



Observations

A Monthly Publication Of The
CHESTER COUNTY ASTRONOMICAL SOCIETY

Vol. 31, No. 11 **Three-Time Winner of the Astronomical League's Mabel Sterns Award** ☼ 2006, 2009 & 2016 November 2023

In This Issue

CCAS Autumn Events.....	2
October 2023 Meeting Minutes	2
November 2023 Meeting Agenda.....	2
November 2023 Speaker Profile & Topic...	3
Donated Telescope Accessories Giveaway	3
The Sky Over Chester County: November 2023	4
November 2023 Observing Highlights	5
Navigating the November Night Sky.....	7
Through the Eyepiece: Kemble's Cascade .	8
Viewing Challenge the Morning of October 10th.....	8
CCAS Holiday Party Information.....	9
Night Sky Network: Spy the Seventh Planet, Uranus	10
Classic La Para	13
CCAS Directions: Brandywine Red Clay Alliance	13
Membership Renewals	14
New Member Welcome.....	14
CCAS Directions: WCU Map	14
Treasurer's Report.....	14
CCAS Information Directory	15-16

CCAS Member Wins Horkheimer/O'Meara Award



As reported on page 2 of the September 2023 edition of Observations, CCAS member Avni Dhargalkar, age 12, was one of the two winners of the Astronomical League's 2023 Horkheimer/O'Meara Award.

Membership Renewals Due

11/2023	Battle Buczynski DiGiovanni Holenstein Kelly Kerkel Leiden Romer
12/2023	Aylam / Martin-Aylam Damerau DeAngelo DellaPenna Etherington Gandhi O'Leary Ross Toth Watson / Metts
01/2024	Johnson Jose Kellerman Kennedy Kovacs McElwee Schier

November 2023 Dates

- 3rd** • Jupiter is at opposition 1:00 am EDT and Pollux is located 1.4° north of the Moon.
- 5th** • Last Quarter Moon 3:37 am EST. Daylight Savings Time ends 2 am ET.
- 13th** • New Moon 4:28 am EST.
- 14th** • Mercury 1.7° north of the Moon and the Moon is at occultation.
- 16th-17th** • Ursid Meteor Shower Peaks.
- 20th** • First Quarter Moon 5:50 am EST..
- 25th** • Jupiter is located 3.0° south of the Moon at nightfall.
- 27th** • Full Moon, 4:16 am EST. The Moon is located 1.1° south of Pleiades M45.



CCAS Upcoming Nights Out

In addition to our monthly observing sessions at the Myrick Conservancy Center, BRC (see pg. 13), CCAS has several special "nights out" scheduled over the next few months. Members are encouraged to help out during these events any way they can. See below for more information.

- ☼ Friday, November 3, 2023 • CCAS Monthly Observing Session, Myrick Conservancy Center, BRC. The observing session starts at sunset. Last monthly observing session for the year. The next regularly scheduled session will be in March 2024.
- ☼ Sunday, November 19, 2023 • STEAM Astronomy Workshop with the American Helicopter Museum, 6 p.m. - 8 p.m. EST. The museum is located at 1220 American Boulevard, West Chester, PA 19380.

For more information about future observing opportunities, contact our [Observing Chair](#), Michael Manigly.

Autumn Society Events

November 2023

3rd • CCAS Monthly Observing Session, Myrick Conservancy Center, BRC. The observing session starts at sunset. Last regularly scheduled monthly session until March 2024.

5th • Daylight Saving Time ends, 2:00 a.m. EST. Turn clocks back one hour.

10th • West Chester University Planetarium Show: "Killer Rocks from Outer Space," in the Schmucker Science Building. The show starts at 7 p.m. and runs approximately one hour in length. For more information and reservations, visit [WCU Public Planetarium Shows](#).

14th • CCAS Monthly Meeting, in person (as well as via Zoom) at West Chester University's Merion Science Center, Room 112. Guest Speaker: Dr. Erika Nesvold, NASA Goddard Space Center and the Carnegie Institution for Science, "Off-Earth Ethical Questions and Quandaries for Living in Outer Space."

16th • The von Kármán Lecture Series: [NASA's Deep Space Network Turns 60—What's Next?](#) at the Jet Propulsion Laboratory, Pasadena, California. Live stream of free lecture presented by NASA & Caltech, starting at 10 p.m. EDT.

20th • Open call for articles and photographs for the December 2023 edition of [Observations](#).

26th • Deadline for newsletter submissions for the December 2023 edition of [Observations](#).

December 2023

8th • West Chester University Planetarium Show: "A Star is Born...", in the Schmucker Science Building. The show starts at 7 p.m. and runs approximately one hour in length. For more information and reservations, visit [WCU Public Planetarium Shows](#).

12th • CCAS Monthly Meeting, in person (as well as via Zoom) at West Chester University's Merion Science Center, Room 112. Guest Speaker: Ray Harris, nuclear engineer & former director of the Lehigh Valley Amateur Astronomical Society (LVAAS), "Lost Constellations—The History and Origins of the Known (and no longer visible) Constellations."

20th • Open call for articles and photographs for the January 2024 edition of [Observations](#).

21st • Winter Solstice (10 p.m. EST) - The South Pole of the earth will be tilted toward the Sun, which will have reached its southernmost position in the sky and will be directly over the Tropic of Capricorn at 23.44 degrees south latitude. This is the first day of winter (winter solstice) in the northern hemisphere and the first day of summer (summer solstice) in the southern hemisphere.

21st • International Observe the Moon Night w/NASA @ Wolf's Hollow Park in Atglen, PA.

26th • Deadline for newsletter submissions for the January 2024 edition of [Observations](#).

October 2023 Monthly Meeting Minutes

by Bea Mazziotta, CCAS Secretary

- Pete Kellerman, CCAS Vice President, welcomed members and guests to the October meeting, which was held in person at WCU and via Zoom and YouTube on October 10, 2023.
- Don Knabb reviewed upcoming club viewing events and star parties. Go to www.ccas.org for detailed information.
- Don presented CCAS member Avni Dhargalkar with her plaque for the Horkheimer / O'Meara Journalism award from the Astronomical League.
- Bruce Ruggeri, Programming Chair, introduced the evening's speaker, Ray Harris. Ray worked as a nuclear engineer and was the former head of the Lehigh Valley Astronomical Society. About 30 years ago an encounter with an old star map led to a new passion—exploration of the history of lost constellations via historic astronomy charts and star maps.
- Ray's presentation, entitled *Lost Constellations—The History and Origins of the Known (and no longer visible) Constellations* was an entertaining and informative journey through this intriguing period in astronomy.
- There were 48 constellations described by Ptolemy (100 - 170 AD), and these 48, sourced from earlier maps now lost, formed the basis of Renaissance Europe's sky atlas.
- Our current list of 88 was defined by the International Astronomical Union in 1930. In the intervening centuries constellations came and went, sometimes more according to the whims of society and politics than actual scientific data.
- Early celestial charts allow us a glimpse into a sky that was populated with constellations once considered very important but long since abandoned.

November 2023 CCAS Meeting Agenda

by Bruce Ruggeri, CCAS Program Chair

Our next meeting will be held on November 14, 2023, in person at West Chester University's Merion Science Center, Room 112. The Science Center is located at 720 S. Church St., West Chester, PA.

Guest Speaker: Dr. Erika Nesvold, NASA Goddard Space Center and the Carnegie Institution for Science, "Off-Earth Ethical Questions and Quandaries for Living in Outer Space."

Please note that inclement weather

or changes in speakers' schedules may affect the program. In the event there is a change, CCAS members will be notified via e-mail with as much advance notice as possible.

As for future meetings, we are looking for presenters for our 2023-2024 season and beyond. If you are interested in presenting, or know someone who would like to participate, please contact me at programs@ccas.us.

Guest Speaker to Present at November 2023 Monthly Meeting

by Bruce Ruggeri, CCAS Program Chair

Our November 2023 monthly meeting is scheduled for November 14, 2023, starting at 7:30 p.m. ET. This month's guest speaker is Dr. Erika Nesvold of the NASA Goddard Space Center and the Carnegie Institution for Science. Her presentation is titled, "Off-Earth Ethical Questions and Quandaries for Living in Outer Space."

Synopsis: The idea of human space settlement is experiencing a comeback thanks to the commercial spaceflight industry's recent rapid growth. Most of the conversation has focused on the technical and financial challenges of living in space. But to build thriving, healthy communities in space, we'll also need to tackle the social, ethical, and



Dr. Erika Nesvold

human rights challenges we'll encounter beyond Earth: How should we protect the space environment or handle interpersonal conflicts? How will we address criminal justice, avoid labor ex-

ploitation, and protect reproductive rights? Can we manage to do all this while keeping everyone alive in an environment we didn't evolve to survive in? This talk will provide an overview of the kinds of big questions we'll have to answer as we expand our civilization into space, and demonstrate how we can look to our past and present here on Earth for cautionary tales and success stories to help us avoid repeating the mistakes of history and build a better future for everyone, in space and on Earth.

Bio sketch: Erika Nesvold has a Ph.D. in physics from the University of Maryland and has performed computational astro-
(Continued on page 13)

Donated Telescope Accessories Giveaway

by Dave Hockenberry, CCAS President



A range of donated eyepieces and lenses described left to right in the body of the article

Recently some interesting eyepieces and telescope accessories were donated to CCAS by someone who had stopped observing many years ago. He asked to do-

nate these items to our Club, so naturally I went to take a look. He also donated two telescopes, a small Williams Optics refractor and a Meade ETX 105.

The refractor had developed fungus on the inside of the triplet objective, so is essentially worthless. The ETX, while perfect optically, has electronic or mechanical problems that I am going to address in the near future. More about those later this year.

The accessories in the picture to the left had been stored for a long time and were probably used hard by their former owner. But after an initial cleaning and some under the night sky testing, I think they are ready for a new owner or owners. From left to right:

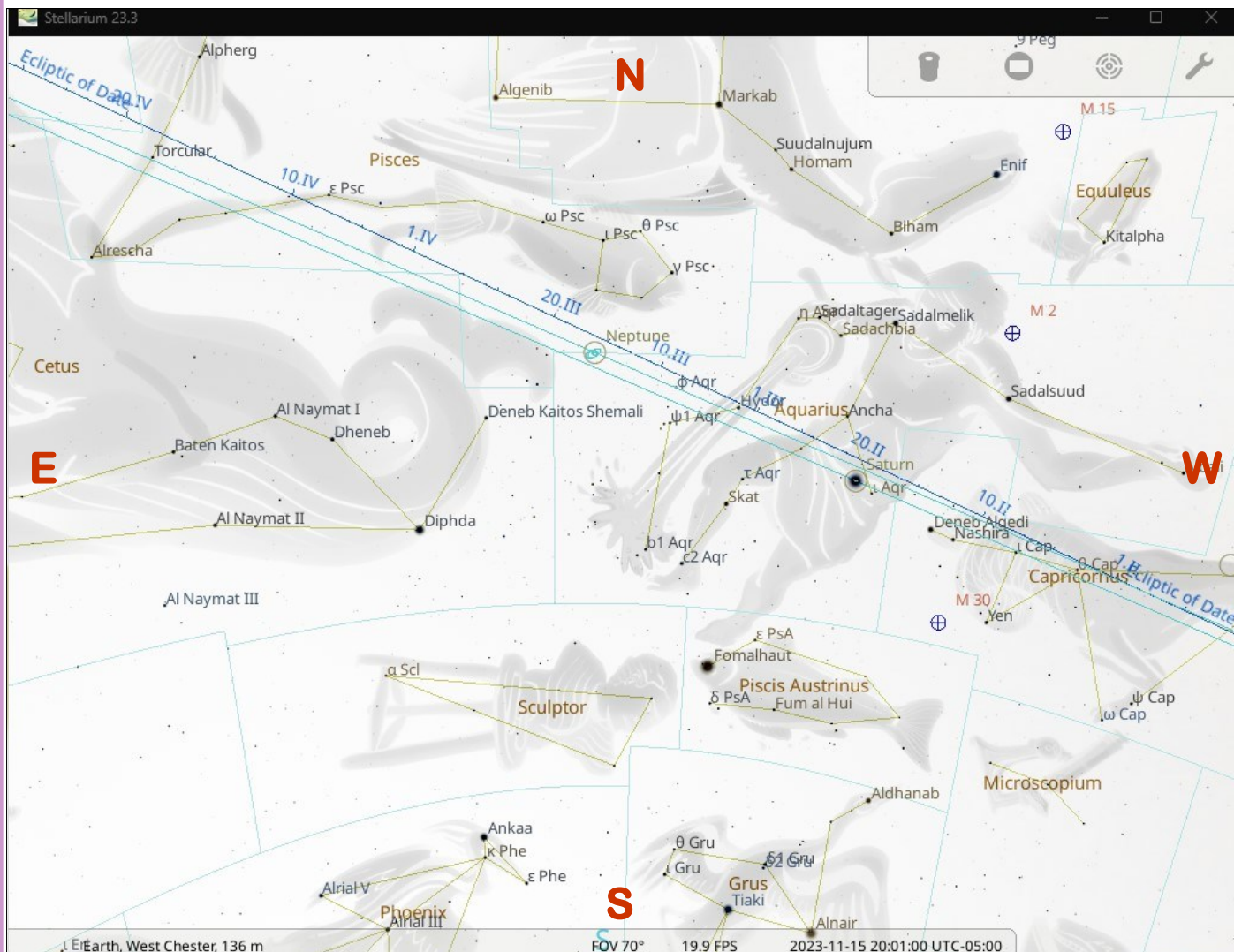
1. A Williams Optics 2" Erecting Prism diagonal with a 2" to 1/25" adapter. This

(Continued on page 6)

The Sky Over Chester County

November 15, 2023 at 8:00 p.m. ET

Note: This screen capture is taken from Stellarium, the free planetarium software available for download at www.stellarium.org.



Date	Civil Twilight Begins	Sunrise	Sunset	Civil Twilight Ends	Length of Day
11/01/2023	7:03 a.m. EDT	7:31 a.m. EDT	6:00 p.m. EDT	6:28 p.m. EDT	10h 29m 04s
11/15/2023	6:18 a.m. EST	6:47 a.m. EST	4:46 p.m. EST	5:15 p.m. EST	9h 54m 04s
11/30/2023	6:33 a.m. EST	7:03 a.m. EST	4:38 p.m. EST	5:08 p.m. EST	9h 34m 28s

Moon Phases

Last Quarter	11/05/2023	3:36 a.m. EST	New Moon	11/13/2023	4:27 a.m. EST
First Quarter	11/20/2023	5:49 a.m. EST	Full Moon	11/27/2023	4:16 a.m. EST

November 2023 Observing Highlights

by Michael Manigly, CCAS Observing Chair

3	Jupiter is at opposition 1:00 am EDT and Pollux is located 1.4° north of the Moon.
5	Last Quarter Moon 3:37 am EST. Daylight Savings Time ends 2 am ET.
6	Moon at apogee (251,388 miles from Earth) 4:49 pm EST.
7	Regulus is to the upper right of the Moon at first light. Venus appears 1° south of the Moon and is at occultation.
9	The thin crescent Moon passes 1.0° north of Venus 4:00 am EST.
10	Venus appears 1 ° northwest of the Moon in the morning sky with Spica, the brightest star in Virgo, about the same distance below the Moon.
13	New Moon 4:28 am EST.
14	Mercury 1.7° north of the Moon and the Moon is at occultation.
15	Moon at descending node and Mars is 1.0° north of the Moon.
18	Mars in conjunction with the Sun 1:00 am EST.
19	Saturn sits to the upper left of the Moon at nightfall.
20	First Quarter Moon 5:50 am EST.
21	Moon at perigee (229,725 miles from Earth) 4:01 pm EST.
22	Neptune 1.5° north of the Moon 3:00 am EST.
25	Jupiter is located 3.0° south of the Moon at nightfall.
26	Uranus is located 3.0° south of the Moon at 4:00 am EST.
27	Full Moon 4:16 am EST. The Moon is located 1.1° south of Pleiades M45.
28	Venus at perihelion and passes 4° north of Spica at 4:00 am EST.
30	Pollux, the brighter twin of Gemini, is close to the Moon as they climb into good view around 9:00 pm EST.

The best sights this month: November finds Jupiter and Saturn dominating the night sky, the peak of the Orionids meteor showers and multiple deep sky objects including open star clusters, double stars, and multiple galaxies with the Andromeda Galaxy M31 leading the list. Look for the Great Square of Pegasus at center stage in November and the Pleiades M45.

Mercury returns to the evening sky during the second week of November. It shines brightly at about mag -0.5 during evening twilight. It may be difficult to view for Northern Hemisphere observers. The planet may be viewable right after sunset on the 14th in the southwest horizon when it will be located to the right of the crescent Moon.

Venus continues to dominate the morning sky. The planet is in conjunction with the Moon on the 9th. The best view of the planet will be on the 13th when it is at its closest approach to Earth and is illuminated by the Sun. It stands 5° north of Spica on the 27th.

Mars is too close to the Sun to be observable during the month of November. The planet achieves solar conjunction on the 18th.

Jupiter is visible all night and is at opposition on the 3rd. It can be observed in the Eastern sky at evening twilight and transits around 11:00 pm EST. Look for the waxing gibbous Moon to pass the planet on the 25th. The planet climbs higher in the sky than any time since 2015.

Saturn reaches its stationary point on the 4th. It fades to mag +0.8 this month. The waxing crescent Moon slides by 2.0° to the south on the 20th. The planet can be located 35 ° high for US observers. Saturn sets earlier each night during the month of November.

Uranus achieves opposition at 12:00 pm (noon) on the 13th. The planet stands between Jupiter and the Pleiades M45. A near full moon lies to the south of the planet on the 24th and 25th. It is an easy binocular target due to its glow at mag 5.7.

Neptune is visible most of the night and is positioned among the stars of southwest Pisces and moves to northeast Aquarius later in the month.

The Moon: The Full Moon is on the 27th with Al-

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Donated Telescope Accessories (Cont'd)

(Continued from page 3)

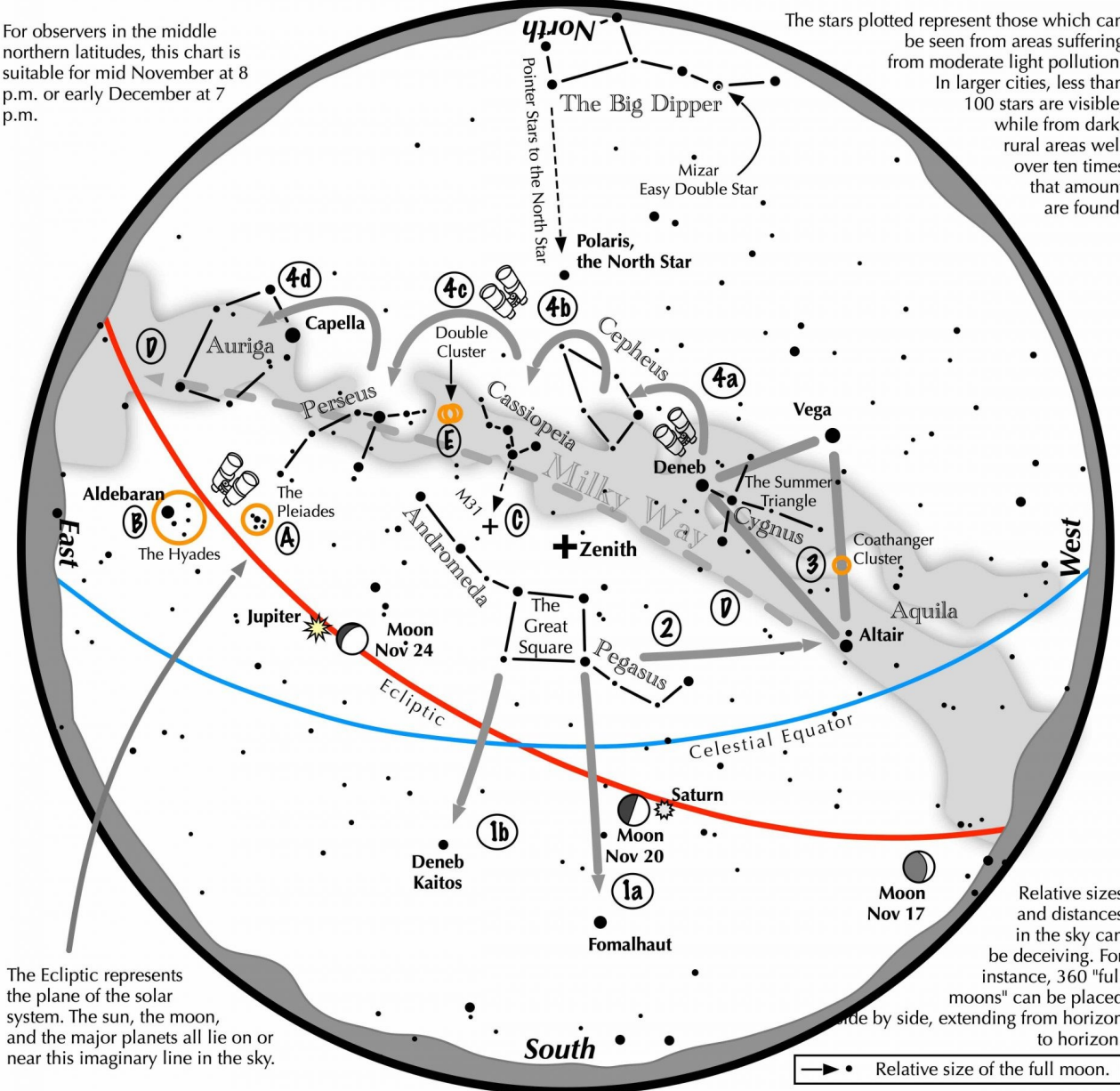
- cleaned up very nicely and can handle large barrel 2" eyepieces. This can be used for astronomical AND terrestrial observations, as it yields a "right side up" image to your eye.
2. A TeleVue Everbrite 1.25" Star Diagonal. This was stored without the caps in place and was quite dirty. Cleaning has helped but may need some more careful cleaning of the reflecting surfaces to give the best image. No caps came with it.
 3. A TeleVue 5X Barlow lens. That's right, this increases the power of the eyepiece by a factor of five! The top cap was missing, so the lens was dirty but has cleaned up well.
 4. A TeleVue Nagler Type 2 12mm eyepiece. This is an excellent eyepiece, and can be used with either a 1.25" or 2" star diagonal. After cleaning it gave excellent color definition and contrast when I tested it with my TV 101is refractor.
 5. An original Nagler 7mm eyepiece. This is a collector's item and cleaned up VERY nicely. Needs a 1.25" diagonal or adapter. Under the sky this gives very nice high-power views with excellent color and detail definition. Like all the original Naglers there is the "kidney bean" aberration, but in a short focal length eyepiece this was barely noticeable to me when I tested it on a star field, and completely absent when I viewed Saturn.
 6. A TeleVue Panoptic 24 mm eyepiece. This must have had some hard use, and even after initial cleaning showed some impurities on the top glass. But it IS a "Pan" and gives very wide field views for a 1.25-inch eyepiece barrel.
 7. A Vixen LV 6mm eyepiece. This one cleaned up very well, and sports a 45-degree apparent field of view and has 20mm of eye relief! VERY nice high-power views, even when paired with the 5X Barlow above. Has a 1.25" barrel. Saturn was a treat with this one.
 8. An Edmond Scientific RKE 8mm eyepiece. This is a specialty Lunar/planetary eyepiece whose design is based on the Hastings Triplet. It was VERY dirty, but cleaned up reasonably well. These rival the Brandon and TMB super planetary models. Unfortunately, it was stored without caps, which are missing, but a collector's item and a good high power eyepiece.
 9. A Meade 24mm Plossl (pronounced "Plursel") 1.25-inch eyepiece. I suspect it came with the Meade EXT telescope that needs repair. It cleaned up rather well and comes with the classic plastic "screw on" eyepiece case. A nice low power eyepiece with a focal length that every amateur should have.
 10. An Explore Scientific 6.7mm 1.25" 85-degree apparent field of view, nitrogen purged eyepiece. This one belonged to Liz Smith, one of our members, and was given to me. It is in GREAT shape but isn't being used so I am including it with this set.
 11. A Hyperion Clickstop Mark 3 Zoom eyepiece. A 1.25" eyepiece, this unit has glass that is in great shape but the "clickstop" mechanism for the zoom feature is stuck on its highest power, 8mm. The view through the eyepiece is great, but I have not tried to take apart the mechanism to fix the zoom feature.
 12. A Proxima Zoom 1.25-inch eyepiece. The zoom feature on this one works, and can zoom from 8mm to 24mm with a twist of the barrel. It was stored with the top lens cap only, so it needed some cleaning on the lower glass but this cleaned up very well. Under the sky it seemed a little soft at 24mm, but gave very pleasing views at the 8-12mm range.
- There are 2 eyepiece cases that housed these. I am bringing all of these items to the next CCAS regular meeting on November 14th at the Merion Science Center for distribution to whoever would like to have any of these items. If you are interested, please show up at the meeting, as they will be handed out on a first come first serve basis.
- In our hobby, I always say "FREE IS GOOD." Any questions about these please email me at president@ccas.us.

Navigating the November Night Sky
by *Astronomical League*

Navigating the November Night Sky

For observers in the middle northern latitudes, this chart is suitable for mid November at 8 p.m. or early December at 7 p.m.

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 November night sky: Simply start with what you know or with what you can easily find.

- 1** Face south. Almost overhead lies the "Great Square" with four stars about the same brightness as those of the Big Dipper. Extend a line southward following the Square's two westernmost stars. The line strikes Fomalhaut, the brightest star in the south. A line extending southward from the two easternmost stars, passes Deneb Kaitos, the second brightest star in the south.
- 2** Draw a line westward following the southern edge of the Square until it strikes Altair, part of the "Summer Triangle."
- 3** Locate Vega and Deneb, the other two stars of the Summer Triangle. Vega is its brightest member, while Deneb sits in the middle of the Milky Way.
- 4** Jump along the Milky Way from Deneb to Cepheus, which resembles the outline of a house. Continue jumping to the "W" of Cassiopeia, then to Perseus, and finally to Auriga with its bright star Capella.

Binocular Highlights

A and B: Examine the stars of the Pleiades and Hyades, two naked eye star clusters. **C:** The three westernmost stars of Cassiopeia's "W" point south to M31, the Andromeda Galaxy, a "fuzzy" oval. **D:** Sweep along the Milky Way from Altair, past Deneb, through Cepheus, Cassiopeia and Perseus, then to Auriga for many intriguing star clusters and nebulous areas. **E:** The Double Cluster.



Astronomical League www.astroleague.org/outreach; duplication is allowed and encouraged for all free distribution.

Through the Eyepiece: Kemble's Cascade

by Don Knabb, CCAS Treasurer

Whenever I find binocular objects that form a unique pattern in the sky, I feel like I have found something special. Such objects as the Coat Hanger Cluster and the Cygnus Star Chain are always fun to share at star parties. Another object that I always look for during late fall and winter observing sessions is Kemble's Cascade.

Kemble's Cascade is in the constellation Camelopardalis: The Giraffe. This constellation is in the far northern sky and has no noteworthy stars. It was created in 1624 by astronomer Jakob Bartsch, who created it to fill a vast region of faint stars surrounded by brighter and more famous constellations such as Cassiopeia, Cepheus, Perseus, Auriga, and Ursa Major. Its brightest star is only magnitude 4.2 which is just visible under good conditions in Chester County skies.

Kemble's Cascade is an asterism - a pattern created by unrelated stars. It is an apparent straight line of more than 20 colorful 5th to 10th magnitude stars over a distance of approximately five moon diameters, and the open cluster NGC 1502 can be found at one end. To me, the Kemble's Cascade looks like a ski jumper's launching slope.

The bright object near the bottom left is the relatively compact open cluster of stars known as NGC 1502.

Kemble's Cascade was named by Walter Scott Houston in honor of Father Lucian J. Kemble (1922-1999) who wrote a letter to Walter about the asterism, de-

(Continued on page 9)

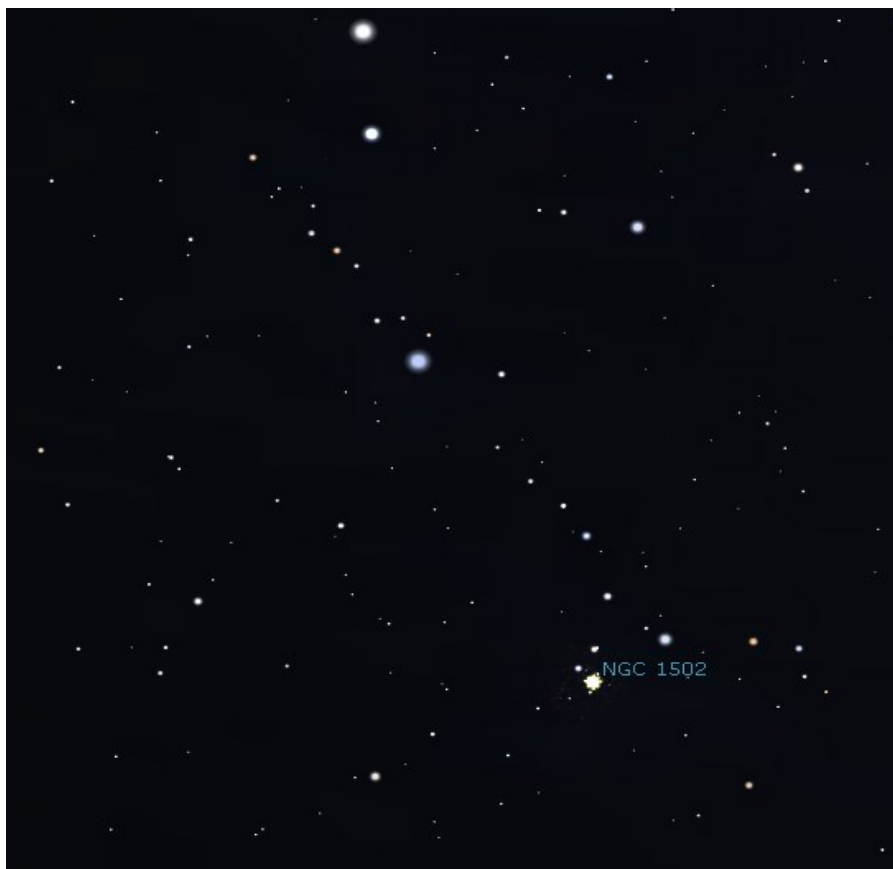


Image credit: Wayne Young from Thatcham, UK
[https://en.wikipedia.org/wiki/Kemble%27s_Cascade#/media/File:Kemble's_Cascade_\(8198810480\).jpg](https://en.wikipedia.org/wiki/Kemble%27s_Cascade#/media/File:Kemble's_Cascade_(8198810480).jpg)



Stellarium Skychart #1

Kemble's Cascade (Cont'd)



Kemble's Cascade Close-up in Stellarium

scribing it as "a beautiful cascade of faint stars tumbling from the northwest down to the open cluster NGC 1502" that he had discovered while sweeping the sky with a pair of 7x35 binoculars. Lucian J. Kemble was a Franciscan and amateur astronomer from Saskatchewan who contributed greatly to the art of astronomical observation. Father Luc, as he was affectionately known, died of a heart attack in the early hours of February 1999. Kemble's Cascade will be a constant memorial to the man and his work.

Walter Houston was so impressed that he wrote an article on the asterism that appeared in his "Deep Sky Wonders" column in *Sky & Telescope* maga-

zine in 1980, in which he named it "Kemble's Cascade".

Kemble's Cascade is one of the finest binocular objects in the winter sky. Use the most powerful binoculars you can get your hands on to see some of the faint stars in this asterism. To find Kemble's Cascade I scan down from Cassiopeia or left from Perseus. The Cascade is near the place in the sky where those scans cross, with the bottom of the cascade at NGC 1502 as noted in the sky chart to the left. The first sky chart is a wide field view, the second one (above) is zoomed in on Kemble's Cascade.

The stars of Kemble's Cascade do not form a group or

CCAS Holiday Party

CCAS will host its annual holiday party for members and their families on Tuesday, December 12, 2023, at Iron Hill Brewery in West Chester. This is the same location the event was held last year. The restaurant is located at 3 West Gay St. and its phone number is 610-738-9600.

We'll meet at 7 p.m. starting with appetizers and drinks with dinner to follow. This is a great venue, with a semi-private space Iron Hill calls "the Dugout" in the back of the restaurant.

As is common for all large groups at a restaurant, a gratuity will be added to everyone's check. There are two parking garages about one block away.

cluster physically, it's only a chance alignment of stars, but it is unique in its appearance. At the southeastern end of the chain of stars you will find the 6th magnitude open cluster NGC 1502, containing 15 stars in a 7' area.

I have observed Kemble's Cascade from our backyard near West Chester, but I needed 20x80 binoculars to see this asterism. Many of the stars are too faint to see with smaller binoculars in our light polluted skies but I am sure they would be visible with any size binoculars at a dark sky site.

Information credits:

- Dickinson, Terence 2006. *Nightwatch: a practical guide to viewing the universe*. Buffalo, NY. Firefly Books
- Knoph, Alfred 1995. *Constellations of the Northern Sky*. New York, NY. Chanticleer Press
- <http://www.theyorkshirelad.ca/>
- <http://antwrp.gsfc.nasa.gov/apod/ap000814.html>
- http://www.backyard-astro.com/deepsky/bino/01_b.html
- <http://www.dibonsmith.com/ngc1502.htm>
- https://en.wikipedia.org/wiki/Kemble%27s_Cascade

Night Sky Network: Spy the Seventh Planet, Uranus

by Liz Kruesi

This article is distributed by the NASA Night Sky Network, a coalition of hundreds of astronomy clubs across the US dedicated to astronomy outreach.

Visit nightsky.jpl.nasa.gov to find local clubs, events, stargazing info and more.

You might be familiar with Saturn as the solar system's ringed planet, with its enormous amount of dust and ice bits circling the giant planet. But Uranus, the next planet out from the Sun, hosts an impressive ring system as well. The seventh planet was the first discovered telescopically instead of with unaided eyes, and it was astronomer extraordinaire William Herschel who discovered Uranus March 13, 1781. Nearly two centuries passed before an infrared telescope aboard a military cargo aircraft revealed the planet had rings in 1977.¹

Since that discovery, multiple observatories have revealed more details of Uranus and its ring system. Most recently, the NASA-led JWST space observatory captured the planet and its rings in detail. This recent image combines just 12 minutes of exposure in two filters to reveal 11 of the planet's 13 rings. Even some of the planet's atmospheric features are visible in this image.

Even with advanced imaging like that from JWST, much of Uranus remains a mystery, including why it orbits the Sun on its side. This is because only one spacecraft has ever visited this planet: NASA's Voyager 2, which flew by the distant planet in the mid-1980s.²

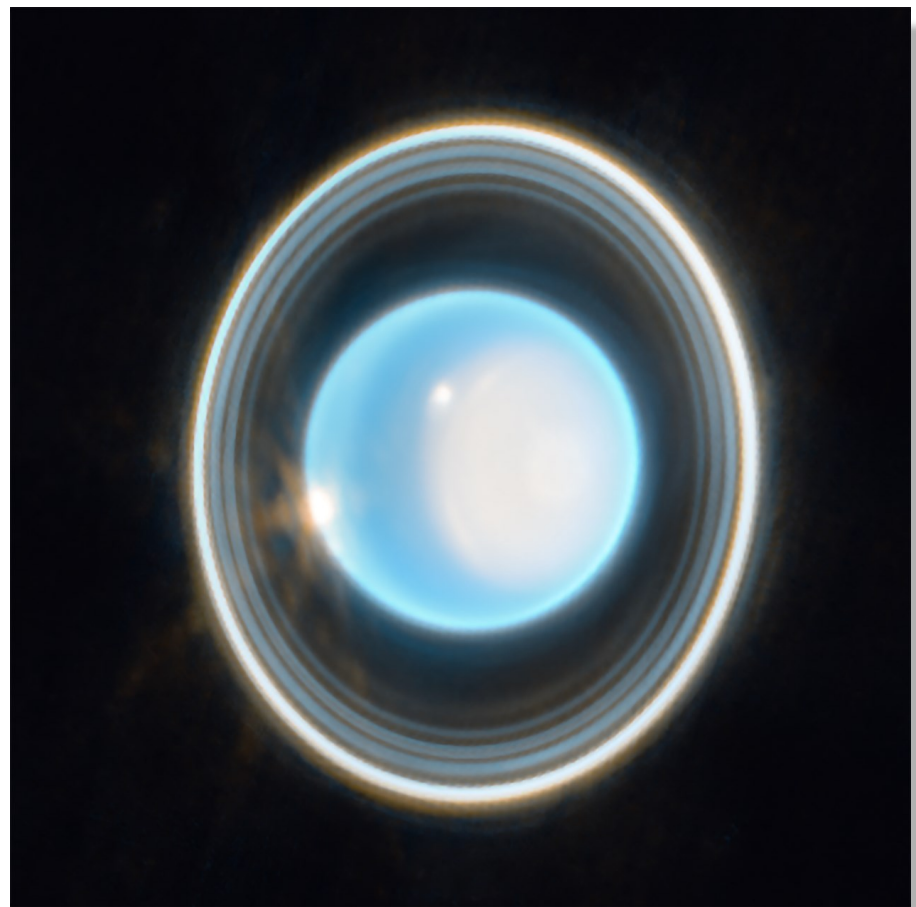
Planetary scientists are hoping to change that soon, though. Scientists recommended in a [report](#) released last year from the National Academies of Sciences,



Engineering, and Medicine that Uranus be the focus on the next big planetary science spacecraft mission. Such a large-scale mission would gain insight into this icy giant planet and the similar solar system planet, Neptune.

If you want to catch a view of Uranus with your own eyes, now is prime time to view it. This ice giant planet lies perfect-

(Continued on page 11)

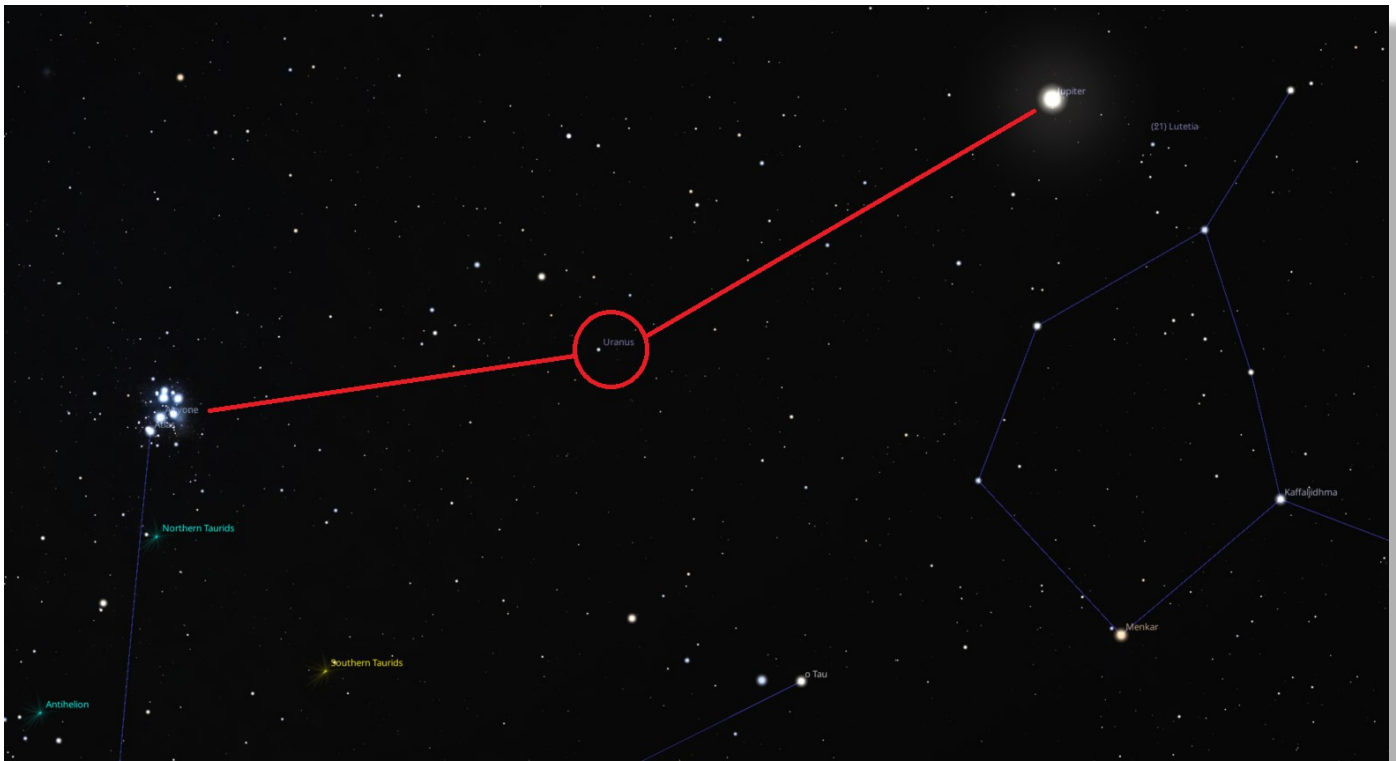


Uranus hosts 13 faint rings, 11 of which are visible in this JWST image. The planet was 19.67 times the Earth-Sun distance from our planet (1.83 billion miles) when JWST captured exposures through two near-Infrared filters on February 6, 2023. The white region in the right side of Uranus is one of the planet's polar caps. This icy world orbits the Sun differently from the rest of the solar system's planets – Uranus rolls along on its side. [NASA, ESA, CSA, STScI; Image Processing: Joseph DePasquale (STScI)]

¹ For more about the infrared scope, <https://web.archive.org/web/20230429120852/https://www.nasa.gov/vision/universe/watchtheskies/kuiper.html>

² See more about the flyby at <https://www.nasa.gov/history/35-years-ago-voyager-2-explores-uranus/>

Night Sky Network (Cont'd)



Sky map picturing M45, Uranus and Jupiter, Stellarium

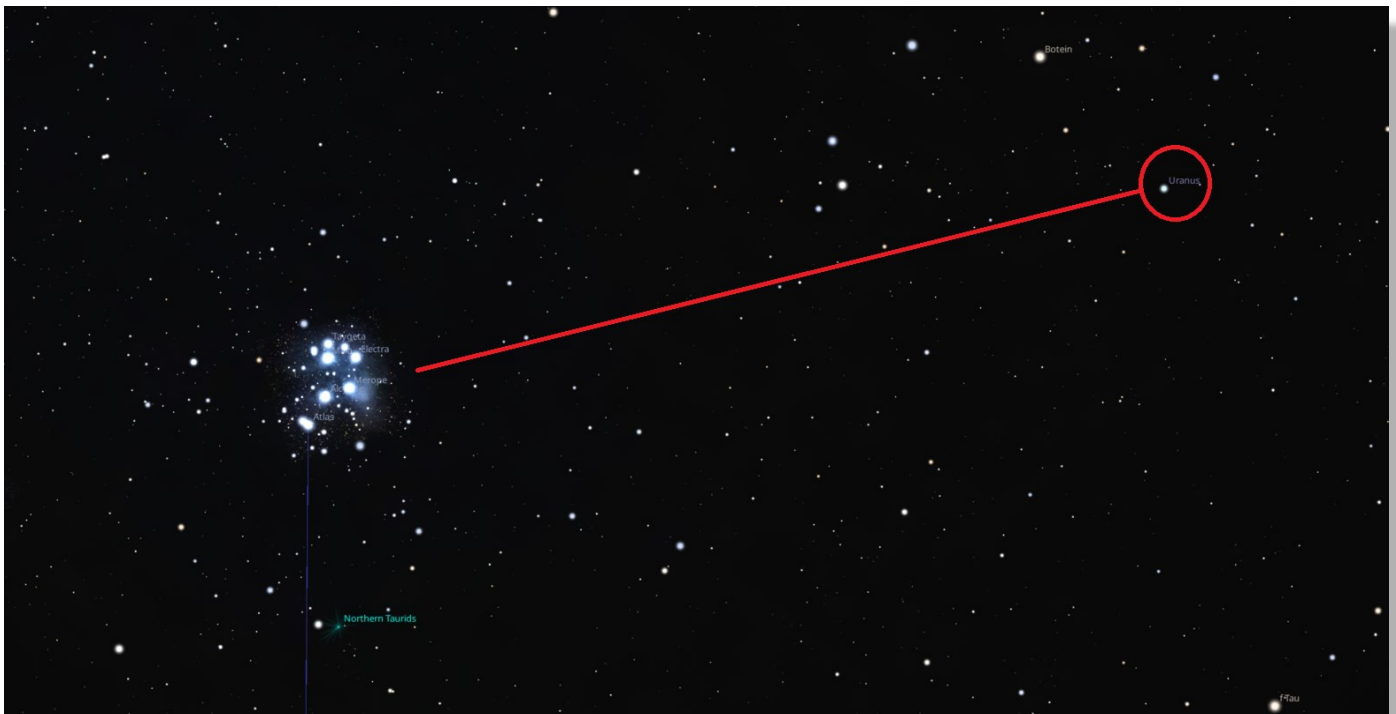
(Continued from page 10)

ly positioned in mid-November, at so-called “opposition,” when

its position in its orbit places it on the other side of the Sun from Earth. That location means our

star’s light reflects off Uranus’ icy atmosphere, and the planet appears at its brightest.

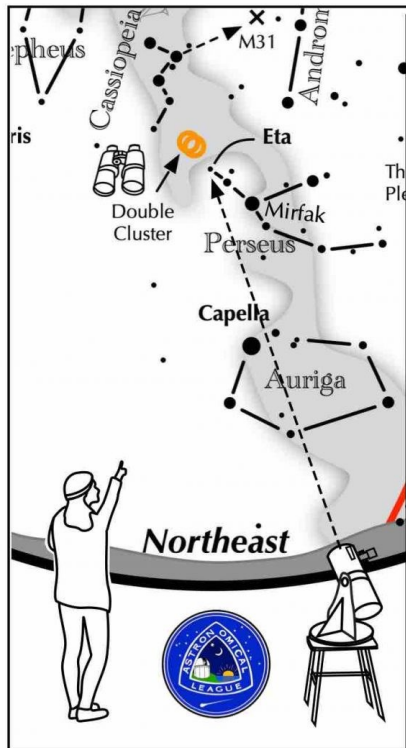
(Continued on page 14)



Sky map picturing M45 and Uranus, Stellarium

Astronomical League Double Star Activity: Other Suns—Eta Persei

by Astronomical League



Other Suns: Eta Persei

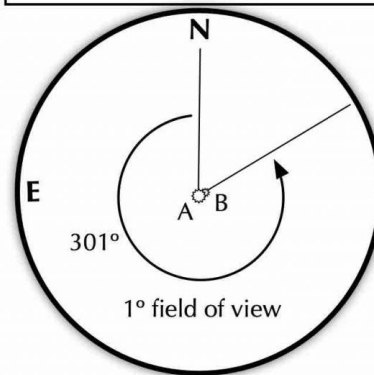
How to find Eta Persei on a November evening

Face northeast. Between bright Capella and the "W" of Cassiopeia, is the constellation Perseus. Eta Persei is not quite mid way between Mirfak, the brightest star in Perseus, and the eastern edge of the "W." It lies close to the Double Cluster.

Suggested magnification: 40x
Suggested aperture: >3 inches

Eta Persei

A-B separation: 28 sec
A magnitude: 3.8
B magnitude: 8.5
Position Angle: 301°
A & B colors:
yellow, blue



Observing (Cont'd)

(Continued from page 5)

debaran, the orange eye of the Bull, positioned to the right of the Moon at nightfall. This month's Full Moon is called the River's Freezing Moon. Other names this month are the Frost Moon and the Snow Moon. The Lunar Straight Wall is visible the evening of the 20th.

Constellations: High in the sky we see the Summer Triangle overhead. Also available in the November sky are the Great Square of Pegasus, and a bit east and nearly overhead is Cassiopeia in the shape of a large "W"., Aquarius, Andromeda, Pisces, and Triangulum.

Messier/deep sky: November is a great month to observe the Andromeda galaxy M31. That

fuzzy patch in the sky is 2.5 million miles away. Binoculars or a telescope aid in the view of this wonder. Other gems available for observation this month include: the Double Cluster in Perseus, and M34 just to the south and Auriga, M36, M37 and M38.

The double star Almach (Gamma Andromedae), located in Andromeda can be easily seen with a small telescope. The brighter star will appear a pale yellowish gold with the companion star a pale blue. M15 globular cluster can be located on the western edge of Pegasus. Look out for the Pleiades (Seven Sisters) as well this month.

Comets: There are no bright comets visible during November.

Asteroids: 29 Amphitrite is at opposition at 3:00 am EDT on the 2nd.

Meteor showers: Orionids peak on the 21st and 22nd with an estimated 10-20 meteors/hour. The Draconids, a lesser meteor shower field may be visible on the 8th and 9th. These meteors will radiate from the constellation Draco with 10 meteors/hour possible. The Southern Taurid meteor showers peak (ZHR = 10) on the 6th and the Northern Taurid meteors (ZHR = 5) peak overnight on the 12th. The Leonid meteor showers peak (ZHR = 20) on the 17th. The best time to view the meteor showers is during predawn hours.

Speaker Bio (Cont'd)

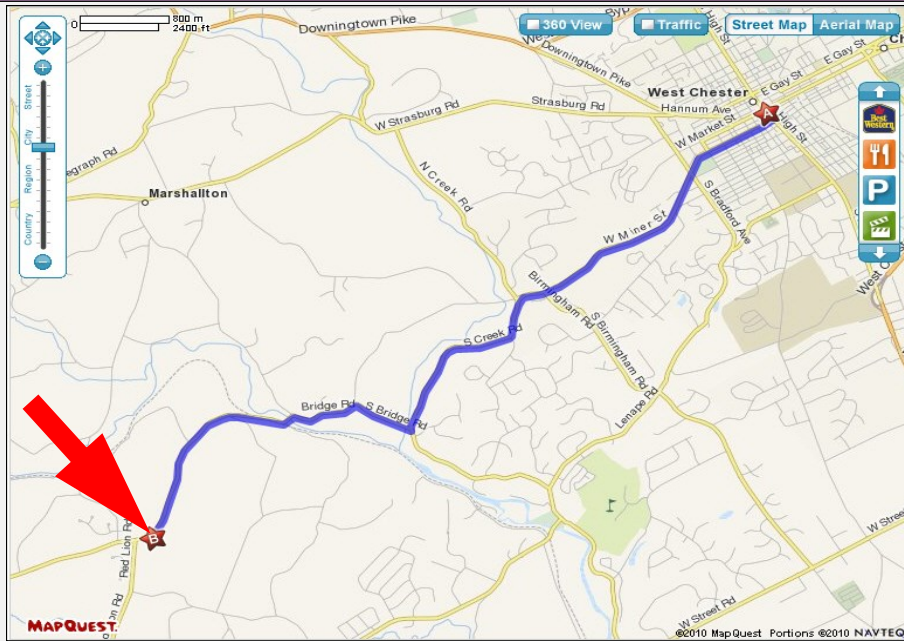
(Continued from page 3)

physics research at NASA Goddard Space Flight Center, the Carnegie Institution for Science, NASA Ames, and SETI. She now works as an Astrophysics Engineer on the educational astrophysics' software Universe Sandbox. Erika is the co-founder of the JustSpace Alliance, a non-profit advocating for a more inclusive and ethical future in space. She is the author of *Off-Earth: Ethical Questions and Quandaries for Living in Outer Space* and the co-editor of *Reclaiming Space: Progressive and Multicultural Visions of Space Exploration*.

Classic La Para by Nicholas La Para



CCAS Directions



Brandywine Red Clay Alliance

1760 Unionville Wawaset Rd
West Chester, PA 19382
(610) 793-1090
<http://brandywinewatershed.org/>

BRC was founded in 1945 and is committed to promoting and protecting the natural resources of the Brandywine Valley through educational programs and demonstrations for all ages.

Brandywine Red Clay Alliance

The monthly observing sessions (held February through November) are held at the Myrick Conservation Center of the Brandywine Red Clay Alliance.

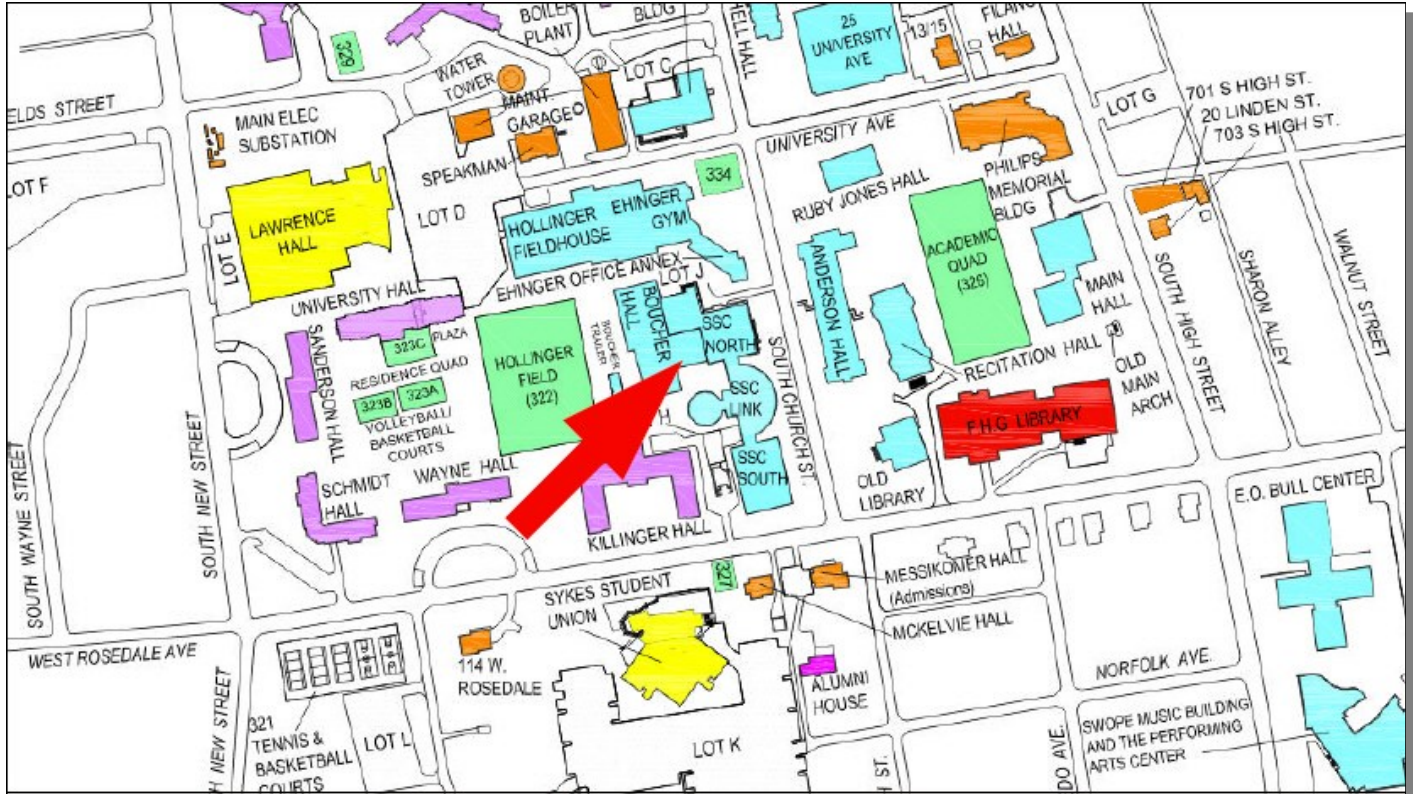
To get to the Myrick Conservation Center from West Chester, go south on High Street in West Chester past the Courthouse. At the next traffic light, turn right on Miner Street, which is also PA Rt. 842. Follow Rt. 842 for about 6 miles. To get to the observing site at the BRC property, turn left off Route 842 into the parking lot by the office: look for the signs to the office along Route 842. From that parking lot, go left through the gate and drive up the farm lane about 800 feet to the top of the hill. The observing area is on the right.

If you arrive after dark, *please turn off your headlights and just use parking lights* as you come up the hill (so you don't ruin other observers' night vision).

CCAS Directions

West Chester University Campus

The monthly meetings (September through May) are held in Room 112 in Merion Science Center (formerly the Boucher Building), attached to the Schmucker Science Center. The Schmucker Science Center is located at the corner of S. Church St & W. Rosedale Ave. Parking is generally available across Rosedale in the Sykes Student Union parking lot (Lot K).



Uranus (Cont'd)

(Continued from page 11)

To find it, look overhead just after midnight on November 13. Uranus will lie about halfway between the brilliant planet Jupiter and the diffuse glow of the Pleiades star cluster (M45). While Uranus may look like a bright blinking star in the night sky, its blue-green hue gives away its identity. Binoculars or a telescope will improve the view.

For more about this oddball planet, visit NASA's [Uranus page](#).

CCAS Membership Information and Society Financials

Treasurer's Report by Don Knabb

Oct. 2023 Financial Summary

Beginning Balance	\$954
Deposits	\$500
Disbursements	-\$0
Ending Balance	\$1454

New Member Welcome!

Welcome to our new CCAS members Kate Richardson, Malvern, PA; Heather Rae Hufnagel, Glenmoore, PA; Dave Wilson, Secane, PA; and WCU students Jack Reed, Ayala Snir, and Harmoniee Wong.

We're glad you decided to join us under the stars! Clear skies to you!

Membership Renewals

You can renew your CCAS membership by writing a check payable to "Chester County Astronomical Society" and sending it to our Treasurer:

Don Knabb
988 Meadowview Lane
West Chester PA 19382

The current dues amounts are listed in the *CCAS Information Directory*. Consult the table of contents for the directory's page number in this month's edition of the newsletter.

Join the Fight for Dark Skies!



You can help fight light pollution, conserve energy, and save the night sky for everyone to use and enjoy. Join the nonprofit International Dark-Sky Association (IDA) today. Individual memberships start at \$30.00 for one year. Send to:

International Dark-Sky Association
 5049 E Broadway Blvd, #105
 Tucson, AZ 85711
 Phone: 520-293-3198
 Fax: 520-293-3192
 E-mail: ida@darksky.org

For more information, including links to helpful information sheets, visit the IDA web site at:

<http://www.darksky.org>

Dark-Sky Website for PA



The Pennsylvania Outdoor Lighting Council has lots of good information on safe, efficient outdoor security lights at their web site:

<http://www.POLCouncil.org>

Find out about Lyme Disease!

Anyone who spends much time outdoors, whether you're stargazing, or gardening, or whatever, needs to know about Lyme Disease and how to prevent it. You can learn about it at:

<http://www.lymebasics.org>

Take the time to learn about this health threat and how to protect yourself and your family. It is truly "time well spent"!

Good Outdoor Lighting Websites

One of the biggest problems we face in trying to reduce light pollution from poorly designed light fixtures is easy access to good ones. When you convince someone, a neighbor or even yourself, to replace bad fixtures, where do you go for good lighting fixtures? Check out these sites and pass this information on to others. Help reclaim the stars! And save energy at the same time!



Light pollution from poor quality outdoor lighting wastes billions of dollars and vast quantities of valuable natural resources annually. It also robs us of our heritage of star-filled skies. Starry Night Lights is committed to fighting light pollution. The company offers the widest selection of ordinance compliant, night sky friendly and neighbor friendly outdoor lighting for your home or business. Starry Night Lights is located in Phoenix, Arizona.

Phone: 520-280-3846

<http://www.starrynightlights.com>



LIGHTHOUSE
 OUTDOOR LIGHTING

Lighthouse Outdoor Lighting is a dedicated lifetime corporate member of the [International Dark-Sky Association](http://www.ida.org). Lighthouse's products are designed to reduce or eliminate the negative effects outdoor lighting can have while still providing the light you need at night.

211 North Walnut St.
1st Floor
West Chester, PA 19380

Phone: 484-291-1084 or 800-737-4068

<https://www.lighthouse-lights.com/landscape-lighting-design/pa-west-chester/>

Local Astronomy-Related Stores

Listing retail sites in this newsletter does not imply endorsement of any kind by our organization. This information is provided only as a service to our members and the general public.



Skies Unlimited is a retailer of telescopes, binoculars, eyepieces and telescope accessories from Meade, Celestron, Televue, Orion, Stellarvue, Takahashi, Vixen, Losmandy and more.

Skies Unlimited
Suburbia Shopping Center
52 Glocker Way
Pottstown, PA 19465

Phone: 610-327-3500 or 888-947-2673
 Fax: 610-327-3553
 Email: info@skiesunlimited.com

<http://www.skiesunlimited.net>



Located in Manayunk, Spectrum Scientifics educates and entertains customers with an array of telescopes, microscopes, binoculars, science toys, magnets, labware, scales, science instruments, chemistry sets, and much more.

4403 Main Street
Philadelphia, PA 19127

Phone: 267-297-0423
 Fax: 215-965-1524

Hours:
 Monday thru Friday: 9AM to 5PM

<http://www.spectrum-scientifics.com>

CCAS Information Directory

CCAS Lending Telescopes

Contact Don Knabb to make arrangements to borrow one of the Society's lending telescopes. CCAS members can borrow a lending telescope for a month at a time; longer if no one else wants to borrow it after you. Don's phone number is 610-436-5702.

CCAS Lending Library

Contact our Librarian, Barb Knabb, to make arrangements to borrow one of the books in the CCAS lending library. Copies of the catalog are available at CCAS meetings. Barb's phone number is 610-436-5702.

Contributing to *Observations*

Contributions of articles relating to astronomy and space exploration are always welcome. If you have a computer, and an Internet connection, you can attach the file to an e-mail message and send it to: newsletter@ccas.us

Or mail the contribution, typed or handwritten, to:

Dr. John C. Hepler
21 Medinah Drive
Reading, PA 19607

CCAS Newsletters via E-mail

You can receive the monthly newsletter (in full color!) via e-mail. All you need is a PC or Mac with an Internet e-mail connection. To get more information about how this works, send an e-mail request to Dr. John Hepler, the newsletter editor, at: newsletter@ccas.us.

CCAS Website

Dr. John Hepler is the Society's Webmaster. You can check out our Website at:

<http://www.ccas.us>

Dr. Hepler welcomes any additions to the site by Society members. The contributions can be of any astronomy subject or object, or can be related to space exploration. The only requirement is that it is your own work—no copyrighted material! Give your contributions to Dr. Hepler at (484) 883-5033 or e-mail to webmaster@ccas.us

CCAS Purpose

The Chester County Astronomical Society was formed in September 1993, with the cooperation of West Chester University, as a non-profit organization dedicated to the education and enjoyment of astronomy for the general public. The Society holds meetings (with speakers) and observing sessions once a month. Anyone who is interested in astronomy or would like to learn about astronomy is welcome to attend meetings and become a member of the Society. The Society also provides telescopes and expertise for "nights out" for school, scout, and other civic groups.

CCAS Executive Committee

For further information on membership or society activities you may call:

President: Dave Hockenberry
610-558-4248

Vice President: Pete Kellerman
610-873-0162

ALCor & Treasurer: Don Knabb
610-436-5702

Observing: Michael Manigly
484-631-6197

Secretary: Beatrice Mazziotta
610-933-2128

Librarian: Barb Knabb
610-436-5702

Program: Bruce Ruggeri
610-256-4929

Education: Don Knabb
610-436-5702

Dennis O'Leary
610-701-8042

Webmaster & Newsletter: John Hepler
484-883-0533

Public Relations: Ann Miller
610-558-4248



CCAS Membership Information

The 2023 membership rates are as follows:

REGULAR MEMBER.....\$30/year
SENIOR MEMBER.....\$15/year
STUDENT MEMBER.....\$ 5/year
JUNIOR MEMBER.....\$ 5/year
FAMILY MEMBER.....\$40/year

Membership Renewals

Check the Membership Renewals on the front of each issue of *Observations* to see if it is time to renew. If you need to renew, you can mail your check, made out to "Chester County Astronomical Society," to:

Don Knabb
988 Meadowview Lane
West Chester PA 19382-2178

Phone: 610-436-5702
e-mail: treasurer@ccas.us

Sky & Telescope Magazine

The club membership subscription cost for *Sky and Telescope* magazine has increased to **\$43.95**. This is still a good saving from the regular rate of **\$56.05**.

There is no need to go through the CCAS treasurer for subscriptions or renewals. Just go to the Sky and Telescope website and select "Magazine", then under the FAQs you can subscribe at the club rate.

<https://skyandtelescope.org/subscribe/>

If you have **any** questions call Don Knabb at 610-436-5702.

Astronomy Magazine Group Rates

Subscriptions to this excellent periodical are available through the CCAS at a reduced price of **\$34.00** which is much less than the individual subscription price of **\$42.95** (or \$60.00 for two years).

There is no need to go through the CCAS treasurer for subscriptions or renewals. Just call customer service at 877-246-4835 and request the club rate for your new subscription or renewal.