Observations

A Monthly Publication Of The
CHESTER COUNTY ASTRONOMICAL SOCIETY

Vol. 21, No. 2 *Two-Time Winner of the Astronomical League's Mabel Sterns Award ☼ 2006 & 2009* *February 2013*

In This Issue

CCAS Original Astrophotography

IC 342, Caldwell 5. Image courtesy of Dave Hockenberry. For more information, see pg. 12

Membership Renewals Due

02/2013	DiGiovanni
	Kalinowski
	La Para
	Macaleer
	McMahon
03/2013	Angelini
	End
	LaFrance
	Smith, Laurie
04/2013	Bower
	Imburgia
	Richter

Important February 2013 Dates

3rd • Last Quarter Moon, 8:56 a.m.

3rd • The Moon is near Saturn in the pre-dawn sky

10th • New Moon, 2:20 a.m.

17th • First Quarter Moon, 3:31 p.m.

25th• Full Moon, 3:26 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, March 16, 2013**. Spring Star party. Co-sponsored with the West Chester Department of Recreation in Hoopes Park, West Chester. The observing session will be in the field near the pavilion. Session is scheduled for 7:30 PM to 9:30 PM.

☼ **Saturday, March 30, 2013.** Bucktoe Creek Preserve Star Party, Kennett Square, PA. For more information, contact our Observing Chair, Don Knabb.

Winter/Spring 2013 Society Events

February 2013

1st • West Chester University Planetarium Show: "Binary Stars, Celestial Twins," in the Schmucker Science Building. The show starts at 7 p.m. For more information and reservations, visit the WCU Public Planetarium Shows webpage.

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.

8th • CCAS Monthly Observing Session, Myrick Conservancy Center, BVA (inclement weather date February 9th). The observing session starts at sunset.

8th • Reservations start for the March 1st planetarium show at the WCU Planetarium.

12th • CCAS Monthly Meeting, Room 113, Merion Science Center (former Boucher Building), West Chester University. Meet & Greet over coffee and refreshments from 7:00 to 7:30 p.m. The meeting starts immediately after at 7:30 p.m. Guest Speaker: Dr. Scott Engle, "Living with a Red Dwarf: How do M-stars age and how would life on their planets like it?"

20th • Open call for articles and photographs for the March 2013 edition of Observations.

26th • Deadline for newsletter submissions for the March 2013 edition of Observations.

March 2013

1st • West Chester University Planetarium Show: "Walking on the Moon," in the Schmucker Science Building. The show starts at 7 p.m. For more information and reservations, visit the WCU Public Planetarium Shows webpage.

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.

8th • CCAS Monthly Observing Session, Myrick Conservancy Center, BVA (inclement weather date March 9th). The observing session starts at sunset.

12th • CCAS Monthly Meeting, Room 113, Merion Science Center (former Boucher Building), West Chester University. Meet & Greet over coffee and refreshments from 7:00 to 7:30 p.m. The meeting starts immediately after at 7:30 p.m. Guest Speaker: Caroline Herschel, as portrayed by Lynn King.

15th • Reservations start for the April 5th planetarium show at the WCU Planetarium.

16th • Hoopes Park Star Party, West Chester. Event held from 7:30 PM to 9:30 PM.

20th • Open call for articles and photographs for the April 2013 edition of Observations.

20th • Vernal Equinox: First day of Spring.

26th • Deadline for newsletter submissions for the April 2013 edition of Observations.

30th • Bucktoe Creek Preserve Star Party, West Chester. Event held from 7:30 PM to 9:30 PM.

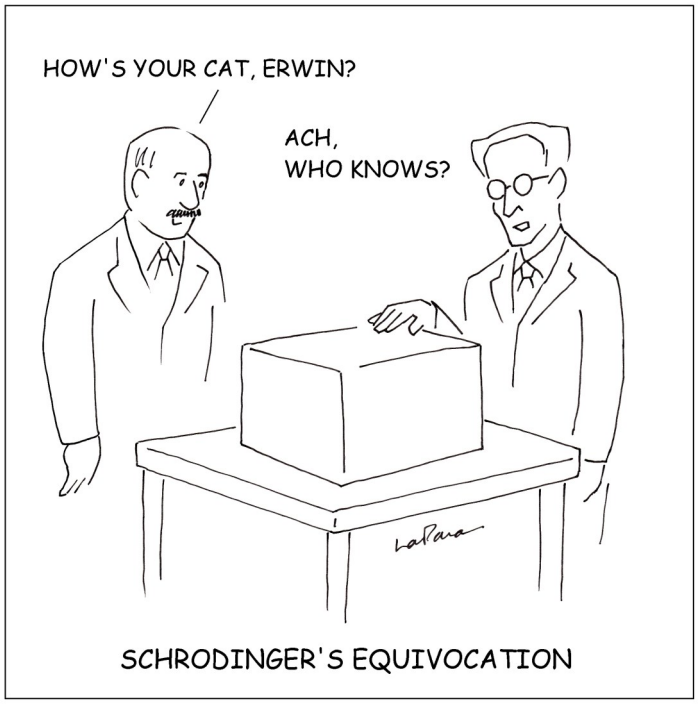
Minutes from the January 8, 2013 CCAS Monthly Meeting

by Ann Miller, CCAS Secretary

- Roger Taylor greeted 21 members and guests at the first CCAS meeting of 2013 in the WCU Planetarium. Roger thanked the Knabbs for hosting our Holiday Party, which was a great success. Roger also asked members to keep a careful eye on our activities calendar for 2013, as CCAS has already gotten several requests for demonstrations and star parties.
- Don Knabb presented Sky Safari highlights for the month of January. There is no BVA session for January, BVA will start again in February.
- Our speaker for the meeting was Dr. Karen VanLandingham, Director of WCU Planetarium and Astronomy faculty. She gave the group an overview of the history of the current projector, a Spitz A4. This optical/mechanical projector was installed in 1969, and she gave us a demonstration of its uses, limitations, and role in public outreach and teaching. There is currently a fund drive for WCU Planetarium renovations, which include a new digital projector, new dome, and renovation of the seating. She appealed to members to explore the WCU Foundation website for donation details and the "Seat to the Stars" program available to help fund the new facility.
- The session ended with a demonstration of the old projector.

Nicholas's Humor Corner

by Nicholas La Para



2013 Observing Plans

by Don Knabb, CCAS Treasurer & Observing Chair

Telescope at BVA, 2008. Photo by Don Knabb.

I have put together a plan for our observing events at the Brandywine Valley Association for this year, and 2013 is shaping up to be an excellent year for outreach to the general public to share the wonders of the night sky. I thought I'd share a few highlights from our upcoming observing events.

In previous years we have always selected a Friday night near the new Moon for observing at BVA to allow us to see faint deep sky objects. I thought we could try something different this year for two months when the sunset is so late that we can't really begin observing faint objects until around 9:30 p.m. So for the May and June BVA observing session I picked Fridays when the Moon is near First Quarter. That will allow us to study the Moon earlier in the evening and if anyone is interested we can make a good start on the Lunar 1 Observing Club of the Astronomical League. This club is fun to pursue and is not terribly difficult, although as always there are a few challenging objects to observe.

And as the Moon heads toward the horizon the fainter stars and deep sky objects will become visible for those who wish to stay late at BVA. So let's give this a try for the May and June BVA observing events and see if we like this idea or if we want to return to the usual scheduling near the new Moon.

In addition to our events at BVA, we have several events scheduled with the general public with both our usual partners and with several new groups. So far we have our spring party in West Chester at Hoopes Park and I expect we will also have a fall star party at Hoopes Park. I have not heard from our contacts at Anson Nixon Park in Kennett Square but I expect we'll schedule a spring and fall event at that

(Continued on page 11)

February 2013 Speaker

by Dave Hockenberry, CCAS Program Chair

Our next meeting will be held on February 12, 2013, starting at 7:30 p.m. The meeting will be held in Room 113, Merion Science Center (former Boucher Building), West Chester University. Dr. Scott Engle at Villanova University will present, "Living with a Red Dwarf: How do M-stars age and how would life on their planets like it?

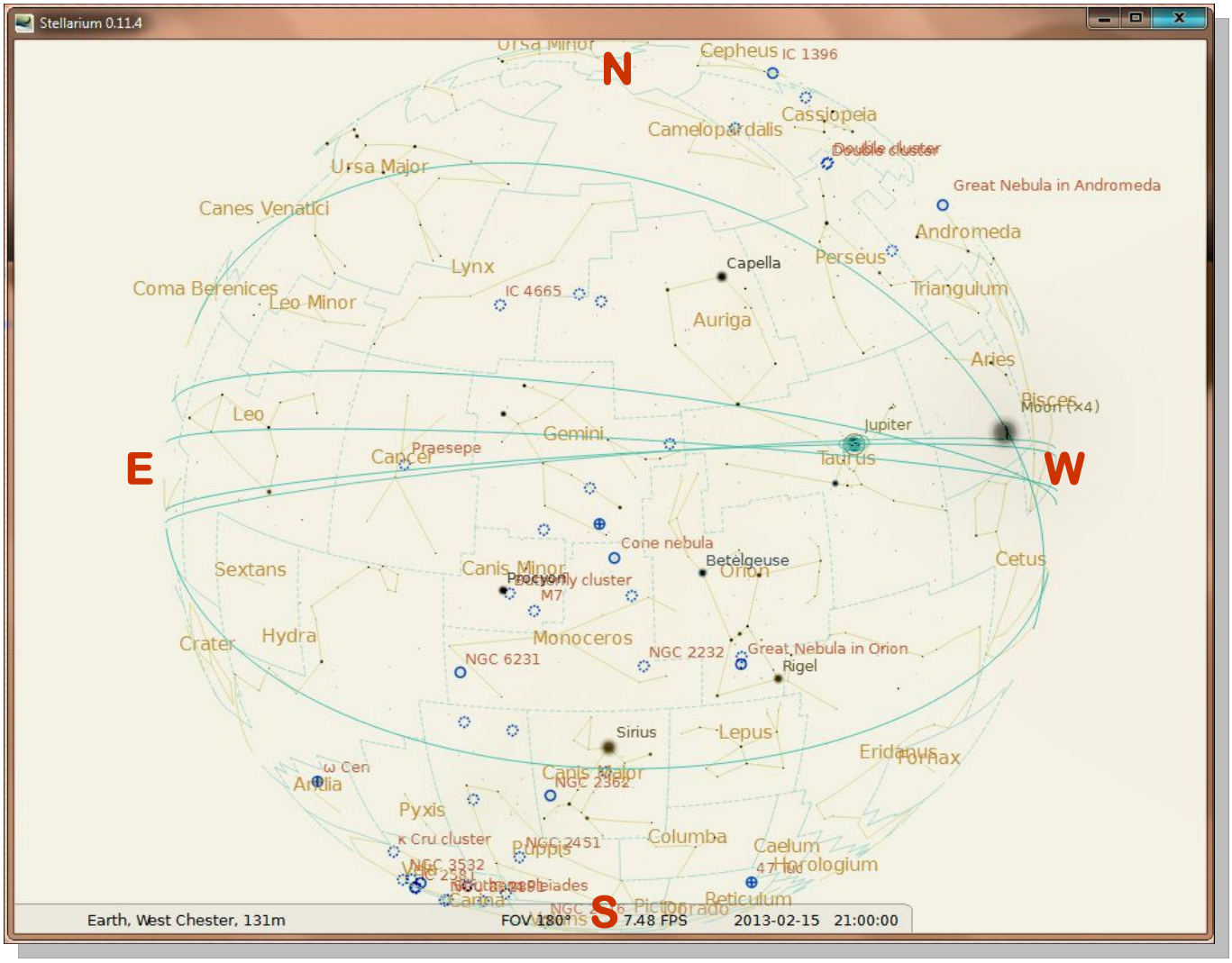
Please note that inclement weather or changes in speakers' schedules may affect the program. In the event there is a change, CCAS members will be notified via e-mail with as much advance notice as possible.

We are looking for presenters for our meetings in April and May of this year, along with the sessions this coming autumn. 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

February 15, 2013 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
2/01/2013	6:40 a.m. EST	7:09 a.m. EST	5:20 p.m. EDT	5:49 p.m. EST	10h 11m 23s
2/15/2013	6:25 a.m. EST	6:53 a.m. EST	5:37 p.m. EST	6:05 p.m. EST	10h 43m 46s
2/28/2013	6:08 a.m. EST	6:35 a.m. EST	5:52 p.m. EST	6:19 p.m. EST	11h 16m 35s

Moon Phases					
Last Quarter	2/03/2013	8:56 a.m. EST	First Quarter	2/17/2013	3:31 p.m. EST
New Moon	2/10/2013	2:20 a.m. EST	Full Moon	2/25/2013	3:26 p.m. EST

February 2013 Observing Highlights

by Don Knabb, CCAS Treasurer & Observing Chair

3	**Last Quarter Moon, 8:56 a.m. EST**
3	**The Moon is near Saturn in the pre-dawn sky**
10	**New Moon, 2:20 a.m. EST**
11	**The Moon, Mercury and Mars are close in the evening twilight**
16	**Mercury is at its best in the evening sky for 2013**
17	**First-quarter Moon, 3:31 p.m. EST**
18	**The waxing gibbous Moon is very close to Jupiter**
18	**The Lunar Straight Wall is visible**
25	**Full Moon, 3:26 p.m. EST**
27	**Look for the zodiacal light during the next 2 weeks**

The best sights this month: The Orion Nebula is one of the "must see" objects in the February sky. Although it is often very cold it can also be very clear and still during February, so dress warmly and get that telescope set up and gaze in awe at this beautiful birthplace of stars. Of course Jupiter continues to put on a great show, and use your binoculars to watch for Mercury on the 11th when it is between a very thin crescent Moon and dim Mars.

Mercury: This is the best month of the year to observe elusive Mercury. Although it is highest in the sky on the 16th, I'll look for it on the 11th when it is between a very thin crescent Moon and dim Mars. Look for this group about a half hour after the Sun sets.

Venus: Venus disappears below the horizon during February and will reappear as "the evening star" in May.

Mars: Early February is your last chance to see Mars for quite a few months, and the red planet is very dim and low in the west. You'll need binoculars or a telescope to find this faint planet. Although Mars will appear in the early morning hours later this year it will not be an evening object until 2014.

Jupiter: Jupiter continues to be the highlight of the evening observing hours. We are beginning to pull away from Jupiter in our orbit around the Sun but the king of the planets remains high in the sky. Try to catch one of the Galilean moons disappearing behind the planet's disk or appearing as it comes around from its trip around the back side of the planet. Those moments at the eyepiece are unforgettable.

Saturn: The ringed beauty is rising around midnight during February so the best viewing is still in the pre-dawn hours. I'll wait a few months to enjoy the sight of Saturn in the eyepiece. Anticipation is enjoyable when something as wonderful as Saturn is coming our way.

Uranus and Neptune: The opportunity to observe these distant gas giants is behind us until late in 2013 as first Neptune then Uranus approach conjunction with the Sun in the coming weeks.

The Moon: Full moon is on February 25th. According to Native Americans this is the Full Snow Moon since the heaviest snow usually falls during this month. Some tribes also referred to this Moon as the Full Hunger Moon, since harsh weather conditions in their areas made hunting very difficult.

Constellations: During February look to the west early to see the Great Square of Pegasus setting. Behind Pegasus and Andromeda the winter constellations take control of center stage for all of February. Stay up late and see bright Arcturus in Bootes rising in the east.

Messier/deep sky: Grab your binoculars to search the February sky for deep sky objects since binoculars have nearly zero set up time compared to a cold telescope. The hardest part of telescopic viewing during the cold months is putting a telescope away. It's hard to handle a telescope and tripod with gloves on so the cold metal parts chill your hands very quickly. Binoculars however, once you get them focused, can be easily handled with gloves on your hands. And even a small pair of binoculars will

(Continued on page 9)

Plans for Upgrading the WCU Planetarium

by Dr. Karen Vanlandingham, PhD, West Chester University

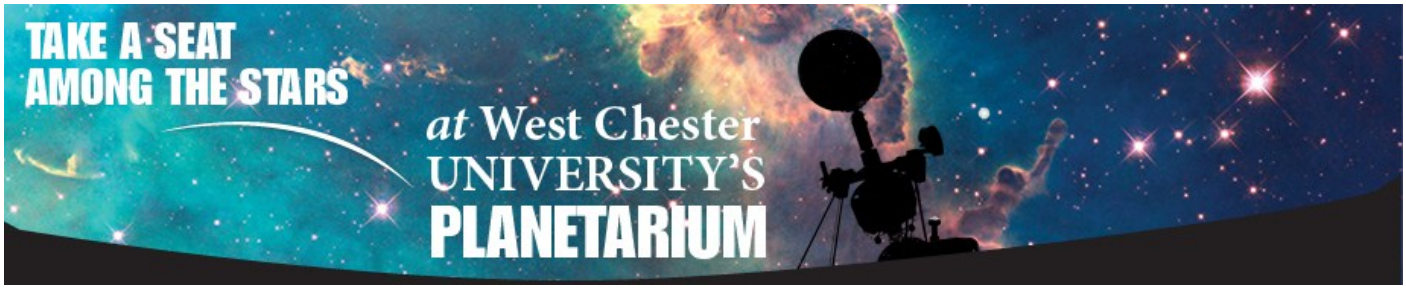
Last year we announced a fund-raising campaign to upgrade the WCU planetarium with a state-of-the-art digital projector, seamless dome, and more comfortable seats. We are excited to share with you that we have a major donor who has jumpstarted our efforts by donating $250,000! With this very generous donation we're almost half way to a whole new planetarium!

We have several ways that members of the community can help us reach our goal. You can contribute to the Friends of the Planetarium Campaign (see below). Members are entitled to a variety of benefits such as free season tickets to our public series, private screenings, and more!

The **Your Place in Space Campaign** allows interested donors to buy a seat for the new planetarium. Our old seats will be replaced with comfortable reclining chairs! Your donation provides one seat, which can be personalized with a brass nameplate. This is a unique opportunity to make a lasting gift inside this new state-of-the-art facility. If you are looking for a one-of-a-kind gift for a friend or family member, consider giving them their own Place in Space!

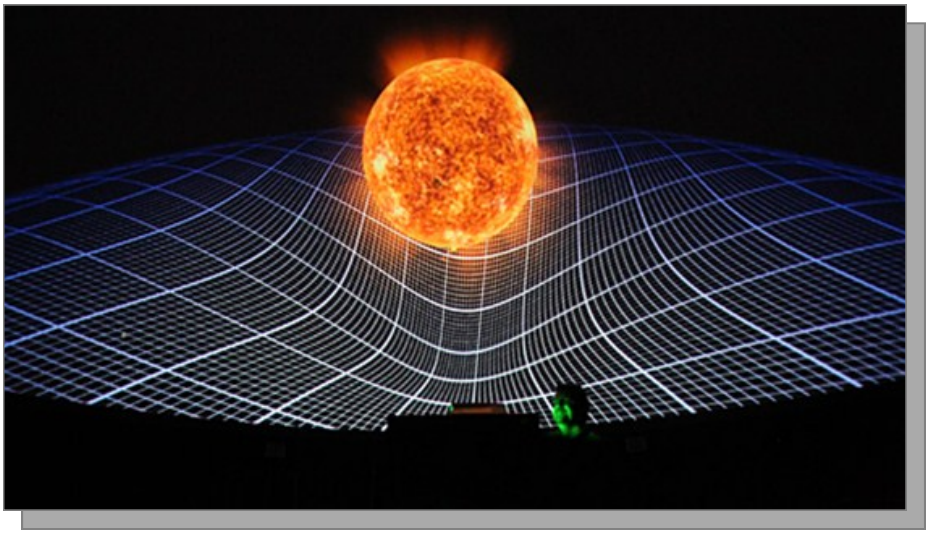
The current planetarium dome and Spitz projector were installed in 1969.

Outside of the planetarium is another unique experience for the entire community. Kicking off in the fall is the **WCU Passport to the Planets** – walk from planet to planet without leaving West Chester! With a scale model Sun located on Church St. at the WCU planetarium, the planets will reside at local businesses throughout the borough, to the scale of the solar system of course! Businesses who host a planet will receive a beautiful plaque and access to VIP events at the planetarium. Visitors to the planetarium will receive passports indicating the location of each planet. People who get their passport stamped at every planet will be invited to attend a special event at the end of the year. Individuals who wish to be a part of the solar system can purchase asteroids and comets!



Upgrading the Planetarium (cont'd)

Friends of the Planetarium Giving Levels	
Comet	Up to $99
Planet	$100 to $249
Star	$250 to $499
Supernova	$500 to $999
Galaxy	$1,000 to $4,999
Quasar	$5,000 to $9,999
Cosmos	$10,000 +



The SciDome XD – our future!

To learn more about any of the fund raising campaigns please contact Dr. Karen Vanlandingham at (610) 436-2788, kvanlandingham@wcupa.edu, or Kathleen Sanger, gift officer for the campaigns, at (610) 430-4154, ksanger@wcufoundation.org.

Donations needed for the CCAS Planetarium Chair at West Chester University

by Don Knabb

Those of you who attended the January meeting heard Dr. Karen Vanlandingham's presentation about the upcoming renovations to the West Chester University planetarium. This is an exciting project that is near and dear to the Chester County Astronomical Society's heart since it was at West Chester University that our society originated.

The university has a program where the general public can support the planetarium renovations. You can find a description of the planetarium and ways to support this project at: http://www.wcufoundation.org/page.aspx?pid=787.

As a club, we would like to support the planetarium renovation by participating in the "Take a Seat Among the Stars" campaign. Through this campaign we can collect donations of any amount from club members and as a group we can purchase a seat in the new planetarium for $500. All members who donate funds will be given a certificate of participation from the club.

There will be a small engraved plaque affixed to the chair that will state that the chair was funded by the members of the Chester County Astronomical Society. We also have a 25 character space to include a message from the club.

We need to act quickly since once all the seats are spoken for this opportunity will have passed us by like a comet falling into the Sun. Send all donations to the club treasurer, Don Knabb, at 988 Meadowview Lane, West Chester, PA, 19382. Checks need to be written to CCAS or The Chester County Astronomical Society.

The Art of Space Imagery

by Diane K. Fisher

When you see spectacular space images taken in infrared light by the Spitzer Space Telescope and other non-visible-light telescopes, you may wonder where those beautiful colors came from? After all, if the telescopes were recording infrared or ultraviolet light, we wouldn't see anything at all. So are the images "colorized" or "false colored"?

No, not really. The colors are translated. Just as a foreign language can be translated into our native language, an image made with light that falls outside the range of our seeing can be "translated" into colors we can see. Scientists process these images so they can not only see them, but they can also tease out all sorts of information the light can reveal. For example, wisely done color translation can reveal relative temperatures of stars, dust, and gas in the images, and show fine structural details of galaxies and nebulae.

Spitzer's Infrared Array Camera (IRAC), for example, is a four-channel camera, meaning that it has four different detector arrays, each measuring light at one particular wavelength. Each image from each detector array resembles a grayscale image, because the entire detector array is responding to only one wavelength of light. However, the relative brightness will vary across the array.

So, starting with one detector array, the first step is to determine what is the brightest thing and the darkest thing in the image. Software is used to pick out this dynamic range and to recompute the value of each pixel. This process produces a grey-scale image. At the end of this process, for Spitzer, we will have four grayscale images, one for each for the four IRAC detectors.

Matter of different temperatures emit different wavelengths of light. A cool object emits longer wavelengths (lower energies) of light than a warmer object. So, for each scene, we will see four grayscale images, each of them different.

Normally, the three primary colors are assigned to these grayscale images based on the order they appear in the spectrum, with blue assigned to the shortest wavelength, and red to the longest. In the case of Spitzer, with four wavelengths to represent, a secondary color is chosen, such as yellow. So images that com-

(Continued on page 9)

This image of M101 combines images from four different telescopes, each detecting a different part of the spectrum. Red indicates infrared information from Spitzer's 24-micron detector, and shows the cool dust in the galaxy. Yellow shows the visible starlight from the Hubble telescope. Cyan is ultraviolet light from the Galaxy Evolution Explorer space telescope, which shows the hottest and youngest stars. And magenta is X-ray energy detected by the Chandra X-ray Observatory, indicating incredibly hot activity, like accretion around black holes.

Space Place (cont'd)

(Continued from page 8)

bine all four of the IRAC's infrared detectors are remapped into red, yellow, green, and blue wavelengths in the visible part of the spectrum.

Download a new Spitzer poster of the center of the Milky Way. On the back is a more complete and colorfully-illustrated explanation of the "art of space imagery." Go to http://spaceplace.nasa.gov/posters/#milky-way.

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

Space Place for iPhone

'Space Place Prime,' the popular NASA iPad magazine, is now available for iPhone. This exciting app gathers some of the best and most recent web offerings from NASA. It taps engrossing articles from The Space Place website, enlightening NASA videos, and daily images such as the Astronomy Picture of the Day and the NASA Earth Observatory Image of the Day.

Space Place Prime targets a multigenerational audience. Kids, teachers, parents, space enthusiasts, and everyone in between will find fascinating features on this new, free NASA iPhone app. Look for it in the Apple Store today at http://itunes.apple.com/us/app/space-place-prime/id543935008?mt=8

Observing (cont'd)

(Continued from page 5)

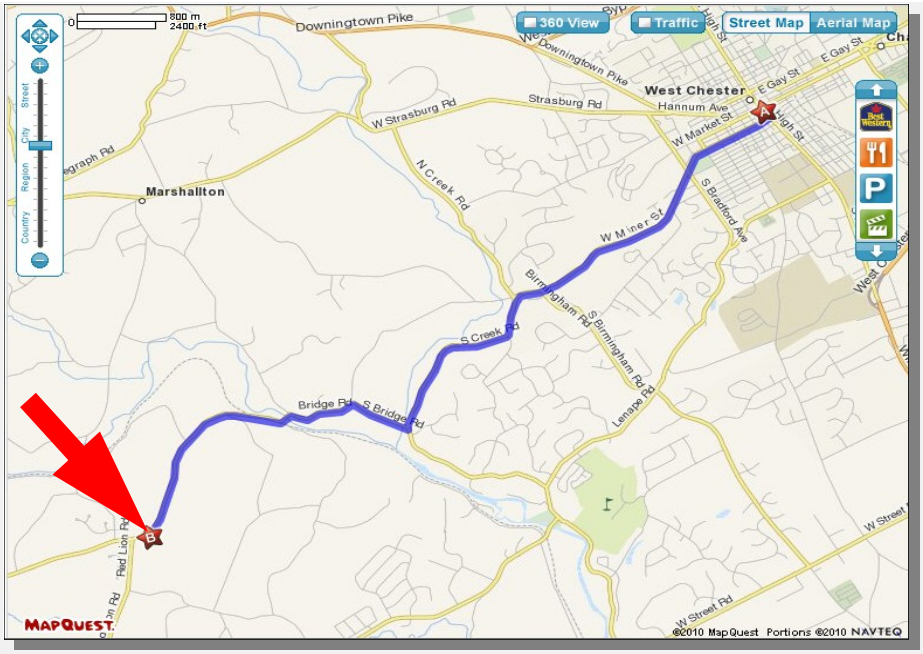
bring many deep sky objects within view.

Look for the three open clusters in Auriga – they might be in one field of view, or nearly so. Then find one of my favorites, the Beehive, in Cancer the Crab. Then aim at Orion's belt and see the beautiful "S" curve of stars on the right side of his belt.

Comets: There are no bright comets in the sky during February. But, there is a good possibility that Comet PanSTARRS will approach magnitude 0 or brighter in March in the fading glow of the sunset. Stay tuned for updates on this exciting

(Continued on page 12)

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).

Through the Eyepiece: M 46, Open Cluster in Puppis

by Don Knabb, CCAS Treasurer & Observing Chair

During February we have a chance to look at some southern constellations as they peek above the horizon for a few months. One of these constellations is Puppis and it contains a beautiful open cluster, M 46. Terence Dickinson in his classic book *Nightwatch* refers to M46 as "beautiful in small scopes; richest in this region."

Puppis is the Latin word for the poop deck of a ship, and Puppis represents the deck of the ship and its deckhouses. Puppis was originally part of an over-large constellation, the ship of "Jason and the Argonauts", Argo Navis, which was centuries later divided into three parts, the other two being Carina (the keel and hull), and Vela (the sails of the ship).

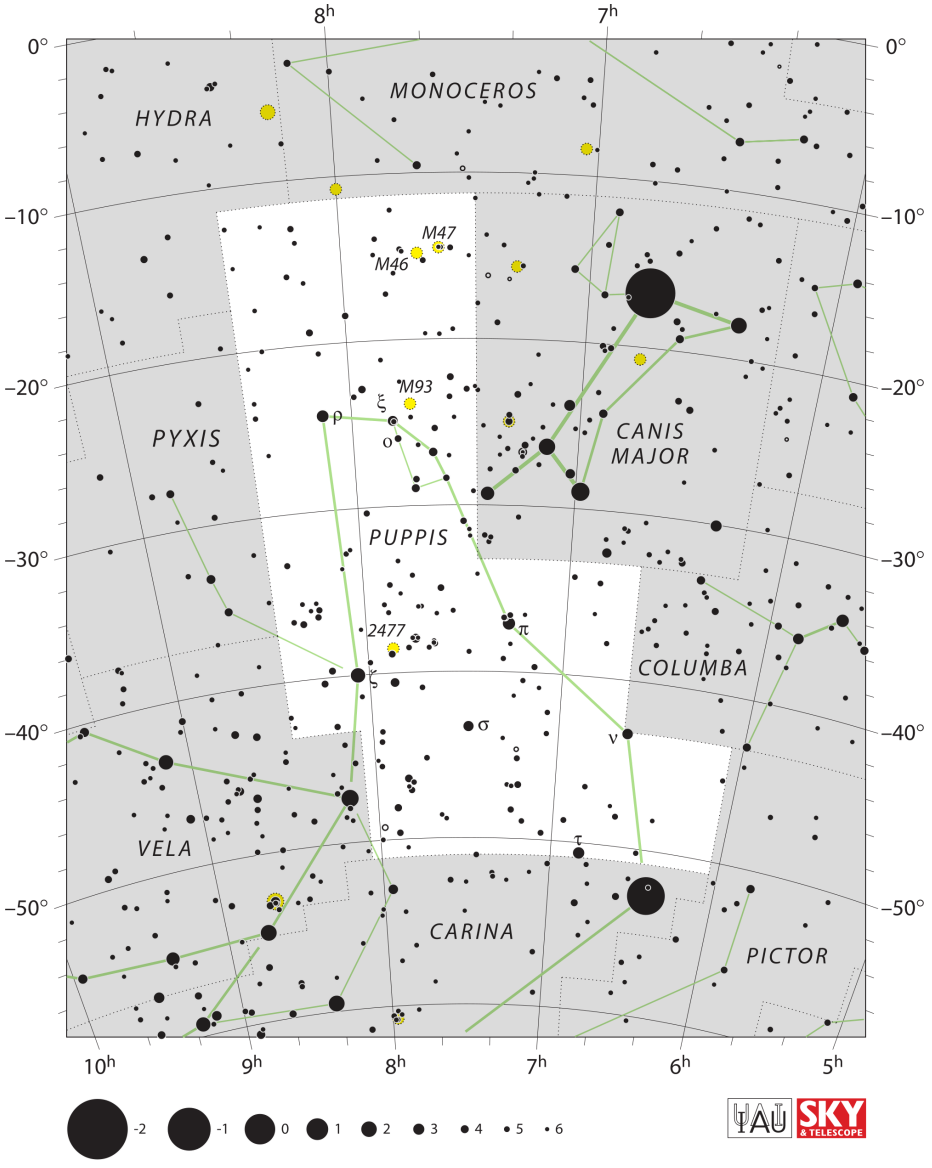
It is actually easier to find M 46 using the bright star Sirius as a guide as you can see on the star chart below. Just scan to the left (east) of Sirius with your binoculars and you will find both M 46 and M 47.

M 46 was discovered by Charles Messier in 1771. Messier added it to his catalog three days after publishing the first edition of his list (containing M 1 - M 45).

M 46 appears in a rich region of the Milky Way in northern Puppis, about 1.5 degrees east of M 47. The two clusters fit well in a binocular or wide-angle telescope field. M 46 is very rich, with 150 stars of magnitude 10 - 13, and probably a total population over 500 stars. Its members are scattered over an angular diameter of about 27'; the brightest is of apparent magnitude 8.7. The cluster has a total visual magnitude of 6.0.

If you use a large telescope you might also see NGC 2438, a planetary nebula within the cluster, near its northern fringes. However, this nebula is probably not a member of the cluster. Planetary nebulas are late states in stellar evolution, visible only for a few thousands of years before their material disperses into interstellar space. They occur only for stars of less than 3 solar masses (more massive stars go supernova). These stars, however, need more than a billion

(Continued on page 11)



Sky map credit: http://en.wikipedia.org/wiki/File:Puppis_IAU.svg

Observing Plans (cont'd)

(Continued from page 3)

excellent observing location. And we have an event in April that replaces our BVA observing with a star party at Springton Manor Farm, part of the Chester County Park organization. We have held several events at this park and the observing location is excellent.

We have two events in southern Chester County planned, one at Nottingham Park and one at Bucktoe Creek Preserve in Avondale. These are both new groups for our club, so these will be interesting events. And I expect to hear from our friends at the Delaware Museum of Natural History. The observing location at the Museum is not ideal, but it is an excellent facility and the crowd we experienced last summer was very enthusiastic.

Beyond all that we expect to be contacted by some folks from the LL Bean store in King of Prussia. I don't know what type of event they are interested in but I'll let you know if we are able to fit them into our schedule.

So as you see we have a busy schedule shaping up for 2013. It is always a great feeling when people who do not own observing equipment take a peek at the night sky with us and share the view in the eyepiece of a telescope. If you don't have equipment to share, we always need help at star parties with crowd control, handing out literature and helping set up and take down equipment.

As always, the event calendar section on the CCAS website lists the dates of the events mentioned above. I hope to see you under the stars!

Eyepiece (Cont'd)

Image courtesy of Pete LaFrance

(Continued from page 10)

years to evolve until they eject their envelope to form the planetary. This is much longer than the age of M 46.

Above is a picture taken by CCAS member Pete LaFrance from his observatory in Avondale, Pennsylvania. What an eyepiece full of stars this is! NGC 2438 can be seen near the top of Pete's picture, just to the left of center.

Information sources:
Sky Safari Pro planetarium software
http://en.wikipedia.org/wiki/File:Puppis_IAU.svg
http://en.wikipedia.org/wiki/Puppis

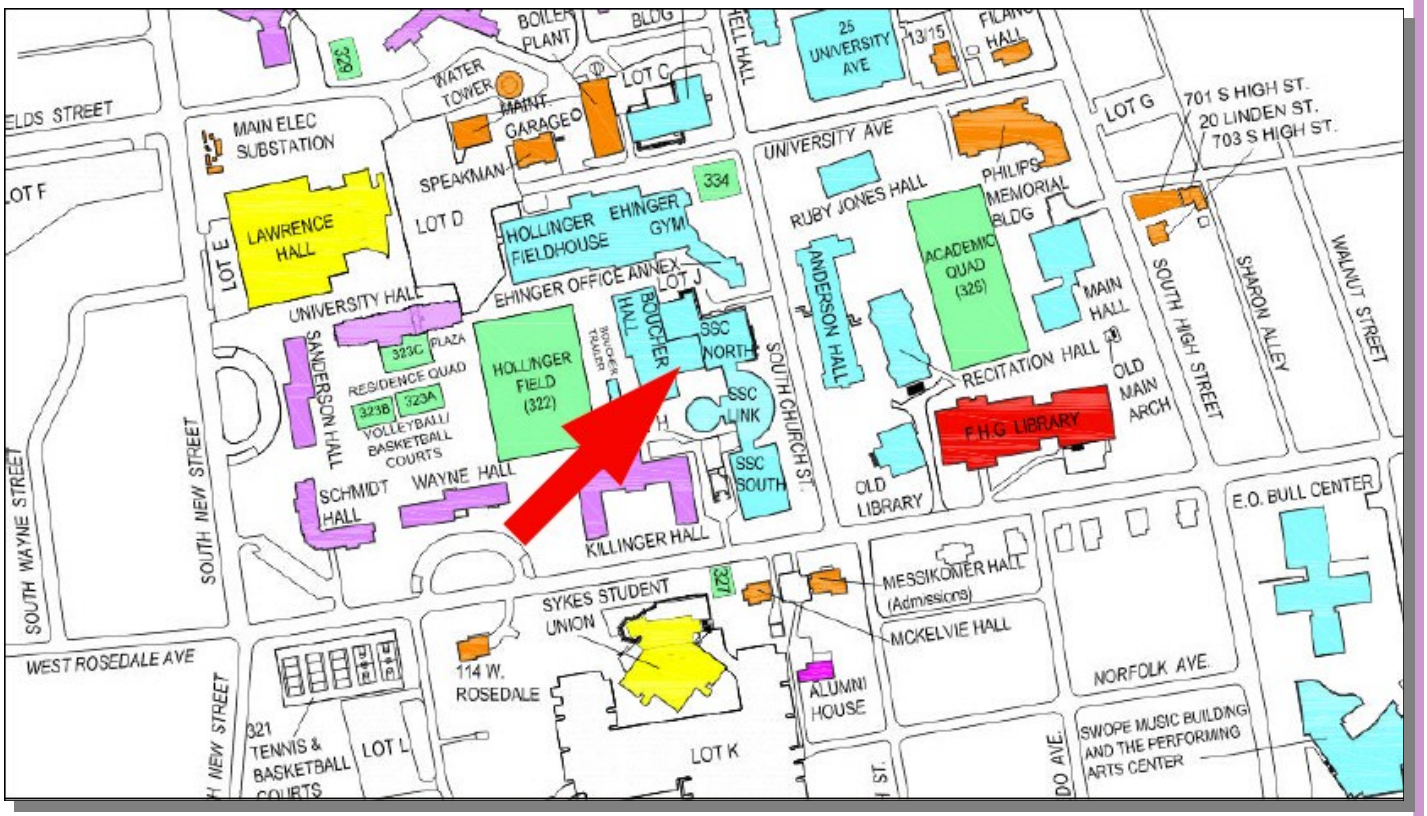
Space Place Newsletter Available Online

The latest issue of the **Space Place Newsletter: News and Notes for Formal and Informal Educators** has just been published. The newsletter is all about the many useful and—it goes without saying—free resources on the Space Place website that can be helpful for kids and grown-ups interested learning about science, technology, and space. For your convenience, a PDF version of the newsletter may be downloaded from http://spaceplace.nasa.gov/educator-newsletter.

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 9)

show!

Meteor showers: There are no major meteor showers during February.

On the cover: Caldwell 5, or IC 342. Shot 11/8, 11/10. 11/11/12 with QSI 583 wsg camera through an AstroTech AT8RC telescope at 1625 mm FL an an AP 1200 mount. Autoguided with SX Lodestar camera, SX AO adaptive optics unit and MaxIm DL. Image capture with MaxIm DL Pro. Images calibrated, stacked, and RGB creation along with Lum deconvolution in CCDStack. L-RGB merge and further adjustments in Photoshop CS5. Background noise reduction and gradient removal with Noise Ninja and Gradient Xterminator. 300 minutes Luminance (15 minute subexposures), 90 minutes each Red, Green and Blue subexposures (10 minutes each) through AstroDon filters. Caldwell 5 is a large face on galaxy in Camelopardalis, about half the size of the Milky Way and about 7 million light years distant. Since it lies in our galaxies plane this is a tough target for professional and amateur astronomers alike as it is obscured by dust and debris from the Milky Way's arms. The pink areas seen in the photo are star forming regions in C5's spiral arms.

CCAS Membership Information and Society Financials

Treasurer's Report
by Don Knabb

Jan 2013 Financial Summary

Beginning Balance	$1,609
Deposits	$80
Disbursements	$0
Ending Balance	$1,689

New Member Welcome!

Welcome new CCAS member Stan Lurcott.

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

★ ★ ★ ★ ★

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

★ ★ ★ ★ ★

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.**