Observations

A Monthly Publication Of The
CHESTER COUNTY ASTRONOMICAL SOCIETY

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Membership Renewals Due

12/2025	Damerau DeAngelo DellaPenna Etherington Kearns Kovic Nasserzad O'Leary
01/2026	Johnson Jose Kellerman Kennedy Kovacs McElwee Moynihan Schier
02/2026	Buki Murphy Ruggeri Sutton Tronel Varada

Best Wishes for a Happy & Healthy New Year!

December 2025 Dates

3rd • The Moon passes 5° north of Uranus, 10 p.m. EST

4th • Full Moon, the Cold Moon, 6:14 p.m. EST.

7th • Mercury is at greatest western elongation (21°), 4 p.m. EST.

11th • Last Quarter Moon, 3:51 p.m. EST .

13th-14th • Geminid Meteor Shower peaks.

18th • The Moon passes 6° south of Mercury, 7 a.m. EST.

19th • New Moon, 8:43 p.m. EST.

21st-22nd • Ursid Meteor Shower peaks.

27th • First Quarter Moon, 2:09 p.m. EST.

2025 CCAS Holiday Party

SAVE THE DATE! Our annual CCAS Holiday party is on Tuesday, December 9th. This year we are holding the celebration at Victory Brewing Company, 6:00 to 9:00 PM, 420 Acorn Lane, Downingtown, PA. CCAS members, family members, and friends are all welcome to attend. The approximate cost is $37.00 per person. The Club is paying for appetizers, and there will be a sandwich buffet including salad and chips/fries. The bar is right next to the event room where we will be for those who wish to get their own drinks.

Please RSVP as soon as possible, as

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Autumn/Winter Society Events

December 2025

5th • West Chester University Planetarium Show: "Supermoon Rises!" in the Schmucker Science Building. The show starts at 7:00 PM EST and runs approximately one hour in length. For more information and reservations, visit the WCU Public Planetarium Shows webpage.

9th • CCAS Annual Holiday Party, celebration at Victory Brewing Company, 6:00 to 9:00 PM EST, 420 Acorn Lane, Downingtown, PA. CCAS members, family members, and friends are all welcome to attend. The approximate cost is $37.00 per person.

20th • Open call for articles and photographs for the January 2026 edition of Observations.

21st • Solstice (northern winter/southern summer begins), 10 a.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.

26th • Deadline for newsletter submissions for the January 2026 edition of Observations.

January 2026

9th • West Chester University Planetarium Show: "Birth of Planet Earth," in the Schmucker Science Building. The show starts at 7:00 PM EST and runs approximately one hour in length. For more information and reservations, visit the WCU Public Planetarium Shows webpage.

13th • CCAS Monthly Meeting in Room 112, Merion Science Center, WCU (as well as via Zoom). The meeting starts at 7:30 PM, EST. Guest Speaker: Dr. Naoko Kurahashi-Neilson, Dept of Physics, Drexel University, "Advances in Neutrino Astronomy and a New View of the Milky Way Galaxy from the Ice Cube Observatory."

20th • Open call for articles and photographs for the February 2026 edition of Observations.

26th • Deadline for newsletter submissions for the February 2026 edition of Observations.

February 2026

13th • CCAS Monthly Meeting in Room 112, Merion Science Center, WCU (as well as via Zoom). The meeting starts at 7:30 PM, EST. CCAS Member Speaker: John Conrad, NASA Solar System Ambassador, "Cosmic Wrecks- Collisions Near and Far."

20th • Open call for articles and photographs for the March 2026 edition of Observations.

26th • Deadline for newsletter submissions for the March 2026 edition of Observations.

November 2025 Meeting Minutes

by Bea Mazziotta, CCAS Secretary

- The November meeting of the CCAS was held on Tuesday November 11, 2025 in person at WCU, and via Zoom and YouTube. Club president Dave Hockenberry welcomed attendees.
- Dave noted that the annual CCAS holiday party will be held at Victory Brewing Company in Downingtown on December 9th. Go to ccas.us for more information.
- Don Knabb reviewed upcoming club events. He also invited members to watch the Astronomical League's live stream on November 14th featuring Alan Dyer.
- Don discussed objects for viewing in the November and December night skies including Saturn and the New Moon, as well as the Leonid and Geminid meteor showers.
- John Conrad, club member and NASA Solar System Ambassador, was the evenings guest speaker.
  - He presented his program, "Cosmic Wrecks", a discussion of how objects come to collide in space.
  - Merging galaxies, gravitational forces and stars in dense environments orbiting at high speeds can result in space collisions. And within our own galaxy, we can see the results of Asteroids impacts on planets and moons.
  - Earth has experienced asteroid collisions, one of which is said to have resulted in the extinction of 85% of species alive at the time.

January 2026 CCAS Meeting Agenda

by Bruce Ruggeri, CCAS Program Chair

Our next meeting will be held on January 13, 2026, 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.

Our guest speaker is Dr. Naoko Kurahashi-Neilson, Dept of Physics, Drexel University. Her presentation is titled, "Advances in Neutrino Astronomy and a New View of the Milky Way Galaxy from the Ice Cube Observatory."

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 the coming 2026-2027 season. If you are interested in presenting, or know someone who would like to participate, please contact me at programs@ccas.us.

In Memoriam – Frank Angelini, Founding Member of CCAS

by Dave Hockenberry, CCAS President

Frank Angelini (10/23/1947 – 11/18/2025)

It is with a heavy heart that I inform you that the Chester County Astronomical Society has lost one of our own. Frank Angelini, a founding member of CCAS, passed away just over a week before Thanksgiving. His infectious enthusiasm, insatiable curiosity, "can do" determination, and easy smile will be sorely missed by all of us who knew him.

Frank wasn't just a CCAS founder. He was an avid observer and brought the same disciplined approach to astronomy that shaped his career in science and electrical engineering. His approach to acquiring and deploying his astro gear was always exhaustively researched, carefully chosen, and methodically applied.

He loved being under the stars with kindred spirits, demonstrating whatever new observing gear he brought to the field. He restored classic telescopes, built his own observatory, and even became a "citizen scientist" by reporting solar wind effects on Earth's atmosphere. To this end he built and deployed a specialized antenna rig as part of his observatory. He was one of our society's early astrophotographers, and his pictures are still on the CCAS web site archives.

Images of Frank courtesy CCAS Treasurer & ALCOR Don Knabb

He always kept us informed about improvements and modifications to his observatory, which he named *Le Quattro Stelle*. Frank gave presentations at our meetings, presenting his scientific observations and sharing his successes – and trials – in amateur astronomy.

Yet Frank was just as thrilled with the social aspects of our club. He was always up for an impromptu observing session, a field trip, or a party. He exuded a warm, inviting presence at our gatherings with genuine interest in other people and their experiences.

His sense of humor and twinkling eyes always made new, and not so new, participants feel welcome and at ease. He loved being with people and even ran the informal CCAS "Breakfast Club" for many years.

He was extremely well read and informed about many topics, and discussions with Frank were always fun and educational.

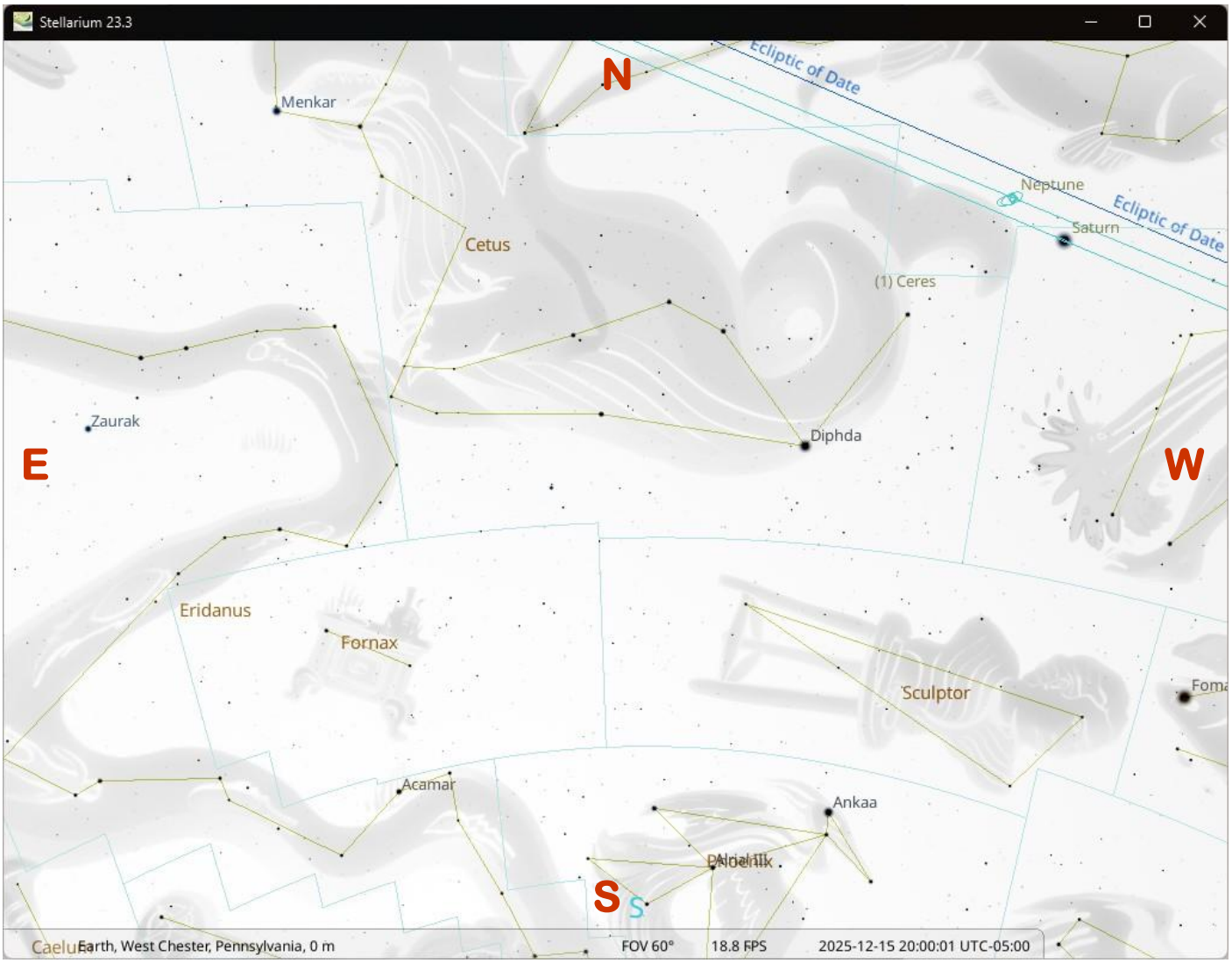
Frank's generosity was well known. His contributions to special CCAS projects, the Scholarship fund, and the West Chester University Planetarium renovations are only a few of the ways he contributed to the betterment of our Society, West Chester University, and indeed

(Continued on page 14)

The Sky Over Chester County

December 15, 2025 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
12/01/2025	6:37 a.m. EST	7:07 a.m. EST	4:37 p.m. EST	5:08 p.m. EST	09h 30m 22s
12/15/2025	6:48 a.m. EST	7:19 a.m. EST	4:38 p.m. EST	5:09 p.m. EST	09h 18m 46s
12/31/2025	6:55 a.m. EST	7:26 a.m. EST	4:47 p.m. EST	5:18 p.m. EST	09h 20m 59s

Moon Phases					
			Full Moon	12/04/2025	6:14 p.m. EST
Last Quarter	12/11/2025	3:51 p.m. EST	New Moon	12/19/2025	8:43 p.m. EST
First Quarter	12/27/2025	2:09 p.m. EST			

December 2025 Observing Highlights

by Don Knabb, CCAS Treasurer & ALCOR

The best sights this month: Saturn continues to rule the evening sky during December! Share the view of the ringed planet with friends and family for a sight they will never forget. Don't miss the Geminid meteor shower. This is a good year for the Geminids because the Moon will not interfere to any significant degree.

Mercury: Mercury is in the morning sky during December.

Venus: Our sister planet is approaching solar conjunction, so it is not visible during December.

Mars: The red planet is also approaching solar conjunction, so it is not visible during December.

Jupiter: The king of the planets rises around 8 p.m. at the start of the month but by month's end it will rise around 6 p.m., so after Christmas it will be in excellent position during the prime evening observing time if Santa brought you any new astronomy equipment!

Saturn: Saturn continues to be ideally located for evening observation. Set up a telescope and share the view with your family, friends, and neighbors! The rings are at a very narrow angle, essentially a straight line.

Uranus and Neptune: Uranus spends December in the constellation Taurus the Bull, so it is visible all night. Using the Pleiades as a guide will allow you to easily find Uranus with binoculars or a telescope. Neptune is approximately 4º northeast of Saturn in the constellation Pisces. It will take careful star hopping with a telescope or binoculars to find Neptune, but this is a good opportunity to add the furthest planet from the Sun to your list of observed planets.

The Moon: Full moon occurs December 4th. This is the Full Cold Moon, or the Full Long Night Moon. It is also sometimes called the Moon before Yule. The term Long Night Moon is appropriate because the midwinter night is indeed long, and because the Moon is above the horizon for a long time. The midwinter full Moon has a high trajectory across the sky because it is opposite a low Sun. Native Canadians called this the Chief Moon or the Elder Moon or the Rivers Freezing Over Moon.

Moon phases in December:

- Full Moon: December 4
- Last Quarter: December 11
- New Moon: December 20
- First Quarter: December 27

Constellations: Ah, December skies! It's cold enough to be quite clear, but not the freezing, bone chilling cold of January and February. It seems odd to go outside after sunset and still see the Summer Triangle, but indeed there it is diving into the west. Look to the east and you will see the constellations that make it worth dressing warmly and spending some time outside during the cold December nights. Bright Capella in Auriga is high in the east to the upper left of the "V" of Taurus the Bull. Just behind Taurus is Orion the Hunter, the most easily recognized constellation of the winter months.

Messier/deep sky: There is so much to see in the December sky you won't be lacking targets if Santa brought you any new astronomy equipment! If it is not too cold, there is a long list of beautiful objects in easy reach of even a small telescope or any pair of binoculars. First look for the Andromeda galaxy high in the south, then head east to the three open clusters in Auriga. Use a low power eyepiece in your telescope and zoom in to the Pleiades, although they are better captured in binoculars. Then look nearly straight up and find the Double Cluster in Perseus. And of course, don't miss M42, the Orion Nebula, which is a truly awesome telescopic object.

Comets: There are no bright comets visible during December.

Meteor showers: The Geminid meteor shower, one of the most reliable meteor showers of the year, peaks on the night of December 13/14. The best viewing is after 11:00 p.m. on the 13th through the early morning hours of the 14th. Over 100 "shooting stars" per hour are possible from this shower. Then on December 22nd the Ursid meteor shower peaks. This shower pales in comparison to the Geminids but is still worth a look.

The Star of Bethlehem: What Is the Christmas Star?

by Bob Berman, courtesy of Almanac.com

In this painting, Adoration of the Magi, the Star of Bethlehem is shown as a comet. The painter Giotto di Bondon saw Halley's Comet in 1301.

Was the Star of Bethlehem a real astronomical object? Many religious scholars believe the bright star never existed as a physical object. Instead, when the account was written 50 years after Christ's death, the star was meant as an astrological omen.

I take both religion and science seriously. In and of itself, the mixing of science and religion is shaky, but it can be helpful in specific cases; science should be present whenever it can be helpful. When the Shroud of Turin controversy raged, the use of Carbon-14 dating provided an

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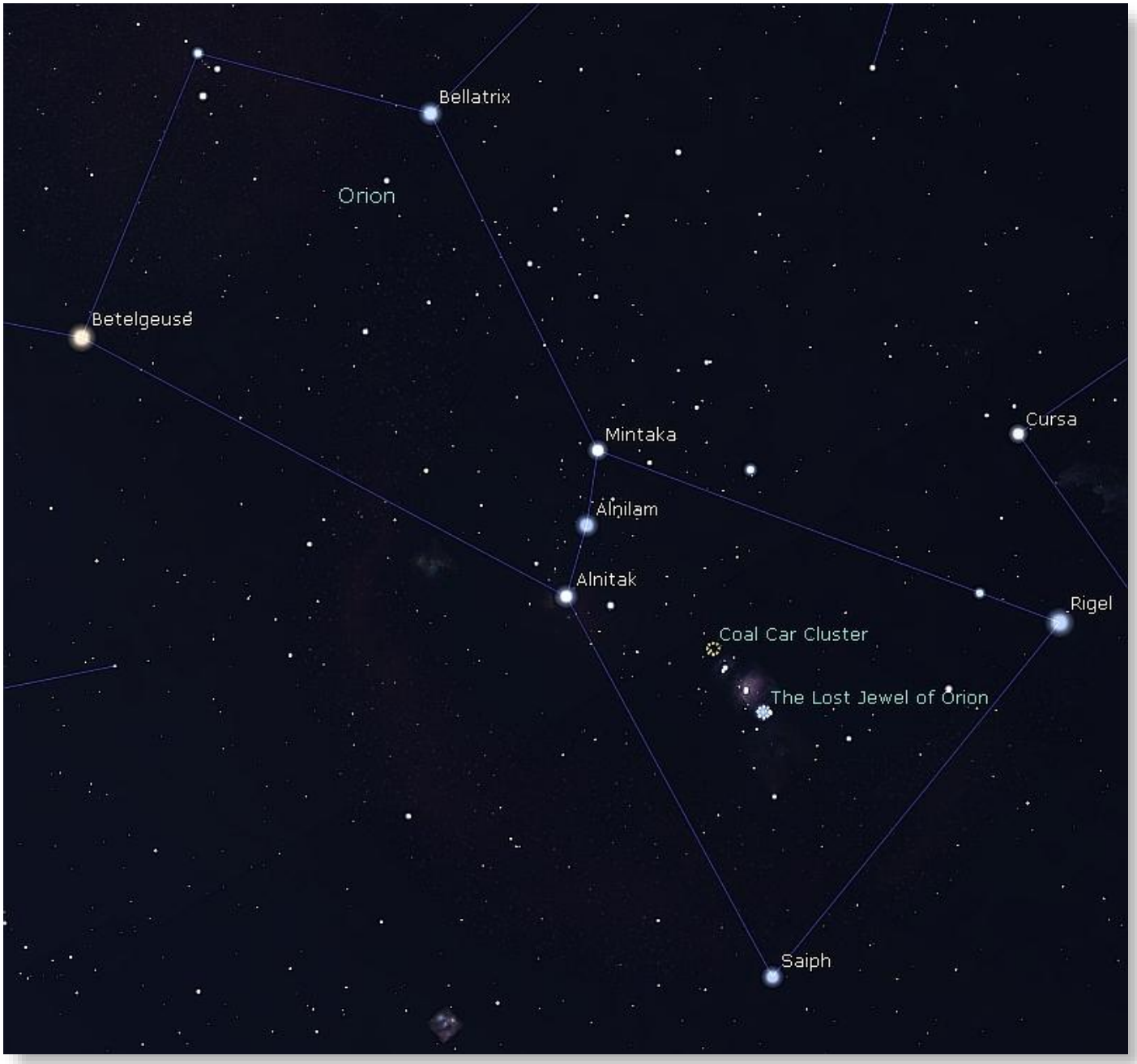
Through the Eyepiece: The Coal Car Cluster, NGC 1981

by CCAS Treasurer & ALCOR Don Knabb



Sky map created using Stellarium, the free planetarium software

As the cold months arrive, I always try to find interesting objects that can be seen using handheld binoculars. Once you have them focused, you can scan the sky with your gloves on and not get terribly cold.

Probably the best winter object to view is the Orion Nebula, M42. NGC 1981 is a nice open cluster that is easily found after you have zeroed in on the nebula. Slowly pan your binoculars upwards from M42 toward Orion's belt stars and you should come across a small cluster of stars. This is known as the "Coal Car Cluster" and is designated Collinder 73.

The cluster lies 1,300 light years from Earth and consists of around ten or so 6th and 7th magnitude stars forming a distinctive shape. The stars of the cluster are spread over a region of the sky nearly half a degree across (only slightly less than the face of the Moon) but the

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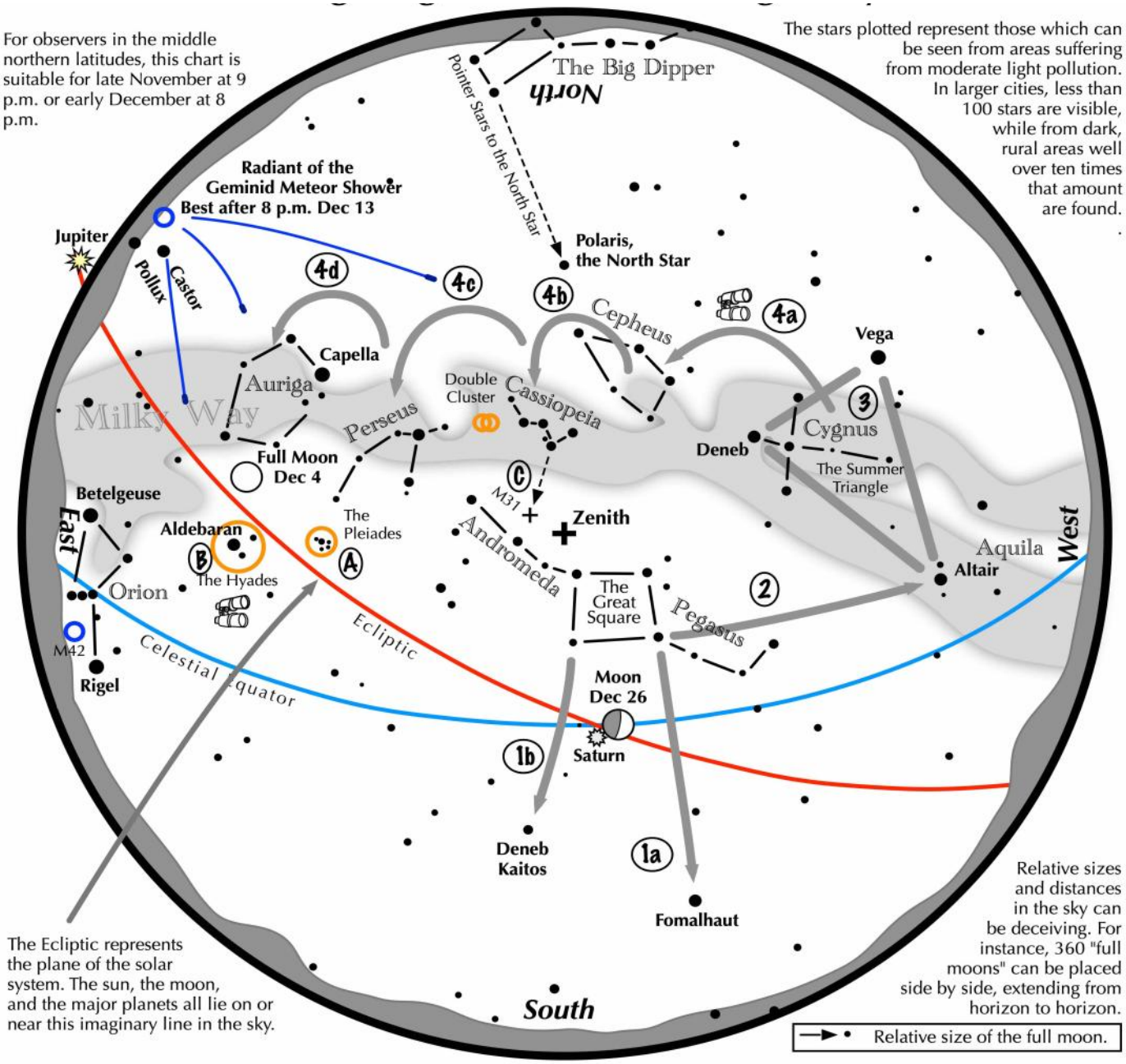
Navigating the mid-December Night Sky

courtesy of the Astronomical League



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

1. Face south. Almost overhead is the "Great Square" with four stars about the same brightness as those of the Big Dipper. Extend an imaginary line southward following the Square's two westernmost stars. The line strikes Fomalhaut, the brightest star in the southwest. A line extending southward from the two easternmost stars, passes Deneb Kaitos, the second bright star in the south.
2. Draw another line, this time westward following the southern edge of the Square. 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, 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.

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

Eyepiece (Cont'd)

Image credit: David St. Louis - M42 HaRGB Composite Feb 2012 P Uploaded by ComputerHotline, CC BY 2.0, https://commons.wikimedia.org/w/index.php?curid=18486543 (the original image was cropped for this article)

(Continued from page 7)

individual stars of the cluster are too faint to be seen with the naked eye. Some see it as the 'coal car' while others see it as a dog. Some liken its shape to an alligator or crocodile seen from above with the easternmost star as the snout, the westernmost the tail and the two groups of three stars in the middle two sets of legs.

NGC 1981 was discovered by John Herschel on January 4, 1827. Its apparent magnitude is 4.2. The cluster and nearby nebulae are closely related, arranged together at about 1,300 light years from Earth. Some of the light by which we see the form of the Running Man Nebula to the south is reflected from the stars of the cluster.

NGC 1981 is young cluster of stars only recently formed from their surrounding nebula. Still glowing hot and blue, these stars are still surrounded by clouds of material, remnants of the nebula from which they originally formed. NGC 1981 is not a densely populated cluster, but its comparatively bright blue stars stand out distinctly against their background. Indeed, in many ways this cluster is reminiscent of the much closer Pleiades, though its relatively much greater distance means that at least binoculars are needed to fully appreciate its structure.

So, when the sky is clear and the temperatures are not too cold, look for the Coal Car Cluster. And if you see the alligator shape, don't worry, it won't bite.

Information sources:

http://www.spacegazer.com/index.asp?pageid=681757
https://en.wikipedia.org/wiki/NGC_1981
https://www.glyphweb.com/esky/clusters/ngc1981.html
https://skyandtelescope.org/observing/overlooked-wonders-in-orions-shadow02102016/

Holiday Party (Cont'd)

(Continued from page 1)

Victory needs to know the number of attendees and approximate number and type of sandwiches they need to make. The choices are Chicken Caprese, Turkey Club Wrap, and Vegetable Ciabatta, with RSVP please let us know of you and your family/guest preference.

Please RSVP to:
Dave Hockenberry
Toxophilus1@verizon.net

We look forward to seeing you there!

Christmas Star (Cont'd)

(Continued from page 6)

unambiguous answer: The cloth that once supposedly covered the just-crucified body of Jesus proved to be less than 1,000 years old. It wasn't the genuine shroud but a hoax from the Middle Ages.

The Christmas Star is a different story. It's not meant to be proven through science. You don't need some scientific explanation for the Star. You have faith, or you don't. So, when astronomers have their Star of Bethlehem science show at the planetarium, it really doesn't serve science or faith. Every backyard astronomer knows you can't get anywhere by following something in the sky. Earth's rotation quickly makes the contents of the heavens change position. Whether planet or supernova, everything rises in the east, arcs rightward during the night, and sets in the west. You'd go in a giant semicircle if you followed any celestial object. Plus, no astronomical body can come to a screeching halt over Bethlehem or anywhere else.

The only place where objects don't move is in the middle of the northern sky, where Polaris hangs motionless (learn how to use Polaris to navigate!). But that eliminates planets, which are never in the north, and besides, the Magi weren't going north to get to Bethlehem, but southwest.

So, what was this Star that, according to Matthew, "Went before them, and stood above where the Christ child lay." Most religious leaders believe the bright star never existed as a physical object. Instead, when the account was written 50 years after Christ's death, the star was meant as an omen or sign. After all, great kings were accompanied by auspicious astrological configurations; presumably, Jesus should also have one.

At that time, the sign of Aries was linked with Judea, and Jupiter was its ruling planet; the merging of those two, as occurred in the year 6 BC when some (but not most) scholars tag the Birth, would have been precisely the kind of prophetic omen that should accompany the coming of a Savior. A further case against its existence is simply that Luke, generally regarded as the most historically accurate of the gospels, never mentions there being any star.

In any case, astrology eventually

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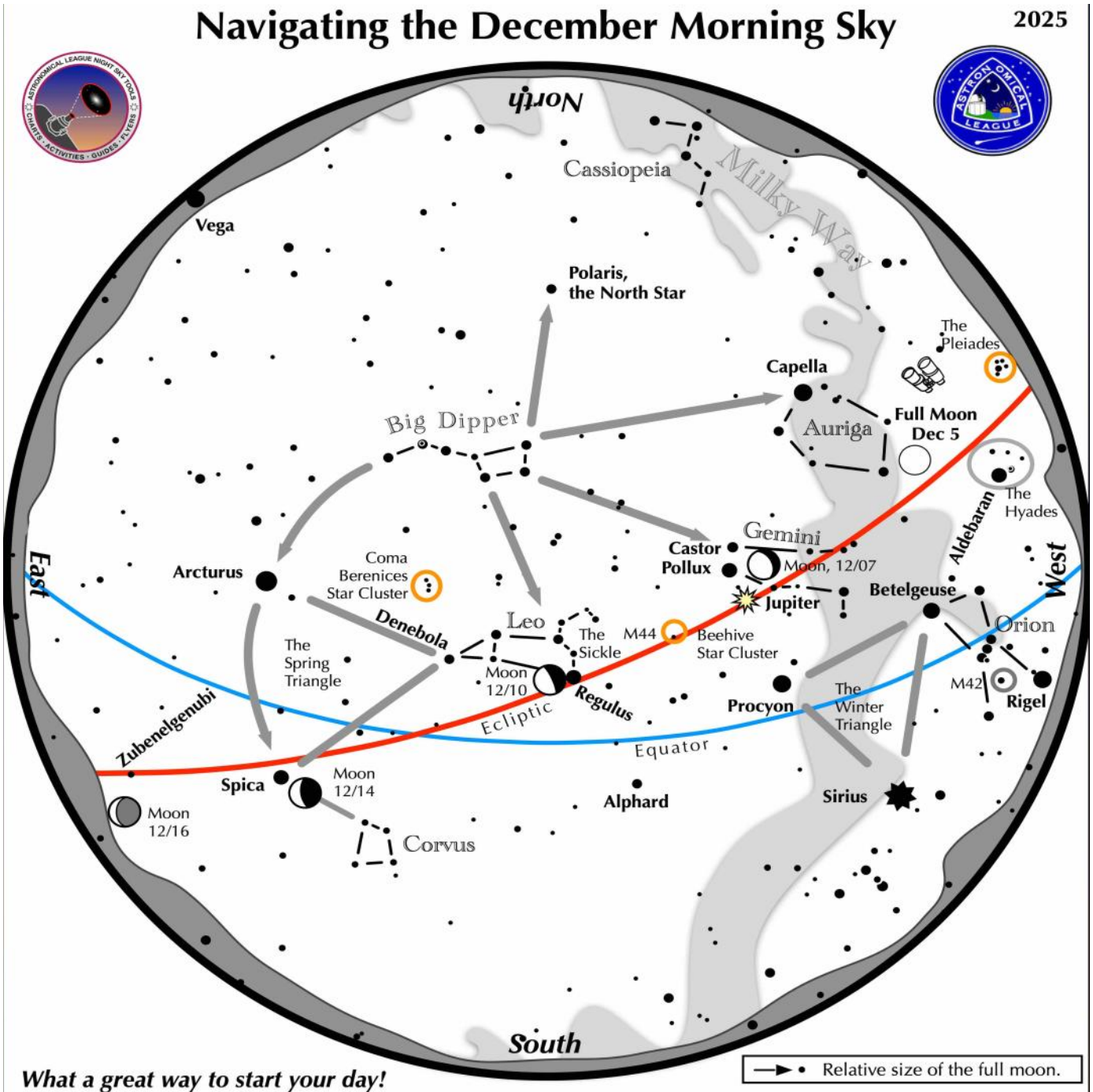
Image Credit: Romolo Tavani/ Shutterstock

Navigating the mid-December Morning Sky
courtesy of the Astronomical League



What a great way to start your day!

For observers in the middle northern latitudes, this chart is suitable for mid December at 5:00 a.m.

Late sunrises in December provide opportunities for early morning skywatching.

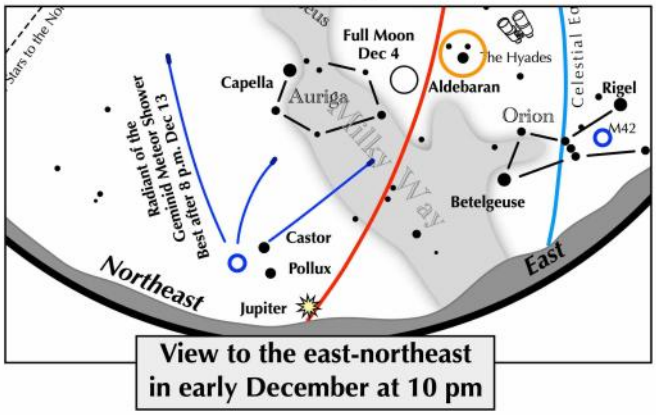
- Bright Jupiter shines high in the west.
- The near third quarter moon floats above Regulus on December 10.
- The waning crescent moon glows next to Spica on December 14.
- The thin crescent moon rises near the double star Zubenelgenubi on December 16.
- A great time for viewing the Big Dipper, Leo, and the Spring Triangle. And, in the second half of the month, it is time for galaxy viewing!

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

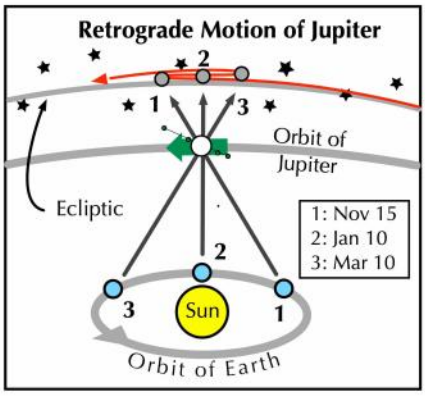
Observing Challenge for December 2025

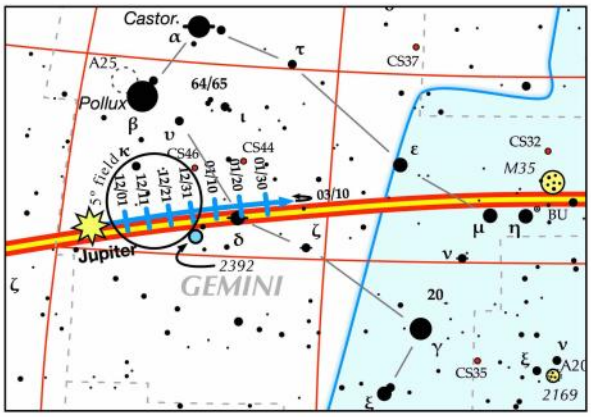
courtesy of the Astronomical League

On evenings in December (and January), try this challenge:



View to the east-northeast in early December at 10 pm





Jupiter moves in retrograde

On evenings in December, the Giant Planet slides westward in central Gemini to the lower right of Castor and Pollux.

Observe, then plot its motion in the heavens. It continues its westward journey in January, but begins to slow in February. On about March 11, it halts and reverses direction.

The passing bright moon will hamper observations on December 4-8.

Why do this activity? This planetary dance can only be explained if both Earth and Jupiter orbit our sun following definable and slightly elliptical paths. Our view from Earth clearly shows this to those people who take the time to look carefully enough.

Christmas Star (Cont'd)

(Continued from page 10)

fell into total disfavor with both the Church and, later, with science, so that explanation is popular with neither. Another problem with bringing up astrology is that it suggests that astrologers were correct in foreseeing the Birth. Such tacit support for pseudoscience is the last thing educators want to impart, nor does it win approving nods from religious leaders.

On the other hand, sticking with strictly astronomical explanations (a comet, a conjunction, a supernova, etc.) is so scientifically wrong that many planetariums are uncomfortable with it. But it's been running more or less continuously since the 1930s when it was first introduced. The public keeps coming, and, as one director explained to me, "We're just giving them what they want."

All this has nothing to do with religious faith. If you believe the Magi were led by an actual star, fine: Why not a star only the Wise Men could see? After all, suggesting that some natural celestial object, such as a comet, just appeared at the right place and then just happened to stop and hover over the manger is already indistinguishable from a miracle. Why introduce a scientific "explanation" that has to unfold entirely outside the laws of science?

Again, I ask: Why bother offering a scientific "explanation" that has to unfold outside the laws of science? Religion is similarly mistreated because the search for the real Christmas Star suggests that faith in the miraculous is unnecessary, be-

(Continued on page 13)

Christmas Star (Cont'd)

(Continued from page 12)

cause there's a rational scientific explanation for the Star. In short, neither science nor religion is well served.

The silver lining in this yearly December exercise is a marvelous confirmation of why science and religion make strange bedfellows. Their marriage always produces odd offspring, and in this case, it's twins: a planetarium show with fictitious astronomy plus the implication that faith in the miraculous is superfluous because there's a logical explanation for everything.

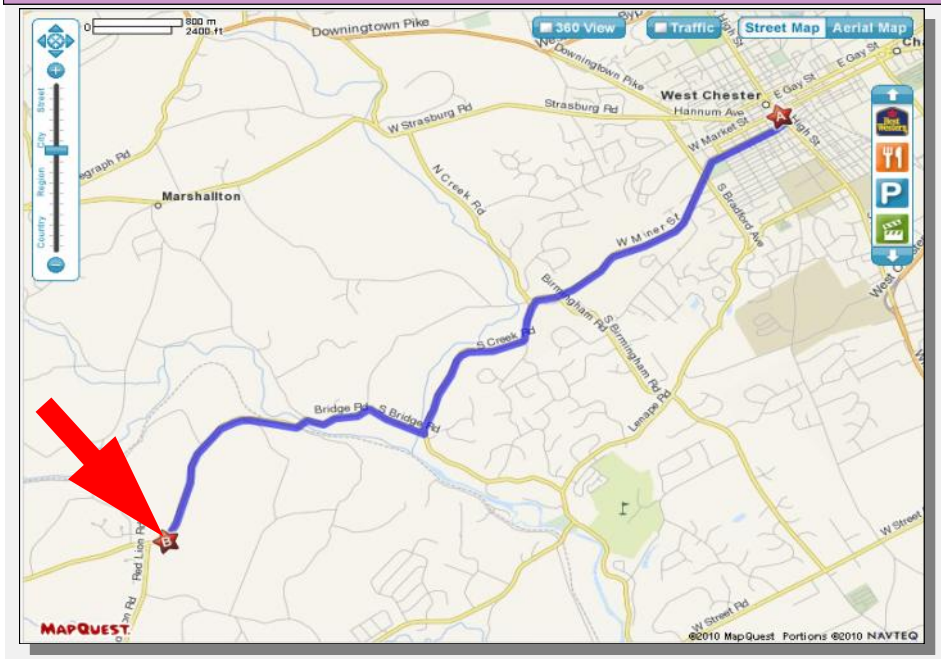
No matter. And as far as the planetarium programs go… They have become a holiday tradition, so we might as well sit back and enjoy!

[Read the original article online at https://www.almanac.com/star-bethlehem]

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.

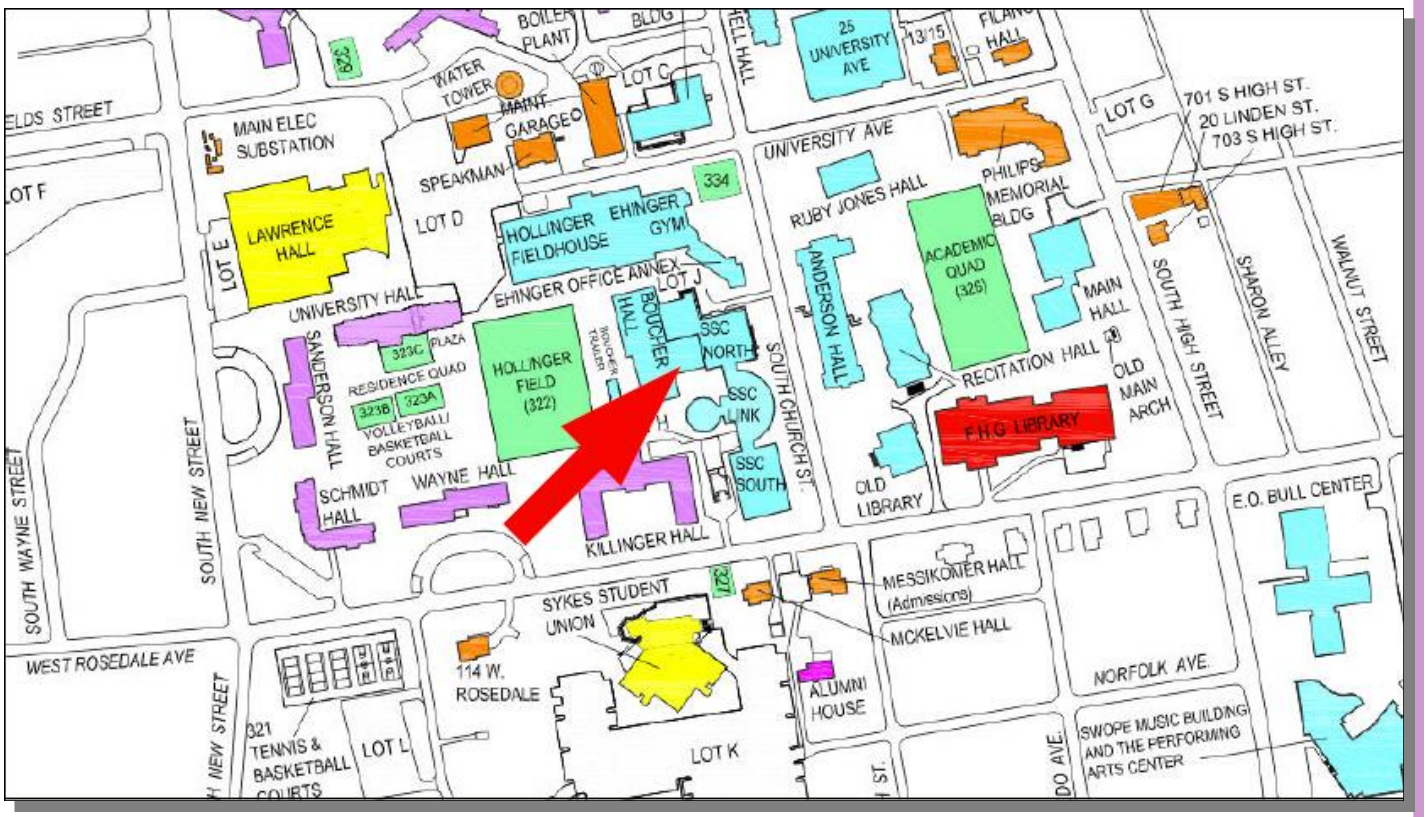
To get to the Myrick Conservation Center from West Chester, go south on High Street in West Chester past the Courthouse. At the next traffic light, turn right on Miner Street, which is also PA Rt. 842. Follow Rt. 842 for about 6 miles. To get to the observing site at the BRC property, turn left off Route 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).



Angelini (Cont'd)

(Continued from page 3)

the world around him.

So Frank now takes his rightful place among the starry heavens.

For those who can, Frank's Memorial Service will be on Friday December 5th at the Donohue Funeral Home, 43 West Lancaster Avenue, Downingtown PA. Visitation is at 11:00 AM with the service to follow.

In lieu of flowers, contributions can be made to the American Kidney Fund or the National Kidney Foundation.

CCAS Membership Information and Society Financials

Treasurer's Report
by Don Knabb

Nov. 2025 Financial Summary

Beginning Balance	$2090
Deposits	$385
Disbursements	-$0
Ending Balance	$2475

New Member Welcome!

Welcome to new CCAS members Matther H. Ward from West Chester, PA, Thomas Myruski from Coatesville, and Frank Angelini, Jr., from Berwyn, PA.

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.

CCAS Information Directory

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 $35.00 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. 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.

HIGH POINT SCIENTIFIC

High Point Scientific is a retailer of telescopes, binoculars, eyepieces and telescope accessories from Meade, Celestron, Televue, Orion, StellarMate, Takahashi, and many more. They also have an extensive blog of advice and education for amateur astronomers.

High Point Scientific
442 Route 206
Montague NJ, 07827

Phone: **800-266-9590**

https://www.highpointscientific.com/

★ ★ ★ ★ ★

Spectrum Scientifics
Quality Science Products for All Ages

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.

Contributing to *Observations*

Contributions of articles and images 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** to:

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

The deadline for submissions to the monthly newsletter is the 26th of each month. Articles and images should be original or the author/artist must be given credit. Articles should be in MS Word format with 12 point Times New Roman Font with single row spacing and one-inch margins on all four sides. Images should be in JPG or PNG file format. The submission window opens on the 20th of each month.

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:	Don Miller 610-247-8712
Secretary:	Beatrice Mazziotta 610-933-2128
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

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 & Tel*escope Magazine

The club membership subscription cost for *Sky and Telescope* magazine has increased to **$45.75**. This is still a good saving from the regular rate of **$57.75**.

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.