Observations

A Monthly Publication Of The
CHESTER COUNTY ASTRONOMICAL SOCIETY

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In This Issue

Membership Renewals Due

08/2019	Buki Krus Lurcott, L. Stein Tiedemann Zullitti
09/2019	Lurcott, E. Nye Squire
10/2019	Conrad Lane Lester Nair Rosenblatt Wirth

Celebrating the Apollo 11 Fiftieth Anniversary

CCAS Member & NASA Solar System Ambassador John Conrad presented ""Lunar Reflections: Before, During, and After Apollo 11," at the WCU Apollo Fiftieth Celebration. See pp. 8 & 9 for more photos from the event.

August 2019 Dates

7th • First Quarter Moon, 1:30 p.m. EDT

9th • The Moon, Jupiter and Antares are close in the sky

12th • The Moon is near Saturn

12th-13th • The Perseid meteor shower peaks

15th • Full Moon, the Full Sturgeon Moon or the Ripening Moon, 8:29 a.m. EDT

23rd • Last Quarter Moon, 10:56 a.m. EDT

30th • New Moon, 6:37 a.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, August 3, 2019** - CCAS Special Observing Session at Hickory Run State Park, White Haven, PA. The observing session is from 8:00 p.m. to 10:00 p.m.

☼ **Thursday, August 22, 2019** - CCAS Special Observing Session at Starr Farm Park in Downingtown, PA. The session is scheduled from 8:00 PM to 9:30 PM.

☼ **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.

Summer Society Events

August 2019

3rd • CCAS Special Observing Session at Hickory Run State Park, White Haven, PA.

8th-9th • The von Kármán Lecture Series: Small Worlds, Big Science, Jet Propulsion Laboratory, Pasadena, California. Live stream of free lecture presented by NASA & Caltech.

17th • CCAS Summer Party at Roger & Linda Taylor's home. See pg. 14 for details.

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

22nd • CCAS Special Observing Session at Starr Farm Park, Downingtown, PA. The session is scheduled from 8:00 PM to 9:30 PM. For more information, contact our Observing Chair, Don Knabb.

23rd • CCAS Monthly Observing Session, Myrick Conservancy Center, Brandywine Red Clay Alliance. The observing session starts at sunset.

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

27th-30th • Cherry Springs Camping Trip, Coudersport, PA.

September 2019

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 • National Astronomy Day. 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.

Green Bank Observatory Visit & Star Party

by Don Knabb, CCAS Treasurer & Observing Chair

Science Center, Green Bank Observatory

In late June, Barb and I were joined by Linda and Roger Taylor at the Green Bank Observatory in West Virginia for the Green Bank Star Quest. This is a regional scale star party that has been held for 16 years. This year there were attendees from 18 states.

The event is more than just a star party. Every evening a keynote speaker makes a presentation on various topics in astronomy. Clinics and additional presentations are held throughout each day (indoors) on multiple subjects, including astrophotography.

We were fortunate to have crystal clear skies on two evenings and saw stars between spotty clouds the other two evenings. The last evening, we had an amazing lightning show to the north of our campsite.

The campsite is excellent with gravel roads, sanitary stations and hot showers available in the bunkhouse. There is a cafeteria and snack bar on site.

Tours of the Green Bank radio telescope, the largest steerable radio telescope in the world, are offered every day. There is also a visitor center with informative displays.

This was a wonderful event! Yes, it is a long drive, but it was certainly worth it. There is no cell phone service because that would interfere with the radio telescope operation. In fact, for miles around the site no one is allowed to have a microwave oven unless it is placed inside a Faraday cage.

So if you are interested to attend a regional scale star party with plenty to do during the day and spectacular skies at night, put the Green Bank Star Quest on your schedule for 2020.

For more photos of our trip, see the CCAS Summer Photo Collage on pp. 8 and 9.

Restoring a 50-Year-Old Criterion Dynascope

by CCAS Member Frank Angelini

CCAS Member Frank Angelini with the restored Dynascope at the recent WCU Apollo Celebration.

It all started with a brief comment by Don Knabb. I think it was during the wrap-up of our May meeting. Don's remarks went something like this. Some time ago, CCAS had been given an old telescope. We're not sure who donated this scope or when. It's an old 8-inch Newtonian, complete with German Equatorial mount, possibly a "Dynascope." Don asked if anyone was interested in this scope. Otherwise, it was headed to the dumpster. Dumpster??? OMG!

I'm known to be a collector of old, obsolete equipment, the more esoteric, the better. Old TV sets, early computers, old tube radios, X-ray machines, Tesla coils, Van de Graff generators, etc. Just ask my wife. She's suffered these past 50 years trying to convince me to get rid of my "junk." But, it's just another smallish telescope and maybe the grandchildren will use it.

I emailed Don the next day telling him that unless someone has already claimed it, I would be interested in that scope. My plan was to check it out and possibly to restore it to original condition. Don was pleased to hear of my interest in the scope. It had been collecting dust in Ed Lurcott's garage for many years, and when Ed and Evelyn moved, it ended up in Don's garage, along with the famous 20-inch Dobsonian. He said that if he didn't already have a house full of scopes, he would have done that himself, but he just couldn't add another scope to the herd. Perhaps Barb had an influence on his decision!

Criterion RV-8 Prior to Restoration

Don and I agreed on a day and time and I picked up the scope. Yes sir, this was a genuine Dynascope, a bit shabby and somewhat beat up but a Dynascope. The photo below left shows it in my garage, prior to restoration.

Before I describe the restoration process, here's a brief history these scopes and their place in amateur astronomy history.

The first time the public heard of them was in April 1954. There was an advertisement for Criterion Co. , Dept. TSA 2, 331 Church St., Hartford 3, Connecticut. They had an f/25, 1.6" refractor, finished, on an alt-azimuth tripod for $26.95. Shortly thereafter, the first Dynascope was advertised for $44.95. It was a 4" f/10 Newtonian reflector, which included a very simple equatorial mount, wooden tripod and 3 eyepieces. The optical tube was made from ultra-light Bakelite. Criterion advertised, "The only telescope available for under $100 with a paraboloid mirror, rack & pinion focus, and 3 achromatic eyepieces."

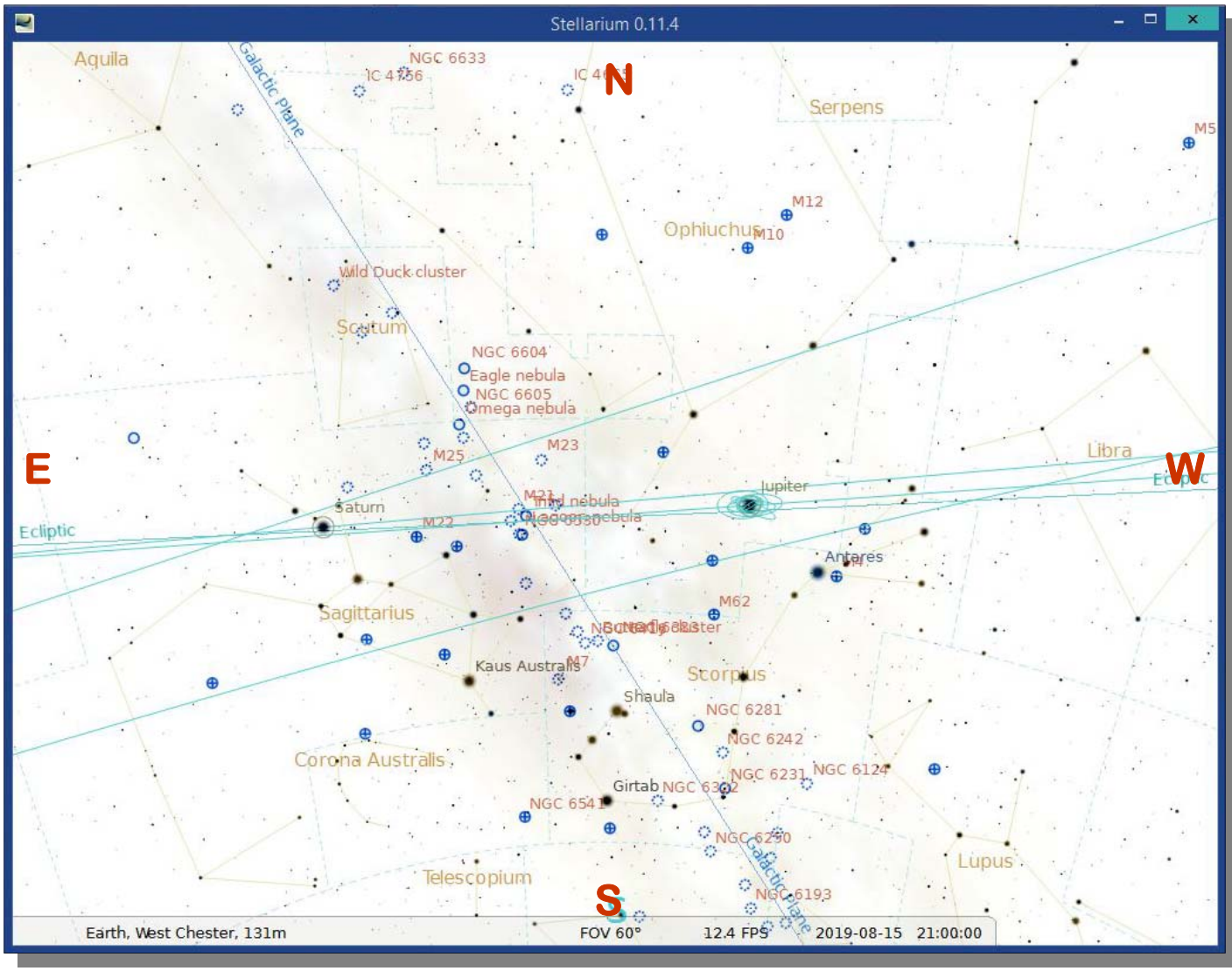
Criterion continued to expand their line of telescopes and in December 1955, they advertised a 4-inch telescope. This one had a full German Equatorial mount with a friction brake on the south end of the polar axis. The evolution of this original Dynascope

(Continued on page 7)

The Sky Over Chester County

August 15, 2019 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
08/01/2019	5:28 a.m. EDT	5:58 a.m. EDT	8:14 p.m. EDT	8:44 p.m. EDT	14h 15m 26s
08/15/2019	5:43 a.m. EDT	6:12 a.m. EDT	7:57 p.m. EDT	8:26 p.m. EDT	13h 45m 19s
08/31/2019	5:59 a.m. EDT	6:27 a.m. EDT	7:33 p.m. EDT	8:01 p.m. EDT	13h 06m 38s

Moon Phases					
First Quarter	08/07/2019	1:30 p.m. EDT	Full Moon	08/15/2019	8:29 a.m. EDT
Last Quarter	08/23/2019	10:56 a.m. EDT	New Moon	08/30/2019	6:37 a.m. EDT

August 2019 Observing Highlights

by Don Knabb, CCAS Treasurer & Observing Chair

7	**First Quarter Moon, 1:30 p.m.**
7	**The Lunar X is visible at 11:00 p.m.**
9	**The Lunar Straight Wall is visible**
9	**The Moon, Jupiter and Antares are close in the sky**
11/12	**The Moon is near Saturn**
12/13	**The Perseid meteor shower peaks**
15	**Full Moon, the Full Sturgeon Moon or the Ripening Moon, 8:29 a.m.**
23	**Last Quarter Moon, 10:56 a.m.**
30	**New Moon, 6:37 a.m.**

The best sights this month: Jupiter and Saturn rule the evening sky during August. And on August 7th we have a chance to see the elusive Lunar X around 11:00. The Perseid meteor shower peaks before dawn on August 12th, but a bright Moon will wash away many of the "shooting stars" during evening viewing hours.

Mercury: If you want to see the planet closest to the Sun you need to get up before dawn during August. On August 9th Mercury rises about 90 minutes before the Sun so it will be 10 degrees above the horizon 30 minutes before sunrise.

Venus: Venus is lost in the glow of the Sun and is not visible during August. But in mid-September our sister planet will emerge from behind the Sun and will appear as the "evening star" for several months.

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

Jupiter: Jupiter is perfectly placed for evening viewing during August and it will be highest in the sky as the sky turns fully dark. We had great fun sharing the view of this amazing planet during the Apollo 50 celebration at West Chester University!

Saturn: Seeing Saturn in a telescope was a highpoint of the Friday Night Lights concert/ fundraiser/star party in early July and it amazed many attendees. The ringed beauty is best viewed between 9:30 and 11:30 during August when it is at its highest position in the southern sky.

Uranus and Neptune: Neither gas giant is in good viewing position during August.

The Moon: Full Moon is on August 15th. Native Americans called this the Full Sturgeon Moon. The fishing tribes are given credit for the naming of this Moon, since sturgeon, a large fish of the Great Lakes were most readily caught during this month. A few tribes knew it as the Full Red Moon because as the Moon rises it appears reddish through the sultry haze of summer. Native Canadians called this the Ripening Moon.

Constellations: The warm nights and bright stars of August make for some great observing opportunities. The Summer Triangle and all its treasures are shining overhead and if we get a good clear night the Milky Way arches overhead like the backbone of the sky. The Dipper is holding water and Cassiopeia is climbing up the other side of the sky. As the night gets late the Great Square of Pegasus is easily visible so grab your binoculars and look for our neighbor galaxy Andromeda.

Messier/deep sky: M13 and M92, bright globular clusters in Hercules are nearly overhead so they are in a great position for viewing with binoculars or a telescope. Not far away is M57, the Ring Nebula in Lyra. This is a fairly faint object that is best viewed with averted vision. Do not miss the southern Messier objects in Scorpius and Sagittarius while we have the chance to see them. That part of the sky is filled with incredible objects that are visible for only a short time from Chester County.

Comets: There are no bright comets in the sky during August.

Meteor showers: It is again time for the most popular meteor shower of the year, the Perseid meteor shower! This year is a not optimum for viewing due to a bright waxing gibbous that will be high in the sky as night falls. If you really want to see this meteor shower the best time is around 4:00 a.m. when the Moon will be setting. My favorite part of this shower is just as the sky darkens in the evening when you will see fewer shooting stars but you have a good chance of seeing an "Earth grazer" that travels nearly all the way across the sky. Don't miss this shower! When you see a fireball fly cross the sky, you will never forget it.

Looking Up: Binocular Objects in Sagittarius

by Don Knabb, CCAS Treasurer & Observing Chair

Photo by the author, Canon 7D mounted on a Meade LXD equatorial mount, Canon EF 50mm f/1.4 lens stopped down to 2.8, 40 seconds at ISO 800, taken near Blakeslee, PA.

I always look forward to August when we have our best opportunity to gaze into the southern constellation Sagittarius. Although I love "going deep" and finding the faint fuzzy objects with a telescope, often I just like to settle back into a lounge chair with my handheld binoculars nearby and gaze upon the brighter Messier objects that inhabit the area of the sky above Sagittarius. If you are able to find a dark sky observing site several of the objects in the picture above are visible with the naked eye, but even a small set of binoculars provide an incredible view into the heart of our Milky Way galaxy. In this article, I'll give a brief description of my favorite objects in this area of the sky.

The Milky Way is the "steam" rising out of the "teapot" of Sagittarius. Sagittarius is more correctly known as The Archer, but the teapot shape is so distinctive that I only think of that nickname when I see Sagittarius.

Beginning at the top, we see M17, the Omega, Swan, or Lobster Nebula. This is one of the brightest diffuse nebulas in the sky and it is at the limit of naked eye visibility in dark skies at magnitude 6.0.

Beneath M17 is M18, an open cluster containing a few dozen bright stars. This cluster does not show up well in the photo but you won't mistake it when it lands in the view of your binoculars. This cluster is considered to be quite young at only 32 million years old (doesn't that make you feel young!).

Continuing down and to the right is M24, the Sagittarius Star Cloud. M24 is not actually a star cluster but is a view toward the center of the Milky Way through a tunnel in the Milky Way's interstellar dust. With a total magnitude of 4.6 it is the densest concentration of stars visible in binoculars and is easily visible to

(Continued on page 7)

Looking Up (Cont'd)

(Continued from page 6)

the naked eye at a dark observing site. I often get lost in M24 for minutes at a time!

Far off to the right is M23, a beautiful open cluster that shines at magnitude 5.5. This cluster fills an area the size of the full Moon.

On the opposite side of M24 is M25, another remarkable open cluster. This 4.6 magnitude cluster contains about three dozen bright stars and may contain up to 600 stars.

Next, we will look directly below M24 where we find M22, one of the brightest globular clusters in the sky and among the first to be discovered in 1665. M22 is one of the finest globular clusters in the sky and one can only imagine what it would look like if it were at the zenith!

Above the teapot's spout, we see the duo of M8 and M20. M8 is the Trifid Nebula, one of the most famous objects in the sky. It is an unusual combination of an open cluster, an emission nebula, a reflection nebula and a dark nebula that divides the emission nebula into three parts.

M20 is the equally famous Lagoon Nebula, first observed in 1654. While the Trifid Nebula is usually not visible to the naked eye, the Lagoon nebula can easily be perceived apart from the Milky Way background. M20 is a giant glowing cloud of interstellar gas divided by a dark lane of dust, "the lagoon," and includes a cluster of young stars, NGC 6530 that have formed from it.

So, I hope you have an opportunity to sit back in a chair and enjoy these beautiful and easy to find Messier objects in the southern sky while you have the chance. They are visible for only a few months before they head south for the winter.

Dynascope (Cont'd)

(Continued from page 3)

continued through the 1950's and 60's.

By December 1956, the basic Dynascope 4" was selling for $49.95 and the Deluxe Dynascope for $79.95, In the spring of 1957 Criterion placed a two-page ad in Sky & Telescope, introducing their new 6" Dynascope with a steel pier for $475, a substantial sum at that time. The same ad mentioned that other instruments were available. At the bottom of the ad they said other scopes were available with 8, 10, 12 and 16-inch mirrors. Pricing for the larger scopes was not included in the ad. Interested parties were asked to contact the sales department.

Through the late 1950's Criterion ads could be found in every issue of Sky & Telescope. Business must have been good because in 1960 they ran as many

1963 Advertisement

as 4 pages of advertisements in Sky & Telescope. They would go on to be advertised for another six and a half years in several publications.

The next new offering took place in 1969 when the RV-8 was introduced in a 2-page spread on the inside back cover of *Sky & Telescope* magazine. The introductory price was $399.95. However, due to increases in cost the price rose to $459.95. Note: According to Wikipedia, 1 dollar in 1969, would now be worth $667.90, so in today's dollars, an RV-8 would cost more than $3000!

Through thee 1970's and early 1980's Criterion tried to keep up with the competition and even introduced a Schmidt-Cassegrain design they called the Dynamax. However sales were poor, and the company owners saw the writing on the wall. Criterion was sold to Bushnell, who were acquired by Bausch & Lomb and that was the end of a great little company that inspired many amateur astronomers, young and old.

Before I started to restore this scope, I had to determine just

(Continued on page 12)

CCAS Summer Events & Activities Collage

Barb Knabb and Linda & Roger Taylor at Green Bank Star Party

Scopes on the Quad at the WCU Apo

Setting up the Banner on the WCU Quad

Science Station—WCU Apollo 50th Celebration

1

Visitors Center at Green Bank Observatory

Friday Night

llo 50th Celebration

The Gang All Ready for Stargazing at Friday Night Lights

00m Robert C. Byrd Green Bank Telescope

Science Station—WCU Apollo 50th Celebration

Lights Drew Quite a Crowd!

Sue & Bob at the Friday Night Lights event

NASA Night Sky Notes: Chill Out — Spot an Ice Giant in August

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.

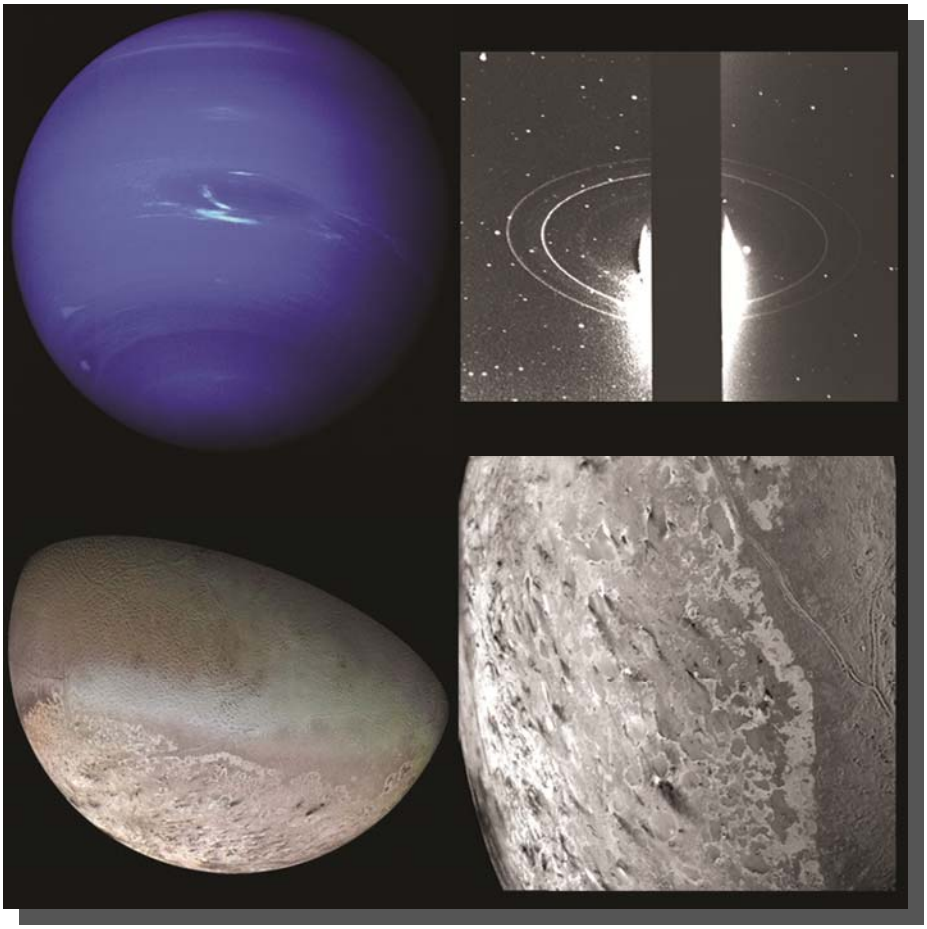
Is the summer heat getting to you? Cool off overnight while spotting one of the solar system's ice giants: Neptune! It's the perfect way to commemorate the 30th anniversary of Voyager 2's flyby.

Neptune is too dim to see with your unaided eye so you'll need a telescope to find it. Neptune is at opposition in September, but its brightness and apparent size won't change dramatically as it's so distant; the planet is usually just under 8th magnitude and 4.5 billion kilometers away. You can see Neptune with binoculars but a telescope is recommended if you want to discern its disc; the distant world reveals a very small but discernible disc at high magnification. Neptune currently appears in Aquarius, a constellation lacking in bright stars, which adds difficulty to pinpointing its exact location. Fortunately, the Moon travels past Neptune the night of August 16th, passing less than six degrees apart (or about 12 Moon widths) at their closest.

If the Moon's glare overwhelms Neptune's dim light, you can still use the its location that evening to mark the general area to search on a darker night. Another Neptune-spotting tip: Draw an imaginary line from bright southern star Fomalhaut up to the Great Square of Pegasus, then mark a point roughly in the middle and search there, in the eastern edge of Aquarius. If you spot a blue-ish star, swap your telescope's eyepiece to zoom in as much as possible. Is the suspect blue "star" now a tiny disc, while the surrounding stars remain points of white light? You've found Neptune!

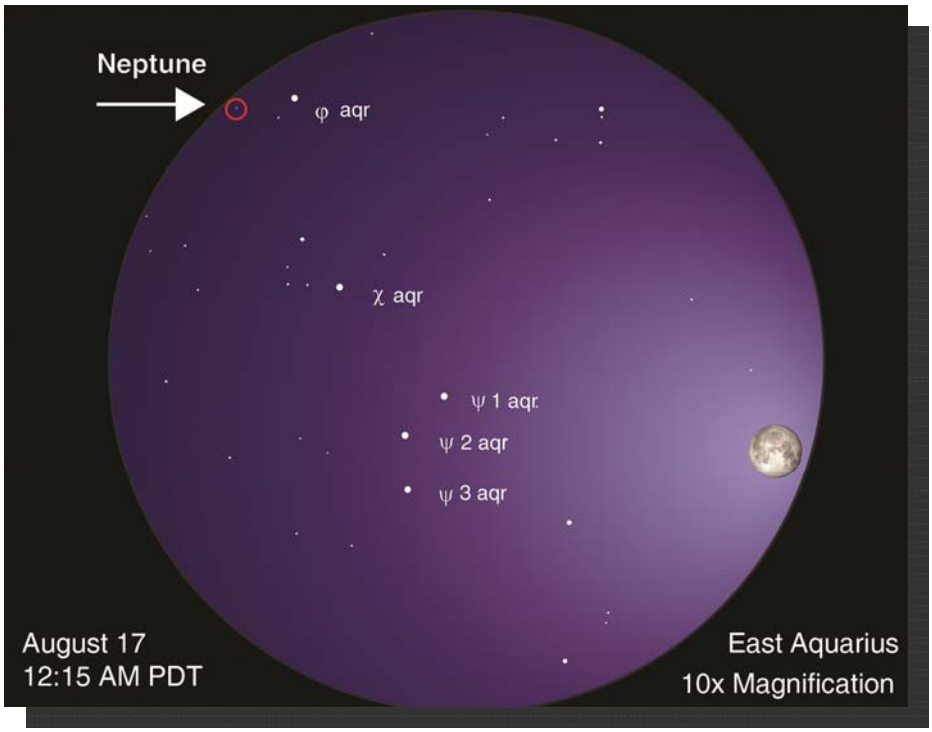
Neptune and Uranus are ice giant planets. These worlds are larger than terrestrial worlds like Earth but smaller than gas giants like Jupiter. Neptune's atmosphere contains hydrogen and helium like a gas giant, but also methane, which gives it a striking blue color. The "ice" in "ice giant" refers to the mix of ammonia, methane, and water that makes up most of Neptune's mass, located in the planet's large, dense, hot mantle. This mantle surrounds an Earth-size rocky core. Neptune possesses a faint ring system and 13 confirmed moons. NASA's Voyager 2 mission made a very close flyby on August 25, 1989. It revealed a dynamic, stormy world

(Continued on page 11)



Clockwise from top left: Neptune and the Great Dark Spot traced by white clouds; Neptune's rings; Triton and its famed icy cantaloupe surface; close of up Triton's surface, with dark streaks indicating possible cryovolcano activity. Find more images and science from Voyager 2's flyby at bit.ly/NeptuneVoyager2 Image Credit: NASA/JPL

Night Sky Notes (Cont'd)



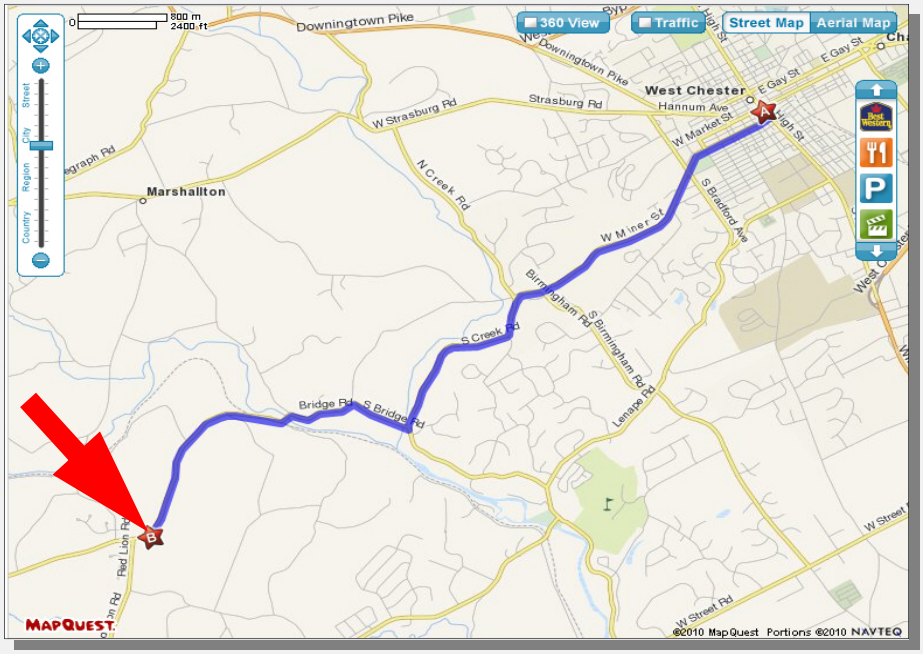
Finder chart for Neptune. This is a simulated view through 10x50 binoculars (10x magnification). Please note that the sizes of stars in this chart indicate their brightness, not their actual size. *Moon image courtesy NASA Scientific Visualization Studio; chart created with assistance from Stellarium.*

(Continued from page 10)

streaked by the fastest winds in the solar system, their ferocity fueled by the planet's surprisingly strong internal heating. Triton, Neptune's largest moon, was discovered to be geologically active, with cryovolcanoes erupting nitrogen gas and dust dotting its surface, and a mottled "cantaloupe" terrain made up of hard water ice. Triton is similar to Pluto in size and composition, and orbits Neptune in the opposite direction of the planet's rotation, unlike every other large moon in the solar system. These clues lead scientists to conclude that this unusual moon is likely a captured Kuiper Belt object.

Discover more about Voyager 2, along with all of NASA's past, present, and future missions, at nasa.gov

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).

Dynascope (Cont'd)

(Continued from page 7)

what I had. After searching the internet, including one of many Dynascope interest groups, it was determined that this scope was a Dynascope RV-8, manufactured in late 1968 or early 1969. Although the mount has a nameplate indicating S/N 4000, company records were poor and pinpointing the actual date of manufacture was not possible.

A careful inspection of each major component was made, and notes were taken.

A view down the tube (upper right) showed water damage to the inner surface. The flat black paint was flaking off and had fallen onto the surface of the mirror. If you look closely at the "spider", you'll notice that vanes are bent. These problems were an easy fix. Not so for the mirror.

A thorough inspection of the 8-inch primary mirror showed (photo on immediate right) considerable damage, due to moisture, resulting in mold and peeling of the thin aluminum layer. This mirror had seen better days and required re-aluminizing and coating.

The photo on the lower left shows the mirror in its cell. Note push – pull adjustment points. The one on the upper right is the equatorial mount showing R/A and DEC axis, both with easy-to-read setting circles. This photo is after cleaning, lubrication and painting.

R/A drive components, including cast aluminum housing, synchronous motor and clutch parts are on view in the photo middle right. The ring gear and pinion

Water Damage on Inner Surface

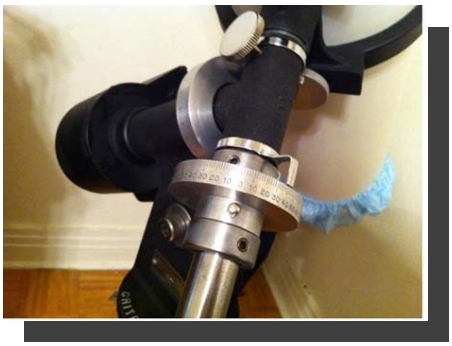
Damage to the 8-inch Mirror

Mirror in its Cell with Adjustment Points

were found to be frozen due to petrified grease. A thorough cleaning and lithium grease got things moving again.

The Bakelite tube (lower right) was scratched and gouged in a few areas and had extra holes for some previous accessory. I stripped the tube down to the bare Bakelite and filled the holes and gouges with "Bondo" body filler. Although it had been painted white by the previous owner, I learned that Criterion usually painted 8-inch

(Continued on page 13)



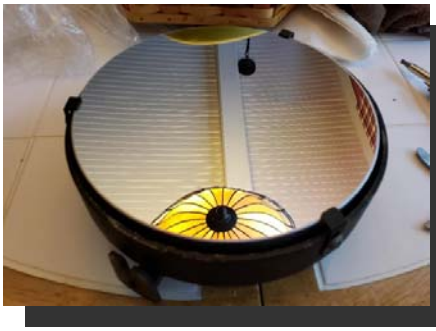
Equatorial Mounts

R/A Drive Components

A View of the Interior After Painting

Dynascope (Cont'd)

Two More Views of the Damage to the Exterior of the Telescope Tube



Recoated Mirror Mounted in Cell

The Reassembled Scope Awaiting the Mirror

Dennis O'Leary & Don Knabb with the Dynascope RV-8 in the background.

(Continued from page 12)

scope tubes light gray. I primed it using a high build, sanding primer and painted it with Rustoleum light gray. I also painted the inside of the tube flat black.

In the photo on the middle left, the mirror is back from re-coating and is mounted in cell. I later added a center "donut" to aid collimation. The secondary mirror was also re-aluminized and coated at the same time.

The photo on the middle right shows the re-assembled components of 1968 Dynascope RV-8 prior to mounting the primary mirror.

The photo on the bottom shows Don Knabb and Dennis O'Leary on the Quad at West Chester University. CCAS members supported this event organized by Dr. Karen Schwartz, commemorating the Apollo Moon landing. She reported that over 700 visitors attended. It felt good sharing "first light" with so many nice people.

The Moon and Jupiter through the 8-inch Dynascope looked very nice considering the quick collimation that Don Knabb helped me complete. Thanks Don! Next, I'd like to test the scope by observing stars. This is the acid test for detecting optical issues. However, I don't expect to find anything serious.

I got a real kick out of this restoration project. I think it was fitting to observe the Sea of Tranquility through a vintage telescope manufactured only a few months prior to the first moon landing.

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).

CCAS Summer Picnic

Former CCAS President Roger Taylor and his wife Linda have graciously offered to host the annual CCAS summer party at their home on Saturday, August 17th, at 6:00 p.m.

Their address is 506 Northbrook Road, West Chester, and their phone number is 610-430-7768. A Google Maps search will provide good directions to their house.

Parking is in their driveway, across the street and up the neighbors' driveway. (Pull onto the grass to the right of the driveway and be gentle with their neighbors' turf.). Bring food to share with a few people. We'll provide sandwiches, beer and waters for everyone. If you would like a special beverage, feel free to bring it with you.

If you plan to attend, please RSVP to Roger and Linda at thestarman@verizon.net as soon as possible.

CCAS Membership Information and Society Financials

Treasurer's Report
by Don Knabb

July 2019 Financial Summary

Beginning Balance	$1,013
Deposits	$330
Disbursements	-$902
Ending Balance	$441

New Member Welcome!

Welcome new CCAS members Robert Borowski from West Chester, Meg Tredinnick from Paoli, and Chris Trunk from Coatesville. 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

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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

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