THE FOCUS

NEWSLETTER OF THE DELAWARE ASTRONOMICAL SOCIETY

VOLUME 67 ISSUE 3 MARCH 2025

ON THE MERIDIAN

- **3/13—Total lunar eclipse 11:57 pm—6:00 am 3/14**
- **3/20—Vernal equinox 5:01 am local time**
- **3/22—Best weekend for the Messier Marathon**
- **3/23—Saturn Rings disappear**
- **3/23—Dual visibility of Venus**
- **3/29 –New Moon**

INSIDE THIS ISSUE:

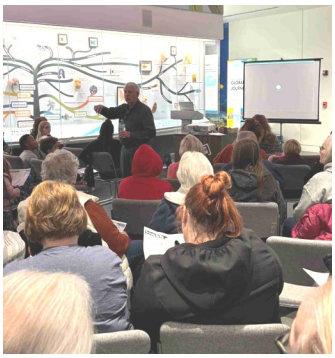
Outreach Notes

Despite the cold Winter nights the DAS outreach programs have been extremely successful recently and they carry on a DAS tradition, sometimes going back to 1993 (see p. 3).

The popularity of these outreach events is a result of our members' participation and the time and effort of members to provide their telescopes and expertise to eager attendees at those events.

I think we all know that by educating the public about astronomy, especially the young people, we can generate a level of curiosity that can lead to a greater interest in Science, Technology, Engineering, and Mathematics (STEM) education. At the very least, we may be able to provide these kids and their parents an opportunity to become part of the DAS.

Our outreach programs have benefitted local interested groups and have led to an increased membership of DAS and an upswing in visitors to our Tuesday Night Workshops. This is a gratifying response, especially when we have to compete with digital media for attention.



Recent outreach event at Delaware Museum of Nature and Science

Those DAS members who volunteer their time, expertise, and equipment deserve a shout out from the Club for what they have done in the past and what they are doing now. This includes the members who work with the community groups to plan and schedule outreach events, the observing coaches who let our clients know what they can expect to see at the outreach event and the volunteers who loan their scopes and provide real-time explanations to the event visitors.Their dedication provides a service to the community and to DAS.

Thanks outreach volunteers!

Clear skies,

Mark

March Club Meeting 3/18

Our meeting topic for March will be a series of mini-talks given by members sharing items of interest to DAS colleagues. If you have something you would like to share, please e-mail me off-thread (jef.law76@gmail.com) with your topic title Any format is fine - feel free to use PowerPoint, or just a collection of photos, or even no visual aid at all - just a nice story. Even if you have something neat that was not astronomy related, members still might enjoy hearing about it. A wide range of talks and topics will make for an interesting meeting!

-Jeff Lawrence

WELCOME, NEW MEMBER

Pamela Droke

DEADLINE FOR APRIL FOCUS

APRIL 1ST

PLEASE SUBMIT MATERIAL TO
focus@delastro.org

MESSAGE FROM THE PRESIDENT

Dear DAS Members,

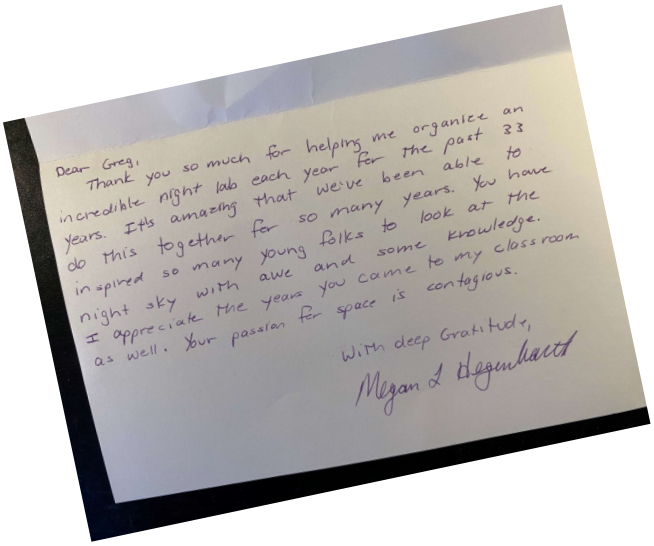
As we head into Spring and the weather warms, we can still briefly see the glorious nebulae and other exciting objects of the winter Milky Way, as we enter Galaxy Season with all of its myriad distant wonders. In addition, later this month, we are going to be treated to an early morning lunar eclipse which should give us several hours of enjoyment assuming the weather cooperates. At our Tuesday night Astronomy Workshops, we have been doing a lot of observing and working on various member projects simultaneously. As the weather warms, hopefully we can continue this great trend and see lots of stellar objects before the mosquitoes reawaken. Also, we are gearing up for our May election for the Board Members at Large. If you are interested in running for office and representing our club on the board, I highly encourage you to run. Please send me an email (You can just reply to one of my many emails to the club) and let me know of your intentions. You too can make a difference!

I hope everyone got a chance to attend our February meeting, where our Vice President and Programming Chair Jeff Lawrence presented "Ancient Wisdom: The Antikythera Mechanism." Thank you very much Jeff, it stimulated some very interesting discussions and was very fascinating. If you would like to go back to watch some of our previous meetings, remember that you can access them on our club YouTube Channel. This month, we will have member mini talks. If you are interested in speaking for about 15 - 20 minutes about a project you are working on or a topic of interest to you, please email Jeff Lawrence, our programming chair and vice-president to get on the list. 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.

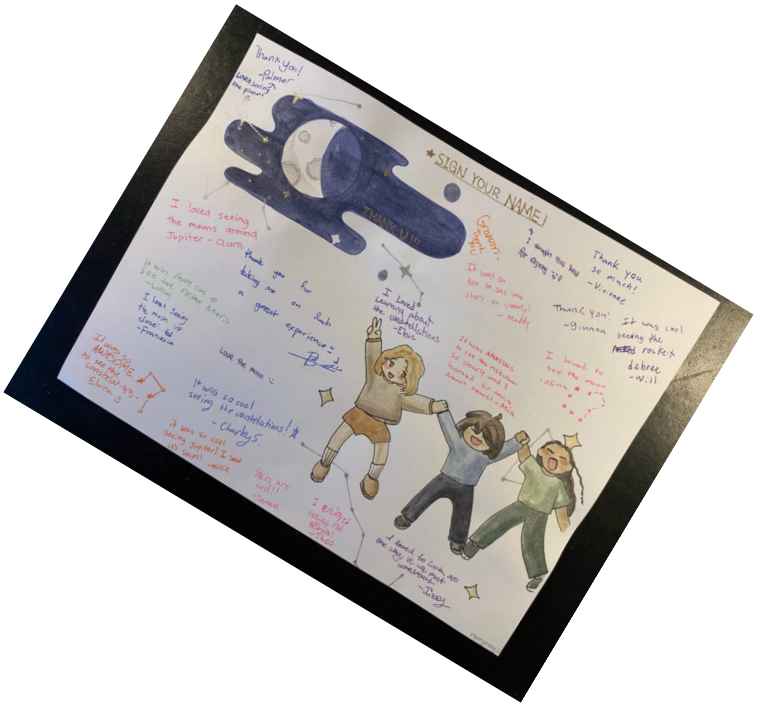
Remember that we are still holding DAS Astronomy Workshops every Tuesday, working on projects, and doing observations. All of you are welcome to attend and if you have any questions about astronomy, need help with a telescope, need help with an astronomy project, want to observe with club telescopes, 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. 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

THANKS, DAS!



The seventh grade students from Wilmington Friends School made this card and their teacher wrote this nice note.



CALL FOR VOLUNTEERS LEARN MORE

Friday Night Lights at ChesLen Preserve

Friday, June 20, 2025
7:00-10:00 pm
Coatesville, PA

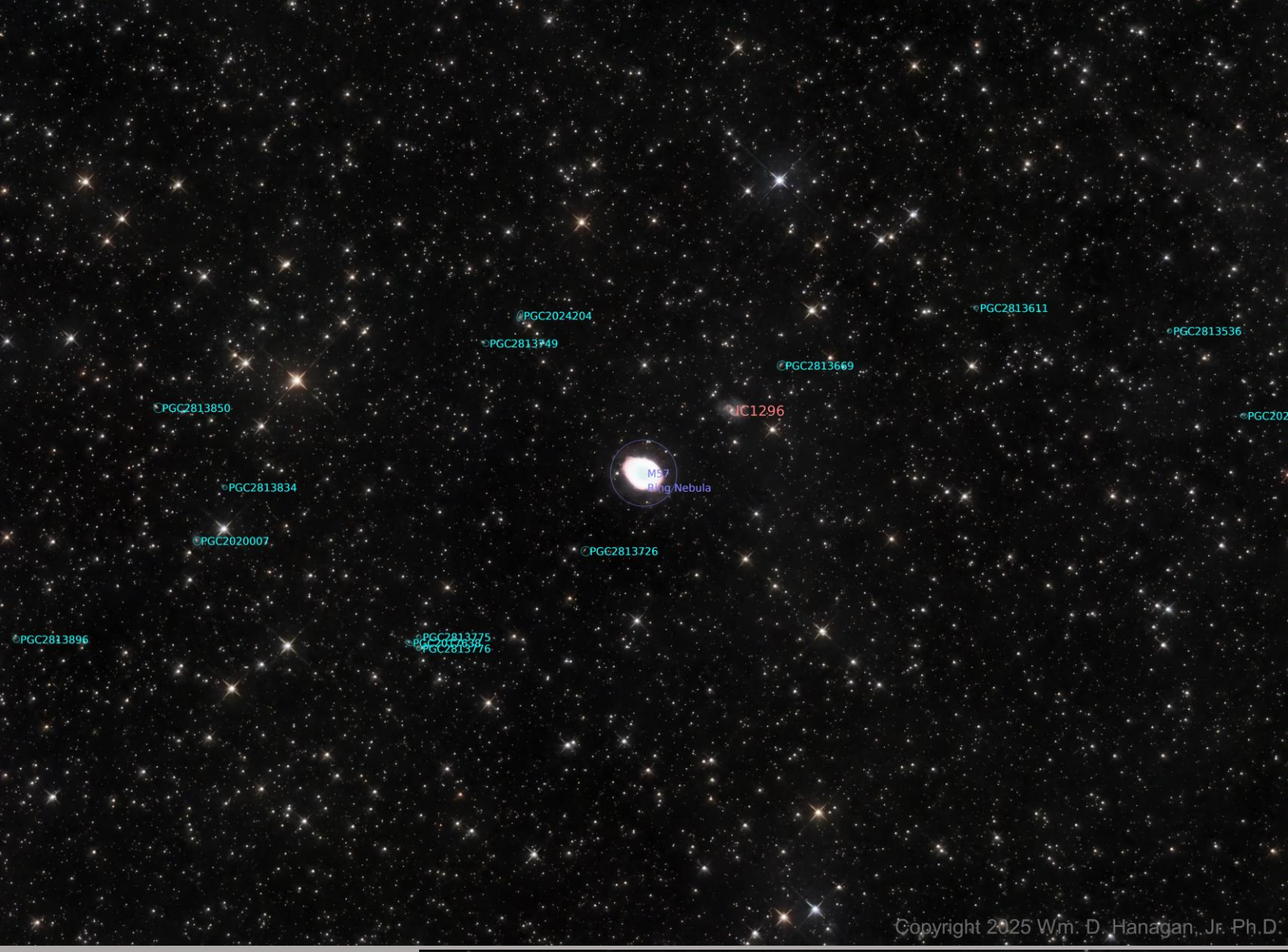
Astrophotos by AP-SIG & DAS Members

The Ring Nebula (M57) in LRGB—by Bill Hanagan

The Ring nebula is a perennial favorite of visual obervers because it's relatively bright and can be seen even with a modest 8" aperture scope under a dark sky. However, at only 1 x 1.5 arc-minutes, M57 is very small. Nevertheless, I decided to image it to see what details I could reveal in it. The resulting image appears below. North is up. This was produced using an APS-C sized image sensor at a focal length of 1250 mm, giving a field of view of 49.4 x 27.2 arc-minutes. Thanks to the proper use of mainstream deep-sky

imaging techniques, including guiding, I was able to produce a sharp result that reveals some of the details in the nebula, as you can see from the cropped verison here.

The image was given a low stretch to keep the brighter features of the nebula from becoming saturated and indistinguishable, but this inhibits the visibility of other deep-sky objects in the background In the third version of the image, on the following page, I re-stretched the full-sized image to reveal several faint background galaxies in the field of view. This was only possible because the image was produced from several hours of image data and not just the minimum needed to reveal the Ring. In all, there are 14 PGC



galaxies and one (larger) IC galaxy, which happens to be just up and to the right from the ring nebula.

A crop of the ring nebula and the barred spiral galaxy IC1296 appears on the right. Hints of the outer shell of the Ring nebula are (barely) visible beyond the saturated central area of the Ring.

Data Acquisition for the Ring Nebula (M57)

- Data was acquired under remote control using the Spencer Observatory.
- Scope: 10” Takahashi CCA-250 in NATIVE mode, at 1250 mm and f/5 (unobstructed equivalent = f/6.11).
- Mount: Astro-Physics 1100GTO with CP4.
- Imaging Camera: CCD cooled to -20C (QSI-683wsg8 w OAG).
- Guide Camera: SX Ultrastar (monochrome).
- Control Computer: Self-built Windows 10 Small Form Factor desktop designed to prevent dust and moisture intrusion.
- Windows Software: ASCOM, APCC Pro, Stellarium, Sequence Generator Pro (SGP), and PHD2.
- Calibration frames included 15 flats per filter, 315 x 10 min. dark frames, and 300 x zero min. bias frames.
- Sub-exposures: 5 min. x (46 L, 21 R, 20 G, & 17 B).
- Total light frame integration time was 8 hours 40 minutes.

PixInsight Image Processing for the Ring Nebula

- A 2X Drizzle workflow was used both to improve the resolution and to quadruple the number of pixels to keep the pixel boundaries from becoming visible after BlurXTerminator was applied.
- Blink, ImageCalibration, CosmeticCorrection, StarAlignment, ImageIntegration, DrizzleIntegration, & Crop were used to produce Luminance, Red, Green, and Blue masters.
- ChannelCombination was used to produce an RGB Master.
- DBE was used to remove very slight gradients from the RGB and Luminance Masters.
- BlurXTerminator and NoiseXTerminator were applied to the Luminance and RGB masters.
- The linLRGB script was used to blend the Luminance and RGB masters into the final LRGB master.
- HistogramTransformation (alone) was used for all of the stretches.

M42, M43

By Ron Worden

From the Snobie Observatory at the Lincoln Control Center in Bear, DE.
M42 also known as NGC1976 in constellation Orion. Also called Orion Nebula.
M43 also known as De Mairan's Nebula and NGC 1982 is an H II region in the Orion constellation

Technical Information:

Target : M42(NGC1976) Orion Nebula. M43(NGC1982) De Mairan's Nebula
Right Ascension: 05h 35m 17.3s
Declination: -05* 23' 28"
Distance: ~1344 ly
Apparent magnitude: +4.0
Apparent size: 65 x 60 arcmin
Right Ascension: 05h 35.6m
Declination: -05* 16'
Distance: ~1600 ly
Apparent magnitude: +9.0
Apparent size: 20 x 15 arcmin
Date: 2/1/2025
Location: Bear, Delaware W75* 40' 43.04" N39* 34' 39.7"
Telescope: Sharpstar SCA260 260mm f/5 "Super" Ashperical Cassegrain Astrograph FL 1300mm
Mount: Losmandy G11 Guided w Dithering
Camera: ZWO ASI071MCPro
Temerature: 29*F Ambient cooled to 0*F
Filters: OneShotColor
Exposure: 12LFs – 300 sec subs(1hr)
Software: PixInsight, PaintshopPro
Frame: 41.5' x 62.4' arcmin
Calibration with: Master Dark

M-106

By Ron Worden

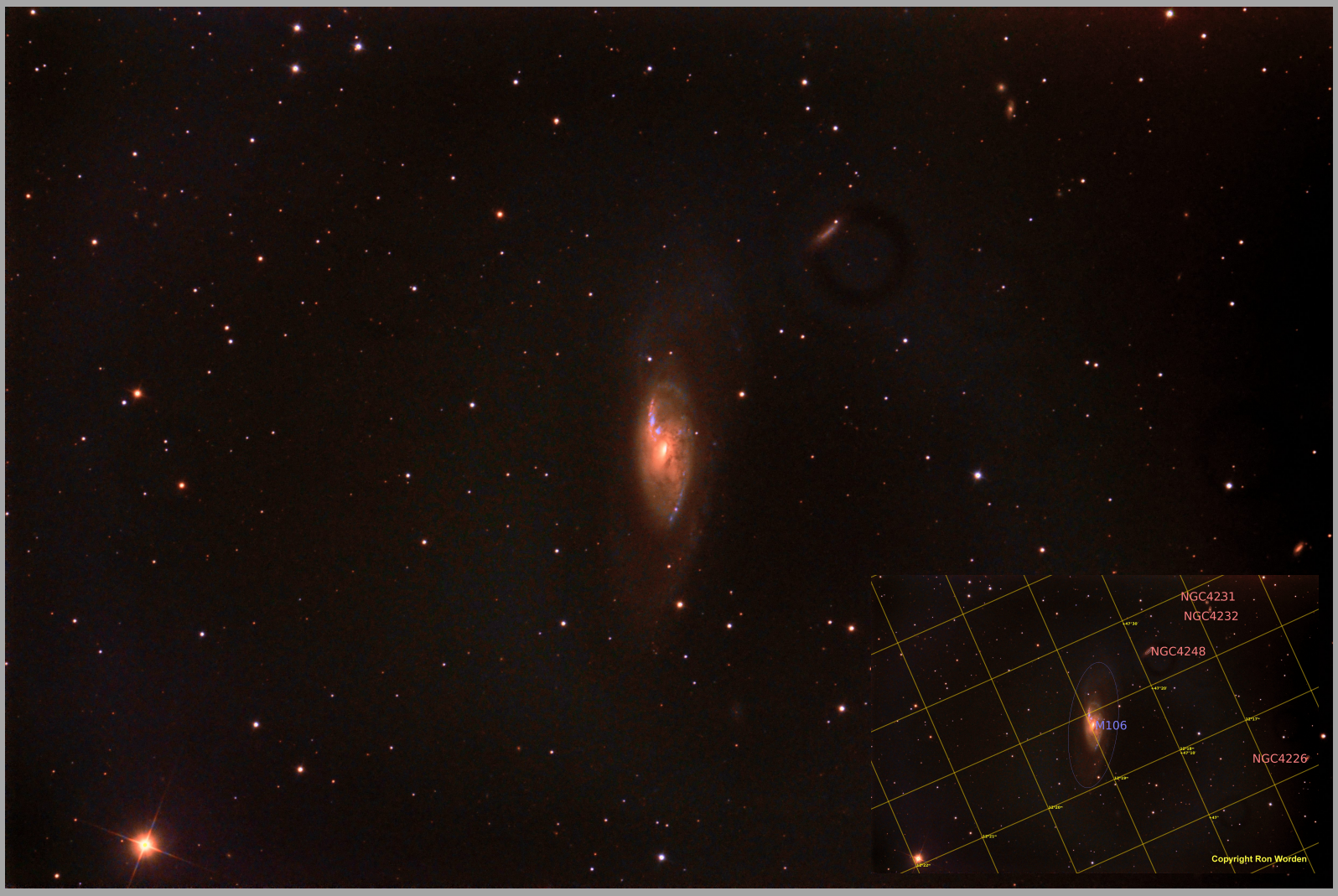
From the Snobie Observatory at the Lincoln Control Center in Bear, DE.
M106 (NGC 4258) is an intermediate spiral galaxy in the constellation Canes Venatici.

Technical Information:

Target : M106 (NGC 4258)
Constellation: Canes Venatica
Right Ascension: 12h 18m 57.5s
Declination: +47* 18' 14"
Distance: ~23.7 Mly
Apparent magnitude: +8.4
Apparent size: 18.6'x7.2'
Size: 135,000 Ly
Date: 02/1/2025

Location: Snobie Observatory/ Lincoln Control Center.
Bear, Delaware W75* 40' 43.04" N39* 34' 39.7"
Telescope: Sharpstar SCA260 260mm f/5 "Super" Ashperical Cassegrain Astrograph FL 1300mm
Mount: Losmandy G11 Guided with Dithering
Cameras: ZWO ASI071MCPro

Temperature: 26*F cooled to 0*C
Filters: OneShotColor
Guider: 60mm PrimeLuce Lab F4 240mm FL w ZWO174 as autoguider(+-1arcsec)
Exposure: 12LFs 300sec
Software: PixInsight
Frame: 41.5' x 62.4' arcmin
Calibration with: 10 dark frames



NGC-2024

By Ron Worden

From the Snobie Observatory at the Lincoln Control Center in Bear, DE.
The Flame Nebula, designated as NGC 2024 and Sh2-277, is an emission nebula in the constellation Orion

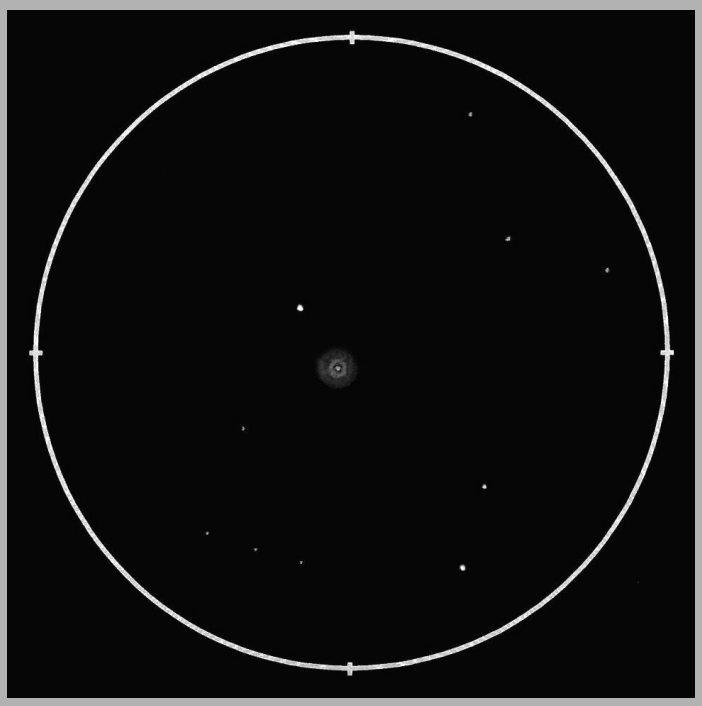
Technical Information:

Target: NGC 2024
Constellation: Orion
Right Ascension: 05h 41m 54s
Declination: −01° 51′ 0.0″
Distance: ~1350 ly
Apparent magnitude: +10
Apparent size: 30'x30'
Date: 2/1/2025
Location: Snobie Observatory/ Lincoln Control Center.
Bear, Delaware W75* 40' 43.04" N39* 34' 39.7"
Telescope: Sharpstar SCA260 260mm f/5 "Super" Ashperical Cassegrain Astrograph FL 1300mm
Mount: Losmandy G11 Guided w Dithering
Camera: ZWO ASI071MCPro
Filters: OneShotColor
Guider: 60mm PrimeLuce Lab F4 240mm FL w ZWO174 as autoguider(+-1arcsec)
Temperature: 29*F Ambient cooled to 0*F
Exposure: 12LF's 300sec subs(1.0hrs)
Software: PixInsight, PaintshopPro
Frame: 41.5' x 62.4' arcmin
Calibration with: Master Dark

SKETCH GALLERY

By Chris Myers

NGC 2392—Eskimo Nebula



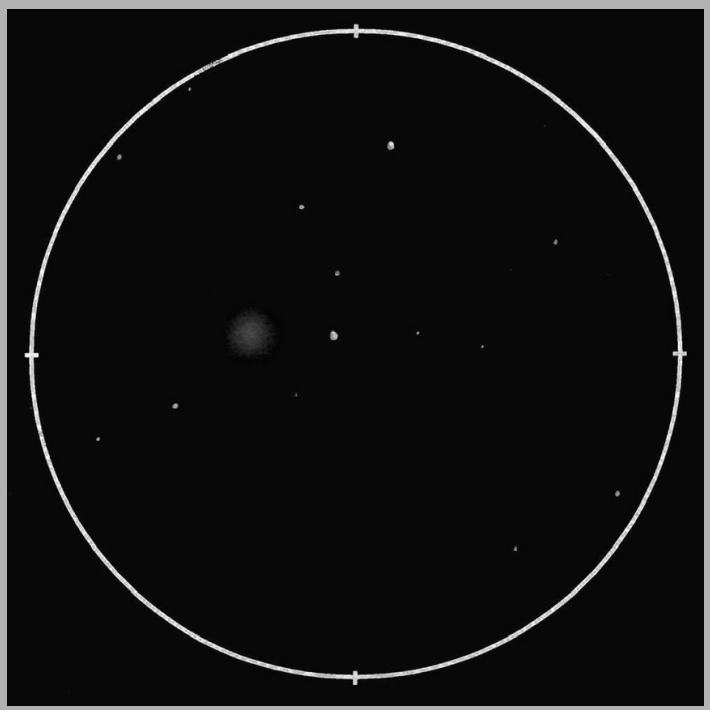
EQUPMENT

- Celestron 8se
- .063 focal reducer(which I should have taken off but I was too lazy)
- 18mm Meade 5000 UWA
- 3x Xcel Barlow(I really need to get a nice 6mm eyepiece)
- White printer paper
- Mechanical #2 pencil
- Lumicon OIII filter for nebula detail (older generation)

OTHER NOTES

- 2/25/25—10:25 pm —10:45 pm
- Bortle 6-ish skies
- Moon well below horizon
- Poor seeing
- Good transparency
- 213x magnification
- ~.3 degree FOV

NGC 3077



EQUPMENT

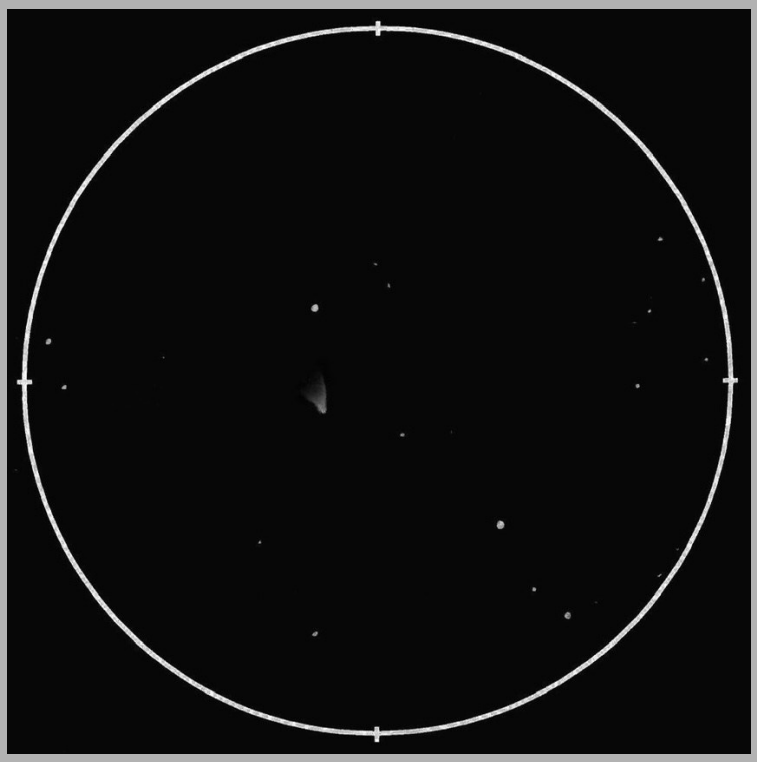
- Celestron 8se
- .063 focal reducer
- 12mm x 60^{o} eyepiece
- White printer paper
- Mechanical #2 pencil

OTHER NOTES

- 2/25/25—9:35 pm —9:45 pm
- Bortle 6-ish skies
- Moon well below horizon
- Poor seeing
- Good transparency
- 107x magnification
- ~.56 degree FOV

SKETCH GALLERY, cont'd

NGC 2261 - Hubble's Variable Nebula



EQUPMENT

- Celestron 8se
- .063 focal reducer
- 12mm x 60^{o} eyepiece
- White printer paper
- Mechanical #2 pencil

OTHER NOTES

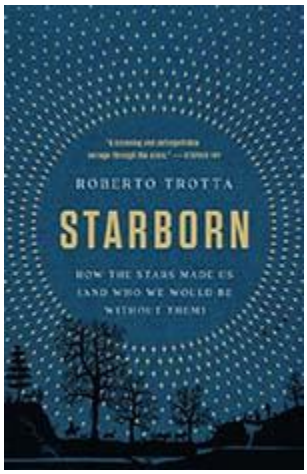
- 2/25/25—9:55 pm —10:10 pm
- Bortle 6-ish skies
- Moon well below horizon
- Poor seeing
- Good transparency
- 160x magnification
- ~.37 degree FOV

DELAWARE ASTRONOMICAL SOCIETY(DAS) BOOK CLUB

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

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

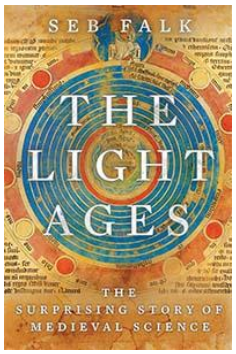
Dr. Robert Trotta, a professor of physics and astrostatistics, will join us from London for our meeting.

Greg McNiff, DAS and AAA-NY member, will lead our discussion.

Members of the Amateur Astronomers Association of New York will join us for our discussion

DELAWARE ASTRONOMICAL SOCIETY(DAS) BOOK CLUB

Thursday, April 24, 2025
5 PM ET
Via ZOOM



The Light Ages: The Surprising Story of Medieval Science
by Seb Falk

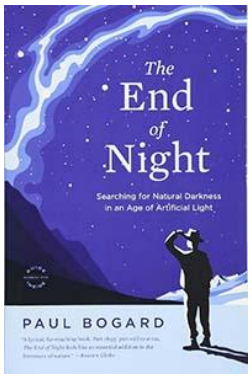
Winner of the American Astronomical Society's
Donald E. Osterbrock Book Award for 2025

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

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

DELAWARE ASTRONOMICAL SOCIETY(DAS) BOOK CLUB

Thursday, May 29, 2025
7PM Et
Via Zoom

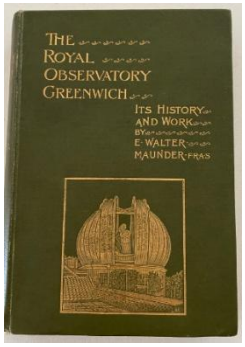


The End of Night: Searching for Natural Darkness in an Age of Artificial Light
by Paul Bogard

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

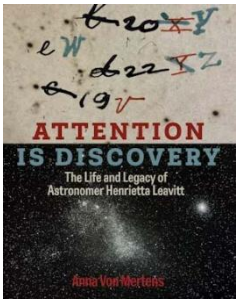


The Royal Observatory, Greenwich: A Glance At Its History And Work
by E. Walter Maunder

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

DELAWARE ASTRONOMICAL SOCIETY(DAS) BOOK CLUB

Thursday, July 31, 2025
7 PM ET
Via ZOOM



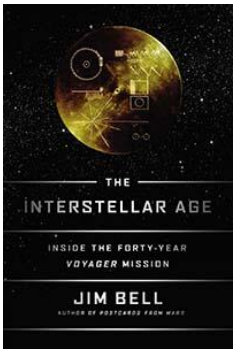
Attention Is Discovery:The Life and Legacy of Astronomer Henrietta Leavitt

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

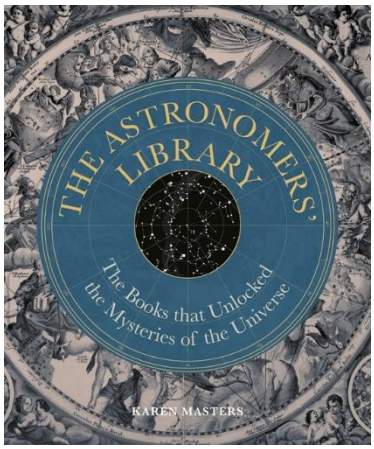
Jim Bell will join us for our meeting.

DAS Member, Dave Hunter, will lead the discussion.

T

DELAWARE ASTRONOMICAL SOCIETY(DAS) BOOK CLUB

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.

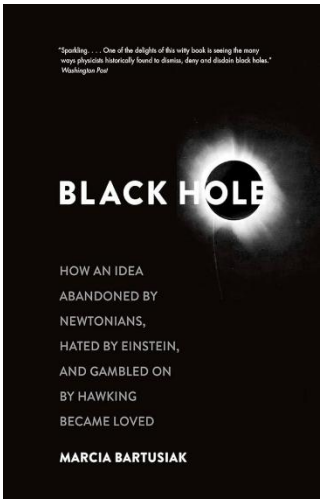
Astronomy students from Haverford, Bryn Mawr, and Swarthmore Colleges will be invited to join us.

John W, Briggs, astronomer, science historian, instrumentation engineer and founder of the FOAH Observatory and the Astronomical Lyceum, will also be with us.

DAS Book Club member, Brad Wolvin, will lead the meeting.

DELAWARE ASTRONOMICAL SOCIETY(DAS) BOOK CLUB

Thursday, October 30, 2025
7 PM ET
Via ZOOM



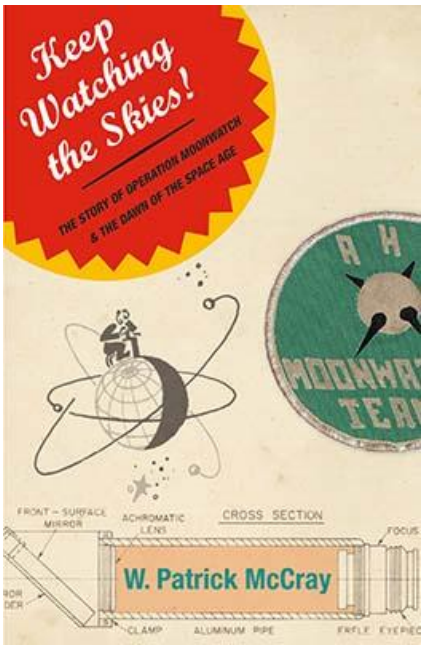
Black Hole: How an Idea Abandoned by Newtonians, Hated by Einstein, and Gambled On by Hawking Became Loved

By Marcia Bartusiak

Marcia Bartusiak will join us for our meeting.

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

Thursday, November 20, 2025
7 PM ET
Via ZOOM



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.

DELAWARE ASTRONOMICAL SOCIETY(DAS) BOOK CLUB

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

Professor Larsen will join us for our meeting.

DAS Book Club, CCAS, and MERAL Chair, Don Knab, will lead the meeting.

BOARD MEETING AGENDA

3/18

- Review of Minutes from Last Meeting – Bill McKibben
- Treasurer's Report – Bob Trebilcock
- DAS Dinner Meeting – Jeff Lawrence
- Project updates – Jeff and Chris
- Equipment plans – Bill McKibben
- Updates on other projects

DAS CONTACTS

OFFICERS:

President: Rob Lancaster, Rlancaste AT gmail DOT com

Vice-President: Jeff Lawrence, (302) 668-8277, Jeff.law76 AT gmail DOT com

Secretary: Bill McKibben, BillMcK21921 AT gmail DOT com

Treasurer: Bob Trebilcock, trebilcock AT aol DOT com

BOARD MEMBERS AT LARGE:

Terry Lisanski, lisanski AT udel DOT edu

Dave Groski, groski AT udel DOTedu

Sidney Ocampo, sidastronomy AT yahoo DOT com

STANDING COMMITTEE CHAIRS:

Observatory: Chris Horrocks, bettysmithers AT verizon DOT net

Education: Jim Kerschen Kerschen AT Verizon.net

Library: Mary Webb, librarian AT delastro DOT org

Observing: Greg Lee, (302)252-7806, greglee288 AT gmail DOT com

Publications: Mark Jacobini 484 643-2162 focus AT delastro DOT org

OTHER POSITIONS:

Amateur Telescope Making Special Interest Group: Bill Hanagan, hanaganw AT verizon DOT net

Astronomical League Coordinator: K Lynn King, klynnking 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

Webmaster: Rob Lancaster, Rlancaste AT gmailDOTcom

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