



# Observations

A Monthly Publication Of The  
CHESTER COUNTY ASTRONOMICAL SOCIETY

Vol. 18, No. 8

Two-Time Winner of the Astronomical League's Mabel Sterns Award  $\#$  2006 & 2009

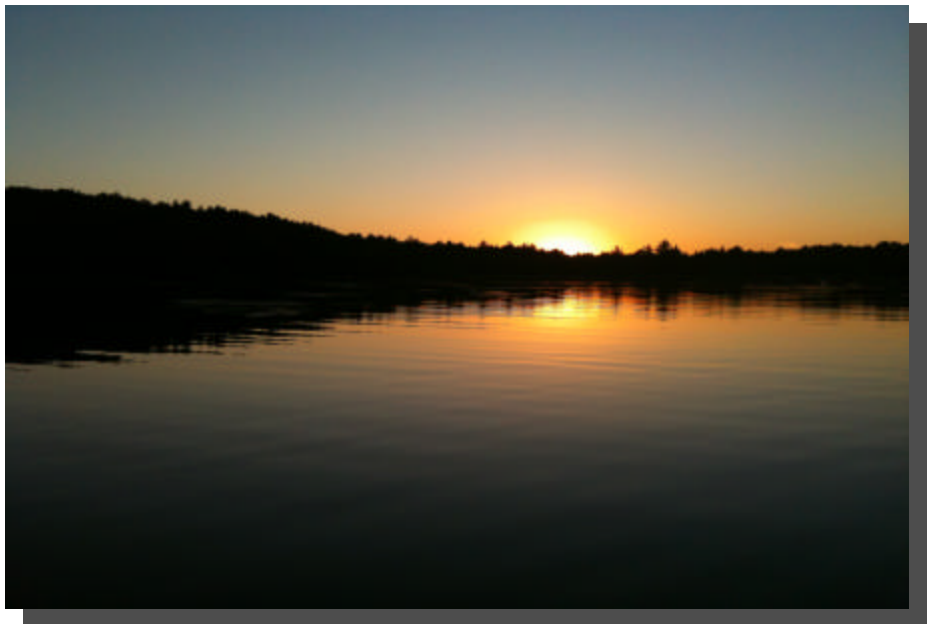
August 2010

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## CCAS Member Original Astrophotography

by Barb Knabb, CCAS Librarian



Sunset, by Barb Knabb. Taken with an iPhone.

## Membership Renewals Due

08/2010	Fragale Given Knabb & Family Labroli Morgan Naik Smith
09/2010	Dascaloff & Family De Lucia Lurcott
11/2010	Athens Hepler Holenstein O'Hara

## Important August 2010 Dates

- 3rd** • Last Quarter Moon 9:59 a.m.
- 10th** • New Moon 8:08 a.m.
- 12th-14th** • Perseid Meteor Show
- 16th** • First Quarter Moon 11:14 p.m.
- 24th** • Full Moon 11:05 p.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, September 18, 2010** - Night Out in Anson Nixon Park, Kennett Square.
- ☒ **Saturday, October 16, 2010** - Night Out in Hoopes Park, West Chester. The event is cohosted with the West Chester Department of Recreation.

## Summer/Fall 2010 Society Events

### August 2010

4th • PA Outdoor Lighting Council monthly meeting, starting at 7:30 p.m. Meetings are open to the public. For more information and directions, visit the PA Outdoor Lighting Council website (<http://www.polcouncil.org/>).

6th • CCAS Monthly Observing Session, Myrick Conservancy Center, BVA (inclement weather date August 7th). The observing session starts at s u n s e t .

20th • Reservations start for the September 10th planetarium show at the WCU Planetarium. For more information, please contact Dr. Karen Vanlandingham, Planetarium Director, via the planetarium's webpage (<http://geology.wcupa.edu/planetarium>).

20th • Open call for articles and photographs for the September 2010 edition of *Observations*.

26th • Deadline for newsletter submissions for the September 2010 edition of *Observations*.

### September 2010

1st • PA Outdoor Lighting Council monthly meeting, starting at 7:30 p.m. Meetings are open to the public. For more information and directions, visit the PA Outdoor Lighting Council website (<http://www.polcouncil.org/>).

10th • West Chester University Planetarium Show, "Pluto Demoted", Schmucker Science Building. Show starts at 7 p.m. and run approximately one hour in length. For more information and reservations, please contact Dr. Karen Vanlandingham, Planetarium Director, via the planetarium's webpage (<http://geology.wcupa.edu/planetarium>).

10th • CCAS Monthly Observing Session, Myrick Conservancy Center, BVA (inclement weather date September 11th). The observing session starts a t s u n s e t .

14th • DVD Lecture Series: "The Paradox of the Dark Night Sky", halfhour video presentation of a lecture by Professor Alex Filippenko, UC Berkeley, Room MER113, Merion Science Center (former Boucher Building), West Chester University. The presentation immediately precedes the monthly meeting and starts at 7:00 p.m.

14th • CCAS Monthly Meeting, Room MER113, Merion Science Center (former Boucher Building), West Chester University. The meeting starts at 7:30 p.m. Guest Speaker: Dr. Dave Klassen, PhD, Rowan University: "Mars & the Martian Atmosphere." Constellation of the Month (COM): TBA.

17th • Reservations start for the October 10th planetarium show at the WCU Planetarium. For more information, please contact Dr. Karen Vanlandingham, Planetarium Director, via the planetarium's webpage (<http://geology.wcupa.edu/planetarium>).

20th • Open call for articles and photographs for the October 2010 edition of *Observations*.

26th • Deadline for newsletter submissions for the October 2010 edition of *Observations*.

## A Special Offer from the Universal Workshop

submitted by Don Gass, Astronomical League Vice President-Elect

The Astronomical League is pleased to announce a special offer for our members from the Universal Workshop, the producers of Guy Ottewell's popular Astronomical Calendar. They are making the 2011 edition of the Astronomical Calendar available at a discounted price. There are plenty of good reasons why it has been published for over thirty years. The 2011 edition will not disappoint!

Packed throughout its 84 pages are monthly sky charts; daily celestial highlights; charts, tables, and explanations of planetary movements; eclipse times and paths; and lunar occultation specifics. There are extensive descriptions of the year's meteor showers and periodic comets, as well. This calendar tells, in clear language, what events occur and when they happen.

(Continued on page 7)

## CCAS Member Earns Another Astronomical League Award

by CCAS President Roger Taylor



CCAS President Roger Taylor presents Bob Popovich with the Astronomical League Deep Sky Binocular Award on July 17, 2010 at the CCAS Summer Picnic. Bob is the first member of CCAS to earn the award.

At the CCAS Summer Picnic held on July 17, 2010, CCAS President Roger Taylor presented Bob Popovich, CCAS Treasurer, with the Astronomical League's Deep Sky Binocular Club Award.

The Deep Sky Binocular Club is

a list of sixty selected non-Messier objects, and picks up where the Binocular Messier Club leaves off. The purpose of the Deep Sky Binocular Club is not to put your observing skills to the test by including the toughest objects observable with

(Continued on page 3)

## 2010-2011 Speaker Series

by Dave Hockenberry, CCAS Program Chair

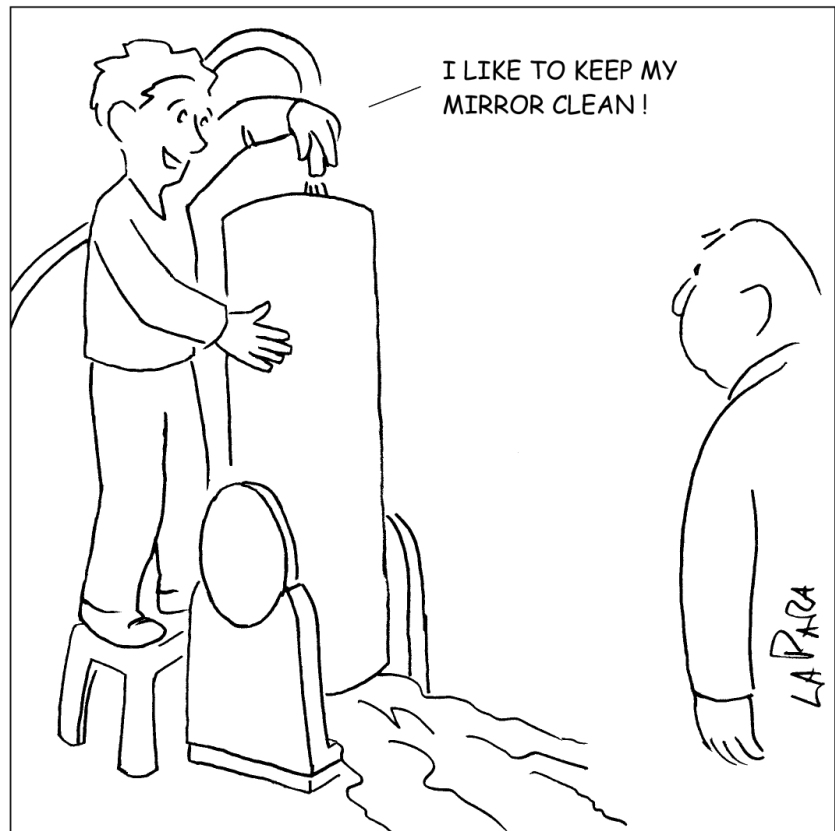
We are looking for main presentation speakers for our 2010-2011 season. Currently Dr. Dave Klassen is scheduled to speak at our September 2010 meeting, and Dr. Beth Willman will join us at our November meeting.

If you have any suggestions for future speakers, or are interested in being a speaker yourself, please contact Dave Hockenberry at [programs@ccas.us](mailto:programs@ccas.us).

We are also looking for Constellation of the Month (COM) presenters for the 2010-2011 season. COM is a great way to learn the night sky and a useful tool if you are pursuing one of the Astronomical League's observing club awards. Participating is easy! Contact Kathy Buczynski at [vp@ccas.us](mailto:vp@ccas.us) for a COM template to fill out.

## Nicholas's Cartoon Corner

by Nicholas La Para



## Astronomical League Award (cont'd)

(Continued from page 2)

binoculars, but to allow you to observe and enjoy sixty of the most beautiful objects in the heavens: objects other than those discovered by Charles Messier.

Although the Deep Sky Club comes after the Binocular Messier Club, you don't have to do your Messier observations before your Deep Sky observations. However, it is recommended that you get your Binocular Messier Certificate first, before the Deep Sky Certificate, since Messier identified most of the good (easy) objects.

Even though the sixty objects in the Deep Sky Club are the best objects for small binoculars, it doesn't mean that they are all easy. For some of the objects, you will need a clear night at a good dark sky site, and then observe those objects at the meridian for best results. But luckily this is easy to do with binoculars since they are so portable.

For our northern observers, no object on the list is below minus 35 degrees declination, which is the declination of the most southerly Messier object, M7.

To qualify for the Astronomical League's Deep Sky Binocular

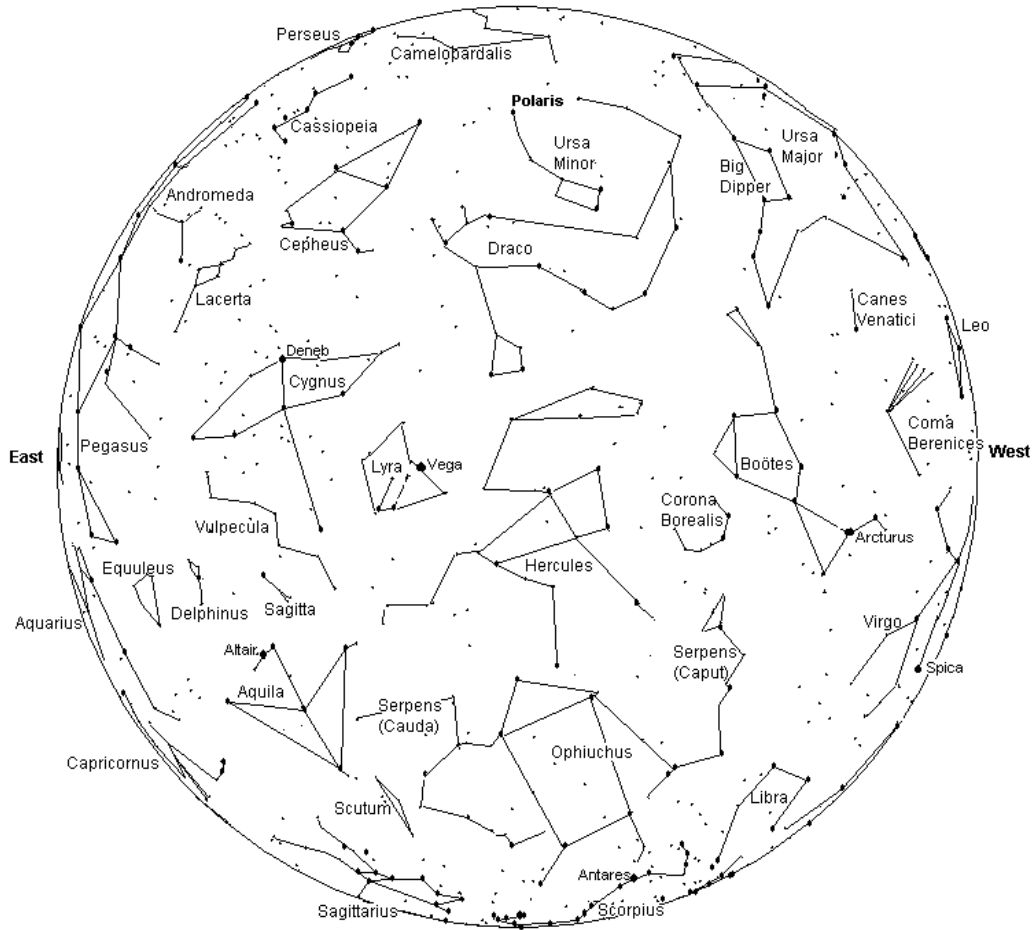
Certificate and [award pin](#), you need only be a member of the Astronomical League, through either an affiliated club or as a Member-at-Large, and observe the sixty selected objects using only binoculars.

Any pair of binoculars may be used, but those with objectives between 50mm and 80mm in diameter are recommended. To record your observations, you may use log sheets similar to those found in the back of the Astronomical League's manual *Observe: A Guide to the Messier Objects*.

The Sky Over Chester County

August 15, 2010 at 9:00 p.m. EST

Note: the constellation stick figures used on the chart above were adapted from the book *The Stars: A New Way to See Them*, by H. A. Rey. This excellent guide to learning the constellations can be purchased at many area book stores, or from online booksellers.



This chart was produced using *Guide 8.0* sky mapping software by Project Pluto, Bowdoinham, Maine

The faintest stars shown on this chart are fifth magnitude.

Date	Sunrise	Sunset	Moon Phases		
08/01/2010	5:59 a.m. EDT	8:14 p.m. EDT	First Quarter	08/16/2010	11:14 p.m. EDT
08/15/2010	6:12 a.m. EDT	7:57 p.m. EDT	Full Moon	08/24/2010	11:05 p.m. EDT
08/31/2010	6:27 a.m. EDT	7:34 p.m. EDT	Last Quarter	08/03/2010	9:59 a.m. EDT
			New Moon	08/10/2010	8:08 a.m. EDT

## August 2010 Observing Highlights

by Don Knabb, CCAS Secretary & Observing Chair

August 3	Last-quarter Moon, 12:59 a.m.
August 6-8	Mars, Saturn and Venus are within 5 degrees of each other in the evening sky
August 9	New Moon, 11:08 p.m.
August 12-14	Perseid meteor shower
August 16	First-quarter Moon, 2:14 p.m.
August 19-20	Neptune is at opposition to the Sun
August 24	Full Moon, 1:05 p.m.
August 26-27	Jupiter and the Moon are close in the sky

**The Best Sights This Month:** Watch the skies on the night of August 12/13! Dust grains from Comet 109P/Swift-Tuttle will be plummeting toward our planet and bursting into flames as they hit the upper atmosphere. Yes, its time for the Perseid meteor shower, the best display of shooting stars for 2010. This is an especially good year to see the Perseid shower because the Moon will not be interfering with the show. I have seen Perseid meteors travel nearly all the way across the sky and break into multiple pieces! This is one of the best fireworks show in the sky, and it's free and parking is not a problem like a 4<sup>th</sup> of July fireworks show.

**Mercury:** Look for Mercury early in the month, very low in the glow of the setting Sun.

**Venus:** The bright "evening star" gets even brighter during August. On the evening of August 7<sup>th</sup> Venus, Mars and Saturn are very close in the evening sky, forming a beautiful triangle less than 5 degrees across.

**Mars:** The red planet is less than 2 degrees from Venus on August 17<sup>th</sup> to 19<sup>th</sup>. Late in the month Mars and Venus will pull away from Saturn as the ringed planet falls into the glow of the setting Sun.

**Jupiter:** Jupiter will rise around 10:30 p.m. at the beginning of August and around 8:30 p.m. by the end of the month.

**Saturn:** Saturn will fall closer to the horizon as August progresses, so enjoy this beautiful planet early in the month.

**Uranus and Neptune:** Uranus continues to be close to Jupiter during August so it should be relatively easy to find with binoculars and finder charts that you can get at [skyandtelescope.com](http://skyandtelescope.com). Neptune is at opposition on August 20<sup>th</sup>, so it will rise around sunset and set at dawn. Wait until late in the evening when Neptune will be relatively high in the sky then use the Sky and Telescope finder charts to find this 7<sup>th</sup> magnitude blue gem.

**The Moon:** Full moon occurs on August 24<sup>th</sup>. 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 Summer Triangle rules the night sky overhead after you stare at the wonders in the southern sky. Find a driveway, put down a sleeping bag and feel the heat of the sun come back out of the driveway, warming your back as you stare upward at Cygnus as it flies down the Milky Way. It's easy to hold binoculars straight up if you are lying on your back. Scan between Aquila and Lyra with your binoculars to find the Coat Hanger Cluster. Then just drink in the stars of our home galaxy.

**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. Don't 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:** Just as in July, there are no bright comets in the sky during August, but if you want to seek one of these faint fuzzies of the solar system you can look for Comet 10P/Tempel using the finder chart in the August issue of [Astronomy](http://Astronomy) magazine.

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## Through the Eyepiece: NGC 4565: The Flying Saucer Galaxy

by Don Knabb, CCAS Secretary & Observing Chair

CCAS Program Chair Dave Hockenberry sent me a beautiful picture of NGC 4565, the Flying Saucer Galaxy. This is an edge on view of a classic spiral galaxy and is probably how our home Milky Way galaxy would look to a traveler in intergalactic space.

It's easy to see how this galaxy earned its nickname. The thin disk and the bulging central nucleus has a striking resemblance to the United Planets Cruiser C-57D as featured in the movie [Forbidden Planet](#), one of the classic science fiction movies of the 1950s.

NGC 4565 is about 50 million light years from Earth and is in the constellation Coma Berenices, not far from the Coma Star Cluster. This is not a naked eye target since it is too small and faint to be seen without a telescope. The larger the scope the better, but an 8 inch reflector should give you a nice view and averted vision will help you find this 10<sup>th</sup> magnitude faint fuzzy object.

There are many galaxies in this area of the sky, so with good charts or a "go to" scope you can find many deep sky objects in a short time.

Charles Messier did not see this galaxy even though he recorded other even fainter objects. The first human to see NGC 4565 was William Herschel in 1785. Some references refer to this gal-

*(Continued on page 7)*

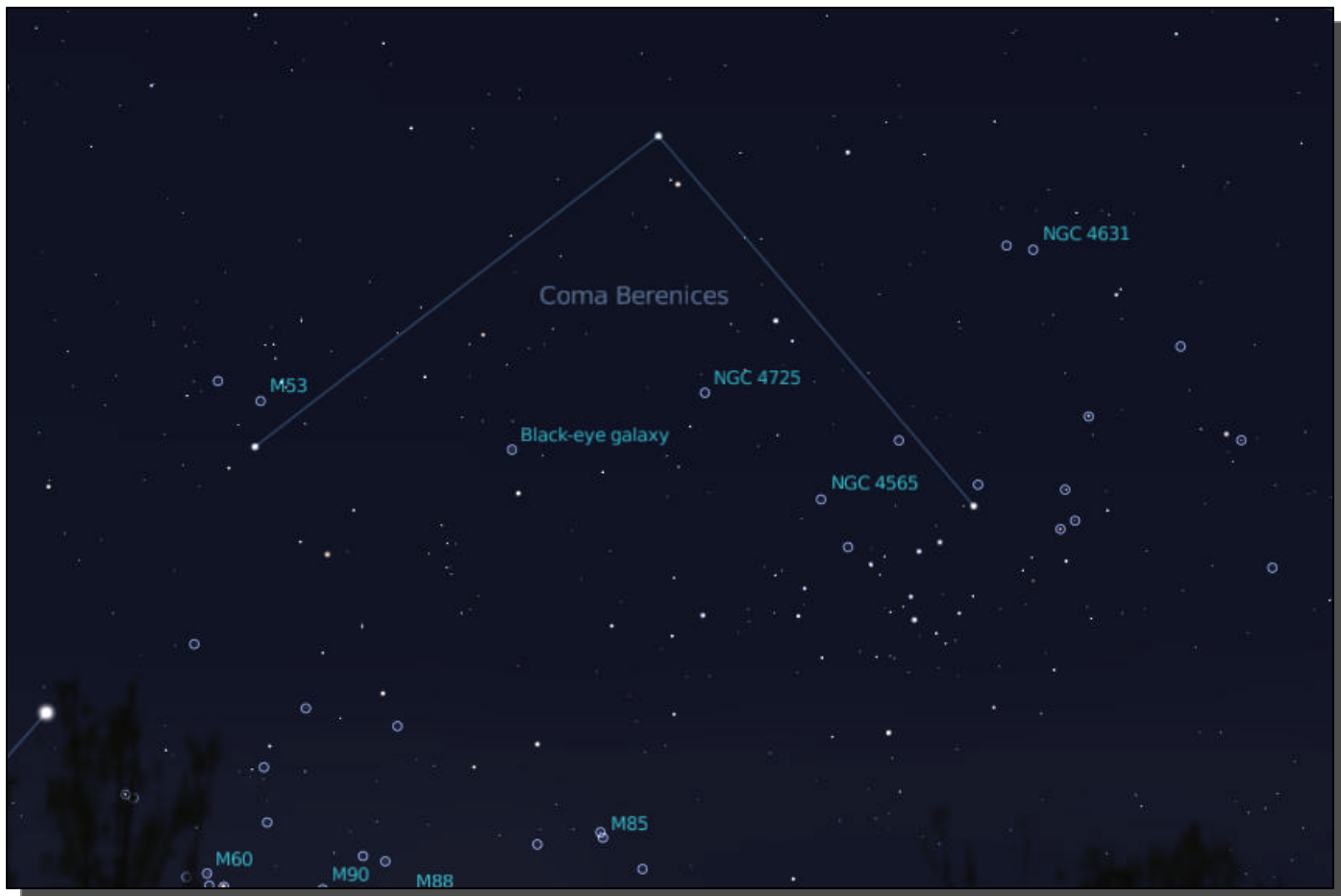


NGC 4565, the "Flying Saucer" Galaxy, by CCAS member Dave Hockenberry. Shot 5/1/2010 with Starlight Xpress SXVF H9C camera, stack of 14 400-second exposures. Shot through TeleVue NP101is with Meade LX200R mount, autoguided with SX Lodestar camera and Maxim DL5. No filters. Stacked in Maxim DL5, histogram stretch, color adjustment, and sharpening filters in Photoshop CS3.



*Movie still from the 1956 MGM film, Forbidden Planet. The United Planets Cruiser C-57D was the first depiction of human beings piloting flying saucers in film history. It was also the first film to depict human settlement of deep space.*

## Through the Eyepiece (Cont'd)



(Continued from page 6)

axy as the Needle Galaxy.

We are near the end of the observing season for the Flying Saucer Galaxy so look for this object early in the month when the Moon is absent from the sky. Coma Berenices will be reasonably well above the horizon at 9 p.m. in mid August but will set earlier as the month progresses.

I've included a star chart to help you in your quest for this unique and beautiful object.

Information credits:

<http://www.oneminuteastronomer.com/OMALibrary/flying-saucer-galaxy.html>  
[http://en.wikipedia.org/wiki/NGC\\_4565](http://en.wikipedia.org/wiki/NGC_4565)

## Special Offer (cont'd)

(Continued from page 2)

League members can order this incredible compilation of the year's celestial events for \$19.95, shipping included (standard ground shipping to US addresses, only). Volume discounts, beginning with a minimum of 11 copies, for clubs are available.

CCAS members are eligible for the discounted price as they are automatically enrolled in the Astronomical League when they join the [Chester County Astronomical Society](#).

To take advantage of the free shipping offer, members must order by Friday December 31, 2010, and either use the special website, [www.Universalworkshop.com/clubs.htm](http://www.Universalworkshop.com/clubs.htm), or call 800-533-5083. The newly edited Astronomical Companion is also available at \$19.95, shipping included — if it is ordered at the same time as the Astronomical Calendar. [Universalworkshop.com](http://www.Universalworkshop.com) accepts MasterCard™, Visa®, Discover™, American Express™ and PayPal™.

## The Sun Can Still Remind Us Who's Boss

by Dr. Tony Phillips

Grab your cell phone and take a good long look. It's indispensable, right? It tells time, surfs the web, keeps track of your appointments and, by the way, also makes phone calls. Modern people can hardly live without one.

One good solar flare could knock it all out.

"In the 21st century, we're increasingly dependent on technology," points out Tom Bogdan, director of NOAA's Space Weather Prediction Center in Boulder, Colorado. "This makes solar activity an important part of our daily lives."

Indeed, bad space weather can knock out power systems, telecommunications, financial and emergency services—basically, anything that needs electronics to work. That's why NOAA is building a new fleet of "space weather stations," the GOES-R satellites.

"GOES-R will bring our existing fleet of weather satellites into the 21st century," says Bogdan. "They're designed to monitor not only Earth weather, but space weather as well."

NOAA's existing fleet of Geostationary Operational Environmental Satellites (GOES) already includes some space weather capabilities: solar ultraviolet and X-ray telescopes, a magnetometer and energetic particle sensors. GOES-R will improve upon these instruments and add important new sensors



to the mix.

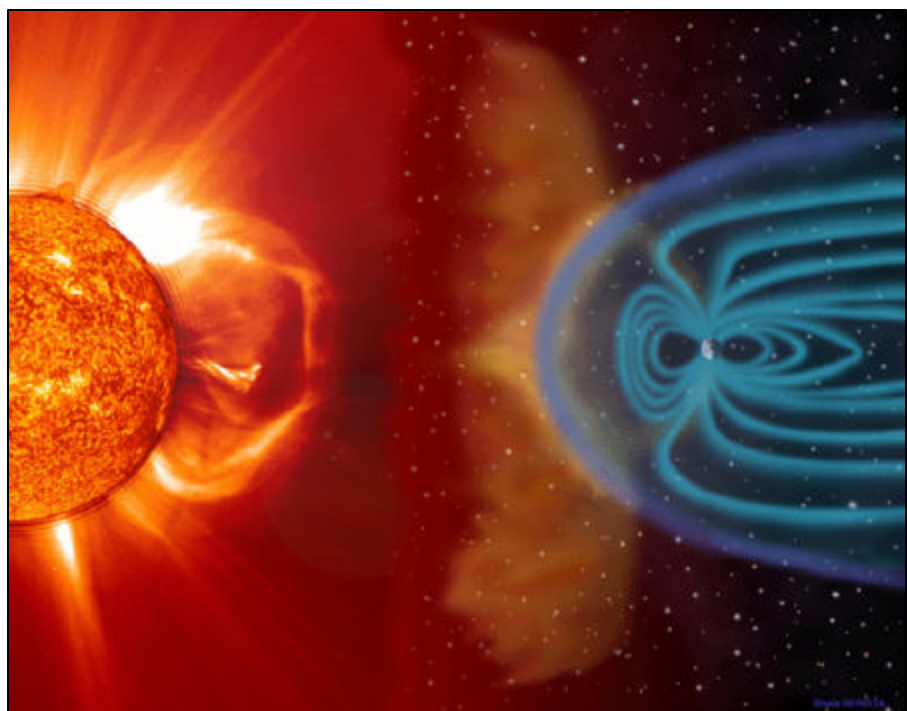
One of Bogdan's favorites is a particle detector named "MPS-Low," which specializes in sensing low-energy (30 eV – 30 keV) particles from the sun.

Who cares about *low-energy* particles? It turns out they can be as troublesome as their high-energy counterparts. Protons and other atomic nuclei accelerated to the highest energies by solar flares can penetrate a satellite's exterior surface, causing all kinds of problems when they reach internal electronics. Low-energy particles, particularly electrons, can't penetrate so deeply. Instead, they do their damage on the outside.

As Bogdan explains, "Low-energy particles can build up on the surfaces of spacecraft, creating a mist of charge. As voltages increase, sparks and arcs can zap electronics—or emit radio pulses that can be misinterpreted by onboard computers as a command."

The Galaxy 15 communications satellite stopped working during a solar wind storm in April 2010, and many researchers believe low-energy particles are to blame. GOES-R will be able to monitor this population of particles and alert operators when it's time to shut down sensitive systems.

(Continued on page 9)



In spite of Earth's protective magnetosphere, solar storms can wreak havoc with Earth satellites and other expensive electronics on the ground.



## Space Place (cont'd)

(Continued from page 8)

“This is something new GOES-R will do for us,” says Bogdan.

The GOES-R magnetometer is also a step ahead. It will sample our planet’s magnetic field four times faster than its predecessors, sensing vibrations that previous GOES satellites might have missed. Among other things, this will help forecasters anticipate the buildup of geomagnetic storms.

And then there are the pictures. GOES-R will beam back striking images of the sun at X-ray and extreme UV wavelengths. These are parts of the electromagnetic spectrum where solar flares and other eruptions make themselves known with bright flashes of high-energy radiation. GOES-R will pinpoint the flashes and identify their sources, allowing forecasters to quickly assess whether or not Earth is in the “line of fire.”

They might also be able to answer the question, *Is my cell phone about to stop working?*

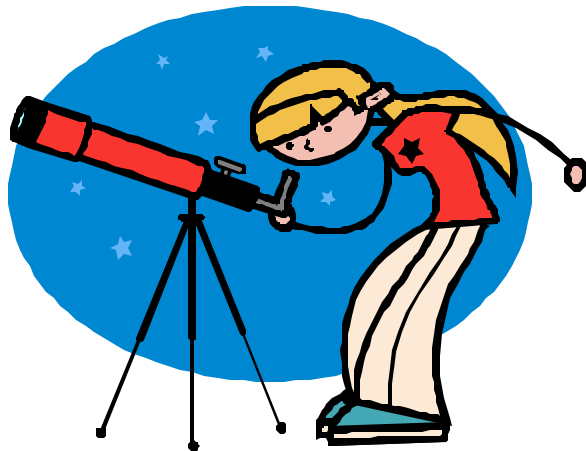
The first GOES-R satellite is scheduled for launch in 2015. Check [www.goes-r.gov](http://www.goes-r.gov) for updates. Space weather comes down to Earth in the clear and fun explanation for young people on SciJinks, <http://scijinks.gov/space-weather-and-us>.

*This article was provided by the Jet Propulsion Laboratory, California Institute of Technology, under a contract with the National Aeronautics and Space Administration.*

# Project ASTRO at West Chester University

**Share your love of astronomy with others and help local teachers open young minds to the beauty of the universe!**

Project ASTRO is a National Program that creates long-term partnerships between astronomers and teachers or youth group and community leaders. Project ASTRO pairs K-12 teachers and youth group leaders with visiting volunteer astronomers who have an interest in working with local schools and community organizations.



During a two-day training workshop, teachers and their partner astronomers meet for the first time and are engaged in effective classroom hands-on astronomy activities that meet the PA state science standards. All participants receive a copy of The Universe at Your Fingertips, a collection of over ninety of the very best hands-on activities for teaching many aspects of astronomy. The astronomers commit to making at least four visits to the same one or two classrooms or youth group. During these visits they answer students’ questions and

lead or assist the teacher with astronomy activities.

**We are in desperate need of astronomers! Our next training workshop is scheduled for August 20-21, 2010. For more information and volunteer forms visit our website at [http://geology.wcupa.edu/project\\_astro](http://geology.wcupa.edu/project_astro).**

**“Ozone Trap-n-Zap” Game Available en español!**

*submitted by the NASA Space Place Team*

Now available at *Space Place en español*, the new Ozone Trap-n-Zap game tells us why we should have mixed feelings about ozone, and gives us the chance to put it in its rightful place. Ozone is fickle. Sometimes it’s good to us, sometimes it isn’t. It all depends on its altitude in the atmosphere. Close to the ground—it’s harmful pollution. A little higher, in the mid-troposphere—it help clean pollution out of the air. Higher still at the top of the troposphere—it’s a greenhouse gas. And high up in the stratosphere—it absorbs harmful ultraviolet light. Play Ozone Trap-n-Zap *en español* at <http://spaceplace.nasa.gov/sp/kids/tes/ozone>.

**What’s a Solstice?**

*Submitted by the NASA SkiJinks Team*

Most of us know that Summer Solstice has the most daylight hours and Winter Solstice the fewest. The Vernal and Autumnal Equinoxes have equal amounts of daylight and dark.

But do we know why? What do these dates have to do with the equator and the Tropics of Cancer and Capricorn? And what exactly are the Tropic of Cancer and the Tropic of Capricorn? Where did these funny names come from?

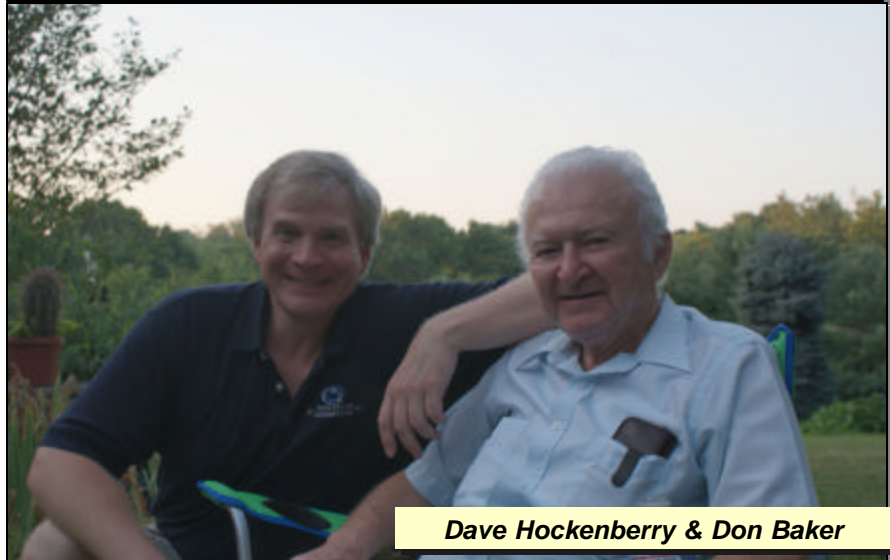
Find and understand the answers once and for all on SciJinks, <http://scijinks.gov/solstice>.

**Photos From the CCAS Summer Picnic**

*by Don Knabb*



**Part of the gathering at the Knabb residence**



**Dave Hockenberry & Don Baker**



**Waiting for Goodies**

## CCAS Founder's Award Presentation

by CCAS President Roger Taylor

Webmaster & Newsletter Editor was presented the CCAS Founder's Award by President Roger Taylor on July 17, 2010, during the Society's Summer Picnic.

Roger Taylor cited John's dedicated work to the Society maintaining the website and editing the monthly newsletter.

The Founder's Award was created in 2006 by then-president Kathy Buczynski in honor of CCAS founder Ed Lurcott. The award was created to recognize the outstanding service to the Society by individual members.

John is the fifth recipient of the award since its inception, fol-

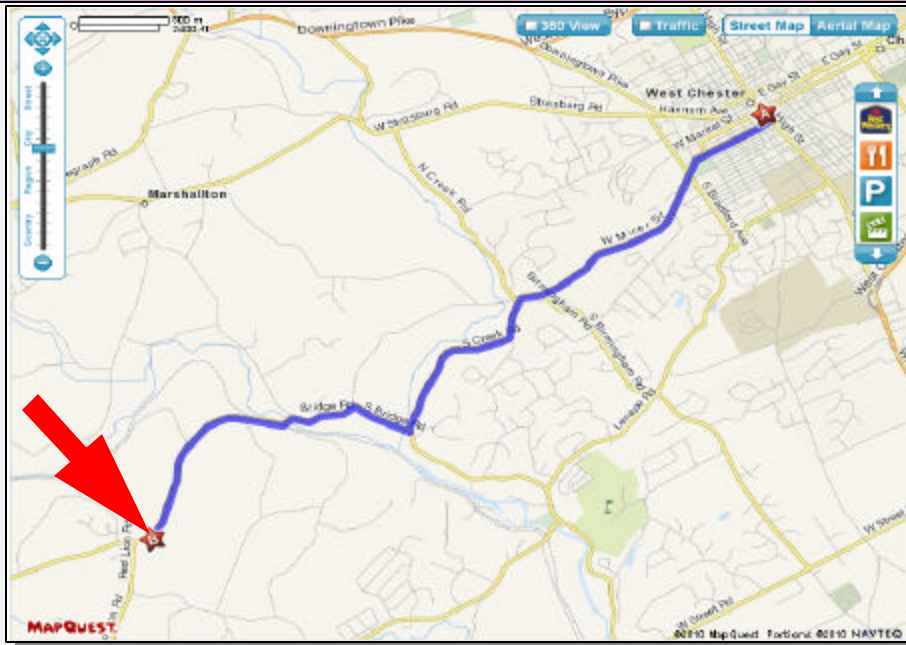


CCAS Webmaster & Newsletter Editor John Hepler proudly displays his CCAS Founders Award on July 17, 2010. Linda Lurcott Fragale and Don Knabb (Society Secretary & Observing Chair) look on.

lowing in the esteemed footsteps of previous recipients Jim

Anderson, Bob Popovich, Don Knabb, and Kathy Buczynski.

## 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 year-round) 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 113 in Merion Science Center (formerly the Boucher Building), attached to the Schmucker Science Center. The Schmucker Science Center is located at the corner of S. Church St & W. Rosedale Ave. Parking is generally available across Rosedale in the Sykes Student Union parking lot (Lot K).



### Observing (Cont'd)

(Continued from page 5)

**Meteor Showers:** The Perseid meteor shower goes on for many days with the peak being predicted to be late Thursday August 12<sup>th</sup> into the early morning hours of Friday August 13<sup>th</sup>. The Moon is new on August 9<sup>th</sup>, so it will set around 9:15 on the 12<sup>th</sup> and will therefore not interfere with the show. Up to 100 meteors per hour can be expected at the peak of the shower. My favorite Perseids are ones that occur just after dark when the radiant is low in the sky and meteors enter the atmosphere at a shallow angle, flying far across the sky.

### CCAS Membership Information and Society Financials

#### Treasurer's Report

by Bob Popovich

#### June 2010 Financial Summary

Beginning Balance	\$1,254
Deposits	\$125
Disbursements	\$0
Ending Balance	\$1,379

#### New Member Welcome!

In July we welcomed new CCAS member Beatrice Mazziotta & Family from Phoenixville, PA.

We're glad you decided to join us under the stars! Clear Skies to you!

#### Membership Renewals

You can renew your CCAS membership by writing a check payable to "Chester County Astronomical Society" and sending it to our Treasurer:

**Bob Popovich**  
416 Fairfax Drive  
Exton, PA 19341-1814

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.

## 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](mailto: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!



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>



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.greeneearthlighting.com>

## Local Astronomy-Related Stores

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



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 Kathy Buczynski 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. Kathy's phone number is 610-436-0821.

## CCAS Lending Library

Contact our Librarian, Linda Lurcott Fragale, 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. Linda's phone number is 610-269-1737.

## 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](mailto:newsletter@ccas.us)

Or mail the contribution, typed or handwritten, to:

**John Hepler**  
500 W. Rosedale Ave.  
Apt. A-3 Trinity Bldg.  
West Chester, PA 19382

## 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](mailto:newsletter@ccas.us).

## CCAS Website

John Hepler is the Society's Webmaster. You can check 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 (484-266-0699) or e-mail to [webmaster@ccas.us](mailto: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 "star nights" for school, scout, and other civic groups.

## CCAS Executive Committee

For further information on membership or society activities you may call:

<b>President:</b>	Roger Taylor 610-430-7768
<b>Vice Pres:</b>	Kathy Buczynski 610-436-0821
<b>ALCor and Treasurer:</b>	Bob Popovich 484-467-5562
<b>Secretary and Observing:</b>	Don Knabb 610-436-5702
<b>Librarian:</b>	Barb Knabb 610-436-5702
<b>Program:</b>	Dave Hockenberry 610-558-4248
<b>Education:</b>	Kathy Buczynski 610-436-0821
<b>Webmaster and Newsletter:</b>	John Hepler 484-266-0699
<b>Public Relations:</b>	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 Treasurer's Report in 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:

**Bob Popovich**  
416 Fairfax Drive  
Exton, PA 19341-1814

**Phone: 484-467-5562**  
**e-mail: [B2N2@verizon.net](mailto:B2N2@verizon.net)**

## Sky & Telescope 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 Bob Popovich.

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 Bob first at **610-363-8242**.

## 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 Bob Popovich**.