Observations

A Monthly Publication Of The
CHESTER COUNTY ASTRONOMICAL SOCIETY

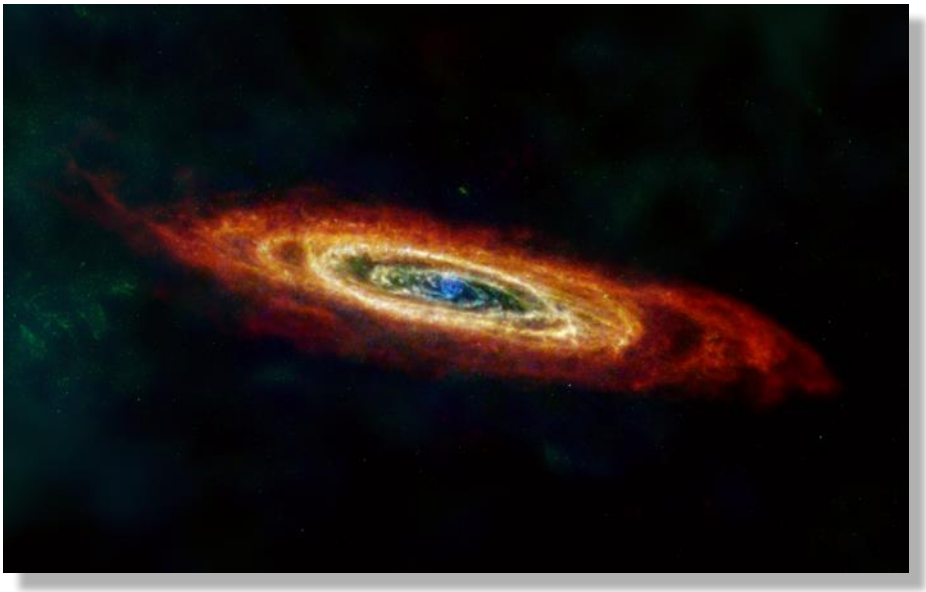
Vol. 32, No. 10 ***Three-Time*** *Winner of the Astronomical League's Mabel Sterns Award ☼ 2006, 2009 & 2016* *October 2024*

In This Issue

Membership Renewals Due

10/2024	Abbott
	Conrad
	Lane
	Lester
	Levin
	Payton
	Richardson
	Wirth
11/2024	Buczynski
	DiGiovanni
	Harner
	Holenstein
	Hufnagel
	Marks
	Romer
	Smith
	Wilson
12/2024	Damerau
	DeAngelo
	DellaPenna
	Gandhi
	O'Leary
	Toth
	Watson & Metts

Andromeda Galaxy Imaged by Herschel, Planck, IRAS, COBE



This image of the Andromeda galaxy, or M31, includes data from the ESA (European Space Agency) Herschel mission, supplemented with data from ESA's retired Planck observatory and two retired NASA missions: the Infrared Astronomical Satellite (IRAS) and Cosmic Background Explorer (COBE). Image Credit: ESA/NASA/JPL-Caltech/GBT/WSRT/IRAM/C. Clark (STScI)

October 2024 Dates

2nd • New Moon, 2:49 p.m. EDT.

5th • Moon and Venus close to each other in southwest sky around sunset.

10th • First Quarter Moon, 2:55 p.m. EDT and Lunar Straight Wall this evening.

12th • Comet C/2023A3 (TSUCHINSHAN-ATLAS) makes its closest approach to Earth.

17th • Full Hunter Moon, 7:26 a.m. EDT.

21st • Jupiter appears 6° south of the Moon this evening.

23rd • Mars 4° south of the Moon and Pollux 1.7° north of the Moon this evening.

24th • Last Quarter Moon, 4:03 a.m. EDT.

CCAS Upcoming Nights Out

In addition to our monthly observing sessions at the Myrick Conservancy Center, BRC (for directions, see pg. 11), 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 11, 2024 - Special Observing Session with Atglen Public Library at Wolf's Hollow Park in Atglen, PA. 9:00 p.m. - 10:00 p.m. EDT.

☼ Saturday, November 2, 2024 - CCAS Special Observing Session, Astronomy STEM Workshop at the American Helicopter Museum, West Chester, PA. The observing session is scheduled from 6:00 p.m. to 9:00 p.m. EDT.

For more information about future observing opportunities, contact our Observing Chair, Michael Manigly.

Autumn Society Events

October 2024

2nd • Beginner Astronomy Class: Our Moon—Phases and Faces. In partnership with Chester County Lifelong Learning,.

4th • CCAS Monthly Observing Session, Myrick Conservancy Center, Brandywine Red Clay Alliance. The observing session is from 7:00 p.m. to 9:00 p.m. EDT.

8th • CCAS Monthly Meeting, in person (as well as via Zoom) at West Chester University's Merion Science Center, Room 112. Guest Speaker: Dr. Scott Engles, Dept of Astronomy and Physics, Villanova University, "Evolution of M-class Dwarf Stars – Impact on Planetary Formation and Planetary Habitability."

9th • Beginner Astronomy Class: Other Kids on the Block—the Planets. In partnership with Chester County Lifelong Learning,.

11th • Special Observing Session with Atglen Public Library at Wolf's Hollow Park in Atglen, PA. 9:00 p.m. - 10:00 p.m. EDT.

16th • Beginner Astronomy Class: Observing Basics, Star Charts and Planetarium Software. In partnership with Chester County Lifelong Learning,.

20th • Open call for articles and photographs for the November 2024 edition of Observations.

23rd • Beginner Astronomy Class: Observing Basics, Star Charts and Planetarium Software. In partnership with Chester County Lifelong Learning.

26th • Deadline for newsletter submissions for the November 2024 edition of Observations.

30th • Beginner Astronomy Class: Beyond Naked Eye Observing (deep sky stuff). In partnership with Chester County Lifelong Learning,.

November 2024

1st • CCAS Monthly Observing Session, Myrick Conservancy Center, Brandywine Red Clay Alliance. The observing session is from 7:00 p.m. to 9:00 p.m. EDT.

2nd • CCAS Special Observing Session, Astronomy STEM Workshop at the American Helicopter Museum, West Chester, PA. The observing session is scheduled from 6:00 p.m. to 9:00 p.m. EDT.

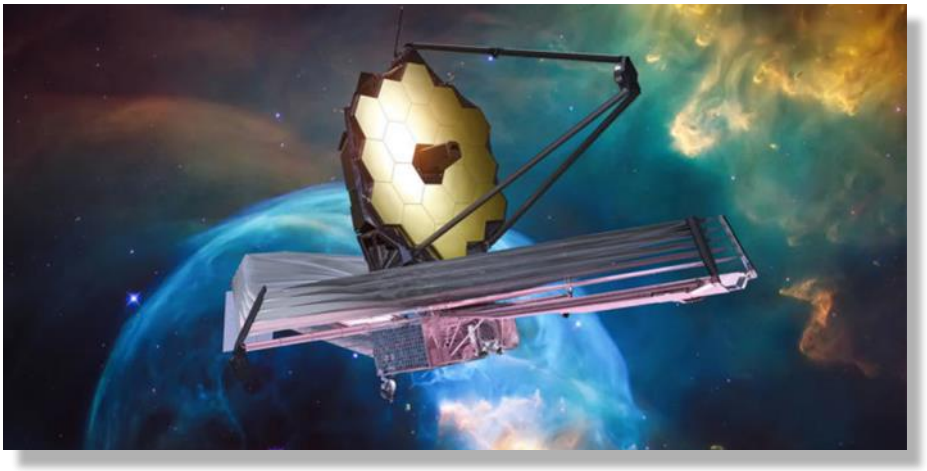
12th • CCAS Monthly Meeting, in person (as well as via Zoom) at West Chester University's Merion Science Center, Room 112. Guest Speaker: Dr. Ravi Sheth, Dept of Astronomy and Astrophysics, University of Pennsylvania, "Making Black Holes out of…..Light? – New Perspectives."

20th • Open call for articles and photographs for the December 2024 edition of Observations.

26th • Deadline for newsletter submissions for the December 2024 edition of Observations.

New Planet Discovered: Jupiter-Sized But Unexpectedly Light

by BAR, essanews.com



A planet full of surprises. The latest scientific discovery Image © Getty Images, dima_zel

Scientists, with the help of the James Webb Space Telescope, have discovered a new planet, and it's very unusual. Although it is the size of our Jupiter, its mass is ten times lower. That's not the end of the surprises. Scientists from the University of Arizona described the unusual planet they discovered using the James Webb Space Telescope in the journal Nature Astronomy.

"These snapshots tell us a lot about the gases in the exoplanet's atmosphere, the clouds, the structure of the atmosphere, the chemistry, and how everything changes when receiving different amounts of sunlight," says Prof. Murphy.

The planet, named WASP-107b, always faces the same side toward the star. "We don't have anything like it in our own solar system. It is unique, even among the exoplanet population," emphasizes the astronomer. The average temperature is just under 930°F, placing it roughly in the middle between the temperatures of the hot planets of the Solar System and the hottest exoplanets.

"Traditionally, our observing

(Continued on page 3)

October 2024 CCAS Meeting Agenda

by Bruce Ruggeri, CCAS Program Chair

Our next meeting will be held on October 8, 2024, in person at West Chester University's Merion Science Center, Room 113. The Science Center is located at 720 S. Church St., West Chester, PA. Dr. Scott Engle, Villanova University, "Recent Findings of the 'Living with a Red Dwarf Program': How do M Dwarf Stars Evolve, and Can they Host Habitable Planets?

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 beyond our 2024-2025 season. If you are interested in presenting, or know someone who would like to participate, please contact me at programs@ccas.us.

October 2024 Meeting Details & Speaker Profile

by Bruce Ruggeri, CCAS Program Chair

As we continue our Fall 2024 program, I am pleased to announce the in person and Zoom monthly CCAS meeting for Tuesday, October 8 commencing at 7:00 pm ET. Our guest speaker is Dr. Scott Engle, Assistant Professor of Astrophysics and Planetary Science at Villanova University.

This month we have a timely presentation from Scott spanning almost two decades of collaborative research work studying the properties and evolution of M class red dwarf stars and their potential for harboring potentially habitable exoplanets.

The CCAS meeting presentation will commence at approximately 7:50 PM 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. in West Chester.

Dr. Scott Engle, Villanova University

The presentation title, synopsis and brief bio sketch for Dr Engle are provided below:

Title: Recent Findings of the "Living with a Red Dwarf Program": How do M Dwarf Stars Evolve, and Can they Host Habitable Planets?

Synopsis: M dwarfs (main sequence M-type stars) represent the largest portion (~70%) of the observed stellar population, are theorized to form terrestrial-sized planets at higher rates than other stellar types and are ideal targets for further exoplanet discovery and characterization studies. However, they could also make for very difficult habitable planet hosts given the high levels of radiation these stars emit, and studying their evolution has been extremely difficult and a long-standing goal of astrophysics.

Dr. Engle will present the results of a 20-year long program to reveal how M dwarfs evolve over time, their properties, along with the implications for both our understanding of the stars themselves and the potential habitability of planets orbiting them.

(Continued on page 11)

September 2024 Meeting Minutes

by Bea Mazziotta, CCAS Secretary

- The September 2024 CCAS meeting was held in person at West Chester University, on YouTube and Zoom on September 17, 2024.
- Dave Hockenberry, CCAS president welcomed members and guests and announced the upcoming fall viewing and outreach events. Look for details on ccas.us.
- Bruce Ruggeri, program chair, gave a snapshot of some of the upcoming meeting speakers for the 2024/2025 year.
- The evening's program - Rocket Ships of the 21st Century: SpaceX and the Seven Little Dwarfs was presented by John Conrad, a CCAS member and a NASA Solar System Ambassador. The recent 'stranding' of two astronauts due to issues with Boeing's Starliner and their 'rescue' by SpaceX, made John's presentation particularly timely. John outlined the history of rocket development and usage from its inception through its recent rapid progress and how NASA and private enterprise seem to now be inextricably linked. The meeting is available to view on YouTube.

New Planet (Cont'd)

(Continued from page 2)

techniques don't work as well for these intermediate planets, so there's been a lot of exciting open questions that we can finally start to answer. For example, some of our models told us that a planet like WASP-107b shouldn't have this asymmetry at all—so we're already learning something new," says Prof. Murphy.

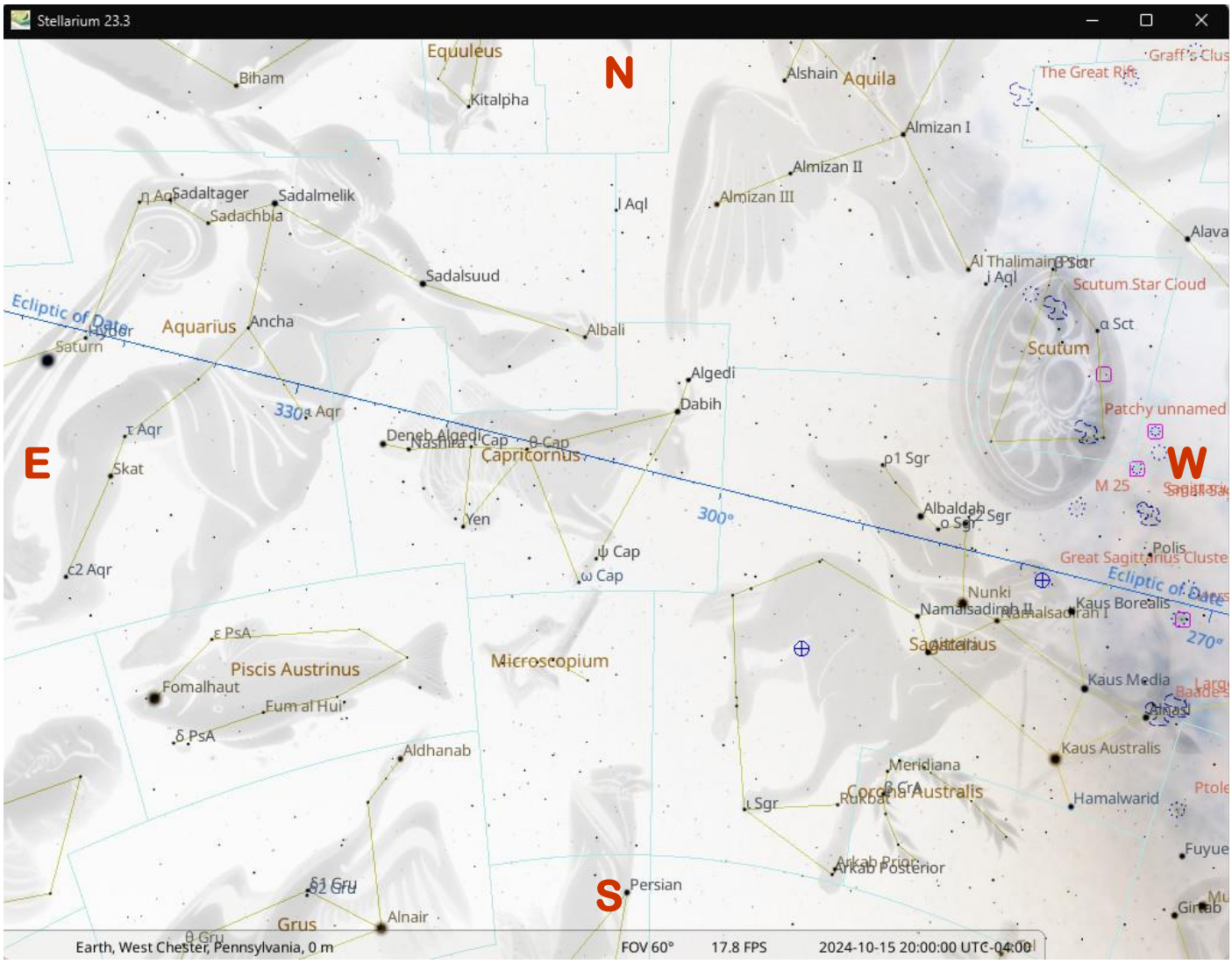
"But this is really the first time that we've seen these types of asymmetries directly in the form of transmission spectroscopy from space, which is the primary way in which we understand

(Continued on page 14)

The Sky Over Chester County

October 15, 2024 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
10/01/2024	6:32 a.m. EDT	6:59 a.m. EDT	6:43 p.m. EDT	7:10 p.m. EDT	11h 44m 34s
10/15/2024	6:46 a.m. EDT	7:13 a.m. EDT	6:22 p.m. EDT	6:49 p.m. EDT	11h 08m 35s
10/31/2024	7:02 a.m. EDT	7:30 a.m. EDT	6:00 p.m. EDT	6:28 p.m. EDT	10h 29m 37s

Moon Phases					
			New Moon	10/02/2024	2:49 p.m. EDT
First Quarter	10/10/2024	2:55 p.m. EDT	Full Moon	10/17/2024	7:26 a.m. EDT
Last Quarter	10/24/2024	4:03 a.m. EDT			

October 2024 Observing Highlights
by Michael Manigly, CCAS Observing Chair

2	**New Moon 2:49 p.m. EDT.**
5	**Moon and Venus close to each other in southwest sky around sunset.**
9	**Lunar X near crater Werner 8:00 p.m. EDT. Jupiter stationary at 3:00 a.m. EDT.**
10	**First Quarter Moon 2:55 p.m. EDT and Lunar Straight Wall this evening.**
12	**Comet C/2023A3 (TSUCHINSHAN -ATLAS) makes its closest approach to Earth.**
17	**Full Moon (Hunter Moon or Animal Fattening Moon) 7:26 a.m. EDT and 19 Fortuna at opposition (m-8.9). This is the largest appearing Full Moon during 2024 and qualifies as Supermoon.**
20-21	**Orionid meteor showers (ZHR=20) start looking around 10:30 p.m. EDT. The waning gibbous Moon may interfere with your views.**
21	**Jupiter appears 6° south of the Moon this evening.**
23	**Mars 4° south of the Moon and Pollux 1.7° north of the Moon this evening.**
24	**Last Quarter Moon 4:03 a.m. EDT.**
31	**Spica 0.5° south of the Moon.**

October observing highlights include the return of the Mars and Jupiter to the evening sky. They join Venus in early evening with Saturn and Uranus available most of the night. Comet C/2023 A3 (TSUCHINSHAN-ATLAS) best viewed from the 14th – 18th, the Orionid meteor showers best viewed the 20th – 22nd, and a surprise second Moon, the asteroid 2024PT5, orbiting earth during most of the month. Fall constellations and asterisms viewable include Andromeda, Pegasus, Cassiopeia, Ursa Major, Pisces and Triangulum. Multiple Messier/deep sky objects continue to be available during the month including M15 (NGC7078) globular cluster, M33 Triangulum galaxy, M34 (NGC1039) open cluster and NGC752 (Caldwell 28) open cluster.

Planets:

Mercury is not observable in October.

Venus shows extremely low in WNW sky at evening twilight.

Mars rises after 10:00pm EDT in the ENE sky and is high in the south around dawn.

Jupiter rises after 8:00pm EDT in the ENE sky and appears high in the south around dawn. The planet reaches its 1st stationary point between the Horns of Taurus the Bull on the 9th.

Saturn transits after 9:00pm EDT and sets in WSW sky around 3:00am EDT. The Moon appears nearby on the 14th.

Uranus is available for view most of the night this month.

Neptune continues to hang out in Pisces.

Constellations and Asterisms include Andromeda, Cassiopeia, Pegasus, Pisces, Triangulum and Ursa Major.

Messier/Deep Sky Objects: Fall targets include globular clusters M15 globular cluster, M33 Triangulum galaxy; M34 open cluster and Caldwell 28.

Meteor Showers: Draconids peak in early evening on the 8th. Orionids (20 M/hour) peak on the 20th to 22nd in Orion.

Comets: C/2023A3 (TSUCHINSHAN – ATLAS), is best viewed from the 14th thru the 18th and is visible several° above the western horizon after sunset. Look around the same altitude as you locate Venus. Other comets in October include 37P/Forbes, 253P/PANSTARRS and P/2012 US27 (Siding Spring).

Asteroids: 2024PT5 - Earth's second Moon (mini-Moon) for the next few months.

Through the Eyepiece: Uranus, the Distant Green Jewel

by Don Knabb, CCAS Treasurer & ALCOR

I'm sure most of us can list Mercury, Venus, Mars, Jupiter and Saturn on your list of planets that you have seen with your naked eyes or with the help of binoculars or a telescope. How about trying this month and adding Uranus to that list?

October is a great time to see Uranus during late evening observing hours. This distant gas giant reaches opposition in mid-November, so during October it will be visible most of the night.

Let's clear up the first question everyone asks about Uranus: what is the correct pronunciation for this gas planet? I've looked at a few sources and most suggest one say "YOOR-a-nus", or "YER-a-nus" not "your-AY-nus" or "urine us". Using the correct pronunciation can save some embarrassment when dealing with middle school aged astronomy fans.

At magnitude 5.8 Uranus is at the threshold of naked eye vision. But with binoculars you can find Uranus relatively easily in the southeastern skies in October. If you start at the Pleiades, it will be easy to "star hop" to Uranus.

I have difficulty seeing much color with regular binoculars, but with almost any telescope at 50X or higher the bluish green planet looks markedly different from a star and is a distinct greenish disk. At 200X it really stands out from the background stars.

Uranus is the seventh planet from the Sun and third largest planet in the solar system. It is named after the ancient Greek deity of the sky Uranus, the father of Kronos (Saturn) and grandfather of Zeus (Jupiter).

Uranus was the first planet discovered in modern times. It was discovered by William Herschel while systematically searching the sky with his 6-inch Newtonian reflector telescope on March 13, 1781. It had been seen many times before but ignored as simply another star.

Herschel named it "the Georgium Sidus" (the Georgian Planet) in honor of his patron, King George III of England. Others called it "Herschel". The name "Uranus" was first proposed by Bode in conformity with the other planetary names from classical mythology but didn't come into common use until 1850.

The first picture in this article is from Voyager 2, the only spacecraft that has been to Uranus. Voyager 2 was launched in 1977 and took this picture while performing a flyby in January 1986.

Like the other gas planets, Uranus has rings. Like Jupiter's, they are very dark but like Saturn's they are composed of large particles ranging up to 10 meters in diameter in addition to fine dust.

There are 11 known rings, all

(Continued on page 12)

Star chart credit: Stellarium, the free planetarium software: http://stellarium.org/

Binocular Challenge for October 2024
courtesy of the Astronomical League

Scan the area with binoculars for asterisms and stellar groupings

Between the First Point of Aries and the Water Jar

The **First Point of Aries** marks the intersection of the celestial equator and the ascending ecliptic which defines the location of 0 hrs Right Ascension.

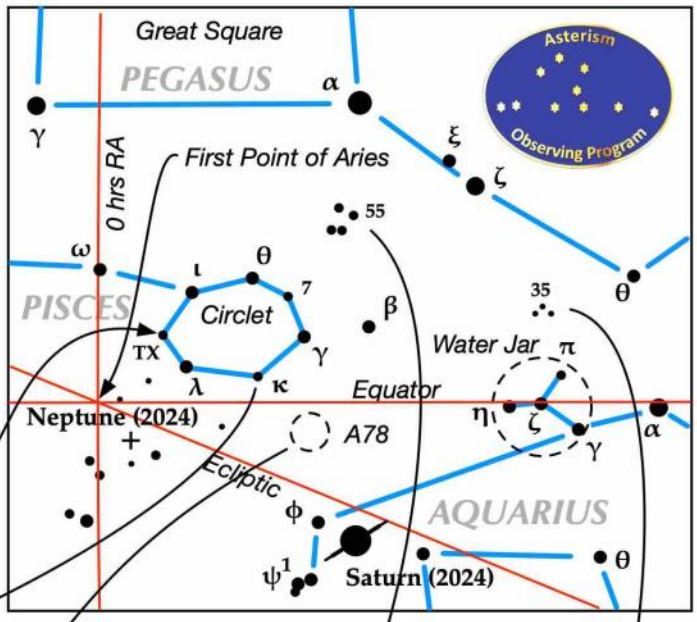
Naked eye and binocular sights

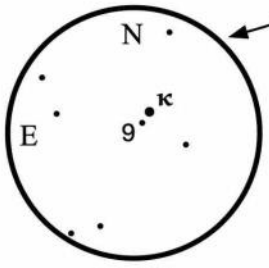
Circlet. These six, maybe seven depending on sky clarity and visual acuity, 4th and 5th magnitude stars trace a squashed circle at the far southwestern corner of Pisces.

It lies 10° below the southern edge of the asterism the **Great Square** in Pegasus, and less than 15° east of another asterism, the four 4th & 5th magnitude stars of the **Water Jar** in Aquarius.

These features are subtle, not bright. Best seen from a dark location with a transparent sky.

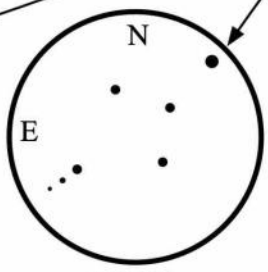
Binoculars users enjoy studying **TX Piscium**. The star varies between 4.8 and 5.2 magnitude, a noticeable amount to the careful observer. It appears as a distinct orange-red hue and its period is irregular, but averages around 224 days.





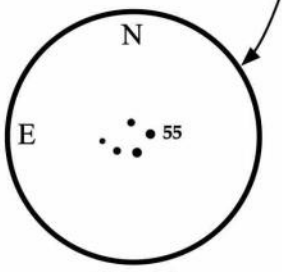
6° Field

Binocular Double
4.9 mag. Kappa Psc
6.2 mag. 9 Piscium
Separation: 9 min



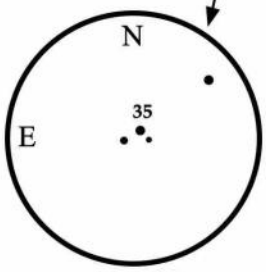
1° Field

Asterism A78
7 stars of 7-8 mag.
tracing the outline
of a "rocketship"



6° Field

Binocular sight
A stellar quintet
Four 5th mag stars
& one 6th mag star.



6° Field

Binocular sight
A stellar trio
One 5th mag. star &
two 6th mag. stars.

In 2024, Saturn lies 10° southwest of the Circlet and Neptune hides just 5° to its southeast.

Night Sky Notes: Catch Andromeda Rising!

by Dave Prosper; updated by Kat Troche

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.

If you're thinking of a galaxy, the image in your head is probably the Andromeda Galaxy! Studies of this massive neighboring galaxy, also called M31, have played an incredibly important role in shaping modern astronomy. As a bonus for stargazers, the Andromeda Galaxy is also a beautiful sight.

Have you heard that all the stars you see at night are part of our Milky Way galaxy? While that is mostly true, one star-like object located near the border between the constellations of Andromeda and Cassiopeia appears fuzzy to unaided eyes. That's because it's not a star, but the Andromeda Galaxy, its trillion stars appearing to our eyes as a 3.4 magnitude patch of haze.

Why so dim? Distance! It's outside our galaxy, around 2.5 million light years distant - so far away that the light you see left M31's stars when our earliest ancestors figured out stone tools. Binoculars show more detail: M31's bright core stands out, along with a bit of its wispy, saucer-shaped disc. Telescopes bring out greater detail but often can't view the entire galaxy at once.

Depending on the quality of your skies and your magnification, you may be able to make out individual globular clusters, structure, and at least two of its orbiting dwarf galaxies: M110 and M32. Light pollution and thin clouds, smoke, or haze will

severely hamper observing fainter detail, as they will for any "faint fuzzy." Surprisingly, persistent stargazers can still spot M31's core from areas of moderate light pollution as long as skies are otherwise clear.

Modern astronomy was greatly shaped by studies of the Andromeda Galaxy. A hundred years ago, the idea that there were other galaxies beside our own was not widely accepted, and so M31 was called the "Andromeda Nebula." Increasingly detailed observations of M31 caused astronomers to question its place in our universe – was M31 its own "island universe," and not part of our Milky Way? Harlow Shapley and Heber Curtis engaged in the "Great Debate" of 1920 over its nature. Curtis argued forcefully from his observations of dimmer than expected nova, dust lanes, and other oddities that the "nebula" was in fact an entirely different galaxy from our own. A few years later, Edwin Hubble,

(Continued on page 9)

Spot the Andromeda Galaxy! M31's more common name comes from its parent constellation, which becomes prominent as autumn arrives in the Northern Hemisphere. Surprising amounts of detail can be observed with unaided eyes when seen from dark sky sites. Hints of it can even be made out from light polluted areas. Use the Great Square of Pegasus or the Cassiopeia constellation as guides to find it. Credit: Stellarium Web

Night Sky Notes (Cont'd)

Generated version of the Andromeda Galaxy and its companion galaxies M32 and M110. Credit: Stellarium Web

While M31's disc appears larger than you might expect (about 3 Moon widths wide), its "galactic halo" of scattered stars and gas is much, much larger – as you can see here. In fact, it is suspected that its halo is so huge that it may already mingle with our Milky Way's own halo, which makes sense since our galaxies are expected to merge sometime in the next few billion years! The dots are quasars, objects located behind the halo, which are the very energetic cores of distant galaxies powered by black holes at their center. The Hubble team studied the composition of M31's halo by measuring how the quasars' light was absorbed by the halo's material. Credits: NASA, ESA, and E. Wheatley (STScI)

(Continued from page 8)

building on Henrietta Leavitt's work on Cepheid variable stars as a "standard candle" for distance measurement, concluded that M31 was indeed another galaxy after he observed Cepheids in photos of Andromeda, and estimated M31's distance as far outside our galaxy's boundaries. And so, the Andromeda Nebula became known as the Andromeda Galaxy.

These discoveries inspire astronomers to this day, who continue to observe M31 and many other galaxies for hints about the nature of our universe. One of the Hubble Space Telescope's longest-running observing campaigns was a study of M31: the Panchromatic Hubble Andromeda Treasury (PHAT). Dig into NASA's latest discoveries about the Andromeda Galaxy, on their Messier 31 page.

Originally posted by Dave Prosper: September 2021

Last Updated by Kat Troche: September 2024

Fall Astronomy Classes!

by Don Knabb, CCAS Education Co-Chair

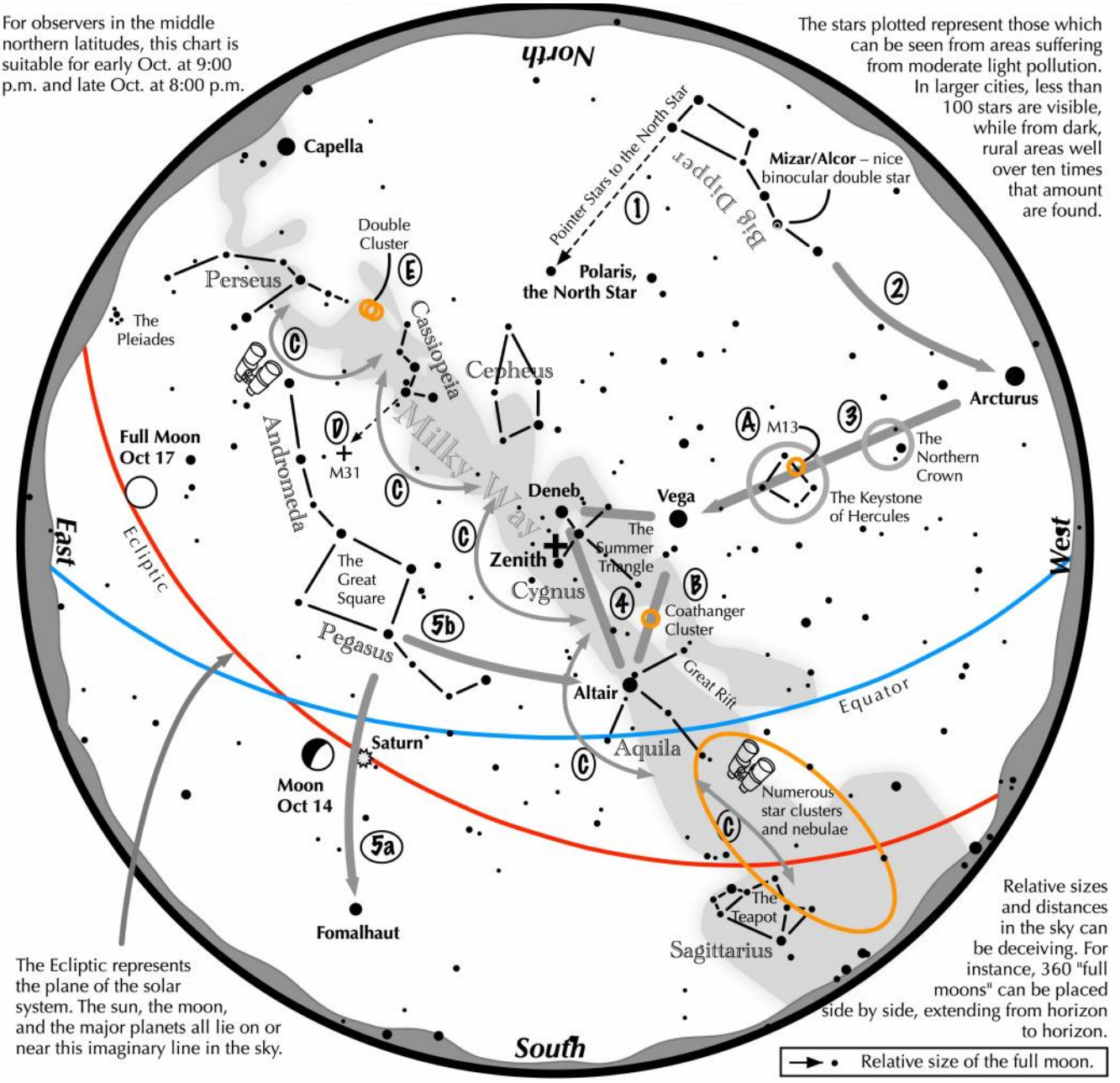
CCAS has partnered with Chester County Lifelong Learning to offer a six-week program meeting Wednesday nights from 7:00 to 8:00 PM. The classes run from September 25, 2024 through October 30, 2024.

- September 25th: Spaceship Earth
- October 2nd: Our Moon—Phases and Faces
- October 9th: Other Kids on the Block
- October 16th: Observing Basics, Star Charts and Planetarium Software
- October 23rd: Observing Equipment, Binoculars, and Telescopes
- October 30th: Beyond Naked-Eye Observing

The cost for the courses is $64.00 per person. All classes held in person at Pierce Middle School, West Chester, PA. Visit the Chester County Lifelong Learning website to register online.

Navigating the Mid-October 2024 Night Sky

courtesy of the Astronomical League



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.

Speaker Bio (Cont'd)

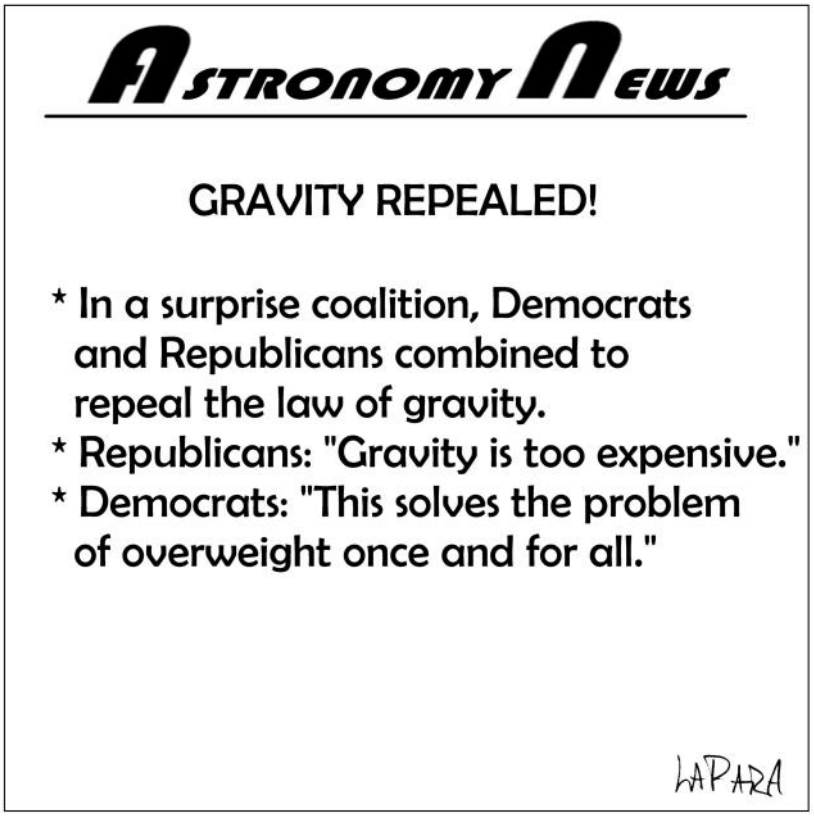
(Continued from page 3)

About the speaker: Scott Engle's area of expertise lies in observational astronomy, variable star photometry and UV-optical spectroscopy. His specific areas of research interests are focused on the dynamic and spectral properties, evolution, and habitability profiles of M-and K-class red dwarfs stars.

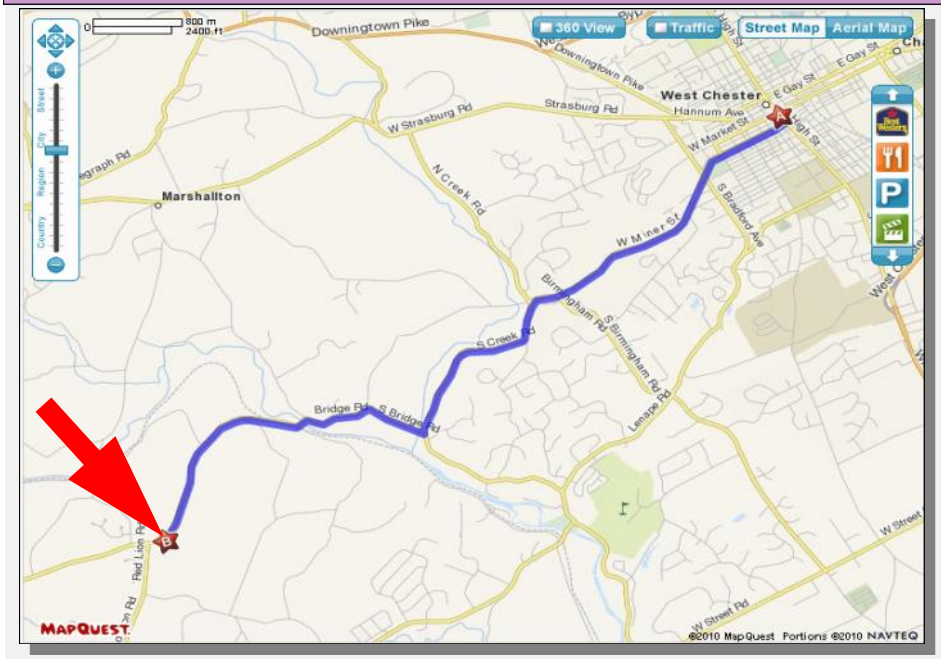
In addition, Dr. Engle has spent a portion of his career studying the atmospheres, spectral properties, and real-time evolution of classical Cepheid variable stars. Dr Engle received his BSc degree in astronomy and astrophysics from Villanova University, and his PhD in astronomy from James Cook University in North Queensland, Australia.

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).

Eyepiece (Cont'd)

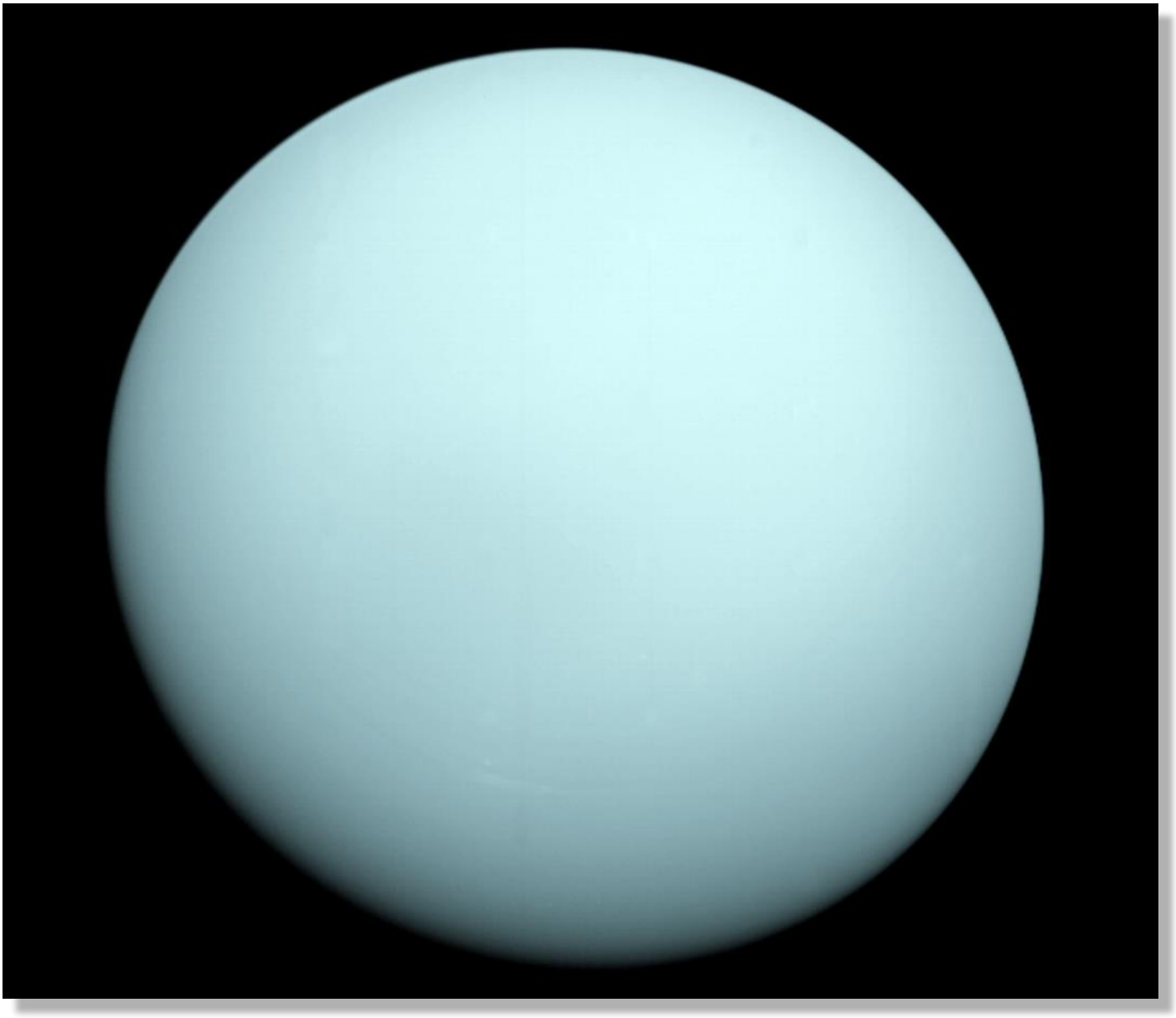


Photo credit: NASA Voyager 2, NASA/JPL-Caltech

(Continued from page 6)

very faint. The Uranian rings were the first after Saturn's to be discovered. This was of considerable importance since we now know that rings are a common feature of planets, not a peculiarity of Saturn alone. The rings cannot be seen from Earth, other than with electronically amplified imaging equipment.

The Uranian system is unique in the solar system because its axis of rotation is tilted sideways, nearly into the plane of its revolution about the Sun; its north and south poles lie where the other planets have their equators.

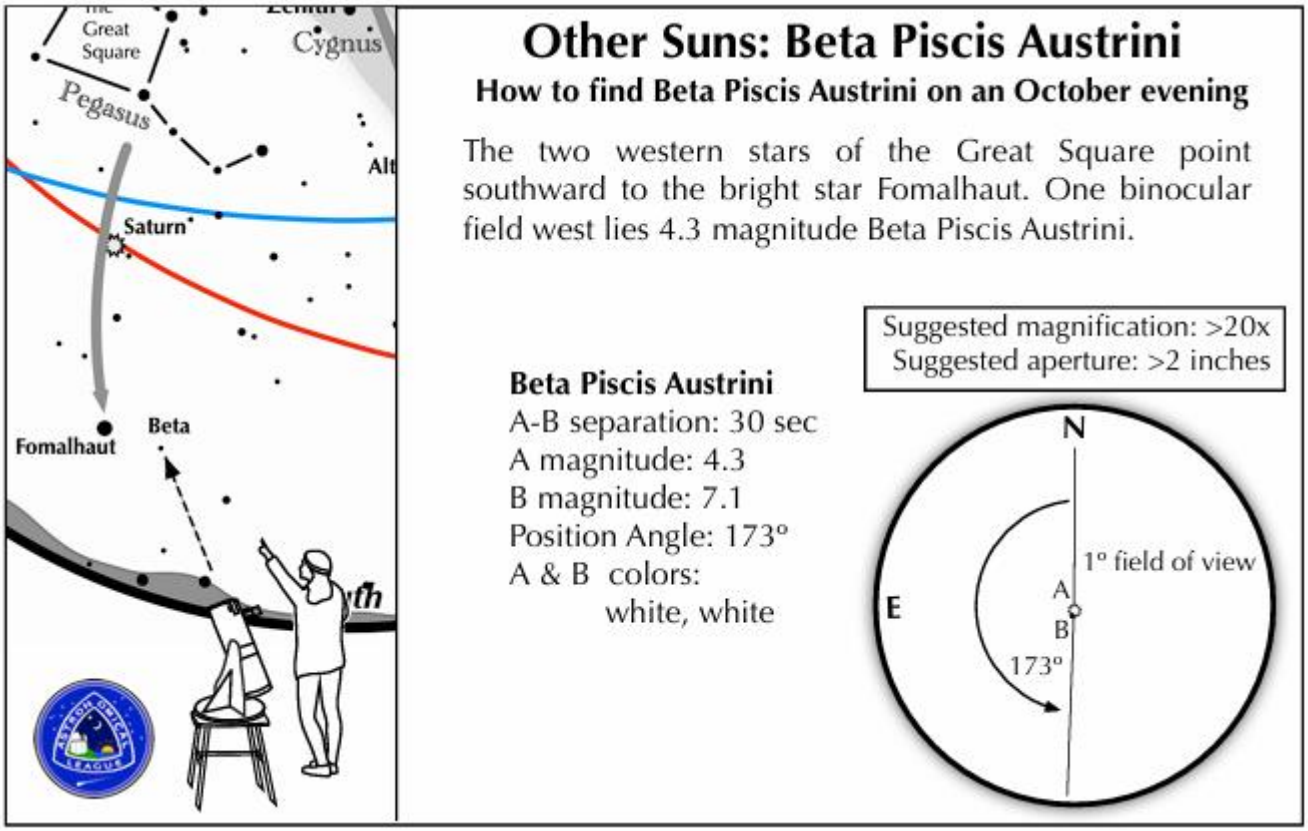
Seen from Earth, Uranus' rings appear to circle the planet like an archery target and its moons revolve around it like the hands of a clock. In addition to the rings, Uranus has 27 moons, the largest being Miranda, Ariel, Umbriel, Titania and Oberon.

So, on some crisp and clear evening during October or November, grab your binoculars or telescope and an astronomy app to help you star hop from the Pleiades to the 7th planet from

(Continued on page 13)

Double Star Challenge for October 2024

courtesy of the Astronomical League



Eyepiece (Cont'd)

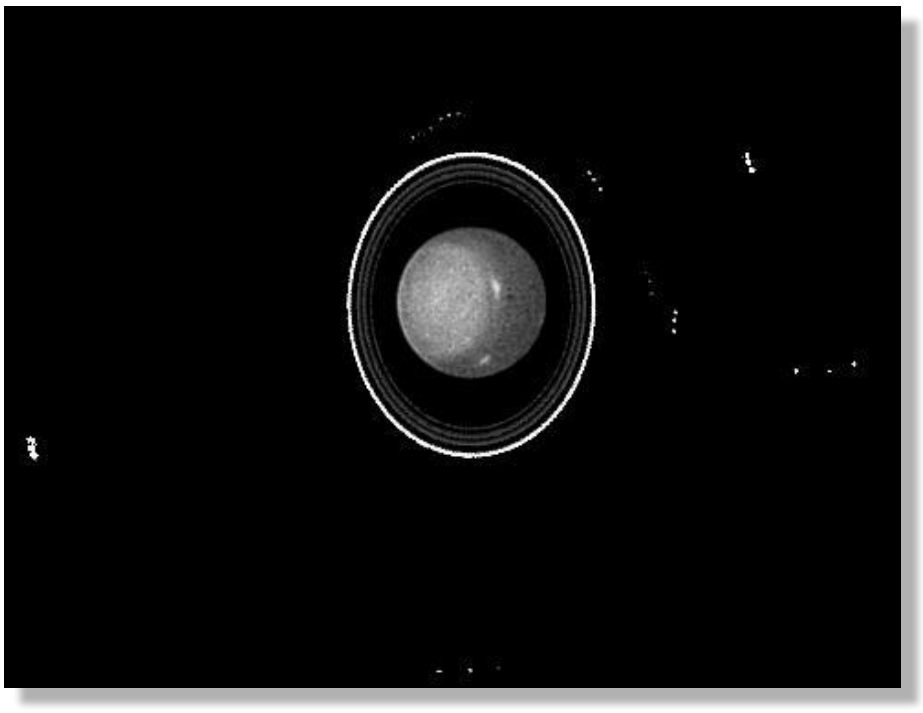


Photo credit: NASA Hubble Space Telescope, NASA/JPL/STScI

(Continued from page 12)

the Sun, Uranus.

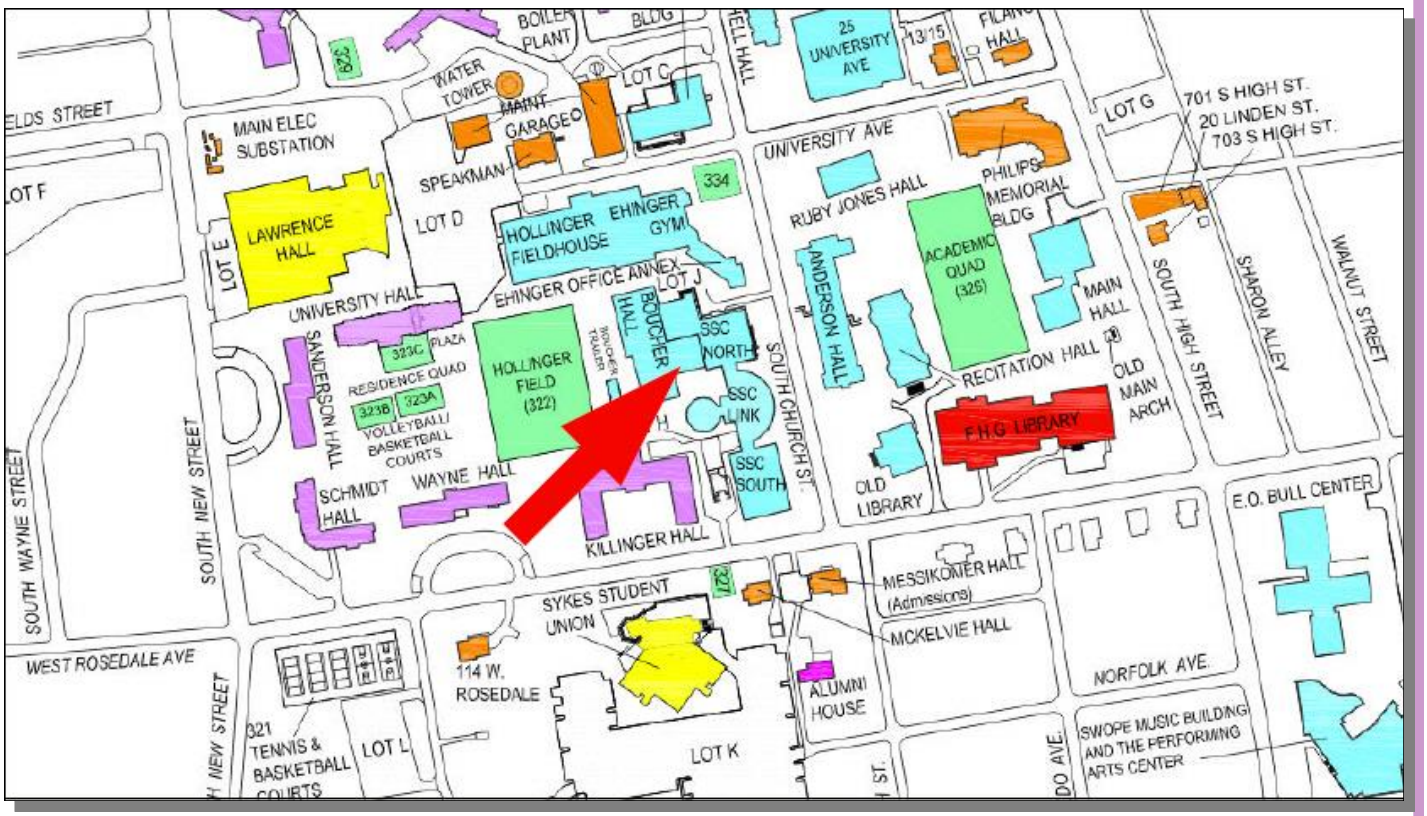
Information sources:

- http://www.nineplanets.org/uranus.html
- http://en.wikipedia.org/wiki/Uranus
- Pasachoff, Jay M. 2000. *A Field Guide to the Stars and Planets.* New York, NY. Houghton Mifflin.
- Dickinson, Terence 2006. *Nightwatch: a practical guide to viewing the universe.* Buffalo, NY. Firefly Books.

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).



New Planet (Cont'd)

(Continued from page 3)

what exoplanet atmospheres are made of—it's actually amazing," added Prof. Thomas Beatty, co-author of the discovery. Scientists are already working on the observational data they collected to take a closer look at what is happening with the exoplanet, including understanding what causes the asymmetry.

"For almost all exoplanets, we can't even look at them directly, let alone be able to know what's going on one side versus the other. For the first time, we're able to take a much more localized view of what's going on in an exoplanet's atmosphere," emphasizes Murphy.

CCAS Membership Information and Society Financials

Treasurer's Report
by Don Knabb

Sept. 2024 Financial Summary

Beginning Balance	$1303
Deposits	$420
Disbursements	-$0
Ending Balance	$1723

New Member Welcome!

Welcome to new CCAS members Julie & John Fisher, West Chester, PA; Chris Gioconda, Aston, PA; Steven Morgan, Garnet Valley, PA; Lois Peterson, Exton, PA; Linda Rice, Parkesburg, PA; & Robert Riley, West Chester, 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 $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. 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:	Michael Manigly 484-631-6197
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
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 & Tel*escope 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.