# Observations

A Monthly Publication Of The
CHESTER COUNTY ASTRONOMICAL SOCIETY

*Vol. 27, No. 9* ***Three-Time*** *Winner of the Astronomical League's Mabel Sterns Award ☼ 2006, 2009 & 2016* *September 2019*


## In This Issue



## Membership Renewals Due

| | |
|---|---|
| 09/2019 | Lurcott, E.<br>Nye<br>Squire |
| 10/2019 | Conrad<br>Lane<br>Lester<br>Nair<br>Rosenblatt<br>Wirth |
| 11/2019 | Baker<br>Bentley<br>Buczynski<br>Holenstein<br>Kerkel<br>McNeal & Talunas<br>Smith<br>Taylor<br>Zacharkiw |

## Camping Under the Stars

*CCAS Members' Recent Camping Trip to the Dark Skies of Cherry Springs State Park near Coudersport, PA. Image Credit: CCAS Member Jim McGuigan's Daughter Genny.*

## September 2019 Dates

**5th** • First Quarter Moon, 11:00 p.m. EDT

**6th-8th** • The Moon, Jupiter and Saturn are close in the sky

**10th** • Neptune is at opposition

**14th** • Full Moon, the Full Harvest Moon or the Moose Calling Moon, 12:32 a.m. EDT

**21st** • Last Quarter Moon, 10:40 p.m. EDT

**23rd** • Autumn Equinox, 3:50 a.m. EDT

**28th** • New Moon, 2:26 p.m. EDT

## CCAS Upcoming Nights Out

In addition to our monthly observing sessions at the Myrick Conservancy Center, BRC (see pg. 2), 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.

☼ **Saturday, September 7, 2019** - CCAS Special Observing Session Sidewalk Astronomy in West Chester in partnership with West Chester Parks and Recreation. Setup near the Historic Courthouse at High and Market streets around 7 p.m.

☼ **Saturday, September 21, 2019** - CCAS Special Observing Session at Nottingham County Park, Nottingham, PA. The observing session is from 8:00 p.m. to 10:00 p.m.

☼ **Saturday, October 5, 2019** - CCAS Special Observing Session at Hoopes Park, West Chester, PA. The session is scheduled from 7:00 PM to 9:00 PM.

## Summer / Autumn Society Events

### September 2019

**7th** • Sidewalk Astronomy in West Chester in partnership with West Chester Parks and Recreation. Setup near the Historic Courthouse at High and Market streets around 7 p.m.

**10th** • CCAS Monthly Meeting, Room 113, Merion Science Center (former Boucher Building), West Chester University. The meeting starts immediately after at 7:30 p.m. Guest Speaker: TBA.

**19th-20th** • The von Kármán Lecture Series: It Broke! A Story of How We Fixed It, Jet Propulsion Laboratory, Pasadena, California. Live stream of free lecture presented by NASA & Caltech.

**20th** • CCAS Monthly Observing Session, Myrick Conservancy Center, BRC. The observing session starts at sunset.

**20th** • Open call for articles and photographs for the October 2019 edition of Observations.

**21st** • CCAS Special Observing Session at Nottingham County Park, Nottingham, PA. The observing session is from 8:00 p.m. to 10:00 p.m.

**26th** • Deadline for newsletter submissions for the October 2019 edition of Observations.

**28th** • CCAS Special Observing Session at Anson Nixon Park, Kennett Square, PA. The observing session is from 7:30 p.m. to 9:00 p.m.

### October 2019

**4th** • CCAS Monthly Observing Session, Myrick Conservancy Center, Brandywine Red Clay Alliance. The observing session starts at sunset.

**5th** • National Astronomy Day. CCAS Special Observing Session at Hoopes Park, West Chester, PA. The session is scheduled from 7:00 PM to 9:00 PM. For more information, contact our Observing Chair, Don Knabb.

**17th-18th** • The von Kármán Lecture Series: Darkness Surrounds Us: The Other 95% of the Universe, Jet Propulsion Laboratory, Pasadena, California. Live stream of free lecture presented by NASA & Caltech.

**8th** • CCAS Monthly Meeting, Room 113, Merion Science Center (former Boucher Building), West Chester University. The meeting starts immediately after at 7:30 p.m. Guest Speaker: TBA.

**19th** • CCAS Special Observing Session at Willistown Run-a-Muck, Berwyn, PA.

**20th** • Open call for articles and photographs for the November 2019 edition of Observations.

**26th** • Deadline for newsletter submissions for the November 2019 edition of Observations.

## Why America Won the Space Race

*by CCAS Member John Conrad*

I'd like to add my two cents to all that is being written about what America had in the 1960's that enabled us to take mankind's first steps on the Moon. I suggest you think of both the Manhattan Project and the D-Day invasion.

Rocket program momentum mattered, and it really got a substantial boost when we 'rescued' von Braun and other Germans in 1945.

Brave, talented, and committed "only-military-test-pilots need apply" heroes mattered, and that really got a boost from Ike for whom that was the requirement.

Political will really mattered, and there were boatloads of that at critical times: Ike, Kennedy, and Johnson were the White House standouts – but there were a number in Congress as well, and not just for providing money (e.g., see the aftermath of the Apollo 1 fire).

Of course, NASA management skill and resolve really mattered, and it was there in that young agency.

Finally money – huge amounts – was called for and provided in each year needed, more by far than NASA has ever had since.

But we were in a war. The space race was a major 'theater' of the Cold War. Every year since Sputnik in 57, this space part of the Cold War kept a lot of us working around the clock. After the Russians orbited the Moon in 1959, Gagarin orbited the Earth in 61, and then the Russians soft landed on the Moon in 64 – all before America did – our Presidents and Congress knew that we had a war – not just a Cold War – that we had to win. We could not lose – no matter the cost.

It was America's 1960s Manhattan Project and D-Day all wrapped up in one.

## September 2019 CCAS Meeting Agenda

*by Bruce Ruggeri, CCAS Program Chair*

Our next meeting will be held on September 10, 2019, starting at 7:30 p.m. The meeting will be held in Room 113, Merion Science Center (former Boucher Building), West Chester University. CCAS President Dave Hockenberry will open the 2019-2020 season.

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 2019-2020 season. If you are interested in presenting, or know someone who would like to participate, please contact me at programs@ccas.us.

## My Experience as an Amateur Astronomer

*by CCAS Member Pete LaFrance*

*Pete LaFrance in His Backyard in Avondale, PA.*

I look back now and the seed was planted seeing a comet and using my friend's scope back in 1974.

Next experience: I remember being in Grafenwoehr, Germany, in 1981 while serving in the army. I had recently purchased a pair of Tasco 50x7 binoculars for general viewing. While I sat in my fox hole and the sky grew darker, I saw the stars just blazing as I never recalled seeing so many! You do not know what dark is when you cannot even see your hand in front of your face!

*My first image! It was M42, and my son James helped guide, by moving the Dec. knob, as I guided with the eye piece! It was taken with a Tasco 4.5 reflector.*

I unpacked my binos and started scanning the sky. To my surprise I encountered such a sight of so many uncountable stars. I was lost in amazement! Here's what hooked me to astronomy: what were those fuzz balls? This was my induction to astronomy.

As I recall sometime later, Santa delivered a telescope on Christmas Day 1986 (I must have mentioned to my wife that I wanted a telescope). It was a department store Tasco 60x refractor with RA and Dec adjustments and as expected, flimsy. As an arm chair astronomer, I looked forward to my monthly issue of *Astronomy* magazine, so that I had a clue to what was required to find objects in the night sky. So like a mad man and his new boat, I spent away! It starts small, believe you me, and it became a full blown addiction! As an arm chair astronomer, I was hooked!

What did I need next? I didn't know the constellations. So, I got this glow-in-the-dark star frame that had the shape of the basic outline of the constellation figure held at arm's length. It actually worked and helped.

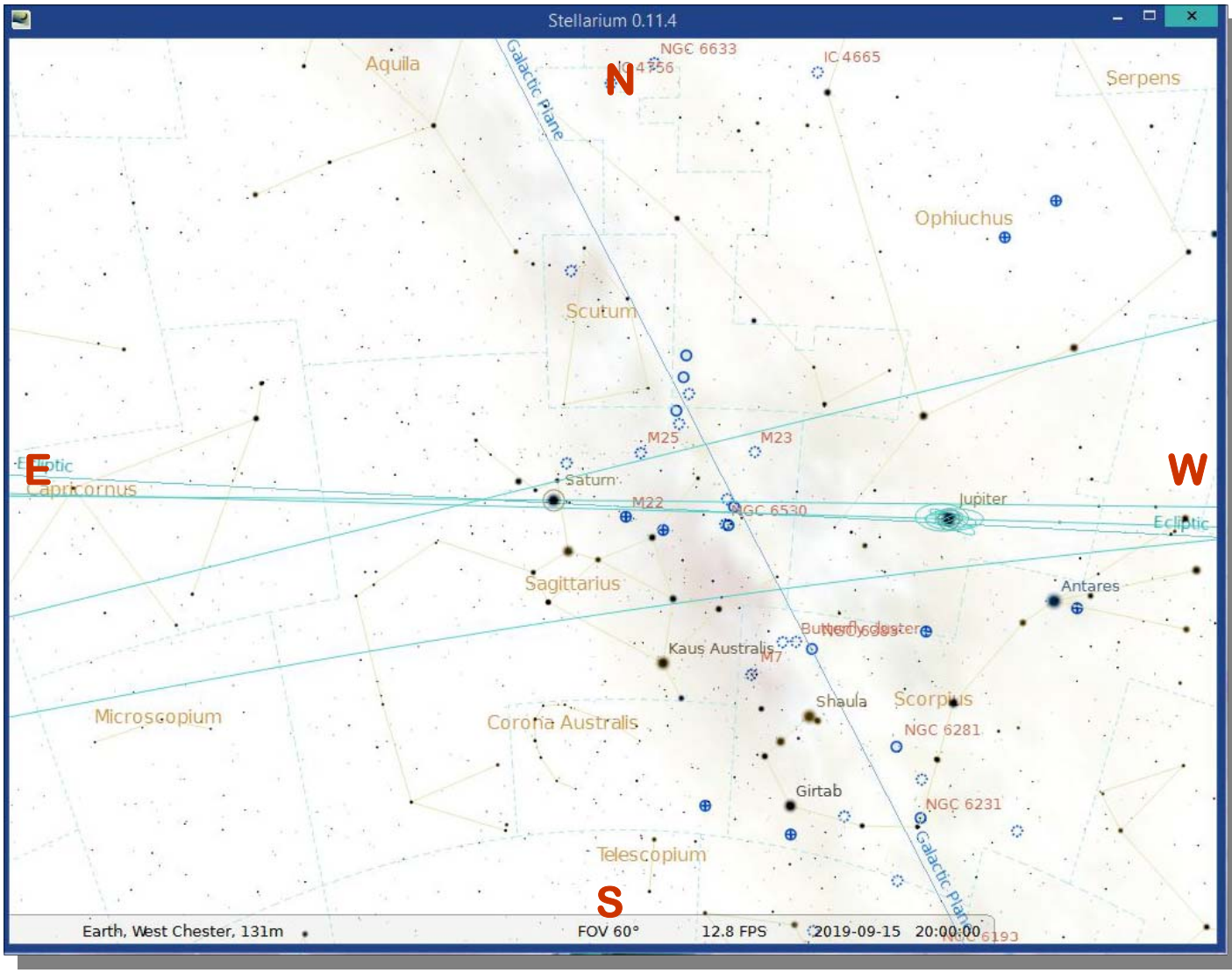
Now I could identify Leo, Virgo, and Orion. What next? I knew after reading, that those fuzz balls were galaxies or nebulas. I now needed an atlas. It helped guide me to discover Orion's "Great Orion Nebula" a sight to behold the first and nev-

*(Continued on page 5)*

# The Sky Over Chester County

September 15, 2019 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 |
|---|---|---|---|---|---|
| 09/01/2019 | 6:00 a.m. EDT | 6:28 a.m. EDT | 7:32 p.m. EDT | 8:00 p.m. EDT | 13h 04m 07s |
| 09/15/2019 | 6:14 a.m. EDT | 6:41 a.m. EDT | 7:09 p.m. EDT | 7:46 p.m. EDT | 12h 28m 17s |
| 09/30/2019 | 6:28 a.m. EDT | 6:55 a.m. EDT | 6:44 p.m. EDT | 7:11 p.m. EDT | 11h 49m 15s |

| Moon Phases | | | | | |
|---|---|---|---|---|---|
| First Quarter | 09/05/2019 | 11:10 p.m. EDT | Full Moon | 09/14/2019 | 12:32 a.m. EDT |
| Last Quarter | 09/21/2019 | 10:40 p.m. EDT | New Moon | 09/28/2019 | 2:26 p.m. EDT |

## September 2019 Observing Highlights

*by Don Knabb, CCAS Treasurer & Observing Chair*

| | |
|---|---|
| **5** | **First Quarter Moon, 11:10 p.m. EDT** |
| **6-8** | **The Moon is near Jupiter and Saturn** |
| **7** | **The Lunar Straight Wall is visible** |
| **10** | **Neptune is at opposition** |
| **14** | **Full Moon, the Full Harvest Moon or the Moose Calling Moon, 12:32 a.m. EDT** |
| **21** | **Last Quarter Moon, 10:40 p.m. EDT** |
| **23** | **Autumn Equinox, 3:50 a.m. EDT** |
| **28** | **New Moon, 2:26 p.m. EDT** |

**The best sights this month:** Jupiter and Saturn continue as the highlights of the evening sky. But come late September we welcome Venus, the "evening star" back into the early evening sky!

**Mercury:** Mercury is not in good viewing position during September.

**Venus:** Venus passed behind the Sun during August and reappears as the "evening star" low in the fading glow of the sunset late in September.

**Mars:** The red planet is not visible during September and we must wait until late October when it will be faintly seen in the pre-dawn sky.

**Jupiter:** For the best view of Jupiter look as soon as darkness falls. The dance of the 4 Galilean moons is a joy to observe. By month's end Jupiter will be setting around 10 p.m.

**Saturn:** Saturn trails Jupiter by about 2 hours as they move across the evening sky. The best viewing for Saturn is around 9 p.m. during September.

**Uranus and Neptune:** Neptune is at opposition on September 10th, so the best viewing time is around midnight. Neptune is faint, at magnitude 7.8, but that is understandable when we realize the light took 4 hours to reach us! Uranus is best observed around 3 a.m., maybe by someone, but not by me!

**The Moon:** Full moon occurs on September 14th. This full Moon is the Harvest Moon because it is the full Moon that occurs closest to the autumn equinox. In two years out of three, the Harvest Moon comes in September, but in some years it occurs in October. At the peak of harvest, farmers can work late into the night by the light of this Moon. Native Canadians called this the Moose Calling Moon.

**Constellations:** Hercules and the Summer Triangle shine near the zenith throughout September with "the backbone of the night", the Milky Way, arching across the sky. Stay up a bit later and the autumn constellations will rise in the east, so look for the Great Square of Pegasus, Cassiopeia and Perseus.

**Messier/deep sky:** We lose the southern Messier objects as September moves on but the Andromeda galaxy makes up for that loss. What a sight that is! The Double Cluster in Perseus is a worthwhile target and late at night the clusters in Auriga rise out of the eastern horizon

**Comets:** For an observing challenge, look for Comet Africano (C/2018 W2) in the constellation Perseus. On September 28th it will be near NGC 7743, a spiral galaxy. A map of the comet's position is in the September issue of Astronomy magazine.

**Meteor showers:** There are no significant meteor showers during September.

## LaFrance (Cont'd)

*(Continued from page 3)*

er ending time. The Moon, Jupiter, and Saturn – never disappointments – were my steadfast "go tos." But alas, only so much can be seen with a 60x refractor. Onwards and upwards!

About six months later, I got another Tasco, a 4.5-inch reflector on a tripod. I've got to say, I loved this scope despite all the negative "department stores" reviews. I purchased a 0.965 to 1-1/4 eye piece adapter and got Orion's Sirius eyepieces. They made that 4.5-inch scope into a million-dollar scope!! I was finding so many Messier objects that summer and winter. and into spring, I decided to put this scope on a pier to ease the burden of setting up every time. For a long time, I would just tarp it.

I next got a Telrad finder. It made it easier finding a star nearest to an object. Then I would use the finder scope to narrow in on it.

Seeing the wonderful images taken by amateurs in *Astronomy* , I decided to try my hand at it using a

*(Continued on page 7)*

## Through the Eyepiece: Messier 17, the Swan Nebula

*by Don Knabb, CCAS Treasurer & Observing Chair*

*Swan Nebula. Photo by Pete LaFrance, CCAS*

While gazing into the wonders of the southern summer sky I ventured up from the star that is the top of the "teapot" of Sagittarius and came upon a distinct nebula. My star charts revealed this fuzzy spot to be Messier 17, which is known by many names, my favorite being the Swan Nebula. It is often called the Omega Nebula or the Horseshoe Nebula and even the Lobster Nebula. In the New General Catalogue, it is designated as NGC 6618.

Above is a picture of the Swan Nebula that was taken by CCAS member Pete LaFrance from his observatory in Avondale, PA.

Using 600mm focal length binoculars fitted with 15mm eyepieces I observed the nebula at 40X. What I saw was not like Pete's excellent photograph, but I had a clear view of the bright central section of the nebula. The nebula stands out well from the rich star field in which it resides.

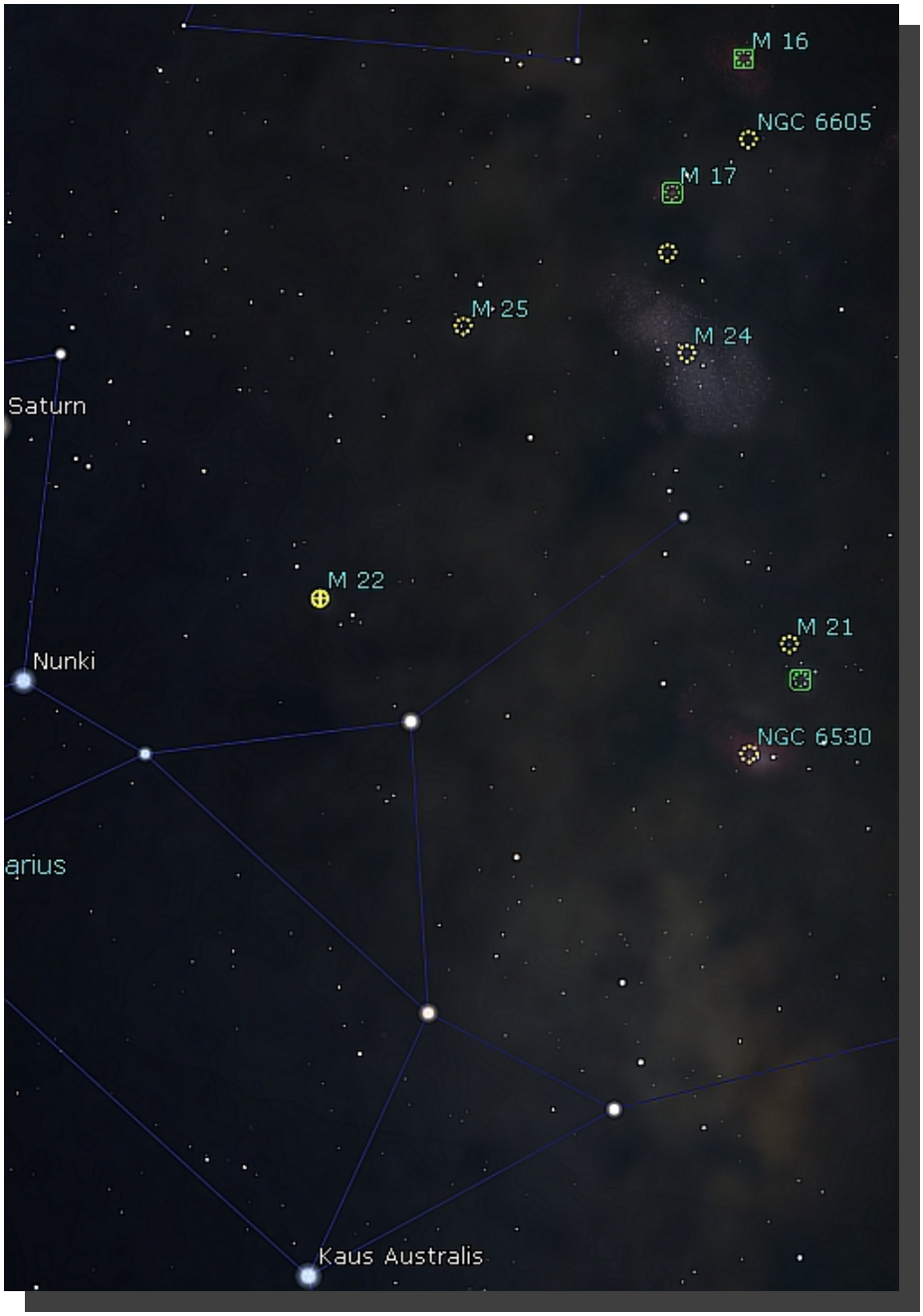
The Swan Nebula is between 5,000 and 6,000 light-years from Earth and it spans some 15 light-years in diameter. The cloud of interstellar matter of which this nebula is a part is roughly 40 light-years in diameter. The total mass of the Swan Nebula is an estimated 800 solar masses! This makes the Swan Nebula larger than the more famous Orion Nebula, M42, that is a favorite object of our winter skies.

This object was discovered by Philippe Loys de Chéseaux in 1745. De Chéseaux's discovery was not widely known, thus Charles Messier independently rediscovered it and cataloged it on June 3, 1764.

If you are in a dark sky location, you can identify M17 in binoculars or a telescope by starting at the M24 "Star Cloud" north of Lambda Sagittari (the teapot lid star) and simply scan north. This nebula is bright enough to even cut through moderately light polluted skies, but don't expect to see it when the Moon is nearby. You'll enjoy the

*(Continued on page 7)*

## Eyepiece (Cont'd)




*Star map created with Stellarium, the free planetarium program*

*(Continued from page 6)*

rich star fields combined with an interesting nebula in binoculars, while telescopes will easily begin resolution of interior stars.

Pictured above is a star map of the northern section of Sagittarius. M17 is near the top of the map.

Under very favorable conditions, M17 is just visible to the unaided eye at its apparent visual brightness of 6.0 magnitudes. I was barely able to pick out M17 with my unaided eyes, but the nearby Small Sagittarius Star Cloud, M24, was more easily visible, as was the Lagoon and Trifid Nebulas.

We still have September to enjoy the many Messier objects in this section of the sky, so don't miss the opportunity to see M17 before it ducks (or swans) back under our horizon as summer turns to fall.

Information credits:


- French, Sue. *Celestial Sampler 2006.* Cambridge, MA. Sky Publishing
- http://en.wikipedia.org/wiki/Messier_17
- http://www.seds.org/messier/m/m017.html
- http://www.universetoday.com/31710/messier-17/


## LaFrance (Cont'd)

*(Continued from page 5)*

Pentax SLR camera. What an endeavor! I only had RA drive and had my son, James, move it in Dec. After getting film devolved, to my surprise, we had captured The Great Orion Nebula! Onwards and upwards!

I know two things now. To view the night sky you must spend $50 to $80 dollars per inch of aperture – minimum. For imaging /astrophotography, the night sky is the limit!

To review what I learned so far:

1. 50x7 binoculars are a good way to see the night sky
2. Know your constellations
3. Get a good star atlas
4. A good starter scope is a 4.5" to 6" or maybe an 8" Dobsonian

I have included my first image. It was taken with a Tasco 4.5 reflector. This scope was a joy to use! I found more than 60% of my Messier objects with it! Soon after, around 1990, I got my dream scope, a C8. I need to stop now as I can go on forever about my experiences!

## NASA Night Sky Notes: Spot the Stars of the Summer Triangle

*by David Prosper*

*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.*

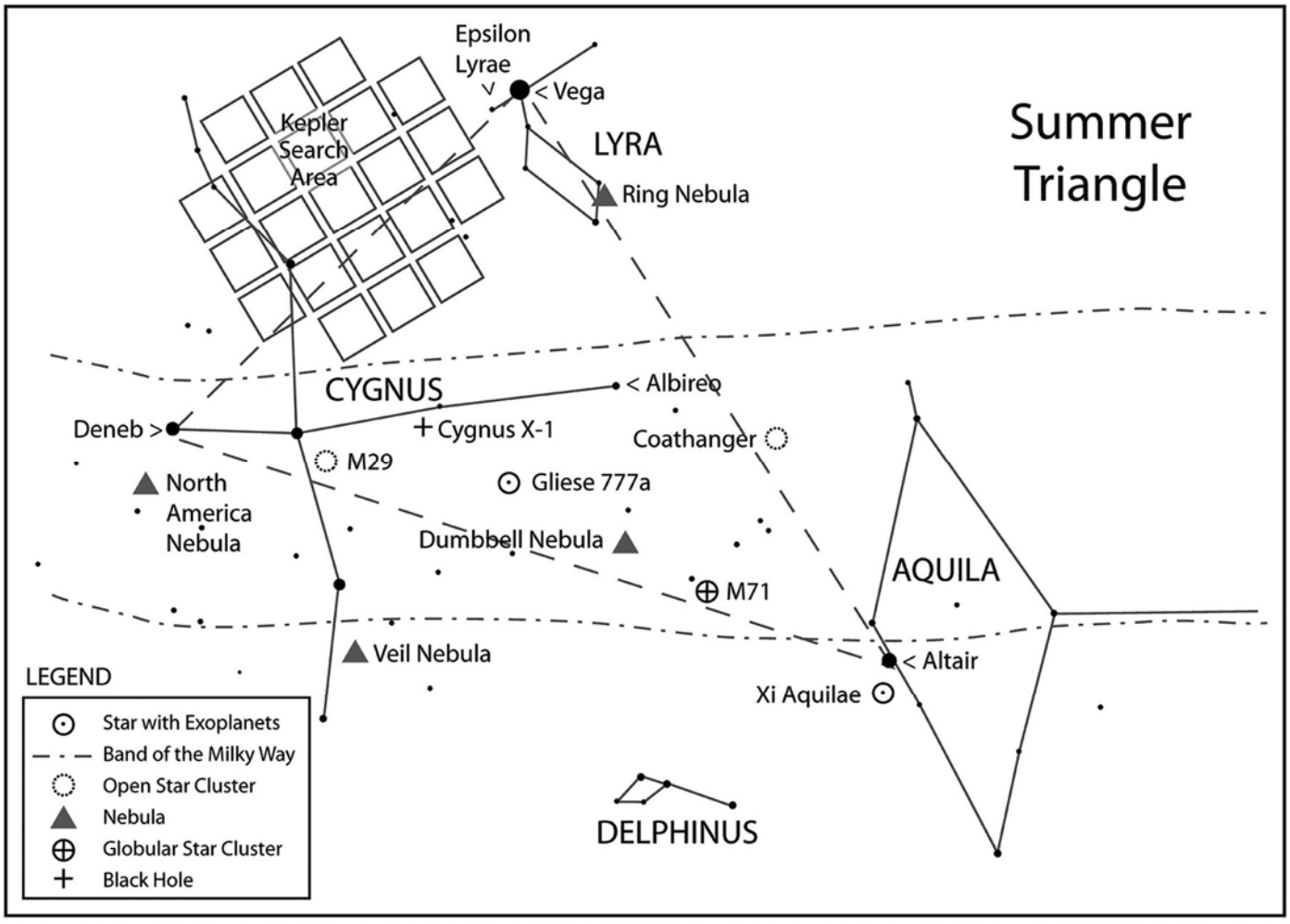
September skies are a showcase for the Summer Triangle, its three stars gleaming directly overhead after sunset. The equinox ushers in the official change of seasons on September 23. Jupiter and Saturn maintain their vigil over the southern horizon, but set earlier each evening, while the terrestrial planets remain hidden.

The bright three points of the Summer Triangle are among the first stars you can see after sunset: Deneb, Vega, and Altair. The Summer Triangle is

called an asterism, as it's not an official constellation, but still a striking group of stars. However, the Triangle is the key to spotting multiple constellations! Its three stars are themselves the brightest in their respective constellations: Deneb, in Cygnus the Swan; Vega, in Lyra the Harp; and Altair, in Aquila the Eagle. That alone would be impressive, but the Summer Triangle also contains two small constellations inside its lines, Vulpecula the Fox and Sagitta the Arrow. There is even another small constellation just outside its borders: diminutive Delphinus the Dolphin. The Summer Triangle is huge!

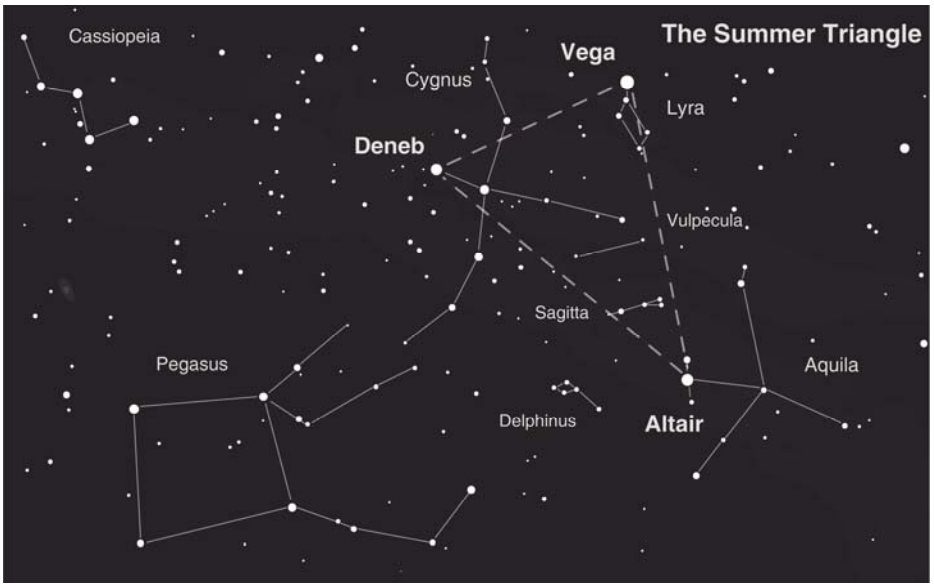
The equinox occurs on September 23, officially ushering in autumn for folks in the Northern

*(Continued on page 9)*




*Caption: Once you spot the Summer Triangle, you can explore the cosmic treasures found in this busy region of the Milky Way. Make sure to "Take a Trip Around the Triangle" before it sets this fall! Find the full handout at bit.ly/TriangleTrip*

## Night Sky Notes (Cont'd)




*Caption: This wider view of the area around the Summer Triangle includes another nearby asterism: the Great Square of Pegasus.*

*(Continued from page 8)*

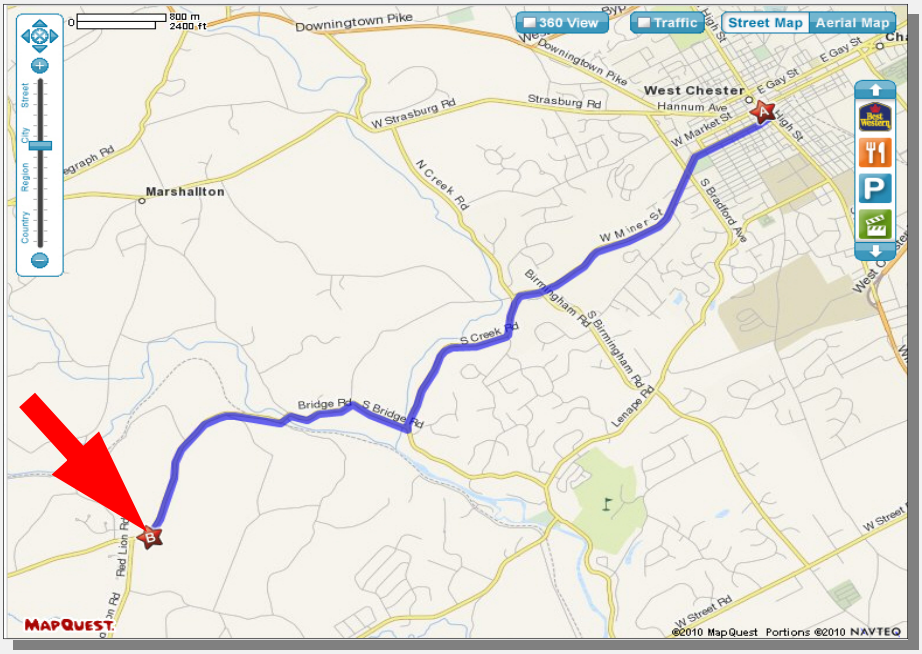
Hemisphere and bringing with it longer nights and shorter days, a change many stargazers appreciate. Right before sunrise on the 23rd, look for Deneb - the Summer Triangle's last visible point - flickering right above the western horizon, almost as if saying goodbye to summer.

The Summer Triangle region is home to many important astronomical discoveries. Cygnus X-1, the first confirmed black hole, was initially detected here by x-ray equipment on board a sounding rocket launched in 1964. NASA's Kepler Mission, which revolutionized our understanding of exoplanets, discovered thousands of planet candidates within its initial field of view in Cygnus. The Dumbbell Nebula (M27), the first planetary nebula discovered, was spotted by Charles Messier in the diminutive constellation Vulpecula way back in 1764!

Planet watchers can easily find Jupiter and Saturn shining in the south after sunset, with Jupiter to the right and brighter than Sat-

*(Continued on page 10)*

## *CCAS Directions*




**Brandywine Red Clay Alliance**
1760 Unionville Wawaset Rd
West Chester, PA 19382
(610) 793-1090
http://brandywinewatershed.org/

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

### Brandywine Red Clay Alliance

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

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

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

# CCAS Directions

## West Chester University Campus

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


## Night Sky (Cont'd)

*(Continued from page 9)*

urn. At the beginning of September, Jupiter sets shortly after midnight, with Saturn following a couple of hours later, around 2:00am. By month's end the gas giant duo are setting noticeably earlier: Jupiter sets right before 10:30pm, with Saturn following just after midnight. Thankfully for planet watchers, earlier fall sunsets help these giant worlds remain in view for a bit longer. The terrestrial planets, Mars, Venus, and Mercury, remain hidden in the Sun's glare for the entire month.

*Discover the latest in space science from the NASA missions studying our universe at nasa.gov*

## CCAS Membership Information and Society Financials

### Treasurer's Report
*by Don Knabb*

**Aug. 2019 Financial Summary**

| | |
|---|---|
| Beginning Balance | $441 |
| Deposits | $215 |
| Disbursements | -$0 |
| Ending Balance | $656 |

### New Member Welcome!

Welcome new CCAS members Janet Holloway from Philadelphia, Jeff Johnson from Chester Springs, and Hyunjin Christina Lee from Chesterbrook. 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**
**3225 North First Avenue**
**Tucson, AZ 85719**

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.LymePA.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 Park City, Utah.

Phone: **877-604-7377**
Fax: **877-313-2889**

**http://www.starrynightlights.com**

★ ★ ★ ★ ★

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.

Phone: **484-291-1084**

**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**

**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: **215-667-8309**
Fax: **215-965-1524**

**Hours:**
Tuesday thru Saturday: 10AM to 6PM
Sunday and Monday: 11AM 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**
**21103 Striper Run**
**Rock Hall, MD 21661**

## 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 (410) 639-4329 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<br>610-558-4248 |
| **Vice President:** | Pete Kellerman<br>610-873-0162 |
| **ALCor, Observing, & Treasurer:** | Don Knabb<br>610-436-5702 |
| **Secretary:** | Beatrice Mazziotta<br>610-933-2128 |
| **Librarian:** | Barb Knabb<br>610-436-5702 |
| **Program:** | Bruce Ruggeri<br>484-883-5092 |
| **Education:** | Don Knabb<br>610-436-5702<br><br>Dennis O'Leary<br>610-701-8042 |
| **Webmaster & Newsletter:** | John Hepler<br>410-639-4329 |
| **Public Relations:** | Ann Miller<br>610-558-4248 |

## CCAS Membership Information

The present membership rates are as follows:

**REGULAR MEMBER**……$25/year
**SENIOR MEMBER**…….$10/year
**STUDENT MEMBER**……..$ 5/year
**JUNIOR MEMBER**……..$ 5/year
**FAMILY MEMBER**…….$35/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 & Tele*scope Magazine Group Rates

Subscriptions to this excellent periodical are available through the CCAS at a reduced price of **$32.95,** much less than the newsstand price of $66.00, and also cheaper than individual subscriptions ($42.95)! Buying a subscription this way also gets you a 10% discount on other Sky Publishing merchandise.

To **start** a **new** subscription, make **sure** you make out the check to the **Chester County Astronomical Society**, note that it's for *Sky & Telescope*, and mail it to Don Knabb.

To **renew** your "club subscription" contact Sky Publishing directly. Their phone number and address are in the magazine and on their renewal reminders. If you have **any** questions call Don first 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). If you want to participate in this special Society discount offer, **contact our Treasurer Don Knabb.**