



Observations

A Monthly Publication Of The
CHESTER COUNTY ASTRONOMICAL SOCIETY

Vol. 31, No. 10 **Three-Time Winner of the Astronomical League's Mabel Sterns Award** ☀ 2006, 2009 & 2016 October 2023

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Back from Bennu



The sample return capsule rests in a desert on planet Earth in this photo, taken at the Department of Defense Utah Test and Training Range near Salt Lake City on Sunday, September 24. Dropped off by the OSIRIS-Rex spacecraft, the capsule is charred from the extreme temperatures experienced during its descent through the Earth's atmosphere. NASA plans to unveil the sample of the near-Earth asteroid in a broadcast event on October 11, 2023.
Image Credit: [NASA/Keegan Barber](#)

Membership Renewals Due

10/2023	Abbott Conrad Kania, J. Kania, M. Kraynik Lane Lester Levin Rosenblatt Wirth
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

October 2023 Dates

- 1st** • Jupiter passes 3° N of the Moon 11 p.m. EDT.
- 6th** • Last Quarter Moon 9:48 a.m. EDT.
- 10th** • New Moon 1:55 p.m. EDT. Annular "Ring of Fire" Solar Eclipse.
- 20th** • Mercury in superior conjunction at 2:00 a.m. EDT. Also, two (2) shadows on Jupiter are visible in North America 12:57 a.m. EDT.
- 21st** • First Quarter Moon 11:29 p.m. EDT.
- 21st-22nd** • Orionids peak on the 21st and 22nd with an estimated 10-20 meteors/hour.
- 26th** • Saturn is 3° northeast of the Moon 9:00 p.m. EDT.
- 28th** • Full Moon, the Animal Fattening Moon 4:24 p.m. EDT.



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, October 6, 2023 • CCAS Monthly Observing Session, Myrick Conservancy Center, BRC. The observing session starts at sunset
- ☀ Saturday, October 14, 2023 - Annular Solar Eclipse Observing Event w/Chester County Library at Hibernia County Park (near Coatesville). The solar observing session is scheduled from 12:00 p.m. (noon) to 2:30 p.m. EDT.
- ☀ Saturday, October 21, 2023 - International Observe the Moon Night w/NASA @ Wolf's Hollow Park in Atglen, PA.

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

Autumn Society Events

October 2023

6th • CCAS Monthly Observing Session, Myrick Conservancy Center, BRC. The observing session starts at sunset.

6th • West Chester University Planetarium Show: "Back to the Moon," 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](#).

10th • 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."

14th • Annular Solar Eclipse Observing Event w/Chester County Library at Hibernia County Park (near Coatesville). The solar observing session is scheduled from 12:00 p.m. (noon) to 2:30 p.m. EDT.

19th • The von Kármán Lecture Series: [Exploring Ocean Worlds—Europa Clipper Is One Year From Launch](#), 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 November 2023 edition of [Observations](#).

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

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

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.

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](#).

12th • Daylight Saving Time ends, 2:00 a.m. EST. Turn clocks back one hour.

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."

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](#).

September 2023 Monthly Meeting Minutes

by *Bea Mazziotta, CCAS Secretary*

- Pete Kellerman, CCAS Vice President, welcomed members and guests to the September meeting, which was held in person at WCU and via Zoom and YouTube on September 12, 2023.
- To commemorate the 30th anniversary of the founding of the club by Ed Lurcott, Pete presented a slide show of newspaper clippings and photos.
- Mike Manigly, CCAS Observing Chair, discussed upcoming viewing events and Star parties. Go to www.ccas.org for detailed information.
- Bruce Ruggeri, Programming Chair, announced the continuation of the club Scholarship Fund. It was initiated last year and awarded \$1500.00 scholarships to two WCU students, Marissa Mower and Finn Schmidhuber, profiled in the September 2023 newsletter.
- Bruce introduced the evening's speaker, John Conrad, a CCAS member and NASA/JPL Solar System Ambassador. His presentation was about the Osiris REX Mission which landed on and collected material from the asteroid Bennu.
- Launched on September 8, 2016, Osiris REX landed on Bennu on October 20, 2020, collected samples and returned the materials to Earth on September 24, 2023. The capsule containing the materials from Bennu was released from Osiris and recovered by NASA from the Utah Test and Training Range on September 24, 2023. One surprise, revealed upon landing, is that Bennu's surface is soft. Likened to a children's plastic ball pit, the surface sank as Osiris touched down and triggered an 'explosion' of surface matter. Upon return to inspect the landing site, scientists discovered a 65' wide impact crater.
- Upon release of the capsule with the cosmic materials it gathered, Osiris started a new mission to explore the near-Earth asteroid Apophis.

October 2023 CCAS Meeting Agenda

by *Bruce Ruggeri, CCAS Program Chair*

Our next meeting will be held on October 10, 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: 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."

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 October 2023 Monthly Meeting

by Bruce Ruggeri, CCAS Program Chair

Fall is upon us and it's still a perfect time for viewing the night sky. I am pleased to announce the in person and Zoom CCAS Monthly meeting for Tuesday, October 10 commencing at 7:30 pm ET. Our guest speaker is Ray Harris, a nuclear engineer and former head of the Lehigh Valley Amateur Astronomical Society (LVAAS) who will take us on a historical celestial journey in his presentation describing the historical and scientific origins of the known, and the now "lost", constellations.

The CCAS meeting presentation will commence at approximately 7:50- 8:00PM ET. Our meetings are held at West Chester University's (WCU) Merion Science Center, Room 112. The Science Center is located at 720 S. Church St.

The presentation title, synopsis and bio sketch for Ray Harris are provided below.

Title: **Lost Constellations**

The saga of how we arrived at our current 88 official constellations is an interesting one. Many cultures had their own star lore, but Renaissance Europeans started with the 48 constellations described by Claudius Ptolemaeus (Ptolemy) in his 2nd-Century *Almagest*. Of course, Ptolemy himself relied on earlier works, but these are mostly lost to us. The *Almagest* survived through the centuries and in the early 1500's when the first printed celestial charts appeared, it was considered the ultimate authority for nearly all celestial knowledge. It's therefore not surprising that the earliest examples of celestial cartography re-



October 2023 Guest Speaker Ray Harris

lied on the *Almagest* and displayed only Ptolemy's constellations.

So, where did the rest of our constellations come from? Just as terrestrial cartographers filled the oceans with sea monsters to make their works more interesting and desirable, celestial cartographers began to fill empty places in the heavens with new constellations. Following the invention of the telescope, fainter stars began to be charted and these also contributed to the invention of new constellations.

Some of these new constellations were adopted by other cartographers and remained popular for decades. Others were short-lived and failed to gain widespread acceptance. Constellations didn't have any formal boundaries, so cartographers felt free to carve out areas between the existing constellation figures to fashion new creations.

Inventing constellations was so

popular that more than 100 new ones had been introduced by 1800. To end the chaos, the International Astronomical Union formally published a list of 88 constellations and their boundaries in 1930, giving us our current heavenly menagerie. Forty-one of these modern constellations have been permanently enshrined in our skies along with all but one of Ptolemy's forty-eight. As a result, more than 60 constellations created between 1536 and 1822 were temporarily adopted but then abandoned and lost to us, except for their appearance in old star charts and atlases.

Using images from early printed celestial charts and atlases, Ray Harris will introduce us to many of the more important constellations that were created but later abandoned.

About the speaker:

Ray Harris is the son of a career Naval officer. Ray grew up mostly near Naval facilities in Virginia and California, graduating high school on the Naval base in Guantanamo Bay, Cuba. He attended Yale University and upon graduation spent five years in the Navy supervising reactor operations on a nuclear submarine. He left the service for a career in civilian nuclear power.

He joined PPL in Allentown in 1980 as staff supporting the Susquehanna nuclear power plants in Berwick. He later moved into PPL corporate IT before retiring in 2009.

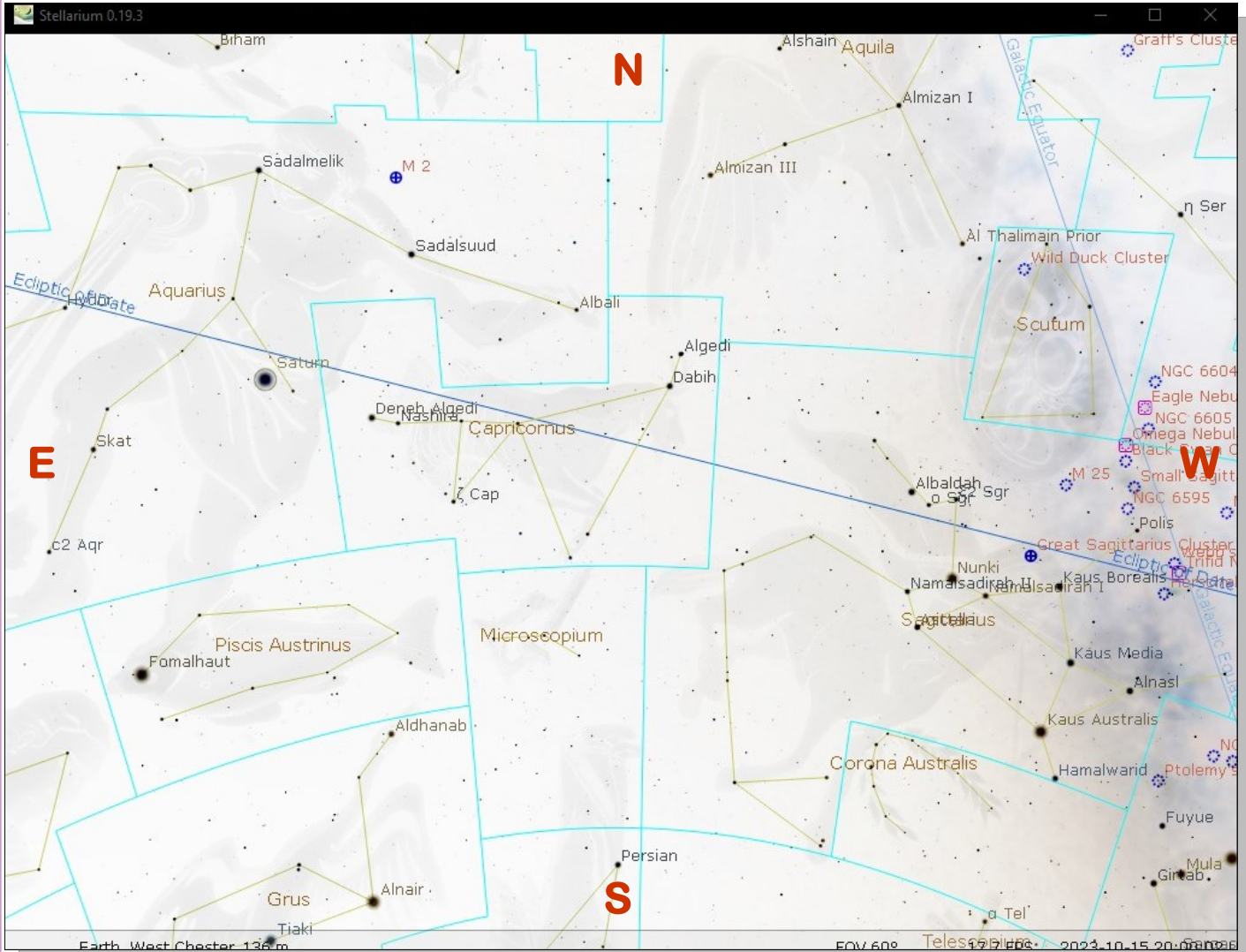
In 1984, Ray bought a C-8. He joined the Lehigh Valley Ama-

(Continued on page 12)

The Sky Over Chester County

October 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
10/01/2023	6:31 a.m. EDT	6:58 a.m. EDT	6:45 p.m. EDT	7:12 p.m. EDT	11h 46m 33s
10/15/2023	6:45 a.m. EDT	7:12 a.m. EDT	6:23 p.m. EDT	6:50 p.m. EDT	11h 10m 31s
10/31/2023	7:02 a.m. EDT	7:30 a.m. EDT	6:01 p.m. EDT	6:29 p.m. EDT	10h 31m 23s

Moon Phases					
Last Quarter	10/06/2023	9:47 a.m. EDT	New Moon	10/14/2023	1:55 p.m. EDT
First Quarter	10/21/2023	11:29 p.m. EDT	Full Moon	10/28/2023	4:24 a.m. EDT

October 2023 Observing Highlights

by Michael Manigly, CCAS Observing Chair

1	Jupiter passes 3° N of the Moon 11 p.m. EDT.
2	Jupiter is located 3° SW of the Moon in the evening sky. Also, Aldebaran stands below the Moon as they rise in the late night sky.
3	Aldebaran stands to the right of the Moon in the late night sky and the Moon is 1.1° south of the Pleiades M45.
6	Last Quarter Moon 9:48 a.m. EDT.
7	Pollux, Gemini's brightest Twin, is 1.4° north of the Moon.
8	Lunar Curtiss X is visible in eastern North America around Midnight EDT.
10	The crescent Moon, Venus & Regulus form a tight line in the pre-dawn sky. Pluto is stationary 8:00 p.m. EDT.
14	New Moon 1:55 p.m. EDT. Annular "Ring of Fire" Solar Eclipse.
15	Moon at descending node and Mars is 1.0° north of the Moon.
18	Antares stands 0.8° and to the lower right of the Moon.
20	Mercury in superior conjunction at 2:00 a.m. EDT. Also, two (2) shadows on Jupiter are visible in North America 12:57 a.m. EDT.
21	First Quarter Moon 11:29 p.m. EDT. There will be a waxing gibbous Moon at the peak of the Orionid meteors (ZHR=15) – estimated 20 meteors/hour.
23	Venus at greatest western elongation (46 °) this morning.
24	The Moon passes 3 ° south of Saturn 4:00 a.m. EDT.
26	Saturn is 3 ° NE of the Moon 9:00 p.m. EDT.
28	Full Moon called the Animal Fattening Moon 4:24 p.m. EDT.
29	The Moon passes 3° N of Jupiter 4:00 a.m. EDT and it passes 3 ° N of Uranus 10:00 p.m. EDT.
30	Aldebaran stands to the lower right of the Moon 9 – 10 p.m. EDT.

The best sights this month: October provides a great opportunity to experience a solar and lunar eclipse, 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.

Mercury is difficult to observe but not impossible at magnitude -1.1 in the ESE during the morning twilight in early October; however, it is lost by mid-month. The planet reaches conjunction with the Sun on the 20th and returns to the evening sky in late November.

Venus starts the month 7° west of Regulus, Leo's brightest star. On the 8th, Venus lines up side-by-side with the Moon & Regulus. At magnitude -4.7, Venus is visible in the eastern sky soon after rising around 3:30 a.m. EDT. It achieves its greatest western elongation of 46° on the 23rd.

Mars is not observable during the month of October.

Jupiter rises in the ENE before 8:00 p.m. EDT and transits before 3:00 a.m. EDT. The planet gains in diameter and brightness throughout the month. It can be seen 3° S of the waning gibbous Moon on the 1st. Look for a double shadow involving the shadows of the moons Io and Ganymede that last for about 2 hours on the 20th. Additionally, Jupiter appears 3° below and left of the Full Moon in the evening sky on the 28th.

Saturn appears in the SE at dusk, transits after 10 p.m. EDT and sets in the WSW after 3:00 a.m. EDT. Its magnitude dips from 0.5 to 0.1 during October. It will be 5° NE of the waxing gibbous Moon during the overnight hours of the 23rd and 24th. Saturn's brightest moon Titan can be seen N of the planet on the 9th and 10th and to the south of the planet on the 25th and 26th.

Uranus can be located 9° SW of the Pleiades M45 and 9° NE of Jupiter. The planet moves west as it approaches next month's opposition. Also, try to spot Uranus at magnitude 5.7 unaided the weekend of the 13th. Early in the evening of the 29th it will be about 2° S of the Moon.

Neptune is just past opposition and is visible most of the night in Pisces but binoculars or a telescope

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Through the Eyepiece: The York County Star Party, September 2023

by Don Knabb, CCAS Treasurer

The 2023 York County Star Party – the YCSP – is held in both June and September, and this year several CCAS members attended one or both events.

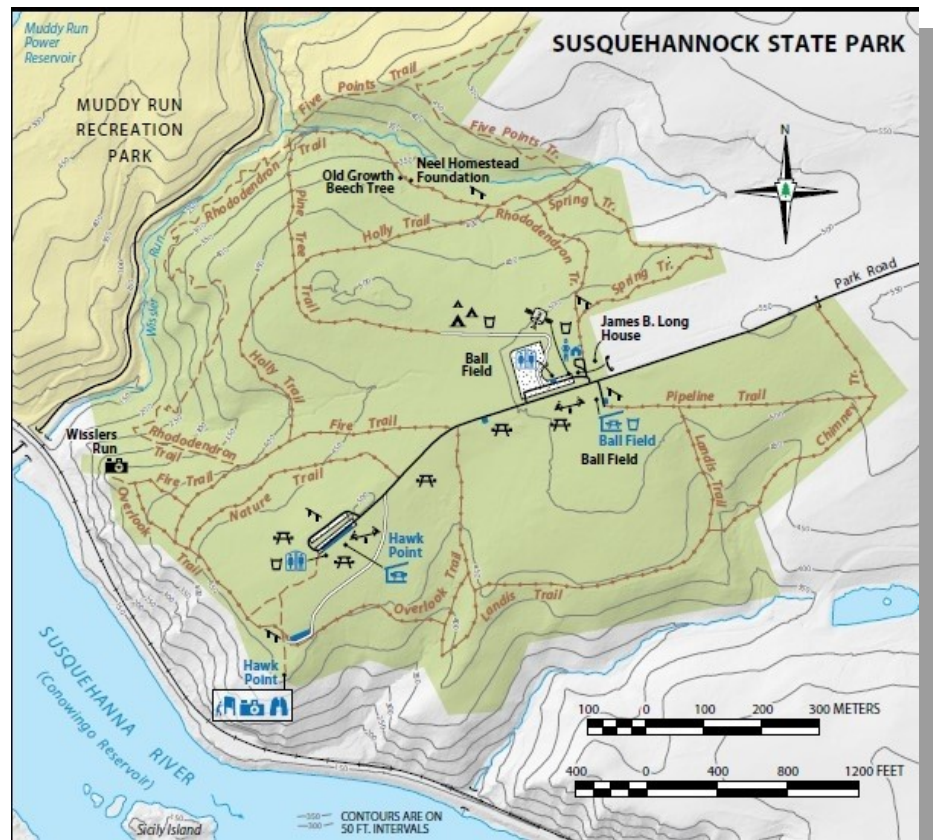
The York County Star Party is the current version of the Mason Dixon Star Party, an event that was held for many years in York County. The York County Star Party is actually in Lancaster County, but the organizer decided to keep the York County name because it is more well known.

This is a small-scale event when compared to the Cherry Springs Star Party or Green Bank Star Quest. And although the sky quality is good, it is not the same as Cherry Springs or Star Quest. But it is also not a 5 or 8 hour drive!

On a night with good observing conditions the sky is very good – Pete Kellerman and I could make out the 5th magnitude star in the dipper of the Little Dipper, also known as the constellation Ursa Minor. The Little Dipper is a good way to gauge the quality of a night sky. The stars in the dipper are various magnitudes as shown below in the diagram I made using Stellarium.

The YCSP is held at Susquehannock State Park. This park overlooks the Susquehanna River from high up the eastern bank. This is one of the few places one can look down on bald eagles! The park is of modest size compared to many PA state parks, but there are several miles of wooded hiking trails, many with steep elevation changes. There is

(Continued on page 7)



Map of Susquehannock State Park, courtesy of PA Department of Conservation & Natural Resources. Map available at [Maps of Susquehannock State Park](#)



Little Dipper with Magnitudes Marked in Reference to Visibility at YCSP site
Image created in Stellarium by Author

Eyepiece (Cont'd)



CCAS Member Barb Knabb at the Old Growth Beech Tree near the Neel Homestead ruins.

(Continued from page 6)

an old-growth beech tree near the ruins of a homestead that is worth the 2-mile hike to visit it.

There is ample room on the observing field, which is a rustic baseball field. Attendance is in the dozens, varying each day as observers arrive and depart from Wednesday afternoon through Sunday morning. It is a joy to meet observers from other clubs and other areas of the region and see their observing set up and



The Ballfield just off of Park Road near the James B. Long House is the Observing Site for the YCSP

find out what they are looking for in the night sky.

One night I took a few pictures using Nocturn, an iPhone app for astrophotography provided by Unistellar, the makers of automated telescopes for amateur astronomers. I wrote an article about this app in the January 2022 issue of *Observations*. The app is available for download on the Unistellar website:

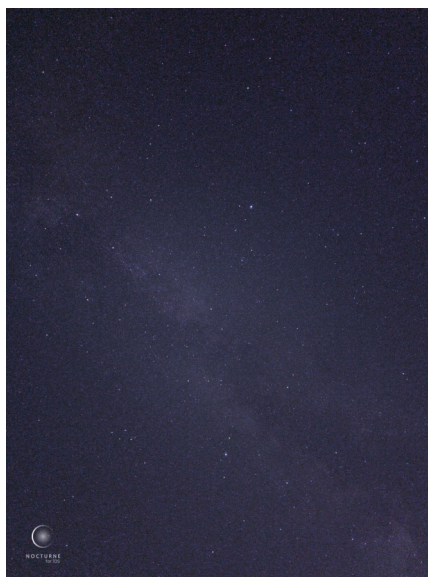
<https://www.unistellar.com/nocturneapp/>

My observing targets during the fall YCSP included the usual targets for this time of the year. Using tripod mounted binoculars, I found Ptolemy's cluster, the Butterfly cluster, globular clusters M22 and M4, the Lagoon, Trifid and Swan nebulas, the Wild Duck open cluster, NGC 457 the "ET" cluster, Neptune, Saturn, the double cluster, Stock 1, and many other deep sky objects. But my primary tar-

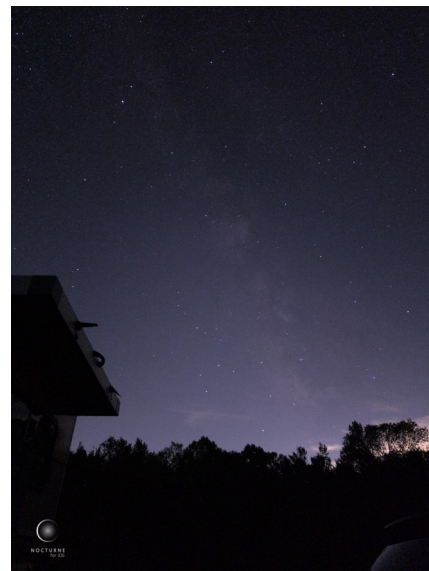
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Constellation Cassiopeia



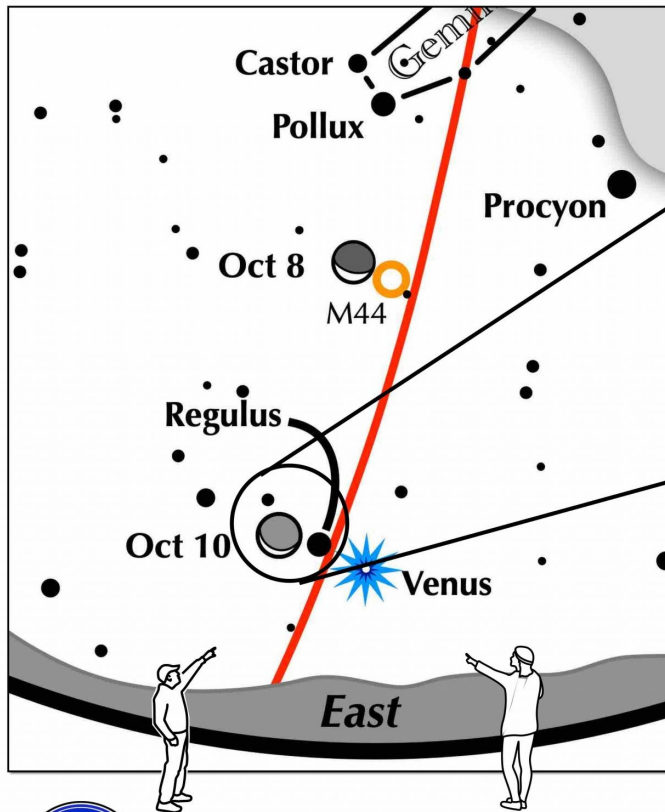
Milky Way Galaxy



Constellation Sagittarius

Viewing Challenge the Morning of October 10th
by *Astronomical League*

In the early morning on October 10, try this challenge:



View through binoculars

Crescent Moon 10/10

Regulus

Venus

Crescent moon meets Venus and Regulus

On the morning of October 10, the crescent moon, glowing full with earthshine, floats left of brilliant Venus. Look 90 minutes before sunrise.

Between them, shines Leo's brightest star, Regulus.

Two mornings earlier a thicker crescent moon was near M44, the Beehive star cluster.

The meeting of the crescent moon and Venus also occurs on the mornings of November 9 when the moon nearly covers Venus, and of December 9.

View to the east on October 10 90 minutes before sunrise



Observing (Cont'd)

(Continued from page 5)
will be needed. The planet glows bluish in color and it's a good time to view since it's only a few weeks past opposition.

The Moon: On the 9th, the Moon is at apogee (251,920 miles from Earth) 11:42 p.m. EDT. On the 14th, we'll experience an annular "Ring of Fire" solar eclipse where the Moon passes between Earth and the Sun. Most of the USA will see a partial eclipse with a diminishing percentage farther from the

central track.

In addition, the Moon forms a widespread triangle with Saturn and Fomalhaut the nights of 23rd and 24th. The Moon passes 1.5 ° south of Neptune 9 p.m. EDT on the 25th and is at perigee (226,721 miles from Earth) 11:02 p.m. EDT.

The Full Moon is on the 28th and is called the Hunter's Moon or the Animal Fattening Moon. A Partial Lunar Eclipse occurs that night as well. Observers in the northeast USA might see the

Full Moon with a disk like southern edge, the final stages of the penumbral eclipse.

Constellations: High in the sky we see the Summer Triangle overhead. Also available in the October 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: October is a great month to observe the An-

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Observing (Cont'd)

(Continued from page 8)

dromeda 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. The double star Almach (Gamma Andromedae), located in Andromeda can be easily seen with a small telescope. The brighter star will appear a pale yellow-gold with the companion star a pale blue.

M15 globular cluster can be located on the western edge of Pegasus. Look for the Pleiades (Seven Sisters) as well this month.

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Classic La Para by Nicholas La Para

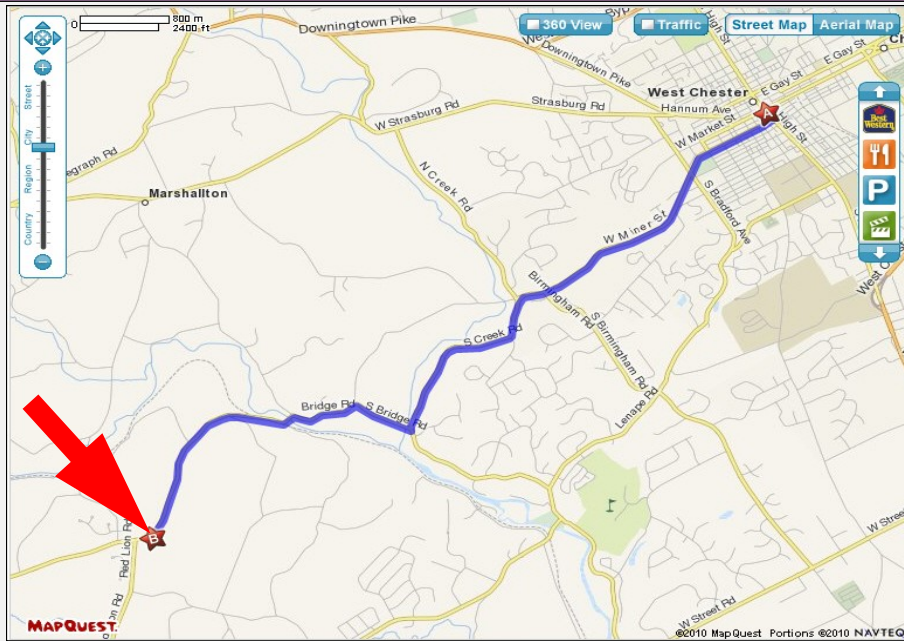
ASTRONOMY NEWS

GRAVITY REPEALED!

- * In a surprise coalition, Democrats and Republicans combined to repeal the law of gravity.
- * Republicans: "Gravity is too expensive."
- * Democrats: "This solves the problem of overweight once and for all."

LAPARA

CCAS Directions



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).

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.

Night Sky Network: From Galileo to Clipper, Exploring Jupiter's Moons by Vivian White

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

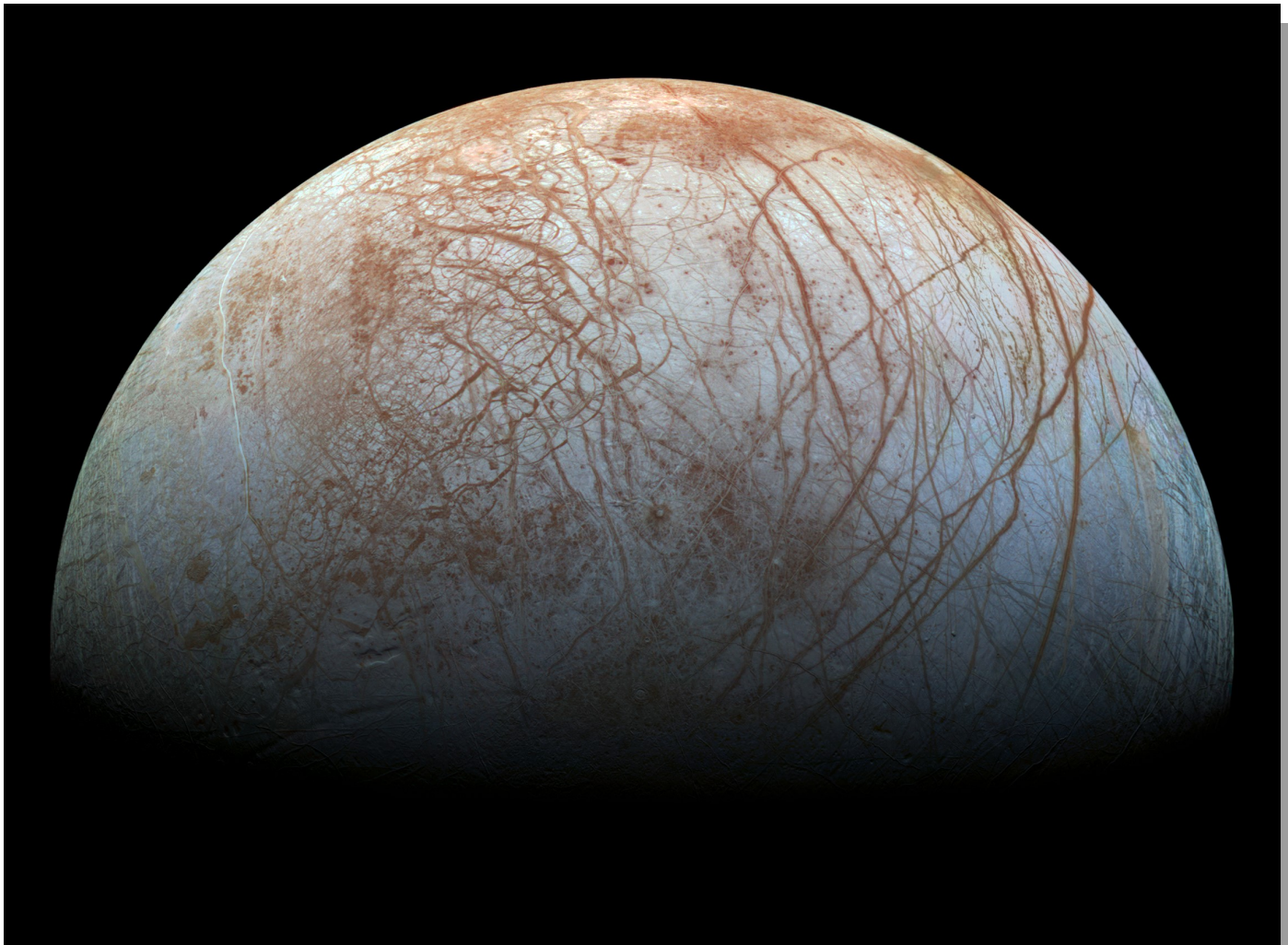
Visit nightsky.jpl.nasa.gov to find local clubs, events, stargazing info and more.

As autumn begins, if you're up late, you may notice a bright point of light rising in the east. Look a bit closer, with a pair of binoculars, and you'll notice it's not a star at all. While stars look point-like no matter how big



your backyard telescope, this light appears as a circle under closer examination. Even more curious, you will likely see a line of smaller dots on one or both sides. Congratulations! You've rediscovered the king of the planets—majestic Jupiter—and its four largest moons.

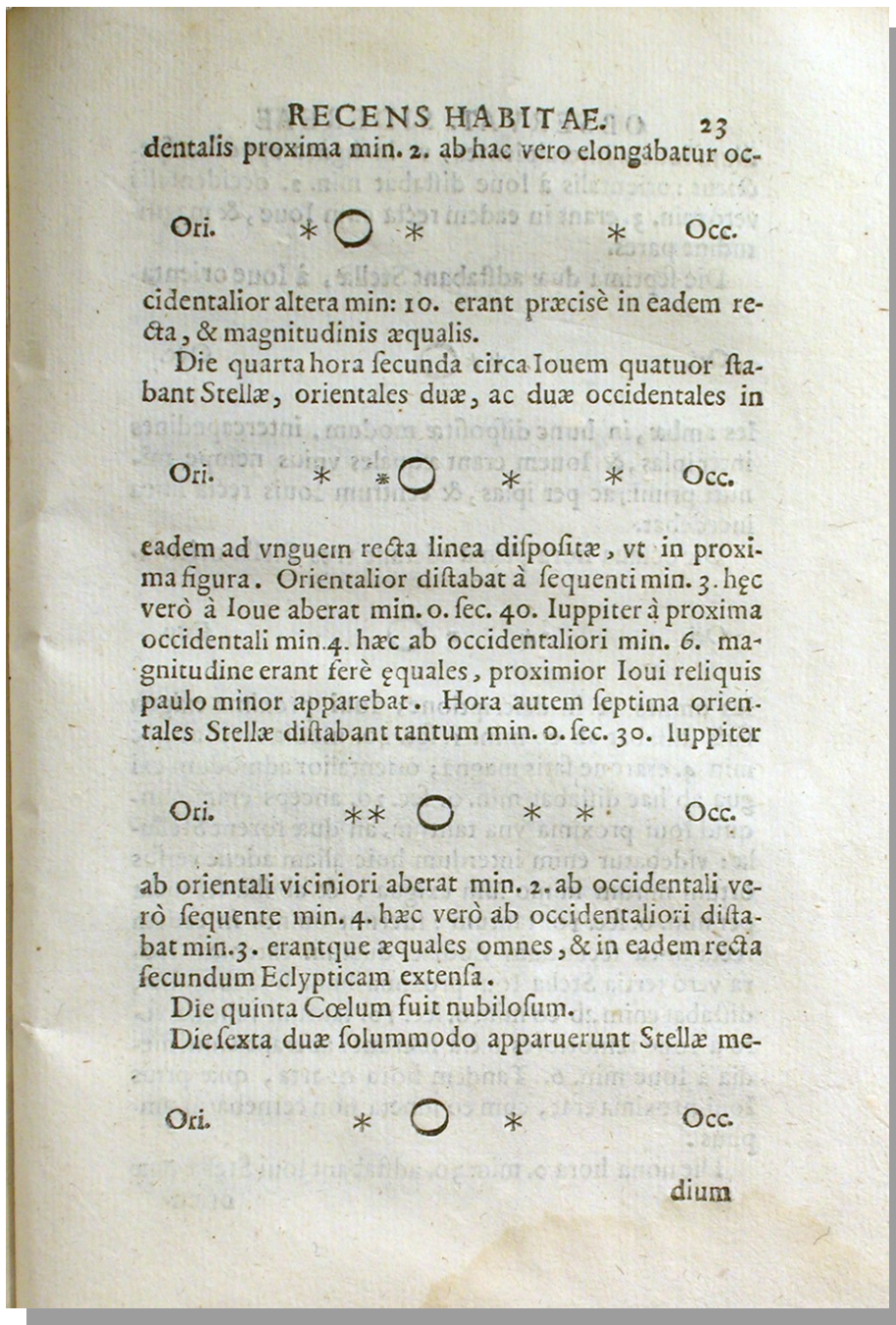
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*“...We, too, are made of wonders, of great
and ordinary loves, of small invisible worlds,
of a need to call out through the dark.”*

From *In Praise of Mystery: A Poem for Europa* by Ada Limon

Night Sky Network (Cont'd)



Galileo's drawings of Jupiter and its Medicean Stars from *Sidereus Nuncius*. Image courtesy of the History of Science Collections, University of Oklahoma Libraries.

(Continued from page 10)

Galileo famously chronicled the four moving dots near Jupiter and surmised that they were orbiting the distant world. While Jupiter has well over 80 discovered moons as of September

2023, these brightest four are called the “Galilean Moons” - Io, Europa, Ganymede, and Callisto. (Great mnemonics exist to remember these in order of distance from Jupiter, such as “I Eat Green Caterpillars”) You can

follow these like Galileo did, using stargazing apps or the handy image below. A favorite beginning observing challenge is to track the movement of the Galilean Moons over the course of many nights. Even within a few hours, you will notice them moving in relation to Jupiter, just as Galileo did.

Fast forward 414 years, and NASA will be sending a robotic mission to investigate the surface of one of these distant worlds. The Europa Clipper Mission is launching to the cold, icy moon in 2024, to begin orbiting in 2030. With its salty oceans covered by ice, Europa was chosen as an excellent location to continue the search for life outside of Earth. Clipper will be the largest spacecraft

(Continued on page 12)

Eyepiece (Cont'd)

(Continued from page 7)

gets were asterisms for the Astronomical League Asterism Observing Program, including the Big Dipper, Little Dipper and Coat Hanger cluster. It has many others that are new to me; such as the Spatula, the Fishhook, the Smiley Face, the Inchworm, the Tennis Racquet, and the Fairy Ring. To complete the program, participants must observe and sketch 100 of the 112 asterisms from the list.

A good turnout of CCAS members next year will make this even more fun. The dates for the YCSP next year are June 5-9 and September 4-8, 2024. So put them on your schedule now and reserve the dates!

Night Sky Network (Cont'd)

(Continued from page 11)

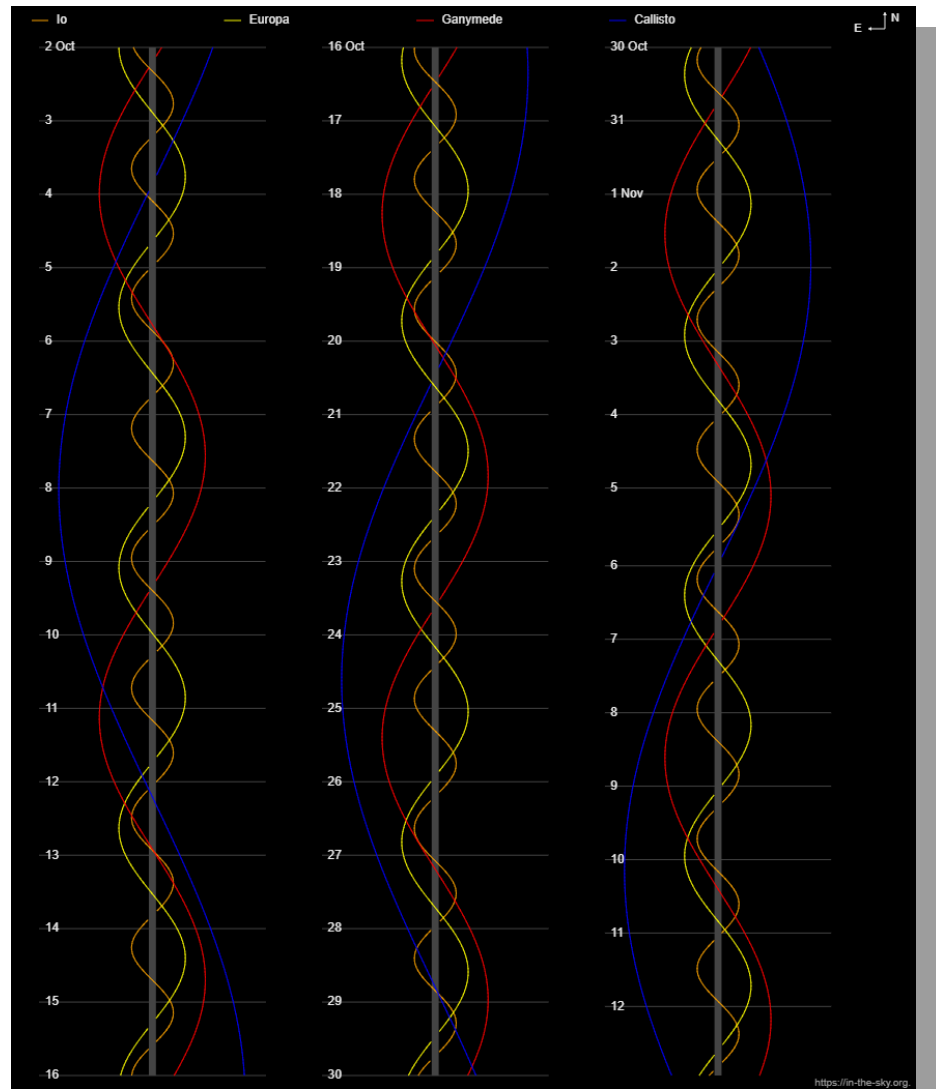
ever sent to another planet, designed to withstand Jupiter's punishing radiation. Once it arrives at Jupiter in 2030, NASA plans to do about 50 flybys of Europa, mapping almost the entire surface of this watery world.

What was once only dreamed of in the small telescope of Galileo, or in great works of fiction, NASA is turning our wildest imagination into reality. One of the celebrated quotes from the classic film *2010: Odyssey Two* warns, "All these worlds are yours, except Europa. Attempt no landing there." Science fiction fans can feel relieved knowing that writer Arthur C. Clarke gave his blessing for the Europa Clipper mission.

Join the Europa Message in a Bottle Campaign to send your name with the spacecraft, hear the rest of the poem by the U.S. Poet Laureate Ada Limon, and learn more about the wonders of space travel with the Clipper Mission: <https://europa.nasa.gov/participate>

Watch a wonderful Clipper webinar with Dr. Cynthia Phillips, planetary geologist with the mission:

<https://www.youtube.com/live/RnnLJBLRBCA?feature=shared&t=269>



The position of the Galilean Moons of Jupiter in October 2023: <https://in-the-sky.org/jupiter.php>

Guest Speaker (Cont'd)

(Continued from page 3)

teur Astronomical Society (LVAAS) in 1985 and began exploring and photographing the night sky (back before the digital imaging age). His photo of the Horsehead Nebula appeared in the January 1990 issue of *Sky & Telescope*.

In 1987, he purchased a pair of celestial charts published in 1741 and discovered a couple of deep-sky objects on these charts. For the past 36 years, Ray has

been researching and collecting early celestial charts and atlases. Ray's article "The First Deep-Sky Atlas" appeared in the January 2022 issue of *Sky & Telescope* and his article "The Constellations of Petrus Plancius" appeared in the February 2023 issue.

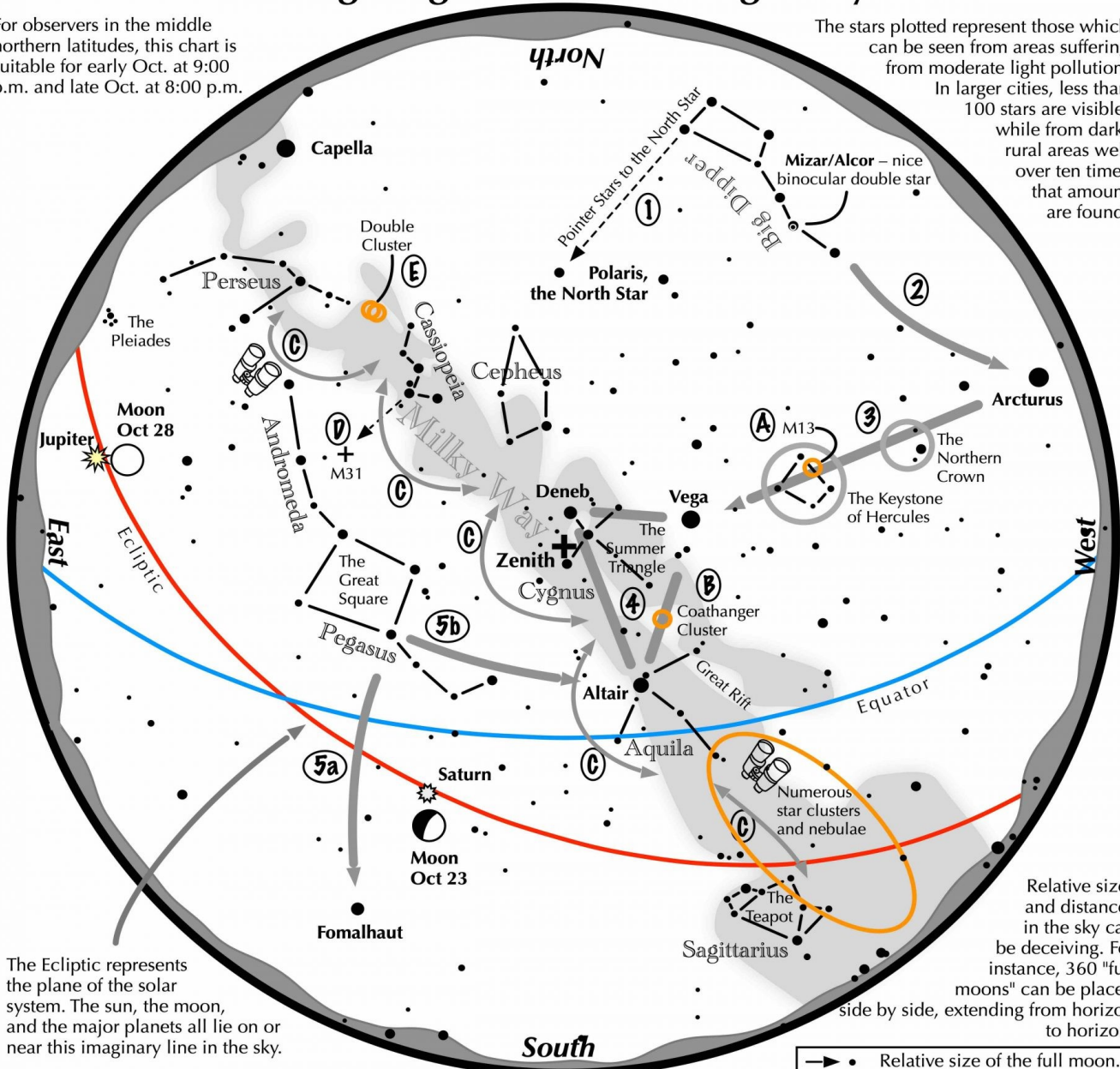
Ray resides in Macungie, PA, with his wife who does not share his interest in astronomy but who does share his love of early celestial charts as works of art.

Navigating the October Night Sky
by *Astronomical League*

Navigating the October Night Sky

For observers in the middle northern latitudes, this chart is suitable for early Oct. at 9:00 p.m. and late Oct. at 8:00 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 October night sky: Simply start with what you know or with what you can easily find.

- 1** Extend a line north from the two stars at the tip of the Big Dipper's bowl. It passes by Polaris, the North Star.
- 2** Follow the arc of the Dipper's handle. It intersects Arcturus, the brightest star in the early October evening sky.
- 3** To the northeast of Arcturus shines another star of the same brightness, Vega. Draw a line from Arcturus to Vega. It first meets "The Northern Crown," then the "Keystone of Hercules." A dark sky is needed to see these two dim stellar configurations.
- 4** Nearly overhead lie the summer triangle stars of Vega, Altair, and Deneb.
- 5** High in the east are the four moderately bright stars of the Great Square. Its two southern stars point west to Altair. Its two western stars point south to Fomalhaut.

Binocular Highlights

A: On the western side of the Keystone glows the Great Hercules Cluster, a ball of 500,000 stars. **B:** 40% of the way between Altair and Vega, twinkles the "Coathanger," a group of stars outlining a coathanger. **C:** Sweep along the Milky Way for an astounding number of fuzzy star clusters and nebulae amid many faint glows and dark bays, including the Great Rift. **D:** The three westernmost stars of Cassiopeia's "W" point south to M31, the Andromeda Galaxy, a "fuzzy" oval. **E:** Between the "W" of Cassiopeia and Perseus lies the Double Cluster.



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).



Observing (Cont'd)

(Continued from page 9)

Comets: There are no bright comets visible during October.

Asteroids: 29 Amphitrite is at opposition with magnitude 8.7 at 3:00 a.m. 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.

CCAS Membership Information and Society Financials

Treasurer's Report by Don Knabb

Sept. 2023 Financial Summary

Beginning Balance	\$784
Deposits	\$170
Disbursements	-\$0
Ending Balance	\$954

New Member Welcome!

Welcome to our new CCAS members Michael Hopper, Lansdale, PA; Jim Matas, Downingtown, PA; Brooke Okpaku, Malvern, PA; Warren Payton, Cochranville, PA; and WCU students Alexander Fry, Savannah Piper, and Katherine Tran.

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.darksky.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.