



Peoria Astronomical Society, Inc.

P.O. Box 10111 Peoria, IL 61612-0111
Section of Peoria Academy of Science
Affiliate of the Astronomical League
www.astronomical.org

STARLITE

Spring, 2024

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2023 Uranian system
with 6 moons JWST

Officers:

President: Dan Son, sonshine1992@gmail.com
Vice-President: Jesse Hoover
Secretary: Linda Groezinger
Treasurer: Dave Monroe, dave.monroe@comcast.net

Directors:

Parliamentarian: Dave Monroe, dave.monroe@comcast.net
Nominating Chairman: Open
Legal Agent: Rodney Nordstrom
Northmoor Chairman: Dan Son, sonshine1992@gmail.com
Jubilee Chairman: Jesse Hoover

PEORIA ASTRONOMICAL SOCIETY IS NOW ON FACEBOOK:
www.facebook.com/PeoriaAstronomicalSociety

Update your address, phone or email changes

Please notify Dan Son at sonshine1992@gmail.com if you will be getting a new mailing address, email address and/or phone number. It is important that he has your personal information correct so you will continue to receive the Starlite and the Reflector.

NEW MEMBERS:

The Peoria Astronomical Society welcomes new members: Mary Seng, Timothy Martinson, PJ Baer and Douglas Brissey.

2024 Meteor Shower Comet's Schedule:

Comet 12P/Pons-Brooks Begins the month in Andromeda. Finder chart can be found here: <https://cometchasing.skyhound.com/comets/12P.pdf> . It may be visible with binoculars or a small telescope. It is not visible in April in Northern Hemisphere.

The **Lyrids Meteor** shower is April 21-22 but the Moon will be 96% full. The **Eta Aquariids** peak around May 5-6 in early morning and the moon will be 10% waning crescent.

Presidents Ramblings:



Well what a pleasant winter we have had...! I hope everyone has cleaned up their eye pieces and maintained and fine tuned their equipment. March is a good time to get out and do a Messier Marathon even a mini marathon. Nothing is being organized but anytime around new moon (Sunday March 10th) is a great time to do this.

It almost eclipse time. I know myself and several members are going places to observe this event but if you will not be leaving Peoria you can go to the Riverfront Planetarium to join a large group using the solar scope to observe the passing moon sun combo. Time for this event is 12:30-2:30pm on the Museum's Sun Plaza.

Northmoor Observatory is in fine condition. Soon I will be cleaning it up, taking down the winter insulation and making sure everything work fine. I am in the process of making a duty roster for Saturday nights from May 11th to October 19th, that's 24 nights of the public joining us to look through the telescope. We can always use more helpers to guide the crowd and talk to them and answer questions. If you want to help and learn more, feel free to call me (309)-224-9150. Northmoor will be a quieter place with the passing of fellow PAS member Terry Beachler. He has helper or fixed anything that needed repaired on this telescope for many years. His smile and friendship will be missed on many Saturday nights.

April 12th & 13th will be the ICC Star Party with a rain date of May 3rd & 4th. 1st date that is cloud free will be the winner so get your scopes ready for Jubilee.

Dan Son
President

Facts ...just the Facts..

A star can come back from the dead if it steals the life force from another. In some very rare cases, a white dwarf (a dead star) will suck in material from a nearby star, getting massive enough to reignite. In other words, there are zombie vampire stars.

The Parker Solar Probe set a record this year for the highest speed reached by any human-made object. Its peak speed was 176 kilometers per second (more than 39,000 miles per hour, or 0.06 percent the speed of light) relative to the Sun.

Submission of photos / article content for the Starlite: Dan Son

If you have a photo that you would like to submit for the Starlite, please send these to Dan Son sonshine1992@gmail.com along with a little write-up about the photo. Photos can be from star parties, club events, personal view, etc. Astrophotography is encouraged. Also, if you have educational content, tips, techniques, lessons learned or how-to articles with photos, we encourage that material for the Starlite. We can also put these on our Facebook page if you so desire.

<https://www.facebook.com/PeoriaAstronomicalSociety>

The Caterpillar Matching Gifts Program: Brian Hakes

Employees/Retirees are asked to submit matching gift forms electronically via the Caterpillar Foundation website, www.caterpillar.com/foundation. The process is easy. Once you made your gift to the PAS you can go online to the Cat Foundation website and complete the electronic form, there is no paper involved. Once the form is registered with the foundation they will notify the PAS and the treasurer will then verify the gift has been received. Because there will be no mailings, the turnaround time for the whole process will be negligible. This is especially advantageous at the end of the calendar (tax) year. This is an excellent way to support the PAS. If you can, please participate in this generous program. This is a great way to help the society and the promotion of astronomy in the greater Peoria area.

Reflector:

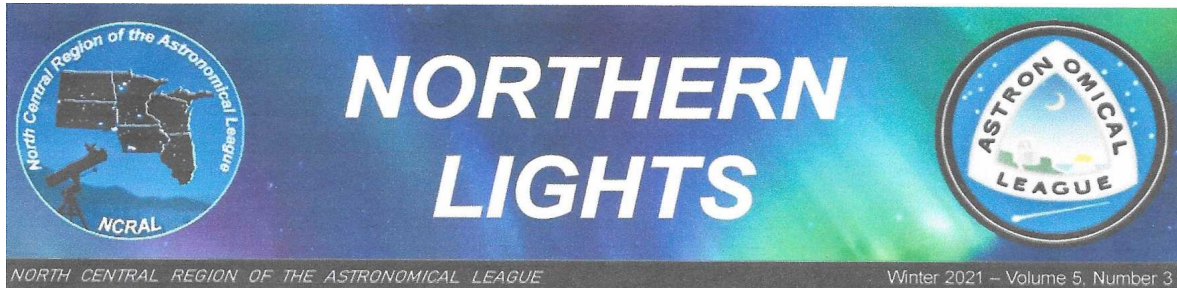
Reflector Magazine digital edition is available for download. You may access an archive of digital issues from the AL website by visiting:

<https://www.astroleague.org/reflector>

NCRAL Newsletter:

The North-Central Region of the Astronomical League (NCRAL) is made up of member societies... the six states commonly thought of as the Upper Midwest of the USA, plus the Upper Peninsula of the state of Michigan. The PAS is a member of the NCRAL. Their Region Newsletter, also named "Northern Lights", has been resurrected and is better than ever! The latest issue's can be read on their website can be found here: <https://ncral.wordpress.com/newsletter-archive/>

You can access the current issue and all other back issues through this link.



Add Your Email Address to NCRAL Member Database

Add your email address to the NCRAL member database now so that you can get direct mailings of NORTHERN LIGHTS and important and timely announcements about Regional conferences, star parties, and so forth. Your email address will never be shared with or sold to outside entities. Sign-up takes only about a minute. You'll need to provide your name, email address, astronomy club affiliation (including at-large), and indicate if you hold particular positions within your club. Go to the following case-sensitive URL to add your information to our database: <https://docs.google.com/forms/d/e/1FAIpQLSdGCQJiekrqVV3SY4BGrQdow5N7Eixv3VbX2YmFPA4AJZ2iag/viewform>

Program Schedule 2023-2024 possible final draft – All speakers confirmed

Meeting Time 7:00 p.m. CST/CDT (note new time)

Meeting in the Dome Planetarium at the Peoria Riverfront Museum (speakers via Zoom)

March 6, 2024 Titan Dr. James Dire

April 3, 2024 Astro-Jeopardy

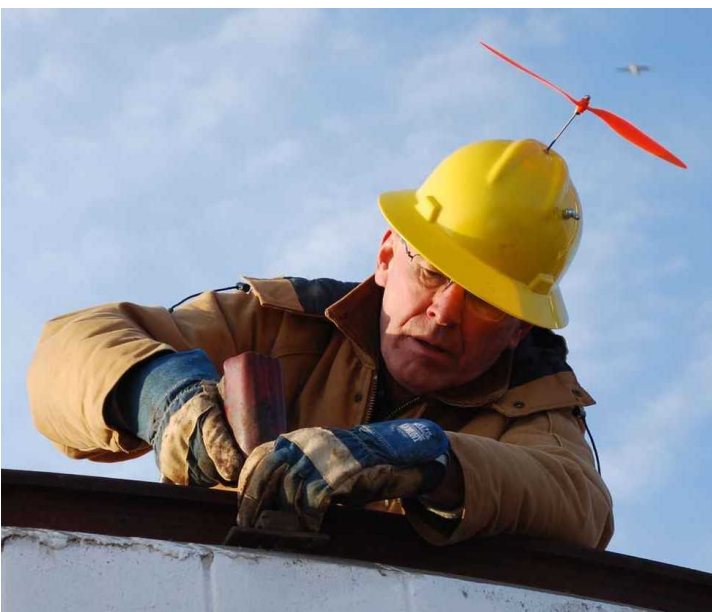
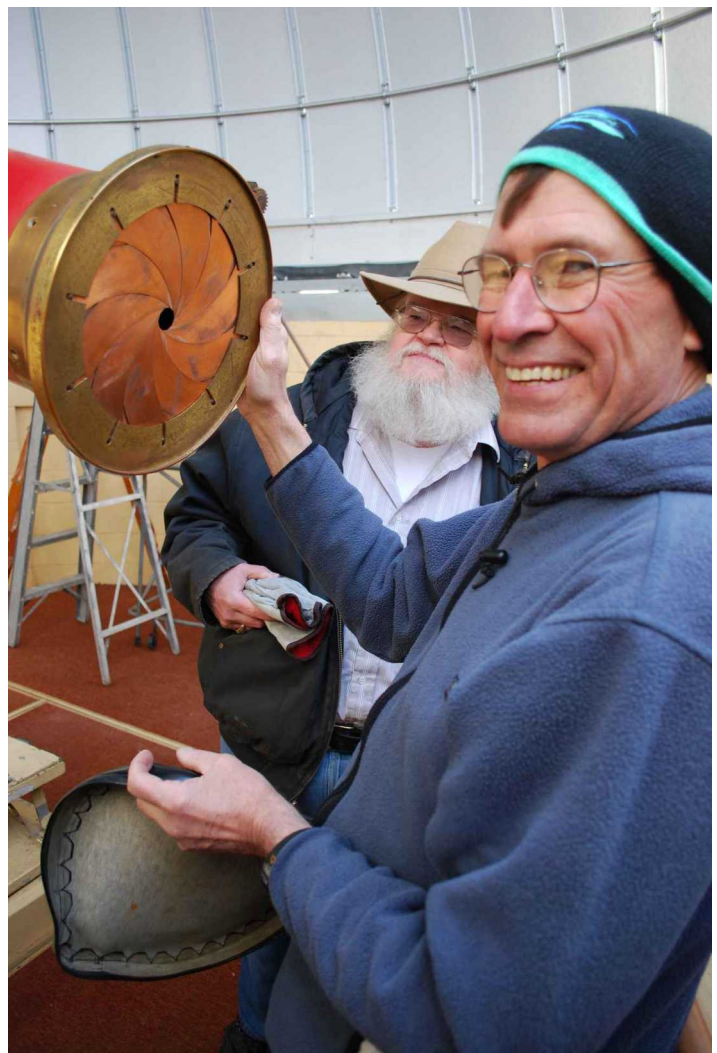
May 1, 2024 The April 8 Eclipse Recap

Inclement weather notice: Monitor email (e-group), local radio stations or PAS Facebook Page if a program, board meeting, viewing, or star party may be canceled due to weather. If we determine a risk in the weather, the Society will cancel the event.

In memory of Terry Beachler

PAS lost a good friend. Terry was a 50 year member. He loved helping out at Northmoor Observatory. He would look for leaks, fix/repair everything their and at Jubilee. He always had stories to tell and a smile to share. He had many passions like astronomy he loved Running, cross country skiing, sail-boating, biking, orienteering, HAM radio operator just to name a few things he loved doing. To say he was active would be an understatement. I didn't mention he learned to fly planes did RC Models planes and supported groups in Peoria area that did these kind of hobbies.

Terry was man of courage and desire and had no problem talking about his passions or politics. All who knew him will miss him, keep smiling my friend!



Solargraph Photography by Nick Rae

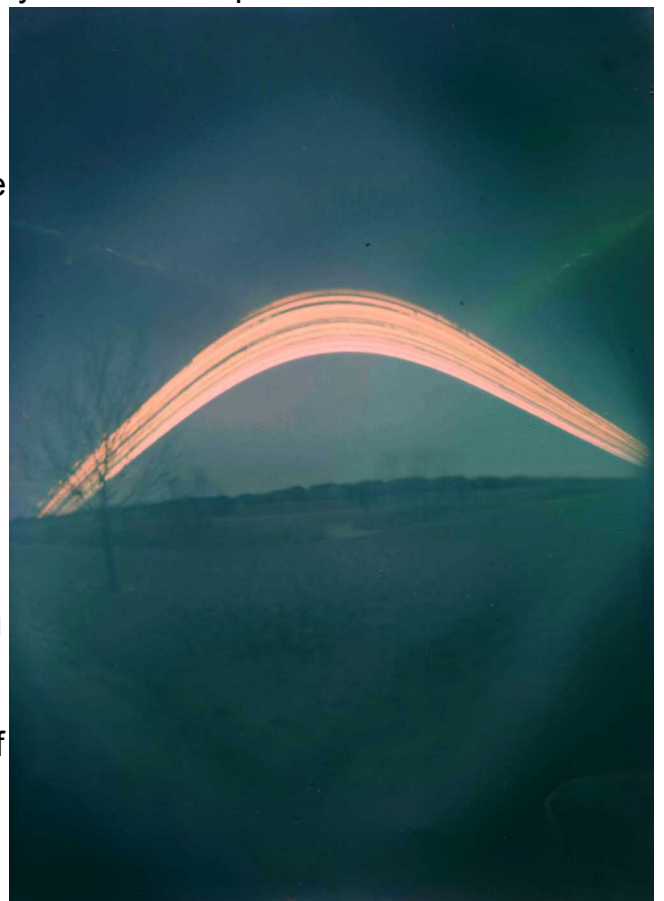
A solargraph is a very-long-exposure picture that captures the Sun's daily and seasonal motions across the sky. I first learned of them when one was featured as the Astronomy Picture of the Day back in 2009. I followed a link in the APOD description to a website called pinholephotography.org, and found easy-to-follow video and text instructions on how to make one. And it really is pretty simple: cut off the top of a tall, empty beer can; stick some light-sensitive paper inside; poke a little hole in the side of the can; cover the top of the can with the cut-off bottom of another can; and then tie the can around something stable outside, with the little hole facing south.

Over time, an image of the surrounding scene will gradually imprint itself onto the paper, with the bright Sun leaving its own imprint from sunrise to sunset, day after day. If you set the can up on one solstice and take it down on the next solstice, you'll get the Sun's long, high path from the Summer Solstice at the top, the Sun's short, low path from the Winter Solstice at the bottom, and all of the other days in between.

The actual image on the light-sensitive paper is an inverted negative, and will slowly fade away if left out for display. So when taking the can down, the first thing to do is to scan the paper and make a digital copy. Then you can invert the digital image, invert the colors, and fiddle with the settings in some photo-imaging software until you get an aesthetic you like. If you want to save the original, you'll need to keep it somewhere dark.

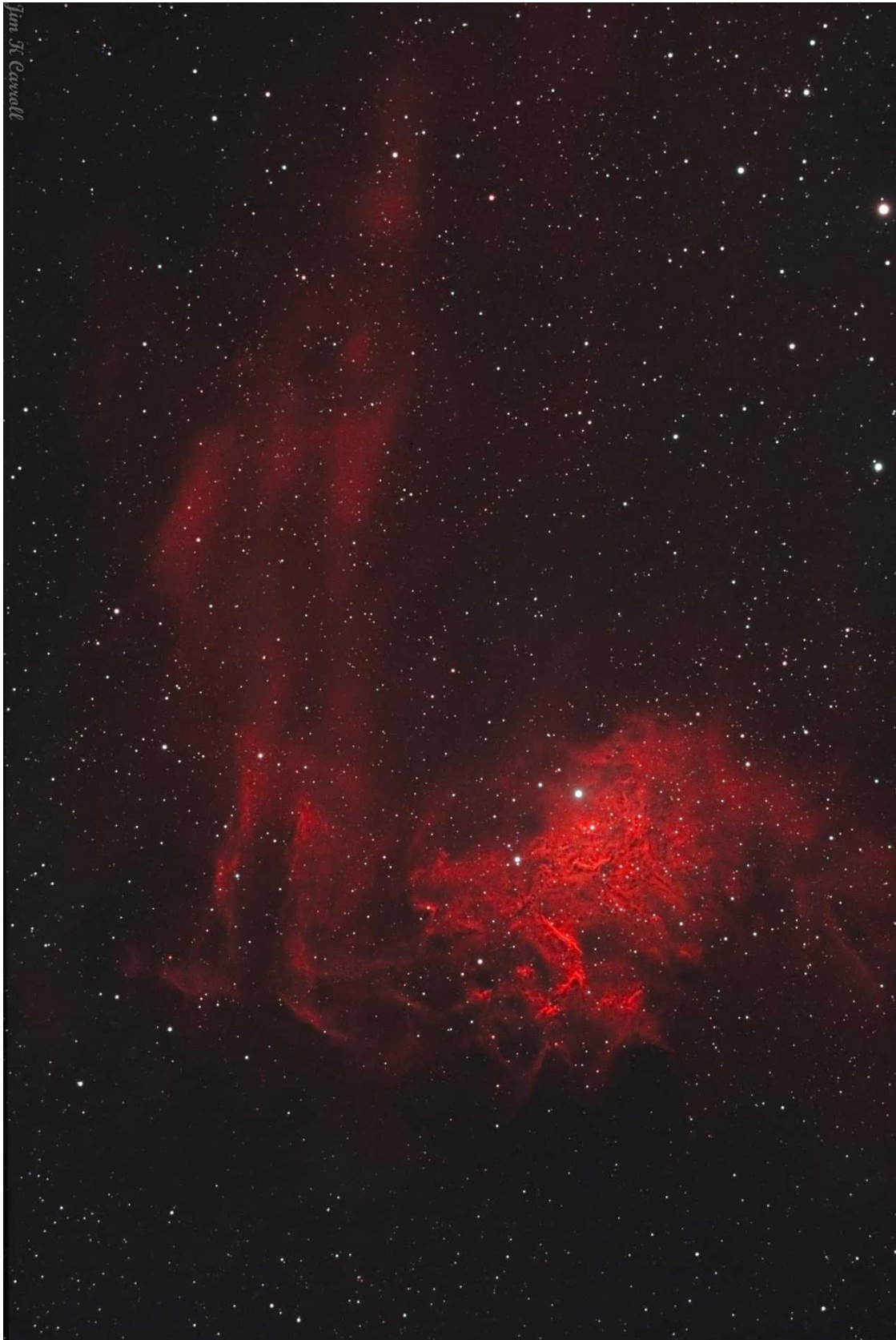
The solargraph I made at Northmoor Observatory on the fall equinox was not made with a can, but with a new commercial product made by a company in the UK called Solarcan. They also sell cans, but the newer product is a puck-like disk with a pinhole; light-sensitive paper is already loaded inside and cut into the appropriate circular shape. The Puck has a smaller field-of-view, and the resulting image doesn't get warped near the edges like it does with the paper wrapped around the inside of a can. The paper is also closer to the hole in the Puck, so it creates an image of the surrounding scene much quicker. I was able to do a one-day exposure on the equinox at Northmoor with it, but have failed when attempting to produce an image in just one day with a can.

If you'd like to make your own solargraphs, there is lots of info and there are lots of examples you can find with a simple Google search online; certainly you can't go wrong following the instructions and tutorials at pinholephotography.org. And it's easiest of all if you just buy the ready-made cans and/or pucks straight from solarcan.co.uk. I promise when you see your first solargraph, you will be delighted!



1st solargraph taken by Nick in 2012 from back yard

Photos from Members:



IC405 Caldwell 31 Flaming Star Nebula 3hrs 3nm dual band filter J Carroll



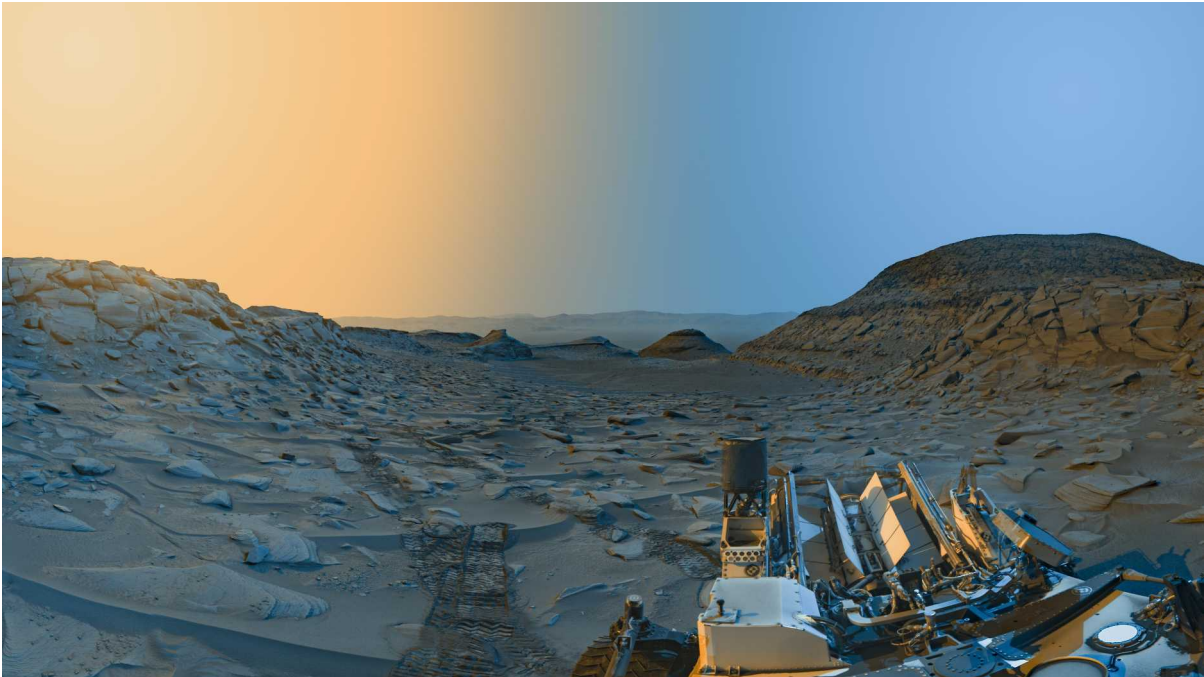
NGC1499 California Nebula 2X2 mosaic John Nowack

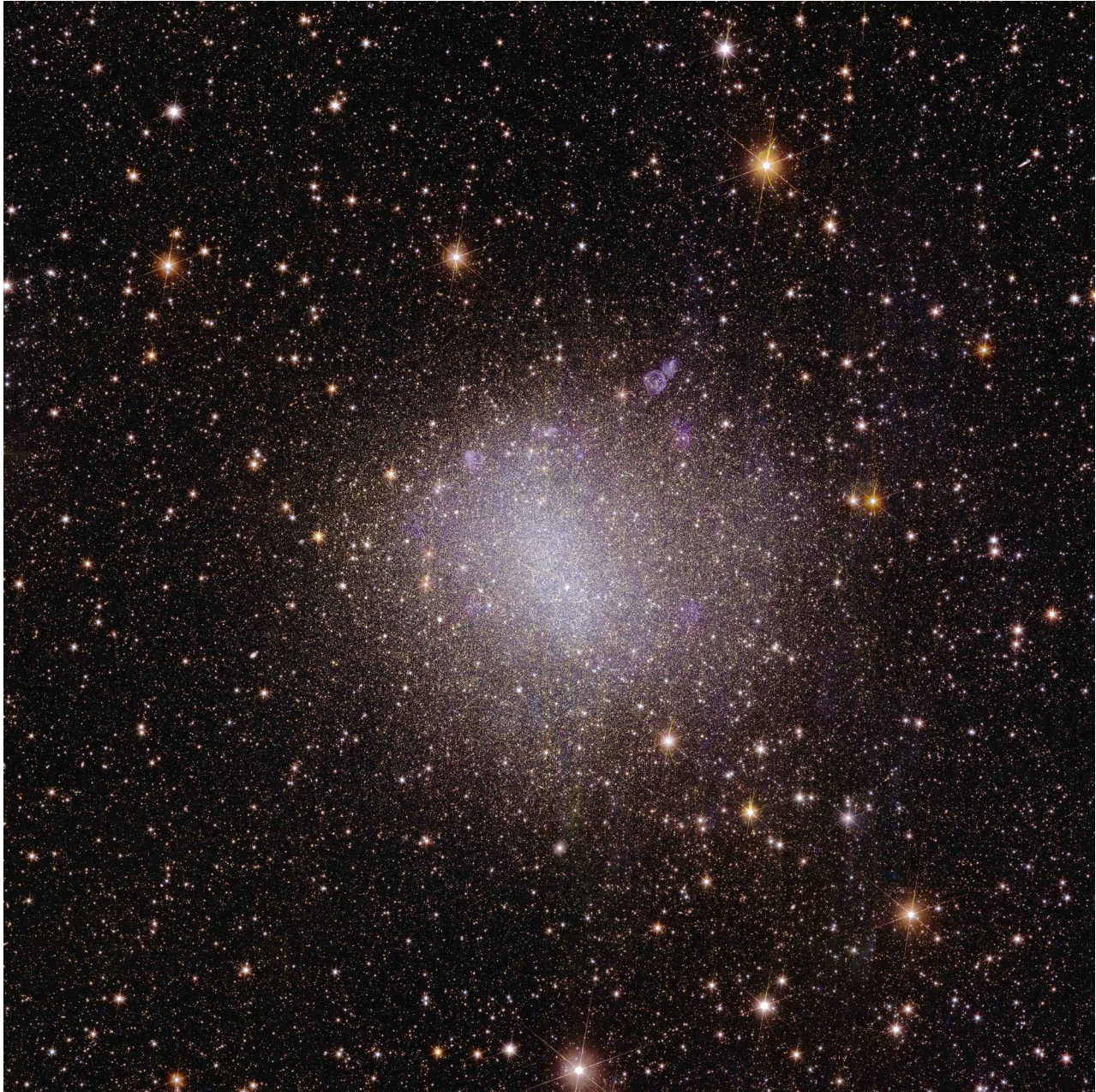


NGC1528 open cluster in Perseus 132mmf7 APO J Dire

And from other Instruments:

Curiosity's
'Postcard' of
Marker Band
Valley 2023





ESA Euclid spacecraft view of NGC6822 irregular galaxy 2023

A Primer for the Intermediate
Lesson Five: Observing Planetary Nebulae

by John Barra

Lessons One through Four appeared in Starlite Issues # 133-136, March-December 1998

Observing planetary nebulae can be challenging. However, using the skills you have learned in previous lessons, you shouldn't have much difficulty locating most of the planetaries within range of amateur telescopes. And you will be able to see greater detail than you first imagined.

LOCATING THE OBJECTS

Planetary nebulae are the material ejected from very hot central stars. They tend to be very small with a high surface brightness. As a result, many can be seen in urban settings, a plus for amateurs who live within the city on clear nights when they cannot go to a dark site. In general, the ease at which a planetary nebula can be found will be determined by its size. Its size is dependent upon its distance from us.

Most planetaries are very small, between 10 and 25 arcseconds in diameter. I would still suggest using the most common technique for locating deep sky objects: use the lowest power eyepiece you have. These small planetaries will look

similar to small, slightly out-of-focus stars. You will barely be able to notice the difference on the small ones such as the Little Gem or the Blue Snowball, so make sure you know the exact location from your star maps. Once you have found that blurry, starlike object, put in a higher eyepiece. Most will remain fuzzy, but bigger, while the background stars will remain small and sharp.

On the other end of the spectrum are the few large planetaries such as the Helix. They too can be challenging. Because their light is spread out over a much larger area, they tend to be faint, even with low power. Once you are sure you are looking at the exact location, continue to stare at that spot and use averted vision. You should then see it. Increasing power at that point can help to make the object more noticeable.

The planetary nebulae that are of mid-size — 50 to 350 arcminutes — are easy to locate at low power. Such objects as the Dumbbell and the Owl generally stand out in all amateur telescopes. The size of your main objective and the amount of power you can use with it will determine how much detail you'll be able to see.

OBSERVING TECHNIQUES

The real goal in observing planetaries is seeing as much detail as possible. While the naked eye will never produce as much detail as time-exposed photographs, you will be surprised at the detail you can see. Use as much power as your telescope and viewing conditions will allow. That amount will vary from object to object.

You should be able to notice some color in many of the planetary nebulae. Some people's eyes are more susceptible to color than others. Other planetaries have their own unique shape. Use both the high power and averted vision to try to locate depth in the structure of the object. Some even appear three-dimensional. Nebula filters can be very helpful in attempting to observe the different structure. Try any such nebula or light-pollution filter you have access to. It is the contrast with the background that allows you to see more.

Finally, all planetaries have a central star. Observing the central star has been a goal of many amateur astronomers. Unfortunately, most are too dim for the

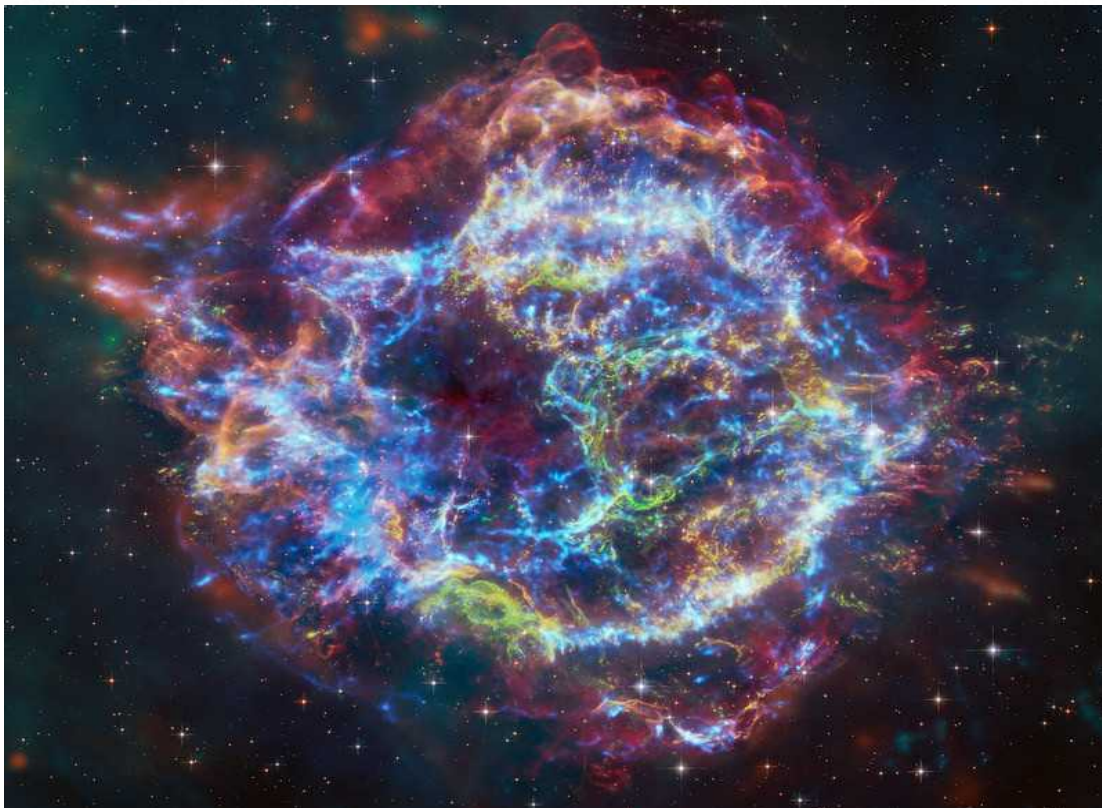
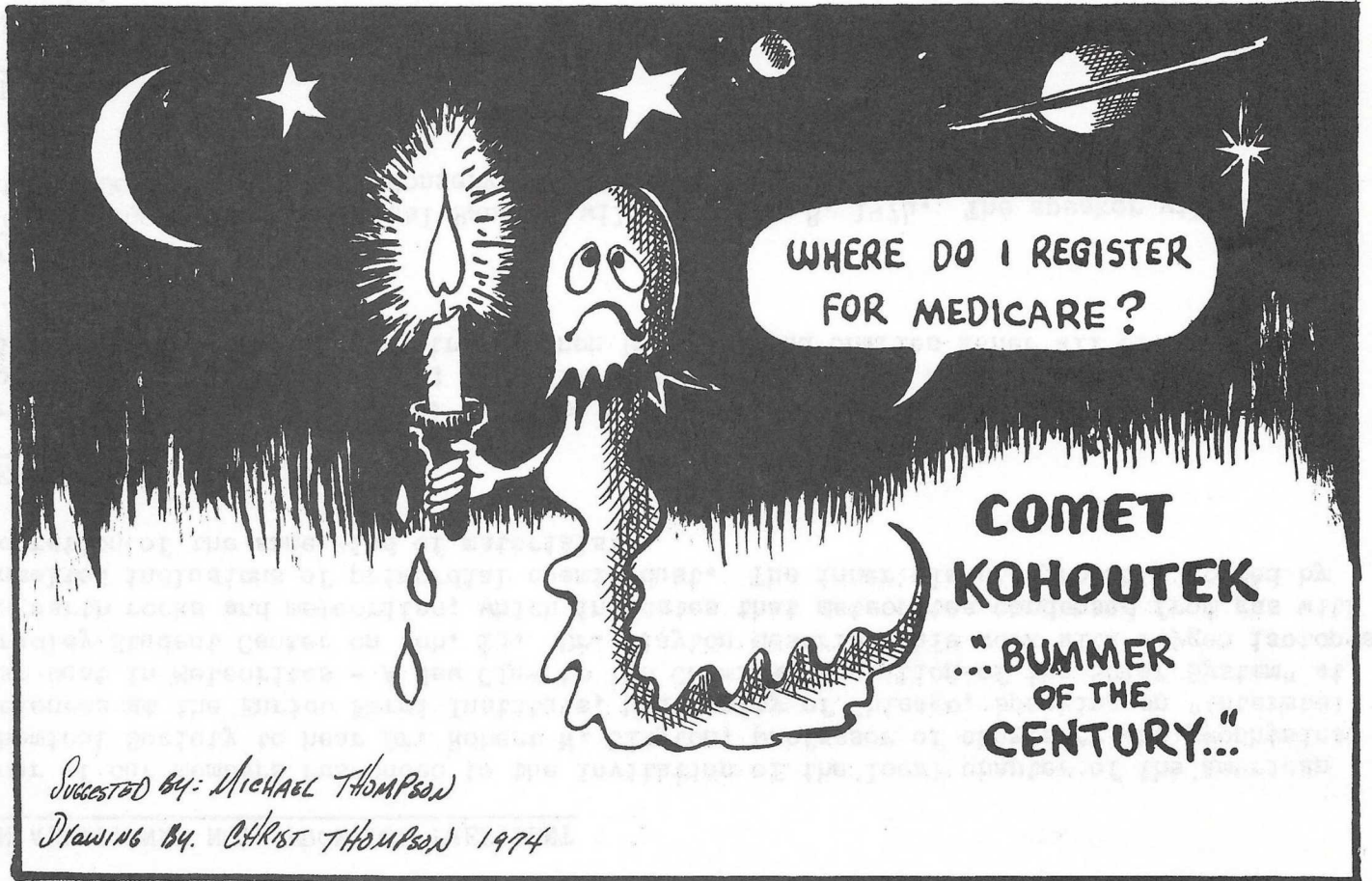
(Continued on page 7)

Observing planetary nebulae can be challenging....

Table 1: Selected Planetary Nebula

	Number	Name	Constellation	R.A.	Dec.	Mag.	Size	Central Star
1	M76	Little Dumbbell	Perseus	01 42.4	+51 34	10	>65"	16
2	NGC2392	Eskimo Nebula	Gemini	07 29.2	+20 55	9	>15"	10½
3	NGC3242	Ghost of Jupiter	Hydra	10 24.8	-18 38	8	>16"	12
4	M97	Owl Nebula	Ursa Major	11 14.8	+55 01	10	>194"	16
5	NGC6543	Cat's Eye Nebula	Draco	17 58.6	+66 38	8	>18"	11
6	M57	Ring Nebula	Lyra	18 53.6	+33 02	9	>71"	15
7	NGC6818	Little Gem	Sagittarius	19 44.0	-14 09	9½	>17"	15
8	NGC6826	Blinking Planetary	Cygnus	19 44.8	+50 31	9	>25"	10½
9	M27	Dumbbell	Vulpecula	19 59.6	+22 43	7½	>348"	14
10	NGC7009	Saturn Nebula	Aquarius	21 04.2	-11 22	8½	>25"	13
11	NGC7293	Helix Nebula	Aquarius	22 29.6	-20 48	7½	>769"	13½
12	NGC7662	Blue Snowball	Andromeda	23 25.9	+42 33	8½	>12"	12½

50 Years ago:

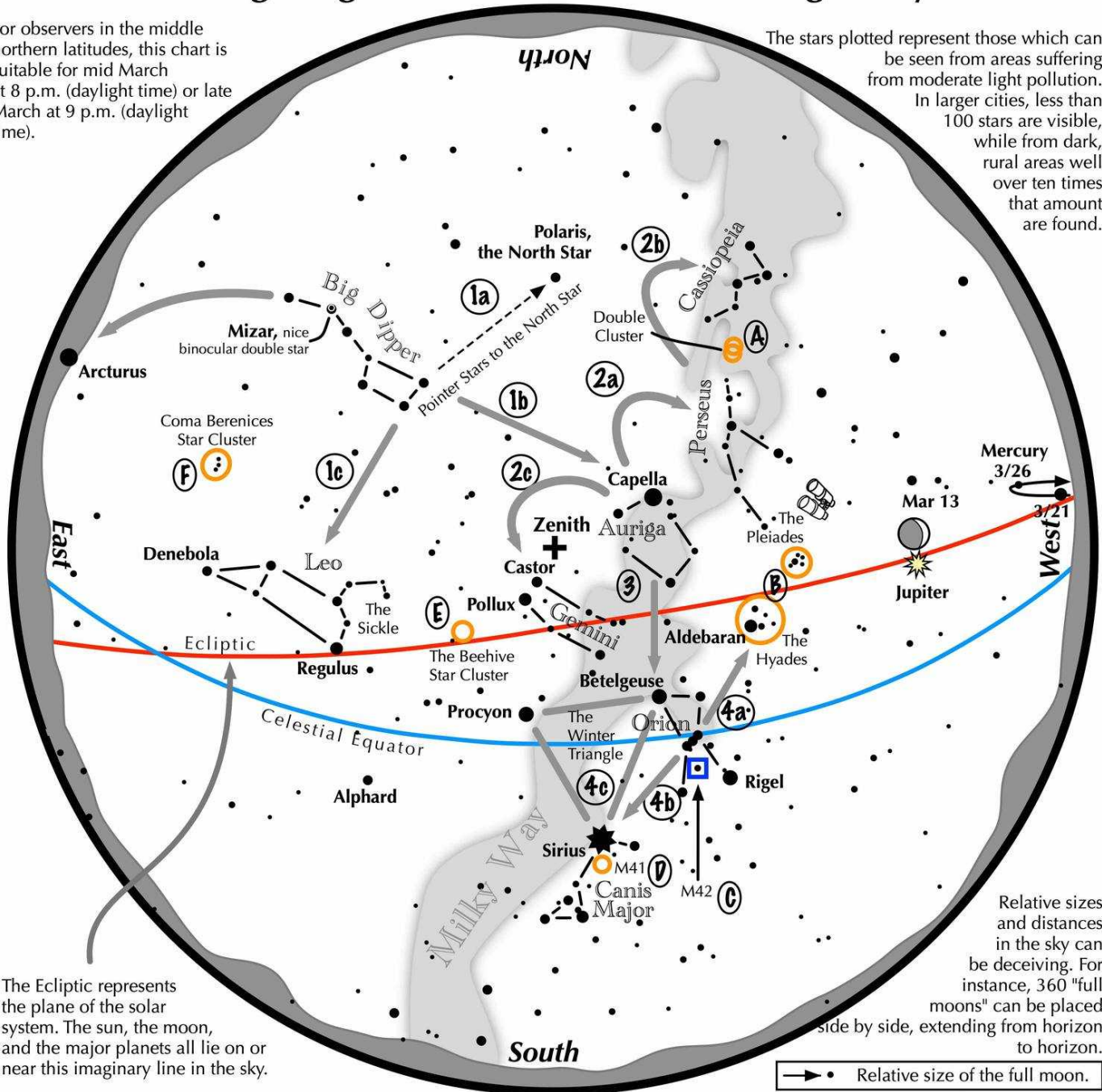


Combined data from JWST & Chandra X-ray Observatory of supernova remnant Cassiopeia A

Navigating the mid to late March Night Sky

For observers in the middle northern latitudes, this chart is suitable for mid March at 8 p.m. (daylight time) or late March at 9 p.m. (daylight time).

The stars plotted represent those which can be seen from areas suffering from moderate light pollution. In larger cities, less than 100 stars are visible, while from dark, rural areas well over ten times that amount are found.



The Ecliptic represents the plane of the solar system. The sun, the moon, and the major planets all lie on or near this imaginary line in the sky.

Relative sizes and distances in the sky can be deceiving. For instance, 360 "full moons" can be placed side by side, extending from horizon to horizon.

→ • Relative size of the full moon.

Navigating the March night sky: Simply start with what you know or with what you can easily find.

- 1 Above the northeast horizon rises the Big Dipper. Draw a line from its two end bowl stars upwards to the North Star. Its top bowl stars point west to Capella in Auriga, nearly overhead. Leo reclines below the Dipper's bowl.
- 2 From Capella jump northwestward along the Milky Way to Perseus, then to the "W" of Cassiopeia. Next jump southeastward from Capella to the twin stars of Castor and Pollux in Gemini.
- 3 Directly south of Capella stands the constellation of Orion with its three Belt Stars, its bright red star Betelgeuse, and its bright blue-white star Rigel.
- 4 Use Orion's three Belt stars to point northwest to the red star Aldebaran and the Hyades star cluster, then to the Pleiades star cluster. Travel southeast from the Belt stars to the brightest star in the night sky, Sirius. It is a member of the Winter Triangle.

Binocular Highlights

A: Between the "W" of Cassiopeia and Perseus lies the Double Cluster. **B:** Examine the stars of the Pleiades and Hyades, two naked eye star clusters. **C:** M42 in Orion is a star forming nebula. **D:** Look south of Sirius for the star cluster M41. **E:** M44, a star cluster barely visible to the naked eye, lies to the southeast of Pollux. **F:** Look high in the east for the loose star cluster of Coma Berenices.

