Observations

A Monthly Publication Of The
CHESTER COUNTY ASTRONOMICAL SOCIETY

Vol. 22, No. 8 *Two-Time Winner of the Astronomical League's Mabel Sterns Award ☼ 2006 & 2009* *August 2014*

In This Issue

Membership Renewals Due

08/2014	Knabb & Family Lurcott, Linda
09/2014	Catalano-Johnson & Family Lurcott, Edwin
10/2014	Rosenblatt & Family Toth Zandler

The Moon Eclipses Saturn

In 2014 the orbits of the Moon and Saturn have led to an unusually high number of occultations. We can expect four more before the end of the year. Image Credit & Copyright: Carlos Di Nallo

Important August 2014 Dates

3rd • First Quarter Moon, 8:50 p.m.

10th • Full Moon, the largest of the year, 2:10 p.m.

12th-13th • Perseid meteor shower peaks

17th • Last Quarter Moon, 8:26 a.m.

25th • New Moon, 10:13 a.m.

CCAS Upcoming Nights Out

CCAS has several "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 30, 2014**. Star Party at Bucktoe Creek Preserve, Kennett Square, PA. Preserve members & the general public pay a small fee; CCAS members participate for free. The event is scheduled for 8:00 PM to 9:30 PM.

☼ **Saturday, October 18, 2014**. CCAS special observing session at Anson Nixon Park, Kennett Square. The observing session is from 8:00 to 9:30 PM.

Summer 2014 Society Events

August 2014

6th • PA Outdoor Lighting Council monthly meeting, 1438 Shaner Drive, Pottstown, PA 19465, starting at 7:30 p.m. For more information and directions, visit the PA Outdoor Lighting Council website.

12th-13th • Persei Meteor Shower Peaks - Unfortunately, this year is not a good viewing opportunity because the peak of the shower is only two days after the Full Moon.

14th-15th • The von Kármán Lecture Series: Curiosity 2—Year Anniversary, at the Jet Propulsion Laboratory, Jet Propulsion Laboratory, Pasadena, California. Live stream of free lecture presented by NASA & Caltech.

20th • Open call for articles and photographs for the September 2014 edition of Observations.

22nd • CCAS monthly observing session at BVA. The observation session starts at dusk.

26th • Deadline for newsletter submissions for the September 2014 edition of Observations.

September 2014

3rd • PA Outdoor Lighting Council monthly meeting, 1438 Shaner Drive, Pottstown, PA 19465, starting at 7:30 p.m. For more information and directions, visit the PA Outdoor Lighting Council website.

9th • CCAS monthly meeting in Room 112, Merion Science Center, WCU. Meet & Greet over coffee and refreshments from 7:10 to 7:30 p.m. The meeting starts at 7:30 p.m. Guest Speaker: Jamie Holder, PhD U. Delaware, "Gamma Ray Bursts and High Energy Particle Astronomy."

11th-12th • The von Kármán Lecture Series: Studying Soil Moisture from Space – NASA's Soil Moisture Active Passive mission, at the Jet Propulsion Laboratory, Jet Propulsion Laboratory, Pasadena, California. Live stream of free lecture presented by NASA & Caltech.

20th • Open call for articles and photographs for the October 2014 edition of Observations.

22th • Autumnal Equinox (10:29 PM EDT).

26th • CCAS monthly observing session at BVA. The observation session starts at dusk.

26th • Deadline for newsletter submissions for the October 2014 edition of Observations.

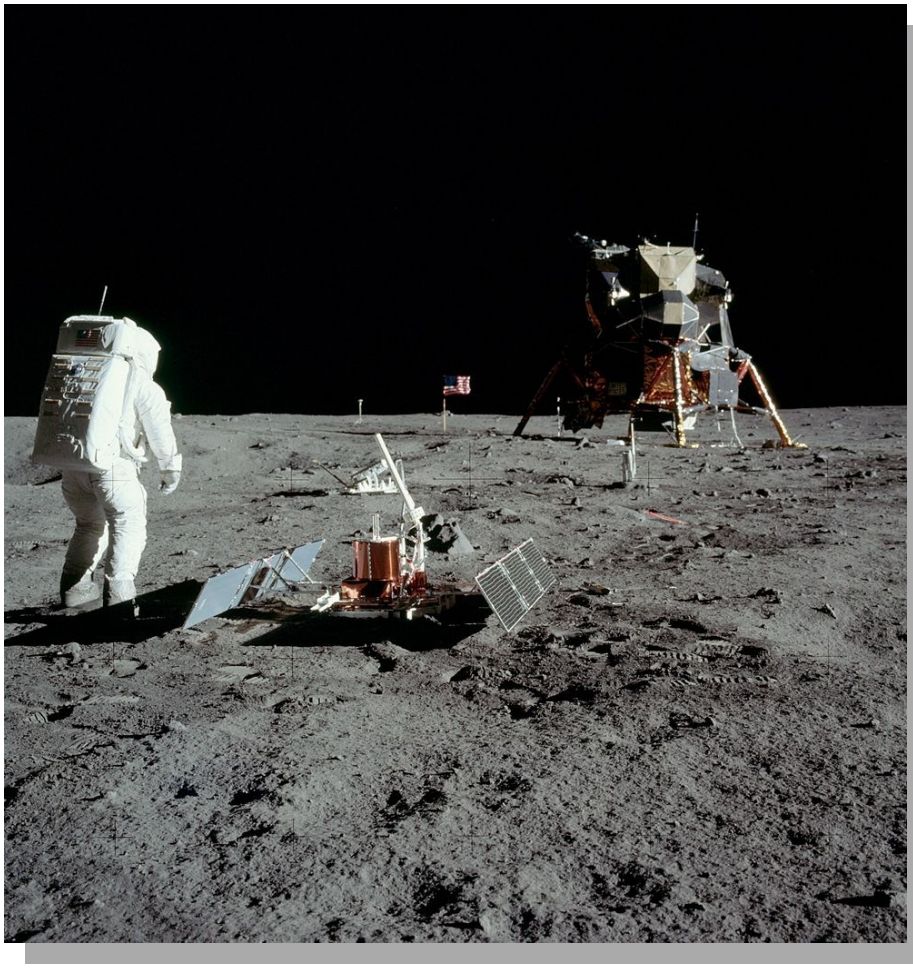
Observing Earth
by Neil Armstrong

"It suddenly struck me that that tiny pea, pretty and blue, was the Earth. I put up my thumb and shut one eye, and my thumb blotted out the planet Earth. I didn't feel like a giant. I felt very, very small."

Nicholas's Humor Corner
by Nicholas La Para

Former Nixon Advisor Reminisces About Apollo 11 Mission

by John R. Price



Astronaut Edwin E. "Buzz" Aldrin, Jr., prepares an experiment with the lander and the U.S. flag in the background during the Apollo 11 mission on July 20, 1969. Credit: NASA

It was 45 years ago, the astronauts of Apollo 11 were approaching their fateful and historic moon landing and I was sitting in the Cabinet room with other White House aides.

Following manual maneuvering over the last "football field of boulders" to touchdown, the Eagle landed in the Sea of Tranquility and Neil Armstrong soon planted a first footprint on the moon.

That evening, the Oval Office was a cluttered scene as President Richard M. Nixon prepared to speak to the astronauts. He was intently watching three television sets, one in front of his desk and one on either side. At the moment the astronauts hoisted on the moon's surface a small mechanical American flag, extended to appear as though wind

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September 2014 CCAS Meeting Agenda

by Dave Hockenberry, CCAS Program Chair

Our next meeting will be held on September 9, 2014, starting at 7:30 p.m. The meeting will be held in Room 112, Merion Science Center (former Boucher Building), West Chester University. Our guest speaker will be Jamie Holder, PhD, from the University of Delaware. He will speak on "Gamma Ray Bursts and High Energy Particle Astronomy."

Dr. Jamie Holder

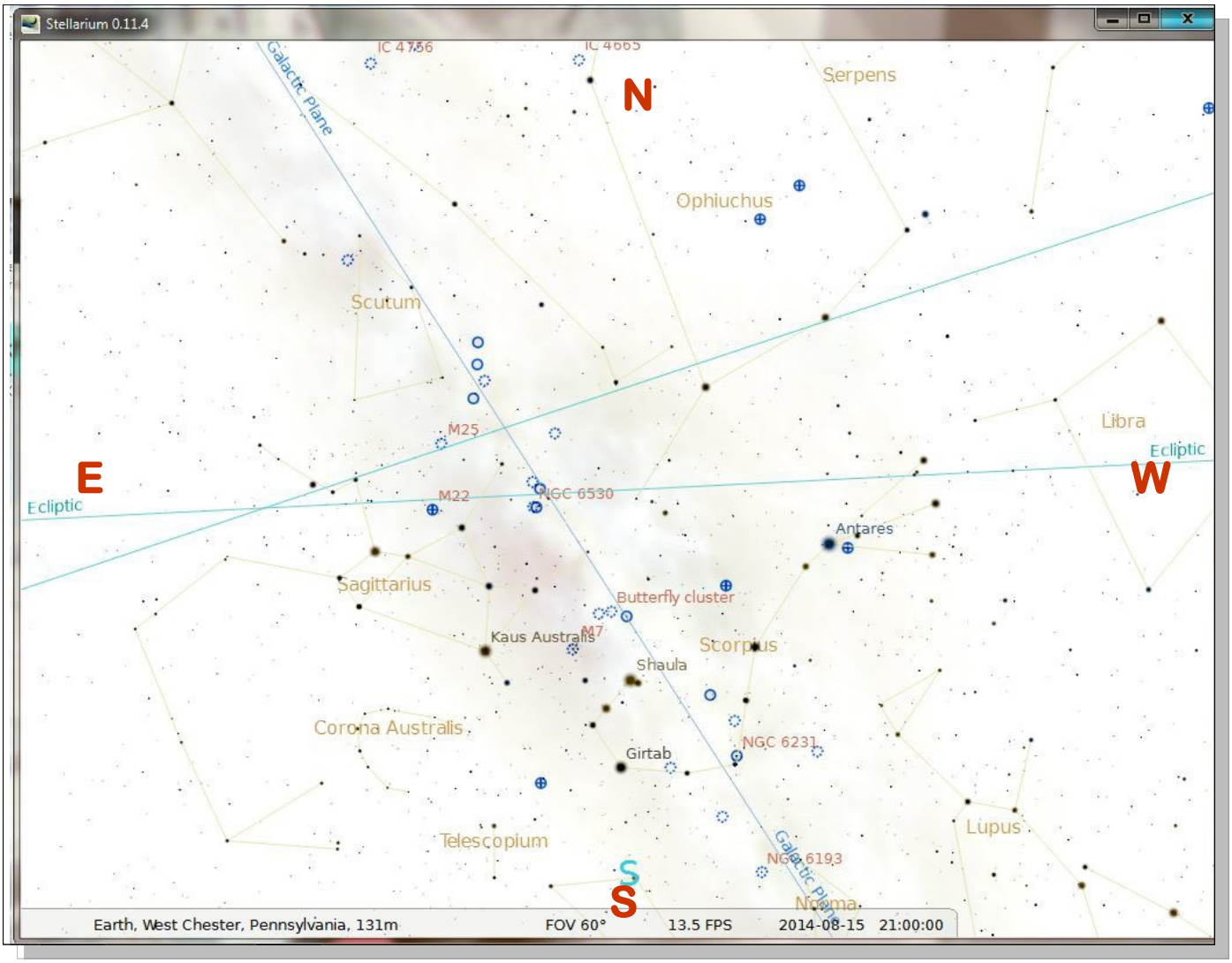
Please note that inclement weather or changes in speakers' schedules may affect the program. In the event there is a change, CCAS members will be notified via e-mail with as much advance notice as possible.

We are looking for presenters for future meetings in our 2014-2015 season. If you are interested in presenting, or know someone who would like to participate, please contact me at programs@ccas.us.

The Sky Over Chester County

August 15, 2014 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
08/01/2014	5:29 a.m. EDT	5:59 a.m. EST	8:14 p.m. EDT	8:44 p.m. EST	14h 15m 04s
08/15/2014	5:43 a.m. EDT	6:12 a.m. EDT	7:57 p.m. EDT	8:26 p.m. EDT	13h 44m 51s
08/31/2014	6:00 a.m. EDT	6:28 a.m. EDT	7:44 p.m. EDT	8:01 p.m. EDT	13h 06m 07s

Moon Phases					
First Quarter	08/03/2014	8:50 p.m. EDT	Full Moon	08/10/2014	2:10 p.m. EDT
Last Quarter	08/17/2014	8:26 a.m. EDT	New Moon	08/25/2014	10:13 a.m. EDT

August 2014 Observing Highlights

by Don Knabb, CCAS Treasurer & Observing Chair

2	**The Moon is near Mars**
3	**First-quarter Moon lies between Mars and Saturn**
10	**Full Moon, the largest Full Moon of the year**
12/13	**The Perseid meteor shower peaks**
17	**Last Quarter Moon**
18	**Venus and Jupiter are very close in the pre-dawn sky**
23	**Mars and Saturn are close**
25	**New Moon**
31	**The Moon is near Saturn**

The best sights this month: If you can get up before dawn on August 18th (sunrise is at 6:15) you will see the two brightest planets, Venus and Jupiter, about a half degree apart in the sky. This is the closest these two planets have been in 14 years. In the evening sky Saturn continues to delight us and although a bright Moon interferes, the Perseid meteor shower peaks during the night of August 12/13.

Mercury: Mercury is not in good viewing position during August.

Venus: As mentioned above, Venus and Jupiter are very close in the pre-dawn sky on August 18th.

Mars: During August we are entertained by Mars moving eastward toward Saturn. Both planets are visible as soon as darkness falls. Early in August Mars is to the right of Saturn, but by the end of the month Saturn is to the right of Mars. What a celestial dance! I guess this is Dancing with the Planets – and it is more entertaining than the TV show Dancing with the Stars.

Jupiter: Jupiter rises out of the glow of the sunrise as August progresses. For its close encounter with Venus on August 18th the king of the planets is about 5 degrees above the horizon an hour before sunrise, with the Beehive Cluster nearby!

Saturn: Saturn is still an incredible sight in the eyepiece of a telescope throughout August. But Saturn is falling behind in our race around the Sun, so enjoy the view before Saturn begins to fall closer to the sunset.

Uranus and Neptune: If you want the best view of the outer gas giants during August you'll need to stay up into the wee small hours when they will be at a reasonably high position for telescopic viewing.

The Moon: Full moon occurs on August 10th. This Full Moon is called the Full Sturgeon Moon by Native Americans. 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.

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: Aim your binoculars or telescope straight up during August and you will cut through most of the haze that often fills the sky at this time of year. That part of the sky has some beautiful deep sky objects such as M13 and M92, the two bright globular clusters in Hercules. Not far away is M57, the Ring Nebula in Lyra. This is a fairly faint object that is best viewed with averted vision in binoculars or a small telescope. Or, set your hardware aside, lay down a blanket and lie on your back and just enjoy the incredible glow of the Milky Way!

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Nixon Aid Reminisces (Cont'd)

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were blowing it horizontal, Nixon clapped alone and loudly four or five times.

Soon the cue came for him to talk with the astronauts. He picked up the green phone on his desk and spoke briefly and simply to the men on the moon. The small group of us, including pool journalists and camera crew, were hushed.

After he hung up, Nixon asked if any of the TV crew would be on the carrier Hornet in the Pacific for the recovery, and then quipped, "I hate to think of the toll charges on that call!" A wag among the press called out, "Make it collect!"

While planning for a moon landing had proceeded under Presidents John F. Kennedy and Lyndon B. Johnson, it fell to Nixon to be the president to cheer on the astronauts who made the journey, to speak to them while they were there and to welcome them back to Earth.

In the spring before the moon mission, future-Sen. Daniel P. Moynihan forwarded to the president a proposal from LBJ's former staffer, Bill Moyers, that Nixon consider naming the Apollo 11 moon shot the "John F. Kennedy." The notion won the unusual endorsement of Arthur Burns, a conservative and Mr. Moynihan's frequent rival on the White House staff. Dr. Lee Du Bridge, the president's science adviser, also supported it.

It never came to pass. Two seasoned Nixon advisors, Bryce Harlow, his congressional relations guru, and Herb Klein, his communications director, argued that "the Kennedy angle will get major play anyway" and that, in fact, the American space effort had begun with President Dwight D. Eisenhower's and then-Vice President Nixon's creation of the rocketry program and NASA. They prevailed.

During the Apollo 11 mission, the logistics of launch and recovery were uppermost at NASA, but the president focused on personal touches and the human wonder that would be stirred by having men on the moon. He wrote to the poet Archibald MacLeish, saying, "It is important that this be viewed not only as a great adventure, but in the perspective of a search for truth and a quest for peace. Nothing man has done more significantly dramatizes the need for an understanding of the common goals of the human race." He asked MacLeish to write a poem to commemorate the moment.

Nixon invited Ike's widow, Mamie, to spend the days of Apollo 11's mission as a guest at the White House. He also sent the newly remodeled Air Force One to Texas to take former President Lyndon B. Johnson and his wife to the launch.

The astronauts carried with them to leave on the moon messages from 73 world leaders and a parchment from Pope Paul VI with the text of Psalms 8. They also left behind, with the express approval of Nixon, a pair of Soviet medals cast to honor two of the early Russian cosmonauts that Frank Borman, an American astronaut, had brought back from Moscow.

I had traveled on Air Force Two to the launch, along with a former Gaullist French cabinet minister, Jean Sainteny, then a director of Air France. He told me of his life in Vietnam and of seeing American intelligence officers talking to Ho Chi Minh, reflecting President Franklin D. Roosevelt's anti-colonial impulses, as the Japanese were leaving in 1945. The French were hoping to reestablish their control over Indochina.

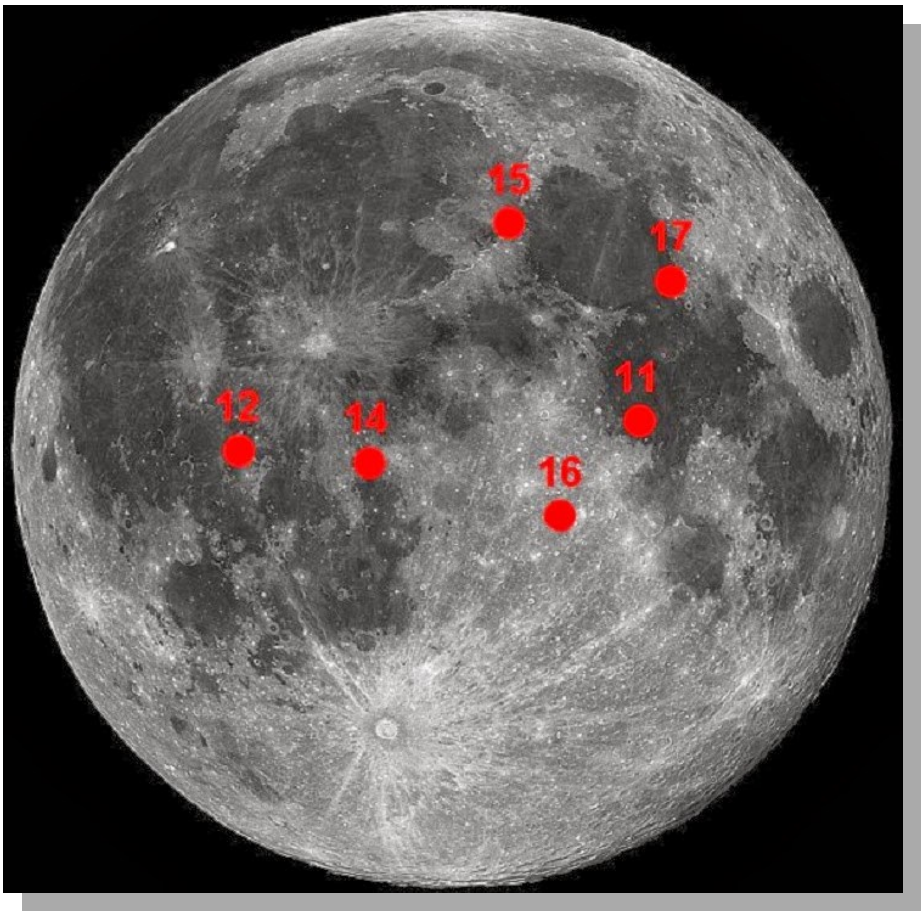
It turned out that the trip to see the Apollo 11 launch for Mr. Sainteny was a cover story: He was the earliest intermediary between Nixon and Ho Chi Minh and later convened a meeting in his Paris living room with Henry Kissinger and senior officials of the Viet Cong — their first contact. He had taken the Apollo opportunity to secretly brief the president on his effort to start the dialogue.

The conquest of the moon therefore revealed, if only for a fleeting moment, humankind's pro-

(Continued on page 11)

Spot Lunar Landing Sites Using Binoculars

by Andrew Fazekas, National Geographic Society



Red dots identify the location of each Apollo landing site as seen through binoculars. Credit: NASA

On July 20, 1969, the Apollo 11 mission delivered astronauts Neil Armstrong, Buzz Aldrin, and Michael Collins to the moon. With the aid of binoculars, you can see the Apollo 11 landing site. Moreover, during the full moon phase on August 10 you can see all six Apollo landing sites, including the iconic Apollo 11 site. At other times we can't see all the sites at the same time because of the lunar phasing cycle.

The moon is gravitationally locked to Earth, meaning we always see the same side of the lunar orb. Therefore, familiarizing yourself with the major landmarks across its face is fairly easy. The scattered dark patches—called maria or seas—dotting the moon's face were once thought to be actual oceans filled with water and life. They are in fact gigantic crater basins formed over three billion years ago, when mountain-size rocks smashed into the ancient moon, causing liquefied rock to bubble up and ooze out to harden into the smooth, dark areas we see today.

It is on the edge of one of these maria, called the Sea of Tranquility, where humans first landed on the moon. Apollo 11 and

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Voyage to the Moon

by Archibald MacLeish

[Editor's Note: then-President Nixon commissioned poet Archibald MacLeish to commemorate the Apollo 11 landing in the stirring words below.]

Presence among us,
wanderer in the skies,
dazzle of silver in our leaves and on our waters silver,
O silver evasion in our farthest thought--
"the visiting moon" . . . "the glimpses of the moon" . . .
and we have touched you!

From the first of time,
before the first of time, before the first men tasted time, we thought of you.
You were a wonder to us, unattainable,
a longing past the reach of longing,
a light beyond our light, our lives--perhaps
a meaning to us.

Now our hands have touched you in your depth of night.

Three days and three nights we journeyed,
steered by farthest stars, climbed outward,
crossed the invisible tide-rip where the floating dust
falls one way or the other in the void between,
followed that other dawn, encountered cold, faced death--unfathomable emptiness . . .
Then, the fourth day evening, we descended,
made fast, set foot at dawn upon your beaches,
sifted between our fingers your cold sand,

We stand here in the dusk, the cold, the silence . . .
and here, as at the first of time, we lift our heads.
Over us, more beautiful than the moon, a moon, a wonder to us, unattainable,
a longing past the reach of longing,
a light beyond our light, our lives--perhaps
a meaning to us . . .

O, a meaning!

Over us on these silent beaches the bright earth,
presence among us.

Through the Eyepiece: The Summer Triangle

by Don Knabb, CCAS Treasurer & Observing Chair

Ah, summer nights. There is nothing like lying on your back on some warm surface and looking up at the Summer Triangle. The Summer Triangle is Vega, Deneb and Altair, the brightest stars of three separate constellations. They are quite a bit brighter than nearby stars so that the triangle is very easy to find high overhead in July, August and September.

The most prominent of the constellations of the summer triangle is Cygnus the Swan. This constellation is also known as the Northern Cross. Deneb is the tail star of the swan. The constellation Lyra the Harp is a small constellation, but bright Vega, the fifth brightest star in the sky, makes it easy to find. The third point of the triangle is Altair in Aquila the Eagle.

Two other constellations are in the neighborhood of the Summer Triangle. Within the triangle is Sagitta, the arrow, which actually looks like an arrow. Then outside of the line between Deneb and Altair is Delphinus the dolphin, another constellation that has a close resemblance to its name. I enjoy seeing both these small constellations in binoculars.

The area in and around the Summer Triangle is a wonderful hunting ground for a telescope. They include binary stars and deep sky objects.

Alberio, the star at the beak of Cygnus the swan is a beautiful orange and blue pair. Another neat binary star is Epsilon Lyrae, just to the upper left of Vega. It shows as a wide pair of equally bright stars in binoculars. A telescope reveals, upon close inspection, that each is again a binary. Epsilon Lyrae is the famous double-double star, and splitting them is a good test of a telescope and atmospheric seeing.

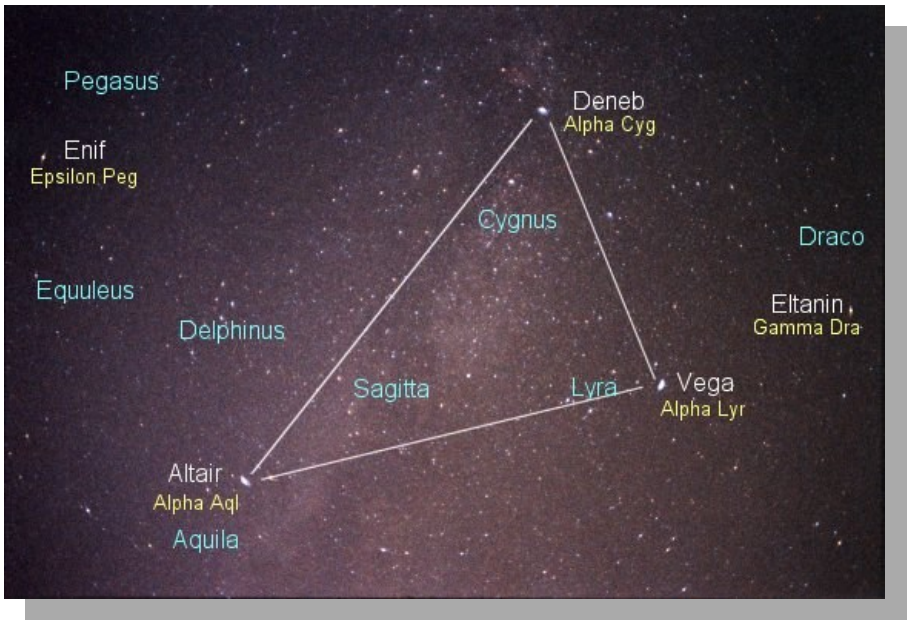

Image source: Jim Kaler, Professor Emeritus of Astronomy, University of Illinois, http://stars.astro.illinois.edu/, used with permission

Just about centered between the two stars at the south end of the parallelogram of Lyra can be found one of the really special faint wonders of the sky. It is M57, 57th object of Charles Messier's list of objects that look like comets but aren't. It is better known as the Ring Nebula.

Another nebula is M27, also known as the Dumbbell Nebula, located just north of the tip star of Sagitta the Arrow. This is a tough one to find since it is quite faint. The Dumbbell is large, but with a low surface brightness. The two glowing lobes of gas give the object its name.

While you are gazing in this part of the sky, do not miss M13 the Great Hercules Globular Star Cluster which is located along the western edge of the 'Keystone' part of Hercules. The fuzzy blob that is visible in binoculars and small telescopes begins to resolve itself into stars in telescopes of 6 inch diameter and larger. M13 contains upwards of a million stars packed in a diameter of 160 light years and is located some 21,000 light years away. And M92, another globular cluster, is not far away.

Galactic or open clusters here are M11, off the tail of Aquila

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Summer Triangle (Cont'd)

Image source: Jim Kaler, Professor Emeritus of Astronomy, University of Illinois, http://stars.astro.illinois.edu/, used with permission

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the eagle, and M29 in Cygnus. M11, which is actually in Scutum the shield is among the finest of its type. It takes a telescope of 6 inches diameter to completely resolve it.

In this photograph of the Summer Triangle one can easily see that the Milky Way fills most of the triangle. And see if you can find the Coat Hanger Cluster along one side of the triangle!

So whether you just lay on your back and gaze at the large shape of the Summer Triangle, or set up your telescope and dive into the deep sky treasures, this is a wonderful area of the sky to look at on warm summer nights.

Information sources:

http://www.clarkfoundation.org/astro-utah/vondel/summertriangle.html

http://www.idialstars.com/stri.htm

http://ourworld.compuserve.com/homepages/bmoler/summtri.htm

Pasachoff, Jay M. 2000. A Field Guide to the Stars and Planets. New York, NY. Houghton Mifflin.

Dickinson, Terence 2006. Nightwatch: a practical guide to viewing the universe. Buffalo, NY. Firefly Books

Save the Date! CCAS Summer Picnic

Barb and Don Knabb have again graciously offered to host the annual CCAS summer picnic at their home on Saturday, September 13th, at 6:00 p.m. Their address is 988 Meadowview Lane and their phone number is 610-436-5702. A Google Maps search will provide good directions to their house. Their home is at the end of a cul-de-sac and 988 is on the mailbox. They have a long driveway and the house has a garage facing the street.

Please RSVP to dknabb00@comcast.net if you plan to attend.

The Invisible Shield of Our Sun

by Dr. Ethan Siegel

Whether you look at the planets within our solar system, the stars within our galaxy or the galaxies spread throughout the universe, it's striking how empty outer space truly is. Even though the largest concentrations of mass are separated by huge distances, interstellar space isn't empty: it's filled with dilute amounts of gas, dust, radiation and ionized plasma. Although we've long been able to detect these components remotely, it's only since 2012 that a manmade spacecraft -- Voyager 1 -- successfully entered and gave our first direct measurements of the interstellar medium (ISM).

What we found was an amazing confirmation of the idea that our Sun creates a humongous "shield" around our solar system, the heliosphere, where the outward flux of the solar wind crashes against the ISM. Over 100 AU in radius, the heliosphere prevents the ionized plasma from the ISM from nearing the planets, asteroids and Kuiper belt objects contained within it. How? In addition to various wavelengths of light, the Sun is also a tremendous source of fast-moving, charged particles (mostly protons) that move between 300 and 800 km/s, or nearly 0.3% the speed of light. To achieve these speeds, these particles originate from the Sun's superheated corona, with temperatures in excess of 1,000,000 Kelvin!

When Voyager 1 finally left the heliosphere, it found a 40-fold increase in the density of ionized plasma particles. In addition, traveling beyond the heliopause showed a tremendous rise in the flux of intermediate-to-high energy cosmic ray protons, proving that our Sun shields our solar system quite effectively. Finally, it showed that the outer edges of the heliosheath consist of two zones, where the solar wind slows and then stagnates, and disappears altogether when you pass beyond the heliopause.

Unprotected passage through interstellar space would be life-threatening, as young stars, nebulae, and other intense energy sources pass perilously close to our solar system on ten-to-hundred-million-year timescales. Yet those objects pose no major danger to terrestrial life, as our Sun's invisible shield protects us from all but the rarer, highest energy cosmic particles. Even if we pass through a region like the Orion Nebula, our heliosphere keeps the vast majority of those dangerous ionized particles from impacting us,

(Continued on page 11)

Image credit: Hubble Heritage Team (AURA / STScI), C. R. O'Dell (Vanderbilt), and NASA, of the star LL Orionis and its heliosphere interacting with interstellar gas and plasma near the edge of the Orion Nebula (M42). Unlike our star, LL Orionis displays a bow shock, something our Sun will regain when the ISM next collides with us at a sufficiently large relative velocity.

Space Place (cont'd)

(Continued from page 10)

shielding even the solar system's outer worlds quite effectively. NASA spacecraft like the Voyagers, IBEX and SOHO continue to teach us more about our great cosmic shield and the ISM's irregularities. We're not helpless as we hurtle through it; the heliosphere gives us all the protection we need!

Want to learn more about Voyager 1's trip into interstellar space? Check this out: http://www.jpl.nasa.gov/news/news.php?release=2013-278.

Kids can test their knowledge about the Sun at NASA's Space place: http://spaceplace.nasa.gov/solar-tricktionary/.

Nixon Advisor (Cont'd)

(Continued from page 6)

found realization of how we ultimately are one. There were the gestures of comity on the part of the Americans toward their Soviet Cold War rivals. There was the triumph of science, organization and national will. And there was even the more mundane concerns of public office, from reaching out to make peace in Vietnam to capitalizing politically on an American breakthrough, visible to billions around the Earth.

John R. Price, a former president and CEO of the Federal Home Loan Bank of Pittsburgh, spent 29 years at what is now JPMorgan Chase in New York City and served as a special assistant for urban affairs to President Richard M. Nixon.

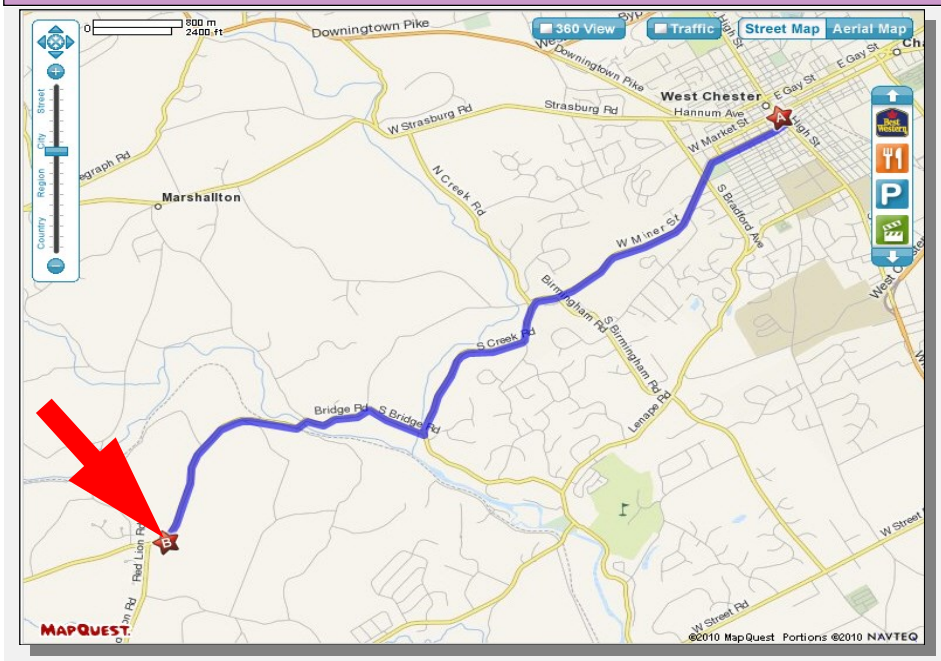
Observing (Cont'd)

(Continued from page 5)

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! Unfortunately, this year is not a good viewing opportunity because the peak of the shower is only two days after the Full Moon. But my favorite part of this shower is earlier 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 cross the sky you will never forget it.

CCAS Directions



Brandywine Valley Association
1760 Unionville Wawaset Rd
West Chester, PA 19382
(610) 793-1090
http://brandywinewatershed.org/

BVA 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 Valley Association

The monthly observing sessions (held February through November) are held at the Myrick Conservation Center of the Brandywine Valley Association.

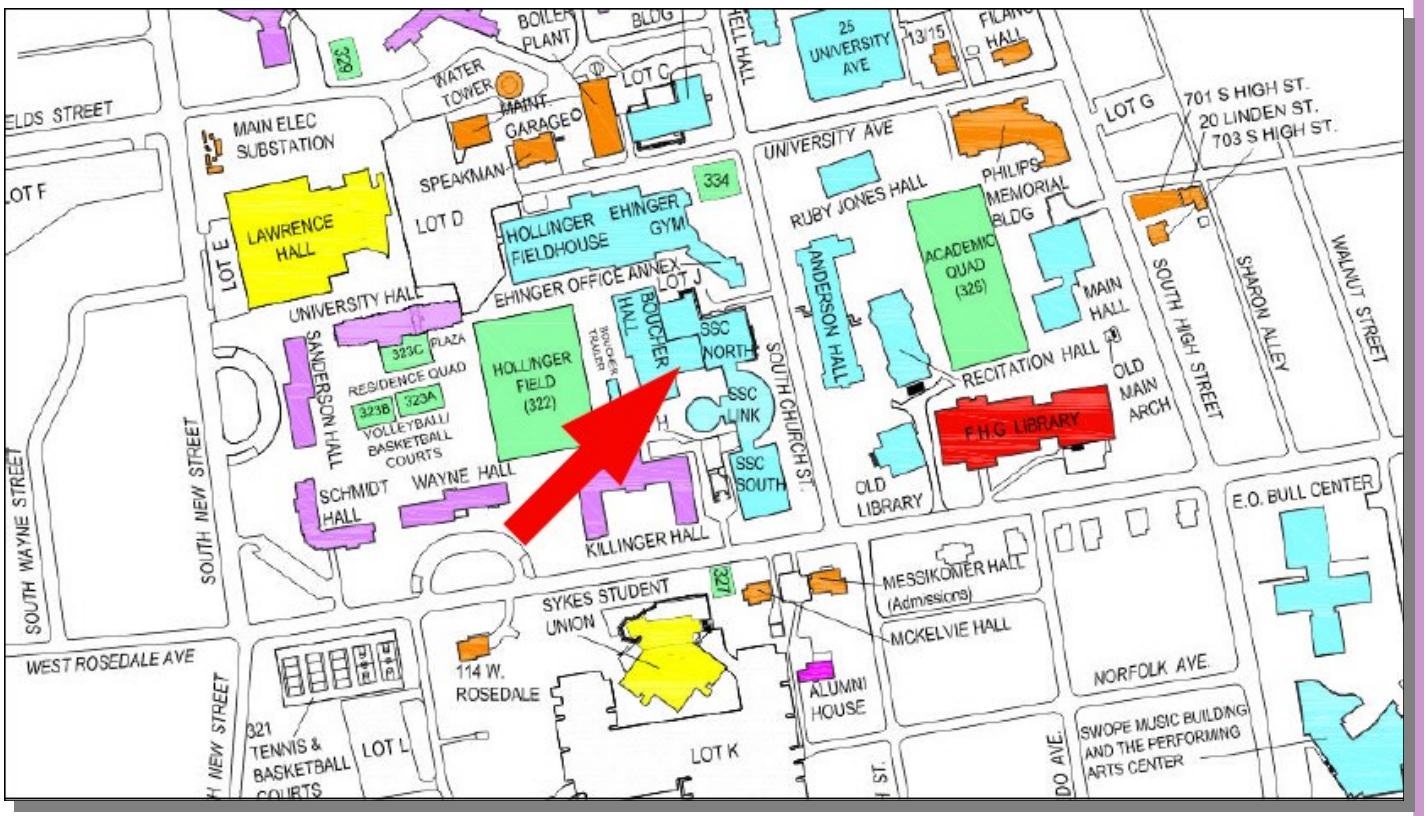
To get to the Myrick Conservation Center from West Chester, go south on High Street in West Chester past the Courthouse. At the next traffic light, turn right on Miner Street, which is also PA Rt. 842. Follow Rt. 842 for about 6 miles. To get to the observing site at the BVA property, turn left off Route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



Landings (cont'd)

(Continued from page 7)

the five other landing sites are all easily found scattered across the lunar face.

Don't expect to see equipment left by the Apollo astronauts or their footprints, though. For that you would need NASA's Lunar Reconnaissance Orbiter, which flies just above the surface of the moon.

If you're looking for some moon maps to get the full lunar experience, then check out Google's zoomable version or the Lunar Society's interactive photo atlas.

CCAS Membership Information and Society Financials

Treasurer's Report

by Don Knabb

July 2014 Financial Summary

Beginning Balance	$1,941
Deposits	$245
Disbursements	$0
Ending Balance	$2,186

New Member Welcome!

Welcome new CCAS member Ann Buki from Exton. 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

Note that our CCAS Webmaster John Hepler has a link to the IDA home page set up on our Society's home page at **http://www.ccas.us**.

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"!

CCAS Event Information

We've set up a special phone number you can dial to find out if our monthly observing session and other scheduled events will be held or postponed. Call **610-436-0829** after 5 PM ET to hear a recording to find out the latest news.

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 Park City, Utah.

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

http://www.starrynightlights.com

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Green Earth Lighting
Formerly
Outdoor Lighting Associates

Green Earth Lighting is a dedicated lifetime corporate member of the International Dark-Sky Association. GEL's products are designed to reduce or eliminate the negative effects outdoor lighting can have while still providing the light you need at night.

Green Earth Lighting LLC
620 Onion Creek Ranch Rd
Driftwood, Texas 78619

Phone: **512-944-7354**

http://www.greenearthlighting.com

Local Astronomy-Related Stores

Listing retail sites in this newsletter does not imply endorsement of any kind by our organization. This information is provided as a service to our members and the public only.

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**

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:

John Hepler
2115 Lazor St.
Apt. 227
Indiana, PA 15701

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 John Hepler, the newsletter editor, at: **newsletter@ccas.us**.

CCAS Website

John Hepler is the Society's Webmaster. You can check out our Website at:

http://www.ccas.us

John 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 John Hepler at (724) 801-8789 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:	Roger Taylor 610-430-7768
Vice President:	Liz Smith 610-842-1719
ALCor, Observing, and Treasurer:	Don Knabb 610-436-5702
Secretary:	Ann Miller 610-558-4248
Librarian:	Barb Knabb 610-436-5702
Program:	Dave Hockenberry 610-558-4248
Education:	Kathy Buczynski 610-436-0821
Webmaster and Newsletter:	John Hepler 724-349-5981
Public Relations:	Deb Goldader 610-304-5303

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.**