Observations

A Monthly Publication Of The CHESTER COUNTY ASTRONOMICAL SOCIETY

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Membership Renewals Due

06/2023	Crabb
	Cunningham
	Curry
	Dautrich, Chris
	Dautrich, Cindy
	Dhargalkar
	Hanspal
	Harris
	Hebding
	Hobson
	Lindtner
	Maynard
	Mazziotta / Calobrisi
	McCausland
	O'Neill
	Thomas
07/2023	Hunsinger
	McGuigan
	Morgan
	Piehl
08/2023	Borowski
	Force
	Johnston & Stein
	Kellar
	Knabb Family
	Lurcott, L.
	Manigly
	Schultz
	Tiedemann
	Trunk
	Zullitti

M13, The Great Globular Cluster

Learn more about M13 on pg. 6. Image credit: Sid Leach/Adam Block/Mount Lemmon SkyCenter - http://www.sidleach.com/m13.htm, https://en.wikipedia.org/wiki/Messier_13#/media/File:Messier_13.jpg

June 2023 Dates

3rd • Full Moon, the Strawberry Moon, Blooming Moon, Hot Moon, Rose Moon, Trees Fully Leafed Moon and Honey Moon, 11:41 p.m. EDT.

10th • Last Quarter Moon, 3:31 p.m. EDT.

18th • New Moon, 12:37 a.m. EDT.

21st • Summer Solstice 10:58 a.m. EDT.

22nd • Regulus stands to the left of the Moon at nightfall with Mars and Venus to the lower right of the Moon.

26th • First Quarter Moon, 3:49 a.m. EDT.

27th • Spica is close to the Moon at nightfall.

CCAS Upcoming Nights Out

In addition to our monthly observing sessions at the Myrick Conservancy Center, BRC (see pg. 7), 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, June 9th • CCAS Monthly Observing Session, Myrick Conservancy Center, BRC. The observing session starts at sunset

☼ Friday, June 30th • Solar Observing w/Roger Kennedy at Rachel Kohl Library. For more information, contact our Observing Chair, Mike Manigly.

☼ Friday, July 14th • Friday Night Lights Star Party, 7:00-10:00 p.m. EDT, ChesLen Preserve, Coatesville, PA.

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

Spring / Summer Society Events

June 2023

9th • CCAS Monthly Observing Session, Myrick Conservancy Center, BRC. The observing session starts at sunset.

14th-18th • York County Star Party #1. Presented by Sky Shed Pod PA, York, PA. Cherry Springs State Park, Susquehannock State Park, 1880 Park Dr, Drumore, PA 17518.

15th-18th • Cherry Springs Park Star Party. Presented by the Astronomical Society of Harrisburg, Harrisburg, PA. Cherry Springs State Park, Coudersport, Pennsylvania.

20th • Open call for articles and photographs for the July 2023 edition of Observations.

21st • Solstice (northern summer/southern winter begins), 11 a.m. EDT. The North Pole of the earth will be tilted toward the Sun, which will have reached its northernmost position in the sky and will be directly over the Tropic of Cancer at 23.44 degrees north latitude.

21st-24th • Green Bank Star Quest. National Radio Observatory, Green Bank, West Virginia.

22nd • The von Kármán Lecture Series: The Universe of Very Cold: The James Webb Space Telescope, MIRI, and the Cryocooler, Jet Propulsion Laboratory, Pasadena, California. Live stream of free lecture presented by NASA & Caltech starting at 10:00 p.m. EDT.

26th • Deadline for newsletter submissions for the July 2023 edition of Observations.

30th • Solar Observing w/Roger Kennedy at Rachel Kohl Library. For more information, contact our Observing Chair, Mike Manigly.

July 2023

14th • Friday Night Lights Star Party, 7:00-10:00 p.m. EDT, ChesLen Preserve, Coatesville, PA. This is a fundraiser for the Natural Lands Trust where music is provided. Several local astronomy clubs set up telescopes for the concert goers to view the night sky during the event. If you are not a member of CCAS you must purchase tickets from the Natural Lands Trust.

18th-21st • CCAS Special Camping Trip & Observing Session at Cherry Springs State Park, Coudersport, PA. For more information, contact our Observing Chair, Michael Manigly.

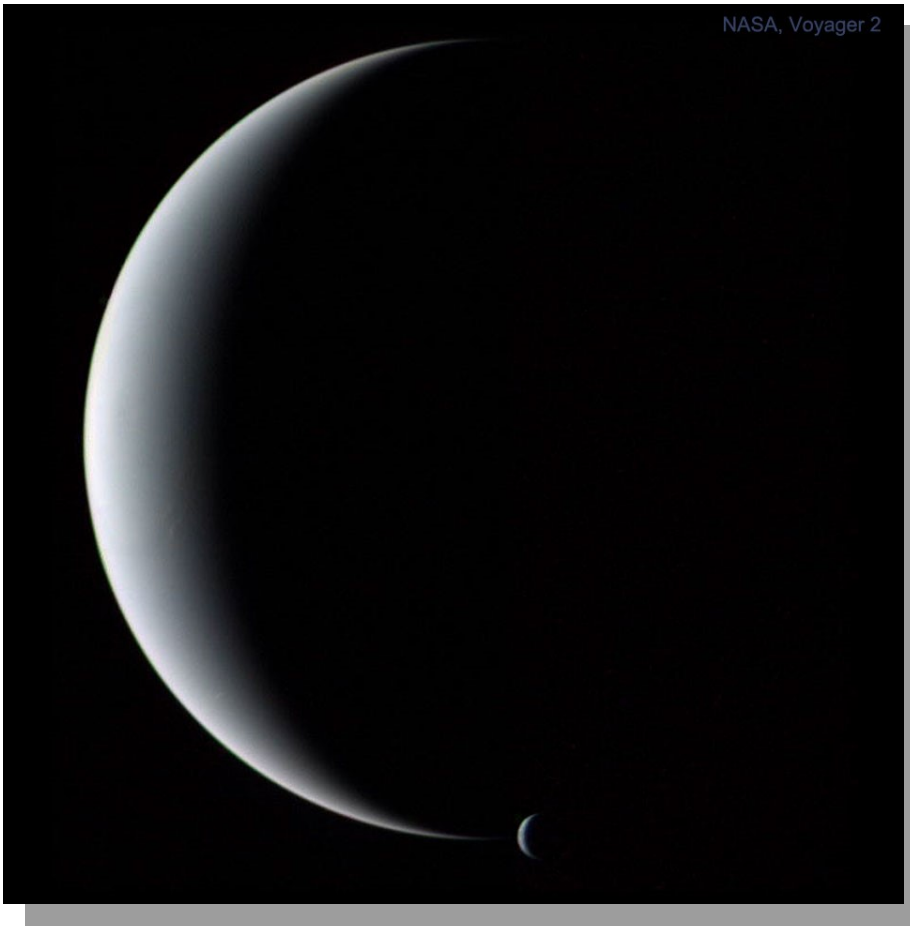
21st • CCAS Monthly Observing Session, Myrick Conservancy Center, BRC. The observing session starts at sunset.

20th • Open call for articles and photographs for the August 2023 edition of Observations.

26th • Deadline for newsletter submissions for the August 2023 edition of Observations.

Voyager 2 Images a Crescent Neptune & Triton

courtesy NASA



Gliding through the outer Solar System, in 1989 the Voyager 2 spacecraft looked toward the Sun to find this view of the most distant planet Neptune and its moon Triton together in a crescent phase. The elegant image of the ice-giant planet and its largest moon was taken from behind just after Voyager's closest approach. It could not have been taken from Earth because the most distant planet never shows a crescent phase to sunward eyes. Heading for the heliopause and beyond, the spacecraft's parting vantage point also robs Neptune of its familiar blue hue. Image & description retrieved from Astronomy Picture of the Day. Image Credit: NASA, Voyager 2

September 2023 CCAS Meeting Agenda

by Bruce Ruggeri, CCAS Program Chair

Our next meeting will be held on September 12, 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. September's speaker: TBA.

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.

Bright, Young Supernova Now Visible in M101

by Alison Klesman, Astronomy Magazine

The bright supernova SN 2023ixf (identified with the vertical lines) was recently discovered in spiral galaxy M101. Credit: Dominique Dierick (Flickr)

When a massive star dies, it goes out with a bang, creating a stunningly bright explosion that can temporarily change the look of the night sky. The brightest and closest may be visible with the naked eye, but even those in distant galaxies can be easily spotted with amateur equipment from your backyard. And now, just such an opportunity has appeared: A supernova just went off in the nearby spiral galaxy M101 (NGC 5457) and you can find it tonight in the sky.

According to NASA, the new supernova, called SN 2023ixf, was first spotted by Koichi Itagaki on May 19. Itagaki discovered the supernova when it was magnitude 14.9, though it quickly brightened over the weekend. After the blast had been identified, astronomers went back through data from the Zwicky Transient Facility and found the first evidence of the supernova two days before that.

Now that it's appeared, SN 2023ixf is expected to remain visible in a telescope for months, offering an amazing and unique target for your telescope all summer long.

Those of us in the Northern Hemisphere are extra-lucky: M101 is located in the circumpolar constellation Ursa Major, meaning it's always above the horizon. No matter when your observing session starts, it will be up in the sky for you to find, and you can also start looking for it as soon as darkness falls.

The galaxy sits near the end of the Big Dipper's handle, forming the apex of a triangle with the last two stars in the handle, magnitude 2.2 Mizar and magnitude 1.9 Alkaid, as the base. Draw a line between these two stars, stop halfway along, and look about 4.5° northeast. You'll land right on 8th-magnitude M101, often called the Pinwheel Galaxy because its face-on nature shows off its stunning spiral arms.

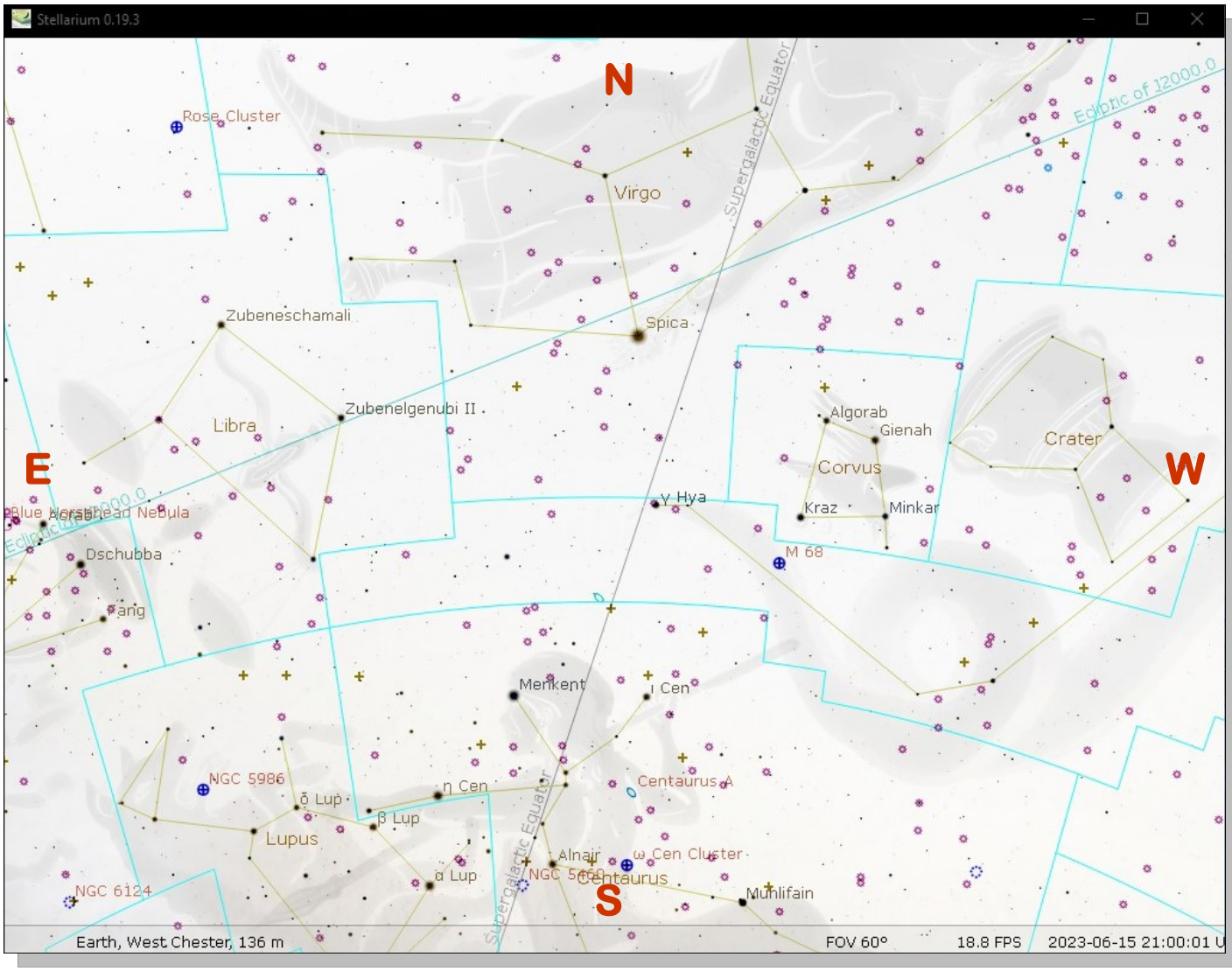
M101 stretches about 22′ across and sits just over 20 million light-years away. That's

(Continued on page 8)

The Sky Over Chester County

June 15, 2023 at 9:00 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
06/01/2023	5:03 a.m. EDT	5:35 a.m. EDT	8:24 p.m. EDT	8:57 p.m. EDT	14h 49m 02s
06/15/2023	5:00 a.m. EDT	5:33 a.m. EDT	8:32 p.m. EDT	9:05 p.m. EDT	14h 59m 37s
06/30/2023	5:04 a.m. EDT	5:36 a.m. EDT	8:35 p.m. EDT	9:07 p.m. EDT	14h 58m 11s

Moon Phases					
			Full Moon	06/03/2023	11:41 p.m. EDT
Last Quarter	06/10/2023	3:31 p.m. EDT	New Moon	06/18/2023	12:37 a.m. EDT
First Quarter	06/26/2023	3:49 a.m. EDT			

June 2023 Observing Highlights

by Michael Manigly, CCAS Observing Chair

3	**Full Moon, 11:41 p.m. EDT. This Full Moon is in view for less time than any other Full Moon, so it is also called Short-Night Moon. Antares is close to the Full Moon tonight.**
6	**The Moon is at perigee, 226,714 miles from Earth at 1:05 a.m. EDT.**
9	**Saturn stands to the upper left of the Moon.**
10	**Last Quarter Moon, 3:31 p.m. EDT. Saturn stands to the upper right of the Moon.**
12	**Lunar Curtiss X visible in Eastern North America, 2:00 a.m. EDT.**
14	**Jupiter 1.5 degrees to the right of the during morning twilight.**
15	**Venus 2 degrees south of the Moon.**
16	**The Moon is 1.8 degrees south of the Pleiades M45.**
18	**New Moon, 12:37 a.m. EDT.**
20	**Venus is to the upper left of the Moon at nightfall. Mars is a little further but on the same line and Castor and Pollux poser to the lower right of the Moon.**
21	**Summer Solstice 10:58 a.m. EDT. The Moon, Mars and Venus form a large triangle low in the western sky as evening twilight fades away.**
22	**The Moon is at apogee, 251,895 miles from Earth at 3:00 p.m. EDT. Regulus stands to the left of the Moon at nightfall with Mars and Venus to the lower right of the Moon.**
26	**First Quarter Moon, 3:49 a.m. EDT. Lunar straight wall visible during evening.**
27	**Spica is close to the Moon at nightfall.**

The best sights this month: Venus continues to be the star in the evening sky again during the month of June. It stays highly visible all months with magnitudes -4.4 to -4.7 as June ends. Mars tracks Venus across the sky and gradually dims to magnitude 1.7 by months end. M44, the Beehive Cluster is visited by both Venus and Mars during the month. Jupiter and Saturn rise in the ENE during overnight hours.

Mercury: The fleet-footed messenger appears extremely low in the ENE during morning twilight.

Venus: Earth's "evil twin" continues to dominate the evening skies during June. It reaches its greatest Eastern elongation (45 degrees) on the 4th. The Beehive Cluster M44 appears a little below Venus on the 13th. On the 23rd, Venus and Mars appear 3.5 degrees apart with Regulus appearing to their upper left.

Mars: The red planet will appear embedded inside the Beehive Cluster M44 on the 2nd. The planet dims to magnitude 1.7during June. A waxing crescent Moon is nearby on the 21st and 22nd.

Jupiter: The gas giant rises at 3:00 am EDT in the ENE sky and in the East at morning twilight. Glowing at magnitude -2.1/-2.2 makes it easy to spot. Catch the waning crescent Moon 3 degrees east of Jupiter on the morning of the 14th. There are multiple opportunities to see double shadows on Jupiter during the month from its moons. Look on the 4th, 7th, 11th, 14th and 18th.

Saturn: The ringed beauty rises in the ENE skies around 1:00 a.m. EDT and in SSE near dawn. It shines at magnitude 0.8 early in June. for most of the month. The planet brightens as it approaches Earth and is close to the Moon on the 9th and 10th.

Uranus: The ice giant is slowing emerging in the morning sky during the month. The planet lies about 16 degrees east of Jupiter and just 10 degrees SW of the Pleiades M45. Uranus shines at magnitude 5.9 and requires binoculars to observe. The Moon passes 2 degrees north of the planet at 6 a.m. EDT on the 15th.

Neptune: The last major planet stands around 20 degrees above the eastern horizon around 4:30 am EDT as June opens. It can be spotted in the morning sky with binoculars shining at magnitude 7.8 with visibility improving throughout the month. The Moon passes 2 degrees south of Neptune at 4:00 a.m. EDT on the 11th.

The Moon: Earth's natural satellite is full on the 3rd. Called the Strawberry Moon, Blooming Moon, Hot Moon, Rose Moon, Trees Fully Leafed Moon and Honey Moon, 11:41 p.m. EDT. The Lunar Cur-

(Continued on page 7)

Through the Eyepiece: M13, the Great Globular Cluster in Hercules

by Don Knabb, CCAS Treasurer

As we go from spring toward summer, we see the constellation Hercules rising in the east as late spring evenings darken. Hercules contains one of the most looked at and beautiful objects visible from the Northern Hemisphere, M13, the Great Globular Cluster. To find M13, first find "the Keystone", an asterism in Hercules. M13 is along one side of the keystone of Hercules.

Even modest telescopes show M13 as a blazing ball of stars. With a medium sized telescope, the outer edges can be resolved into its member stars.

The Great Globular Cluster was discovered by Edmond Halley in 1714. Messier, when he cataloged this object as M13 in 1764, described it as a "nebula containing no stars". It is difficult to determine the exact number of stars, especially in the central core where they are most numerous, but 30,000 stars have actually been counted and estimates are that the cluster contains approximately one million stars. The total luminosity of M13 is over 300,000 times that of the Sun and the total mass is equal to perhaps half a million Suns. The brightest members of the cluster are red giants, each as bright as 2,000 Suns.

A globular cluster is a spherical collection of stars that orbits a galaxy as a satellite. They can contain anywhere from ten thousand to a million stars. These stars orbit the collective center of mass of the cluster in a veritable beehive of motion, and the cluster itself orbits the Milky Way as a distinct object, occasionally plunging right through the main disk and out the other side. Although the cluster appears extremely dense, the dis-

(Continued on page 10)

Image credit: The author, using Stellarium, a free planetarium software package

Observing (Cont'd)

(Continued from page 5)

tis X will be visible on the 12th and the Lunar Straight Wall is visible on the 26th.

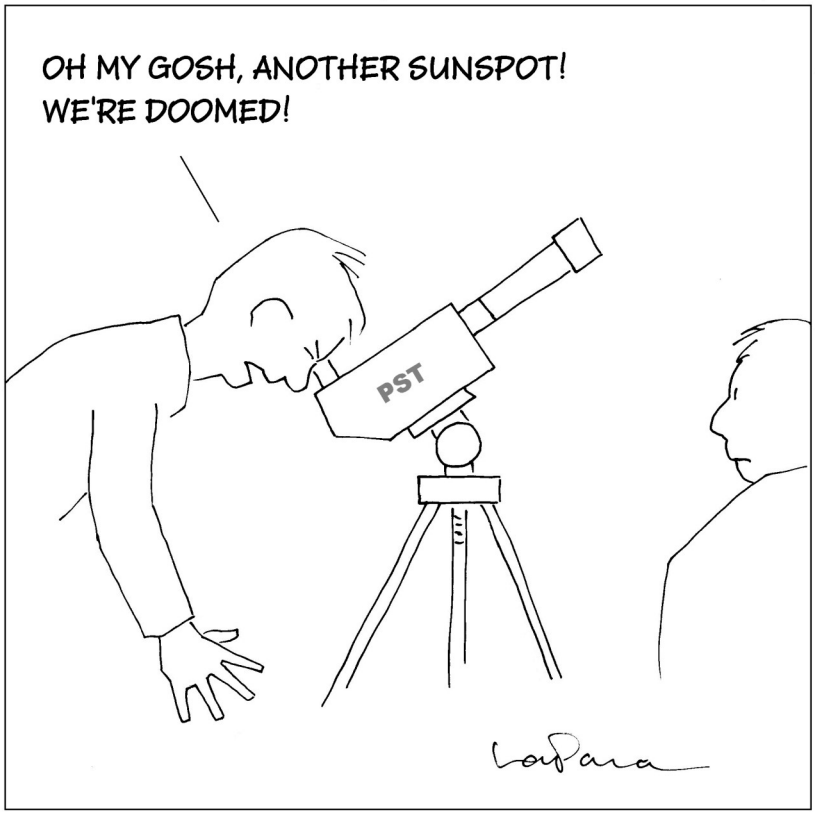
Constellations: As the summer skies approach Leo the Lion is still high in the sky as darkness falls. Look for Sagittarius and Scorpius in the South. Look for Cygnus the Swan and Aquila the Eagle in the East. The spring constellations have arrived and if you hang out late enough you may even see the Summer Triangle.

Messier/deep sky: As summer nears it is time to observe globular clusters. Imagine 500,000 stars in your eyepiece. M3 is high overhead during June. Look for M4 near Antares in Scorpius

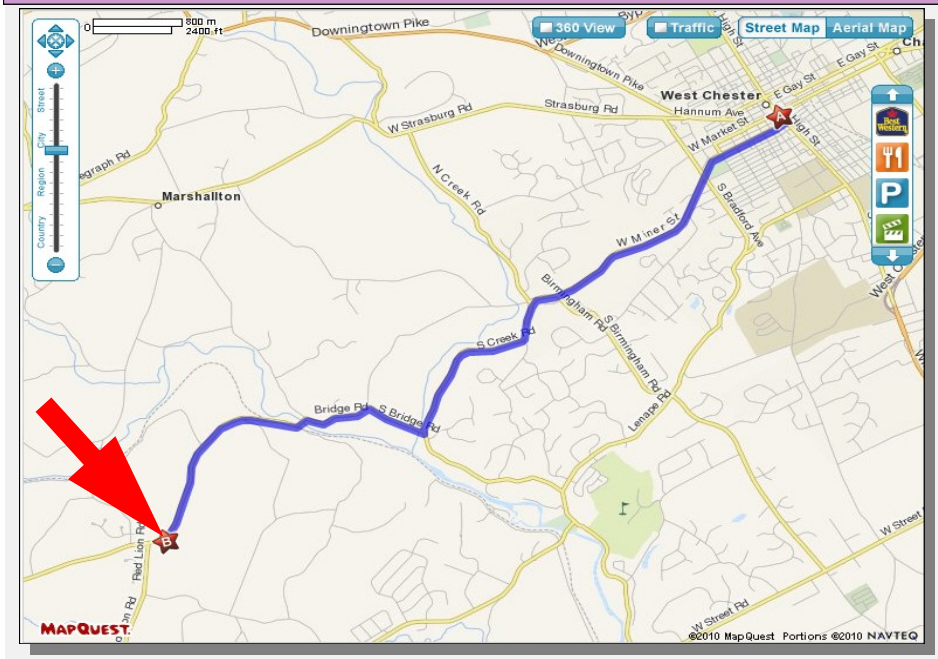
(Continued on page 14)

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.

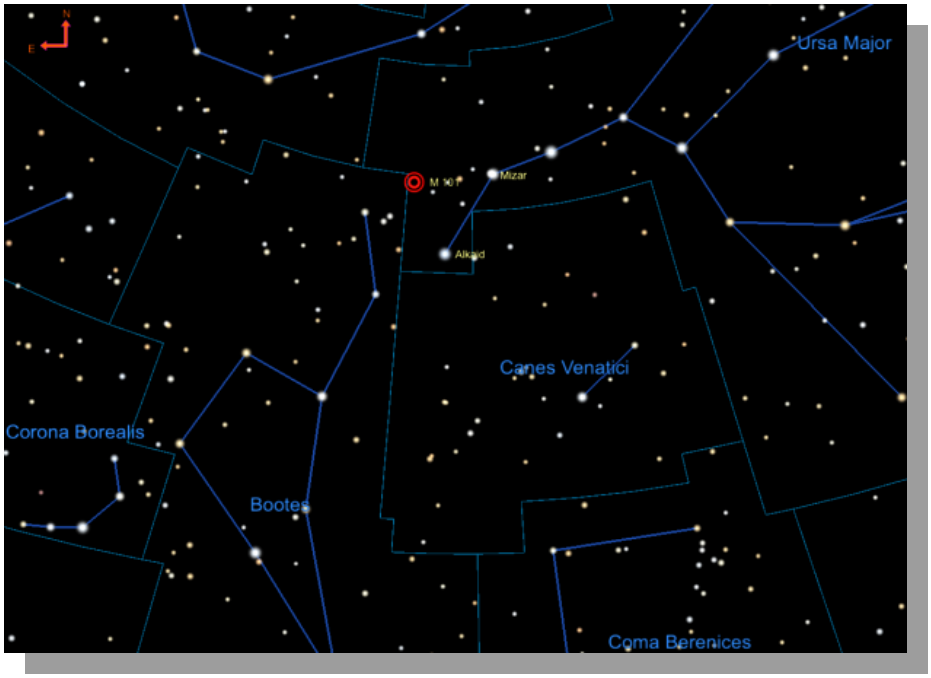
To get to the Myrick Conservation Center from West Chester, go south on High Street in West Chester past the Courthouse. At the next traffic light, turn right on Miner Street, which is also PA Rt. 842. Follow Rt. 842 for about 6 miles. To get to the observing site at the BRC property, turn left off Route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

Supernova (Cont'd)

(Continued from page 3)

pretty close, by cosmic standards, which means its supernova should be easy to spot. The bright point of light lies just southwest of NGC 5461, a bright knot of glowing hydrogen gas in the galaxy's southeastern arm. If you have a go-to scope, you can dial in the supernova's exact coordinates if you like: According to the American Association of Variable Star Observer's (AAVSO) alert notice, SN 2023ixf is located at R.A. 14h03m38.58s, Dec. 54° 18'42.1″. Alternatively, if you start at the nucleus of the galaxy M101, SN 2023ixf is about 228″ east and 134″ south of this point.



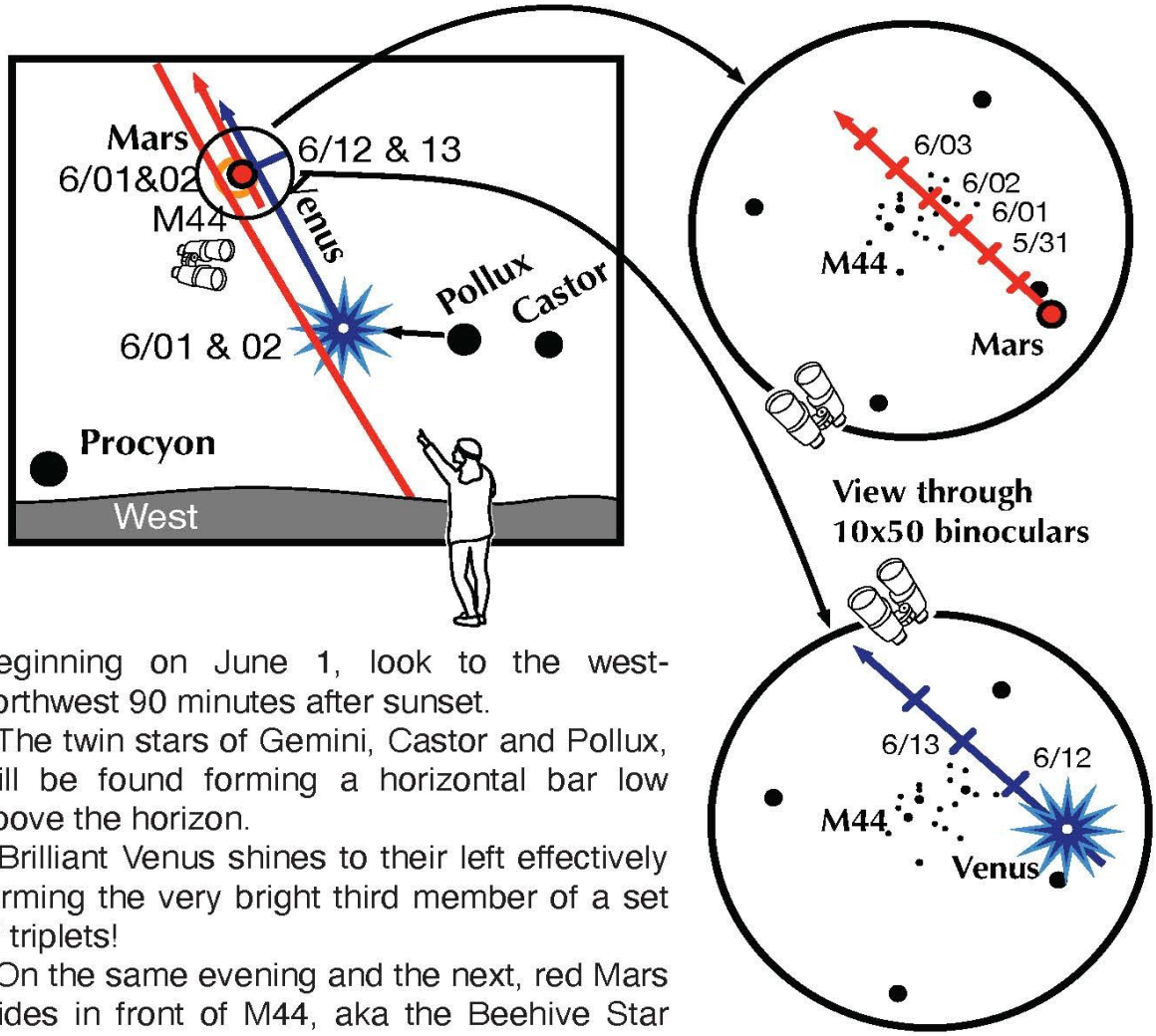
M101 lies in Ursa Major near the last two stars in the Big Dipper's handle.
Image Credit: Alison Klesman (via TheSkyX)

But while you'll need a good-sized scope to pull out a lot of detail in the galaxy itself, the supernova is so bright — last

(Continued on page 10)

A Must-See Celestial Planetary Play
by Astronomical League

A must see celestial planetary play: Two planets visit the Beehive

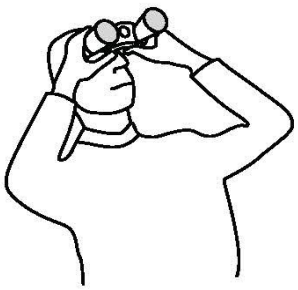


Beginning on June 1, look to the west-northwest 90 minutes after sunset.

• The twin stars of Gemini, Castor and Pollux, will be found forming a horizontal bar low above the horizon.

• Brilliant Venus shines to their left effectively forming the very bright third member of a set of triplets!

• On the same evening and the next, red Mars slides in front of M44, aka the Beehive Star cluster, positioned above Venus. Use binoculars to find Mars sitting amid the many stellar bees.



• Ten nights later, it is Venus' turn to stay at the Beehive for two consecutive nights. The planet travels along the outskirts, farther from Beehive central than Mars moved. Again, bring out the binoculars. How does the glare of brilliant Venus affect the scene?

Eyepiece (Cont'd)

(Continued from page 6)

tance between individual stars is actually quite large. As a result, stars within them rarely collide, and globular clusters survive relatively unscathed by their passage through the galaxy's disk.

On the lower right is an image taken by the Hubble Space Telescope of the center portion of M13.

Globular cluster M13 was selected in 1974 as target for one of the first radio messages addressed to possible extraterrestrial intelligent races. The message was sent by the big radio telescope of the Arecibo Observatory.

For the best view of M13, wait until Hercules is high in the sky on a night when the Moon is absent from the sky. You will be amazed by the depth and complexity of this globular cluster.

Information credits:

- Dickinson, Terence 2006. *Nightwatch: a practical guide to viewing the universe.* Buffalo, NY. Firefly Books.
- http://messier.seds.org/m/m013.html
- https://en.wikipedia.org/wiki/Messier_13
- http://astropixels.com/globularclusters/M13-01.html

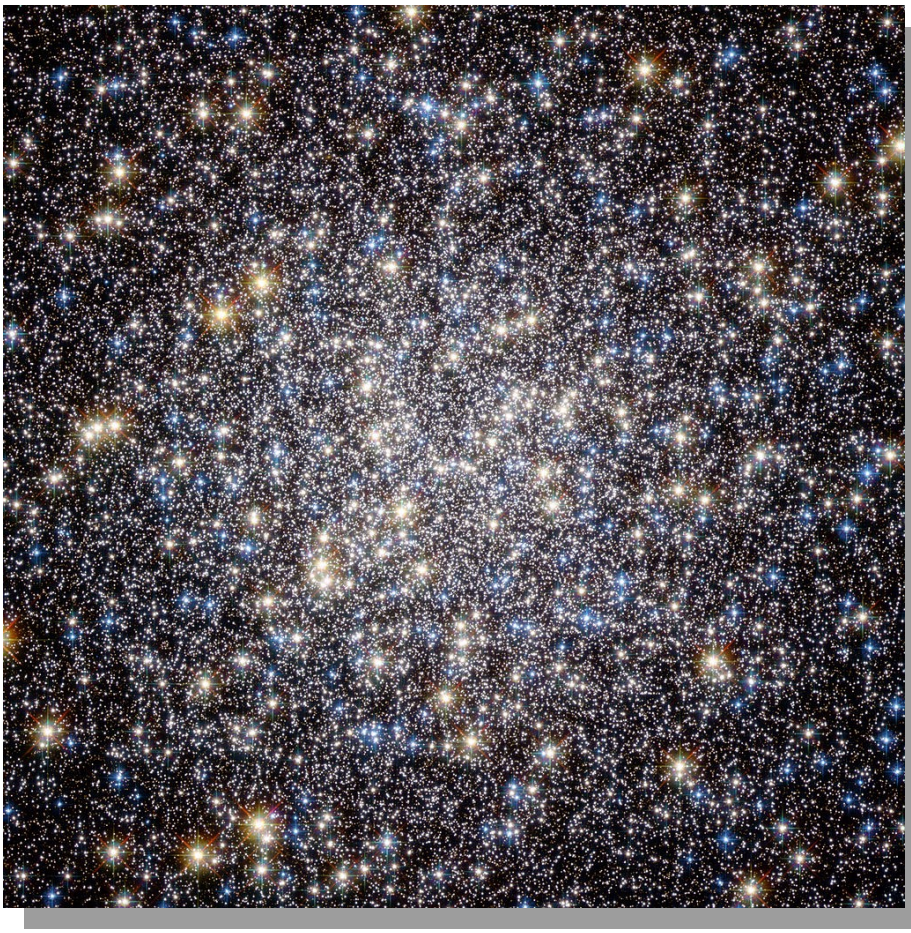


Image credit: By ESA/Hubble and NASA - http://www.spacetelescope.org/images/potw1011a/, Public Domain, https://commons.wikimedia.org/w/index.php?curid=10825956

Supernova (Cont'd)

(Continued from page 8)

reported as magnitude 11 on the 23rd — that you'll see the bright "star" even in a small (4-inch or so) scope! You can continue to follow the supernova's progress here. If you're an experienced astroimager or have your own spectroscope, you can even submit your observations to the AAVSO to help astronomers study this event over time.

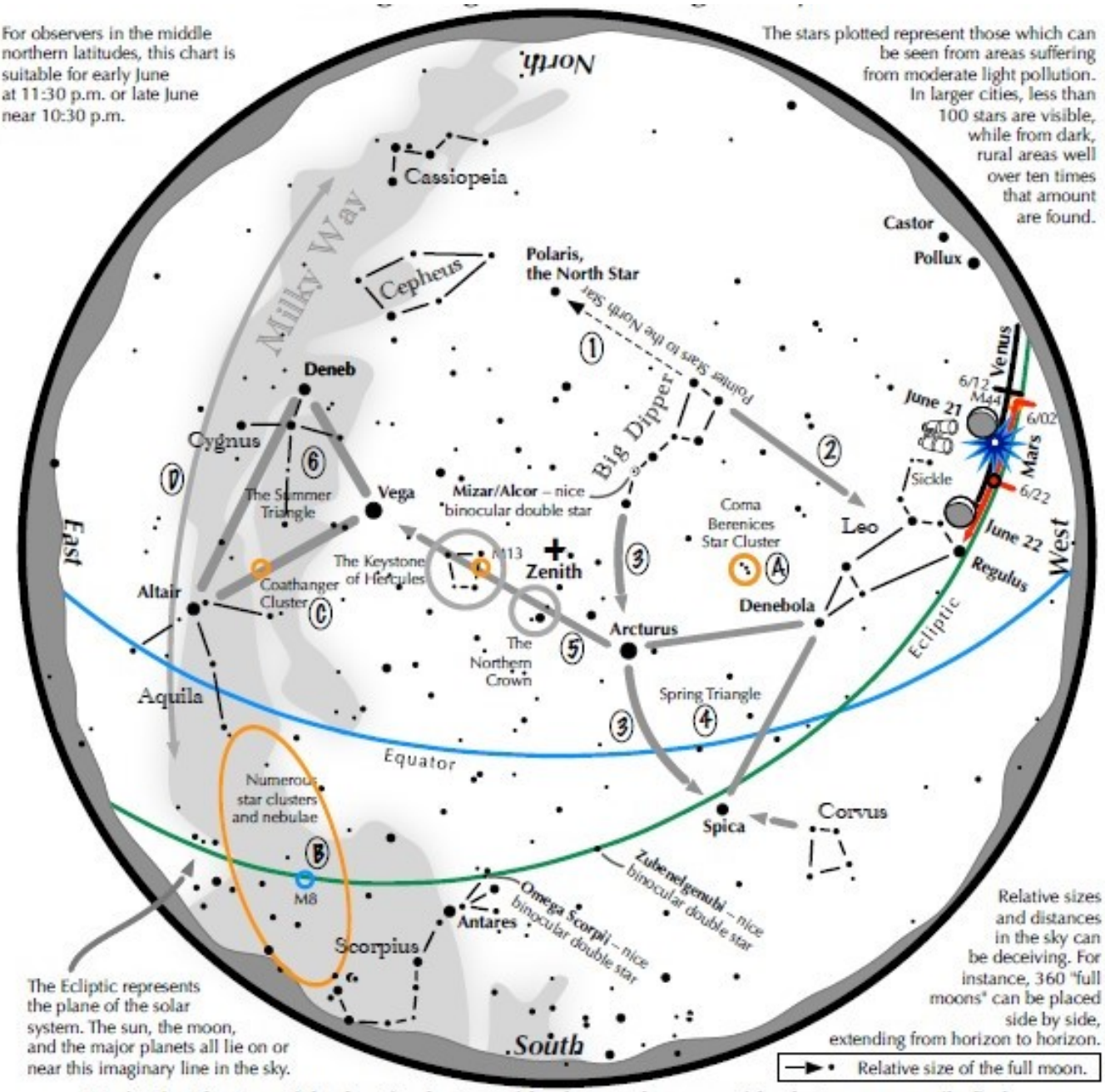
Although it's millions of light-years away, SN 2023ixf is the closest supernova that's occurred within the past five years. Because it's so close — and so young — astronomers will be eagerly following its evolution. Studying such events, specifically classified as type II supernovae (to differentiate them from their white dwarf, type Ia brethren), gives us a window into how massive stars die and what becomes of them afterward. And a notice published May 20 on The Astronomer's Telegram has even suggested a possible progenitor star, weighing in at some 15 times the mass of the Sun.

Regardless of the scientific discoveries yet to come, for now, SN 2023ixf presents the perfect springtime target for your backyard telescope tonight!

[Editor's Note: Read the article online]

Navigating the June Night Sky

by Astronomical League



Navigating the June 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. Draw another line in the opposite direction. It strikes the constellation Leo high in the west.
3. Follow the arc of the Dipper's handle. It first intersects Arcturus, the brightest star in the June evening sky, then Spica.
4. Arcturus, Spica, and Denebola form the Spring Triangle, a large equilateral triangle.
5. 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.
6. High in the east are the three bright stars of the Summer Triangle: Vega, Altair, and Deneb.

Binocular Highlights

A: Between Denebola and the tip of the Big Dipper's handle, lie the stars of the Coma Berenices Star Cluster.
B: Between the bright stars of Antares and Altair, hides an area containing many star clusters and nebulae.
C: 40% of the way between Altair and Vega, twinkles the "Coathanger," a group of stars outlining a coathanger.
D. Sweep along the Milky Way for an astounding number of faint glows and dark bays.

Night Sky Network: Look Up in the Sky—It's a Bird

by Theresa Summer

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.

Bird constellations abound in the night sky, including **Cygnus**, the majestic swan. Easy to find with its dazzling stars, it is one of the few constellations that look like its namesake and it is full of treasures. Visible in the Northern Hemisphere all summer long, there's so much to see and even some things that can't be seen. To locate Cygnus, start with the brightest star, **Deneb**, also the northeastern most and dimmest star of the Summer Triangle. The Summer Triangle is made up of three bright stars from three different constellations – read more about it in the September 2022 issue of Night Sky Notes. "Deneb" is an Arabic word meaning the tail. Then travel into the triangle until you see the star **Albireo**, sometimes called the "beak star" in the center of the summer triangle. Stretching out perpendicular from this line are two stars that mark the crossbar, or the wings, and there are also faint stars that extend the swan's wings.

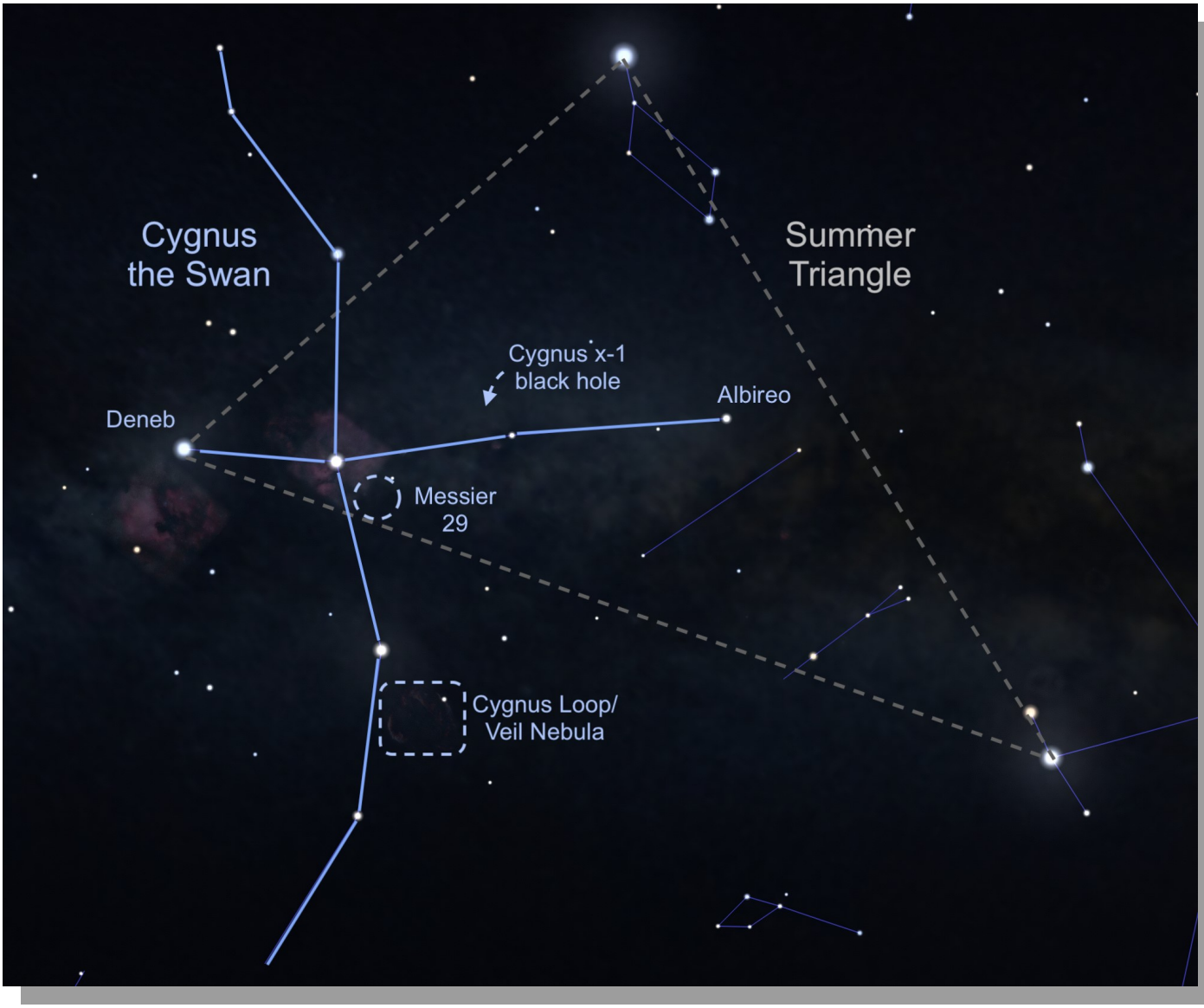
From light-polluted skies, you may only see the brightest stars, sometimes called the Northern Cross. In a darker sky, the line of stars marking the neck of the swan travels along the band of the **Milky Way**. A pair of binoculars will resolve many stars along that path, including a sparkling open cluster of stars designated **Messier 29**, found just south of the swan's torso star. This grouping of young stars may appear to have a reddish hue due to nearby excited gas.

Let's go deeper. While the bright beak star Albireo is easy to pick out, a telescope will let its true beauty shine! Like a jewel box in the sky, magnification shows a beautiful visual double star, with a vivid gold star and a brilliant blue star in the same field of view. There's another marvel to be seen with a telescope or strong binoculars – the Cygnus Loop. Sometimes known as the **Veil Nebula**, you can find this supernova remnant (the gassy leftovers blown off of a large dying star) directly above the final two stars of the swan's eastern wing. It will look like a faint ring of illuminated gas about three degrees across (six times the diameter of the Moon).

(Continued on page 13)

While the black hole Cygnus x-1 is invisible with even the most powerful Optical telescope, in X-ray, it shines brightly. On the left is the optical view of that region with the location of Cygnus x-1 shown in the red box as taken by the Digitized Sky Survey. On the right is an artist's conception of the black hole pulling material from its massive blue companion star. (Credit: NASA/CXC chandra.harvard.edu/photo/2011/cygx1/)

Night Sky Network (Cont'd)



Look up after sunset during summer months to find Cygnus! Along the swan's neck find the band of our Milky Way Galaxy. Use a telescope to resolve the colorful stars of Albireo or search out the open cluster of stars in Messier 29.
Image created with assistance from Stellarium: stellarium.org

(Continued from page 12)

Speaking of long-dead stars, astronomers have detected a high-energy X-ray source in Cygnus that we can't see with our eyes or backyard telescopes, but that is detectable by NASA's Chandra X-ray Observatory. Discovered in 1971 during a rocket flight, Cygnus x-1 is the first X-ray source to be widely accepted as a black hole. This black hole is the final stage of a giant star's life, with a mass of about 20 Suns. Cygnus x-1 is spinning at a phenomenal rate – more than 800 times a second – while devouring a nearby star. Astronomically speaking, this black hole is in our neighborhood, 6,070 light years away. But it poses no threat to us, just offers a new way to study the universe.

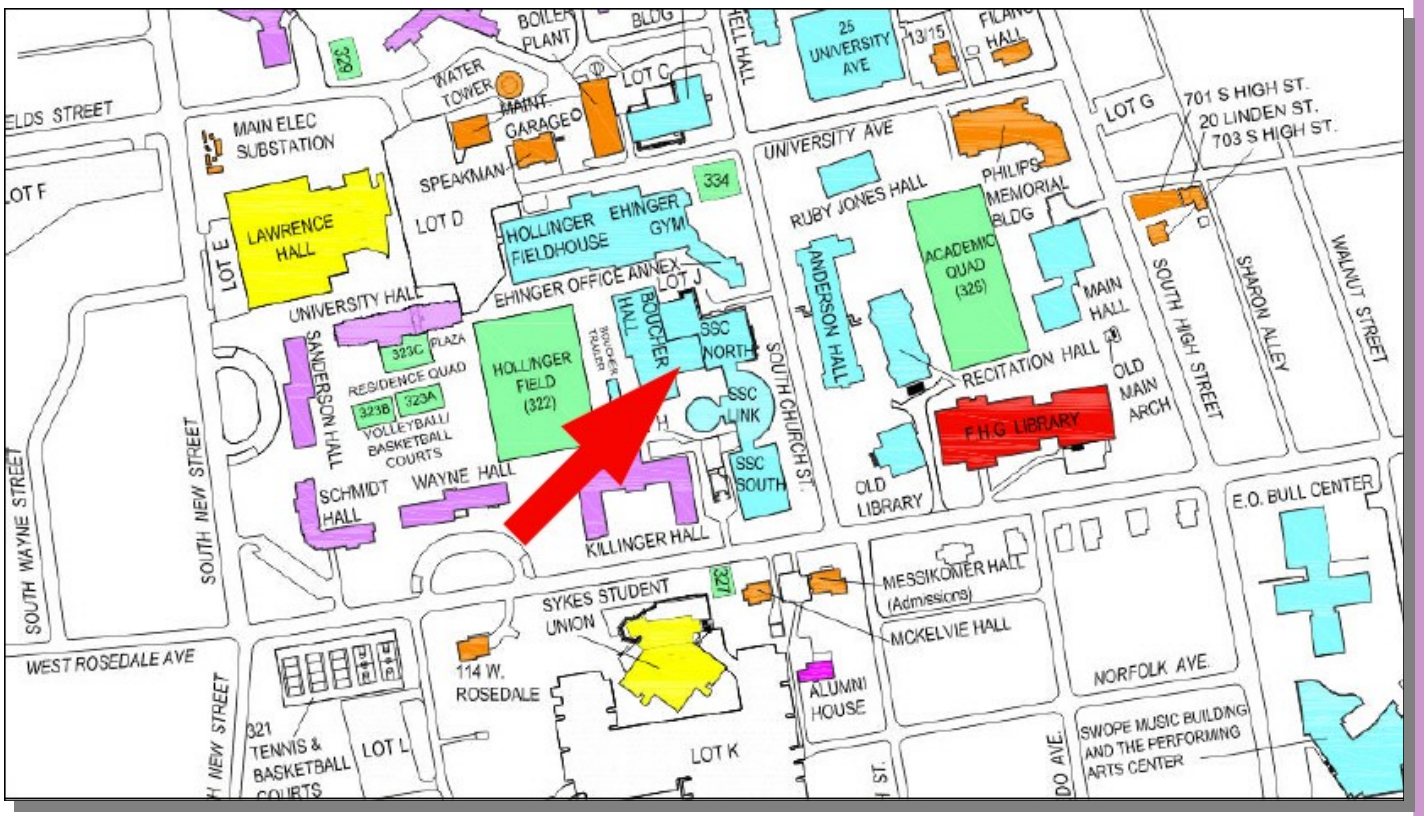
Check out the beautiful bird in your sky this evening, and you will be delighted to add Cygnus to your go-to summer viewing list.

Find out NASA's latest methods for studying black holes at www.nasa.gov/black-holes.

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 7)

and M22 in Sagittarius. If you stay out late you may find M13, the Great Globular Cluster in Hercules rising in the east. It contains up to a million stars!

Comets: If you have a large telescope and dark skies Comet 237P/LINEAR may be viewable this month.

Meteor showers: No major meteor showers are visible during the month of June.

CCAS Membership Information and Society Financials

Treasurer's Report
by Don Knabb

May 2023 Financial Summary

Beginning Balance	$1694
Deposits	$50
Disbursements	-$0
Ending Balance	$1744

New Member Welcome!

Welcome to our new CCAS members Peter Mulhall, Newtown Square, PA, Girt Allerton, Perkiomenville, PA, and Dan Massi, Jr., also from Newtown Square, 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

PENNSYLVANIA OUTDOOR LIGHTING COUNCIL

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!

Starry Night Lights

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.

Skies UNLIMITED

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

★ ★ ★ ★ ★

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.

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, and on the CCAS website. 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 2021 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.