IC (Index Catalog) and PGC (Principal Galaxies Catalog).

I encourage you to zoom in on the first image for that “Space walk” feeling and on the second image to see how many unlabeled galaxies you can spot. In case your browser lacks the ability to zoom in far enough, tight crops of all 3 of the main galaxies in this image can be found on the pages that follow.

In the first image, look down and a little to the left of the Hamburger and you may be able to see a faint stream of “tidal stars”, running vertically down to the edge of the field. It’s not immediately apparent what interacting galaxy caused this, but it has been suggested that an interaction between the Hamburger and M66 millions of years ago was responsible. All 3 galaxies of the Leo Triplet are reported to be interacting gravitationally.





Looking at the crop of the edge-on Hamburger galaxy, the most interesting feature is the dust lane. Dust lanes are common in images of edge-on galaxies, but this one is unusual in terms of both its width and the extent to which light from the core of the galaxy shines through it. The dust lane also has a rough, asymmetrical appearance which is likely due to the same gravitational effects that produced the tidal star trail.

People sometimes ask: how does this look like a hamburger? Where's the beef? The red and gray dust lane constitutes the burger and the star clouds on either side of the dust lane make up the bun.

The Hamburger Galaxy covers more area on the sky than either of the two Messier galaxies in the Trio and, at Magnitude 9.48, the Hamburger galaxy is brighter than 12 other Messier galaxies including M65. So, why didn't Charles Messier discover the Hamburger galaxy along with M65 and M66? The answer lies in the fact that what you can see in a 4" telescope when looking at this Trio is only the bright cores of M65 and M66, and then only under the most ideal of conditions. The core of the edge-on Hamburger galaxy is obscured by its dust lane, making it much more difficult to spot visually than its magnitude of 9.5 or its larger angular size suggest.

M65 is seen in the second crop, and is a symmetrical spiral galaxy with predominantly older stars, no distinct emission nebulae, and no obvious clusters of young, blue stars. In comparison, M66 (in the third crop) has several distinct emission nebulae (pockets of intense red) and several areas of recent star formation (pockets of blue). The spiral arms of M66 are clearly distorted and asymmetrical. It has been suggested that all of these differences are the results of past gravitational interaction with the Hamburger galaxy.

Data Acquisition for the Leo Triplet (NGC 3628, M65, and M66)

- Data acquisition was done at the Spencer Observatory.
- Scope: 10" Takahashi CCA-250 with 0.72x reducer, at 890 mm and f/3.6 (unobstructed equivalent f/4.63)
- Mount: Astro-Physics 1100GTO with CP4.
- Imaging Camera: Monochrome QSI-683wsg8 with LRGB filters, w OAG, @ -20C.
- Guide Cam: SX Ultrastar (monochrome).
- Computer: Self-built Windows 10 Small Form Factor (SFF) desktop optimized for observatory use.
- Windows Software: ASCOM, APCC Pro, Stellarium, Sequence Generator Pro (SGP), and PHD2.
- Sub-exposures: 5 minutes x 46 Red, 46 Green, 44 Blue, and 155 Luminance, all binned 1x1.
- Total light frame integration time: 24 hours 15 minutes.



PixInsight Image Processing for the Leo Triplet

- A 2X DrizzleIntegration workflow was used to double the number of pixels in both dimensions of the image.
 - This gives a very slight increase in resolution.
 - More importantly, this prevents pixels from becoming visible after deconvolution with BlurXTerminator.
- ImageCalibration, CosmeticCorrection, SubframeSelector, StarAlignment, ImageIntegration, DrizzleIntegration, & Crop were used to produce Red, Green, Blue, and Luminance Masters in the usual way.
- ChannelCombination was used to produce the initial linear RGB image for further processing.
- Spectrophotometric color calibration (SPCC) was applied to the RGB Master to obtain an accurate color balance.
- BlurXTerminator was applied to the RGB and Lum Masters in two separate passes to correct residual optical errors first, and then to sharpen the image through deconvolution.
- NoiseXTerminator was used to reduce random noise.
- HistogramTransformation was applied in a color-neutral fashion to the RGB image to prepare it for Luminance substitution.
- Acquiring Lum or Luminance frames and substituting a Luminance master into the initial RGB image allows a much faster increase in the Signal-to-Noise ratio than can be obtained by simply acquiring more R, G, and B images.
- To create the LRGB Master, the Luminance Master was first stretched to match the RGB image's extracted luminance, and then substituted into the RGB image using LRGBCombination.
- CurvesTransformation was applied to the LRGB Master in a color-neutral fashion to accentuate the visibility of image features and to increase color saturation to make color difference across and between the galaxies easier to see.

Why Describe the Data Acquisition and Image Processing Steps?

First and foremost, providing the details of how the work was conducted is the scientific thing to do. Reading these summaries can help other astrophotographers to better understand the mainstream processes employed here and makes it possible for them to match and perhaps even surpass the results. In essence, the details can be used as a recipe for others to learn from, follow, and potentially build upon.

Storm on Jupiter on 12/7/2024—by Bill Hanagan

My latest image of Jupiter appears below. Thanks go out to Agapios Elia and the Troodos observatory on Cyprus for providing the data. Agapios used a 20" Planewave CDK, a Windows computer for system control and image acquisition, a 2x Barlow (giving f/13.6), a planetary atmospheric dispersion corrector, and a Player One IMX 533 based one-shot color camera. Subframes were captured, allowing for a frame rate of ~ 130 fps.

For image processing, I used AutoStakkert 4 to select the "best 25%" of the frames (about 1,950 frames out of 7,829) from a single 1 minute period. Multi-scale alignment points were used and the "Local" setting allowed the best 25% of frames for each alignment point to be stacked. I used wavelet processing in both Registax 6 and Wavesharp 2 for both sharpening and noise reduction, but ultimately chose the Wavesharp 2 result for display here. I also made adjustments in MS Word to better suit a range of monitors.



M31 —Andromeda

By Bogdan Pazera

GEAR USED

Telescope: William Optics – Redcat 51 3Gen (250mm, f/4.9)
Mount: Celestron Advanced VX Mount
Main Camera: ZWO ASI2600MC (26.1MP, 3.76-micron Pix Size)
Guiding Camera: ZWO ASI174MM Mini (2.4 MP, 5.86-micron Pix Size)
Off Axis-Guider: ZWO M68 Large OAG Off-Axis Guider for ASI Mini Camera
Filter Wheel: ZWO-EFW 5x2
Filter: Optolong 3nm L-Pro 2
Electronic Automatic Focuser: – ZWO EAF 5V USB
Controller: ZWO ASAIR Plus (256MB)

ACQUISITION DETAILS

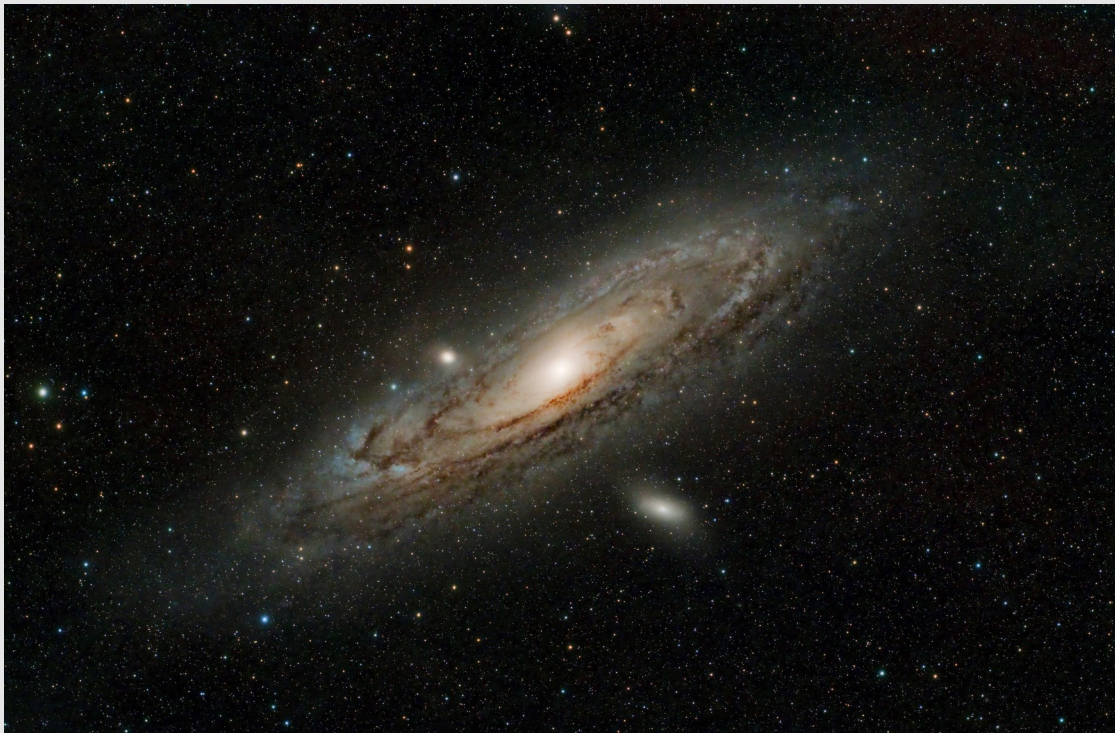
Total Exposure Time: 3.5 hours
Exposure Time per frame: 180 seconds
Gain: 120 at -10 deg C

CALIBRATION FRAMES

Flat: 60
Dark: 60
Dark Flat: 60

SOFTWARE

Adobe Photoshop
PixInsight
RC-Astro Plugins



NGC-1499

By Ron Worden

From the Snobie Observatory at the Lincoln Control Center in Bear, DE.

NGC 1499 or Sh2-220 is an emission nebula located in the constellation Perseus

Technical Information:

Target: NGC 1499 or Sh2-220

Constellation: Perseus

Right Ascension: 04h 03m
18.00s

Declination: +36° 25' 18.0"

Distance: ~1,000 ly

Apparent Magnitude: 6.0

Date: 11/1/2024

Location: Snobie Observatory/
Lincoln Control Center.

Bear, Delaware W75° 40'
43.04" N39° 34' 39.7"

Telescope: ED102 Scientific
Explorer Refractor F7 714mm
Mount: Losmandy G11 Guided
w Dithering

Camera: ZWO ASI 2600MM
Guider: 60mm PrimeLuce Lab
F4 240mm FL & ZWO174 as
autoguider(+1arcsec)

Temperature: 61°F Ambient
cooled to 0°F

Filters: Sii, Ha 3nm narrow
band

Exposure: 24(300sec subs)
(2.0hrs) 12Sii in R channel, 12
Ha in G channel, 12 Ha in B
channel (Sii, H, H pallet)

Software: PixInsight,
PaintshopPro

Frame: 75.5' x 113' arcmin

Calibration with: Master Dark



Copyright Ron Worden

NGC-6871

By Ron Worden

From the Snobie Observatory at the Lincoln Control Center in Bear, DE.
NGC 6871, is a small open cluster in the constellation Cygnus

Technical Information:

Target: NGC 6871

Constellation: Cygnus

Right Ascension: 20h 05m 59s

Declination: +35° 46.6"

Distance: ~5133 ly

Apparent Magnitude: 5.2

Date: 11/24/2024

Location: Snobie Observatory/
Lincoln Control Center.

Bear, Delaware W75° 40'
43.04" N39° 34' 39.7"

Telescope: ED102 Scientific
Explorer Refractor F7 714mm
Mount: Losmandy G11 Guided
w Dithering

Camera: ZWO ASI 2600MM
Guider: 60mm PrimeLuce Lab
F4 240mm FL & ZWO174 as
autoguider(+/-1arcsec)

Temperature: 47°F Ambient
cooled to 0°F

Filters: Sii, Ha, Oiii 3nm narrow
band

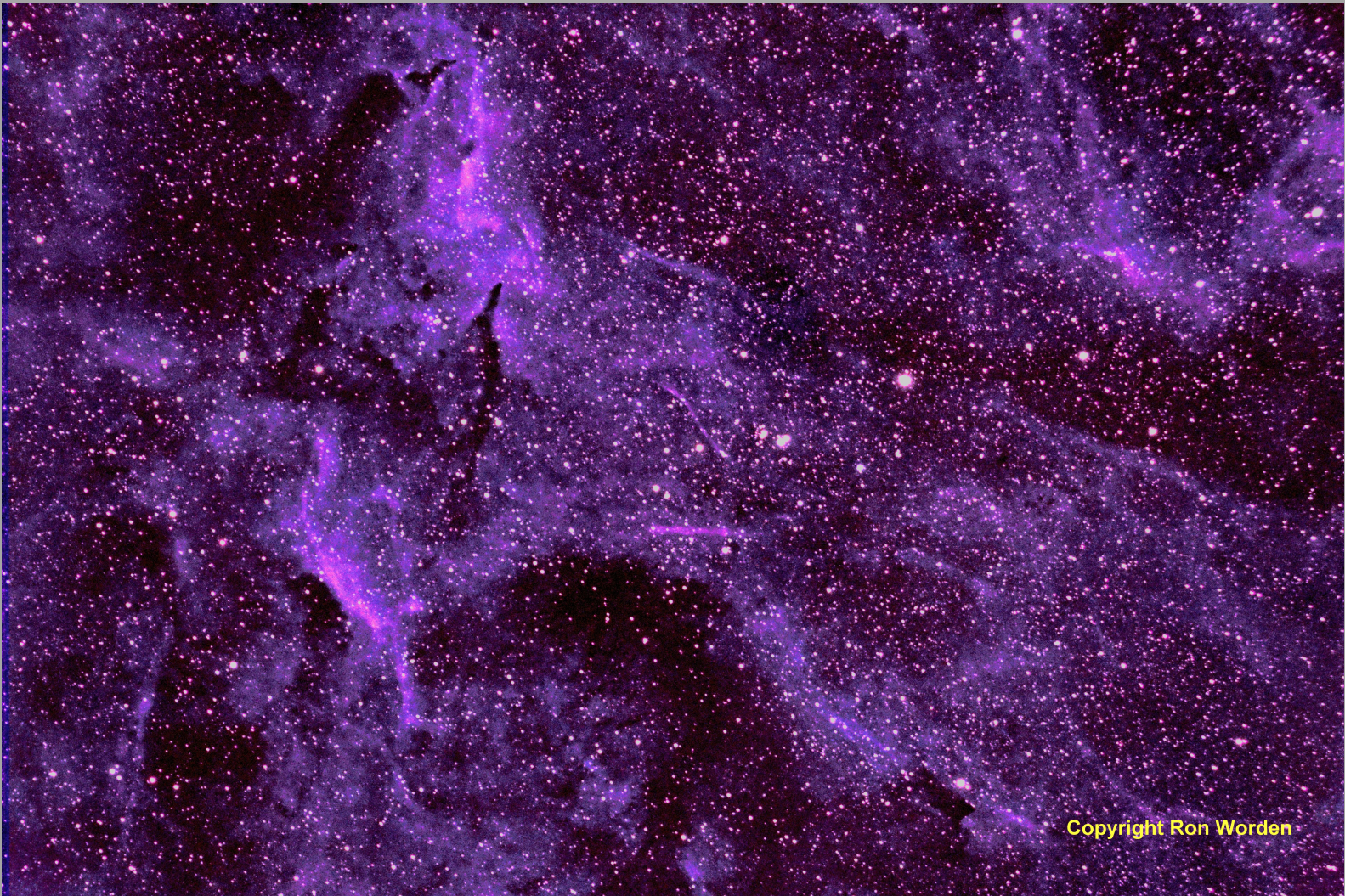
Exposure: 14(300sec subs)
(1.17hrs) 5Sii in R channel, 5

Ha in G channel, 4 Oiii in B
channel (Sii, H, O) pallet

Software: PixInsight,
PaintshopPro

Frame: 75.5' x 113' arcmin

Calibration with: Master Dark



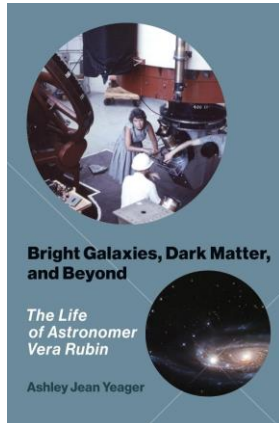
2025 Book Club Calendar

We are pleased to share the [Delaware Astronomical Society\(DAS\) Book Club](#) Calendar for 2025. All Astronomical League members and their guests are invited to attend DAS Book Club meetings. We meet via Zoom. Questions? Please email librarian@delastro.org

Thursday, January 30, 2025

7 PM Eastern Time

Via Zoom



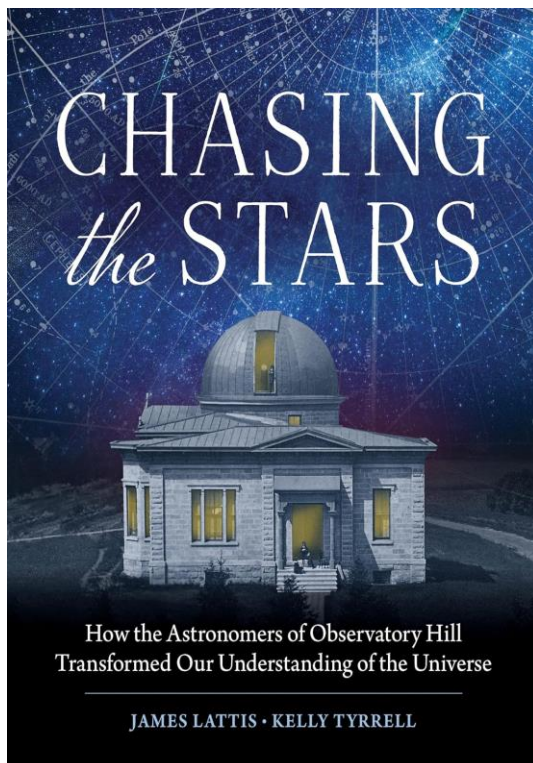
Bright Galaxies, Dark Matter, and Beyond: The Life of Astronomer Vera Rubin

By Ashley J. Yeager

Ashley Yeager will join us for our discussion about Vera Rubin and help us celebrate the long awaited first light at the Vera Rubin Observatory expected in 2025.

The meeting will be led by DAS Members, Beatrice Schwarz and Andy Finkel.

Thursday, February 27, 2025



Chasing the Stars: How the Astronomers of Observatory Hill Transformed Our Understanding of the Universe

by James Lattis and Kelly Tyrrell

James Lattis PhD, Director of the [UW Space Place](#), and **[Kelly Tyrrell](#)** will be joining us from Wisconsin to discuss the storied history of the Washburn Observatory.

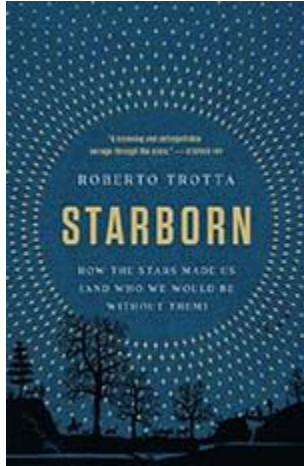
[John Rummel](#), amateur astronomer, photographer and long-time member and past president of the Madison Astronomical Society, will lead the meeting.

Members of the [Madison Astronomical Society](#) will join us in this, the 90th year since the Society was founded in 1935.

Sunday, March 30, 2025

3 PM ET

Via ZOOM



Starborn: How the Stars Made Us (and Who We Would Be Without Them)

by Roberto Trotta

Dr. Robert Trotta will join us from Italy for our meeting.

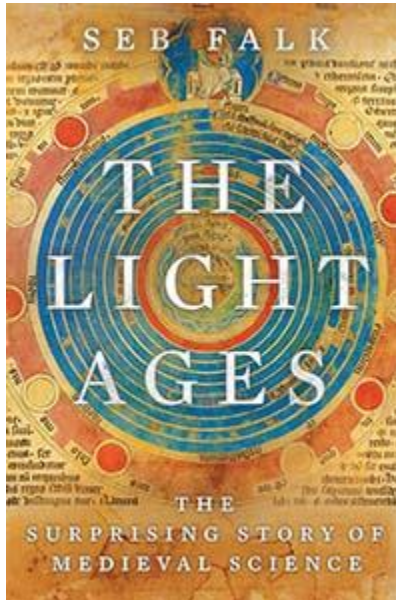
Greg McNiff, DAS and AAS member, will lead our discussion.

Members of the Amateur Astronomers of New York will be joining us for our discussion.

Thursday, April 24, 2025

5 PM ET

Via ZOOM



The Light Ages: The Surprising Story of Medieval Science

by Seb Falk

Winner of the American Astronomical Society's Donald E. Osterbrock Book Award for 2025

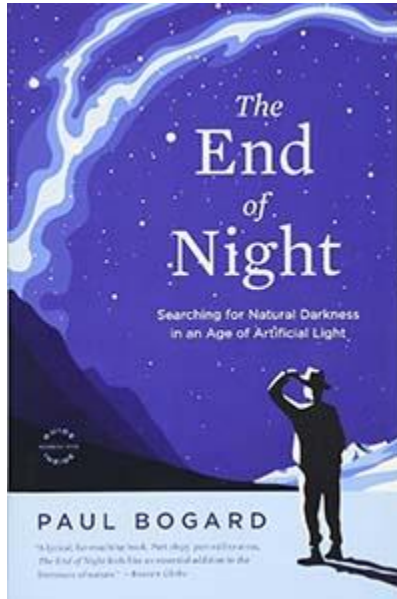
Seb Falk will join us via Zoom from England for the meeting.

Greg McNiff, DAS and AAS-NY board member, will lead the meeting.

Thursday, May 29, 2025

7PM Et

Via Zoom



The End of Night: Searching for Natural Darkness in an Age of Artificial Light
by Paul Bogard

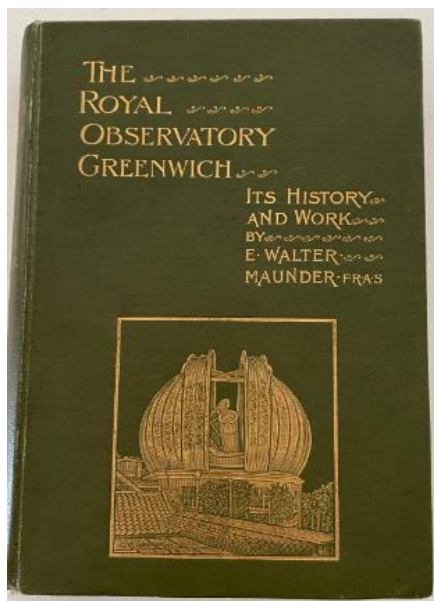
Paul Bogard will join us for our meeting.

Professor Diane Turnshek, DAS Book Club Member and Special Lecturer from Carnegie Mellon University, will lead our discussion

Thursday, June 26, 2025

Time TBA

Via Zoom



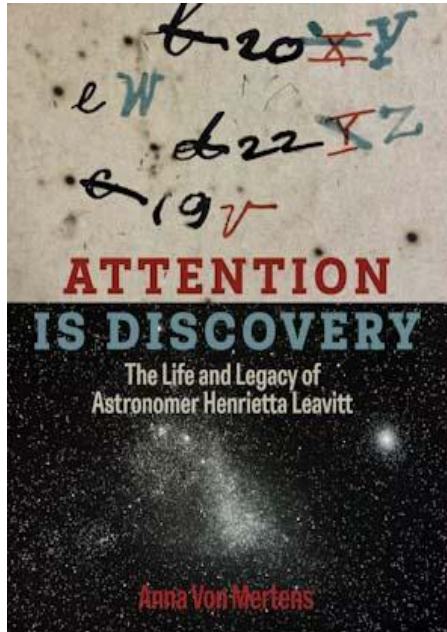
The Royal Observatory, Greenwich: A Glance At Its History And Work
by E. Walter Maunder

Celebration of the 350th anniversary of the founding of Greenwich Observatory with the members of the Flamsteed Astronomy Society in Greenwich is being planned.

Thursday, July 31, 2025

7 PM ET

Via ZOOM



Attention Is Discovery: The Life and Legacy of Astronomer Henrietta Leavitt

by Anna Von Mertens

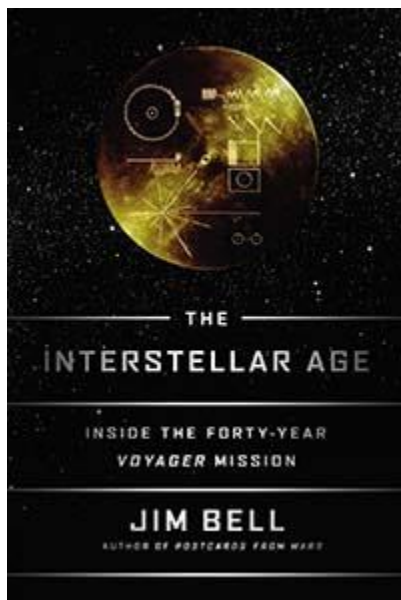
A portrait of trailblazing astronomer Henrietta Leavitt and an illustrated exploration of the power of attention in scientific observation, artistic creation, and the making of meaning.

Anna Van Mertens will be joining us for our discussion.

Thursday, August 28, 2025

7 PM ET

Via ZOOM



The Interstellar Age: Inside the Forty-Year Voyager Mission

by Jim Bell

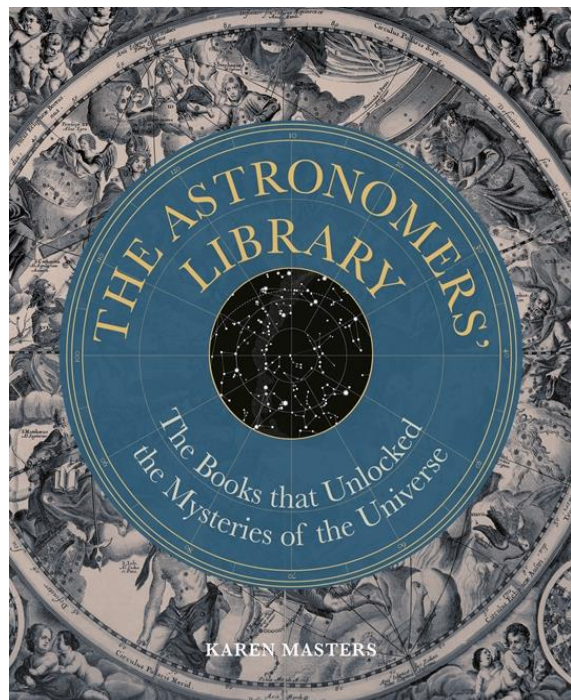
Jim Bell will join us for our meeting.

DAS Member, Dave Hunter, will lead the discussion.

Thursday, September 25, 2025

7PM

Via Zoom



The Astronomers' Library

by Karen Masters PhD of Haverford College

Professor Masters will join us for our meeting.

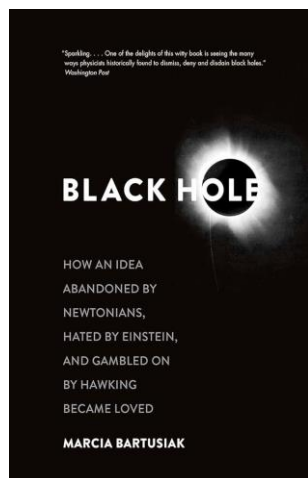
Sarah Horowitz, Rare Book Curator at Haverford College, will join us to discuss the college's collection of rare astronomy books

Astronomy students from Haverford, Bryn Mawr, and Swarthmore Colleges will be invited to join us.

Thursday, October 30, 2025

7 PM ET

Via Zoom



Black Hole: How an Idea Abandoned by Newtonians, Hated by Einstein, and Gambled On by Hawking Became Loved

By Marcia Bartusiak

Marcia Bartusiak will join us for our meeting.

David Ives Brown, Rittenhouse Astronomical Society member, will lead our meeting.

Thursday, November 20, 2025



Keep Watching the Skies! The Story of Operation Moonwatch & The Dawn Of The Space Age

by W. Patrick McCray PhD

UCSB History of Technology and Science Professor W. Patrick McCray will join us for our discussion.

David Ives Brown, DAS Book Club and Rittenhouse Society member, will discuss his Moonwatch telescope-made by the US Navy for the Smithsonian's program.

The Moonwatch Program was the catalyst for the founding of the Delaware Astronomical Society.

The meeting will be led by Dave Groski, DAS At Large Board Member and Chairman of the Board of the MT Cuba Observatory.

Thursday, December 18, 2025

7 PM ET

Via ZOOM



Rayed Arcs and the 'Rory Bory Aylis': Primary World Aurorae and Tolkien's 'Father Christmas Letters

By Kristine Larsen

Dr. Kristine Larsen, an astronomer who teaches at Central Connecticut State University, serves as the editor of the Astronomical League's *Reflector*. She regularly presents and writes about the works of J.R.R. Tolkien.

MORE LIBRARY NEWS

The DAS Library's [America 250 Project](#) has launched---a transcription, annotation and [Stellarium modeling](#) of the *Wilmington Almanack, or Ephemeris, For The Year of our Lord, 1776, Being Bissextile, or Leap-Year*, which was calculated by the Swiss American philomath, Johannes (John) Tobler and printed by Delaware's first printer, James Adams in downtown Wilmington.

The team who worked on the 1762 *Wilmington Almanack Project*, Delaware's first almanac, will be invited to be part of the America 250 Project. Any Society members interested in working on the project should email librarian@delastro.org

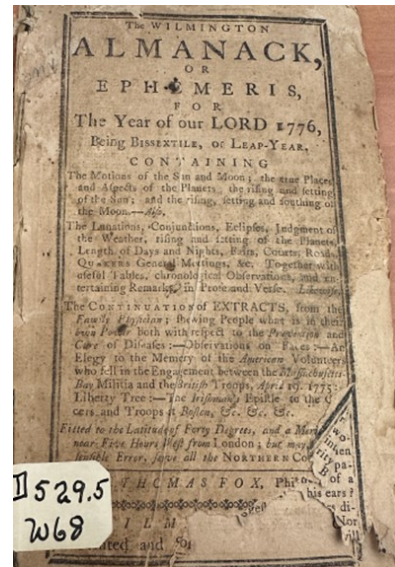


Image Courtesy of the Wilmington Public Library

I believe in evidence. I believe in observation, measurement, and reasoning, confirmed by independent observers. I'll believe anything, no matter how wild and ridiculous, if there is evidence for it. The wilder and more ridiculous something is, however, the firmer and more solid the evidence will have to be.

The saddest aspect of life right now is that science gathers knowledge faster than society gathers wisdom.

-Isaac Asimov, scientist and writer (2 Jan 1920-1992)

JANUARY BOARD MEETING AGENDA

1/21/2025

- Review of Minutes from Last Meeting – Bill McKibben
- Treasurer’s Report – Bob Trebilcock
- Review of the Standing Rules – Rob Lancaster
- Dinner Meeting Planning - Jeff Lawrence
- Updates on other projects

DAS CONTACTS

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Secretary: Bill McKibben, BillMcK21921 AT gmail DOT com

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Sidney Ocampo, sidastronomy AT yahoo DOT com

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Astronomical League Coordinator: K Lynn King, klynking AT verizon DOT net

Astro-Photography Special Interest Group (AP-SIG): Bill Hanagan, hanaganw AT verizon DOT net

Awards Chair: Chris Horrocks bettysmithers AT verizon DOT net

DAS Book Club Leader: Mary Webb, librarian AT delastro DOT org

Elections Chair: Sidney Ocampo, gegocampo AT gmail DOT com

Programs Chair: Jeff Lawrence, Jeff AT DelAstro DOT org

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Refreshments Diana Metzger, (302) 290-2108, DmetzgerMD AT gmail DOT com