



Observations

A Monthly Publication Of The
CHESTER COUNTY ASTRONOMICAL SOCIETY

Vol. 21, No. 10 Two-Time Winner of the Astronomical League's Mabel Sterns Award ☼ 2006 & 2009 October 2013

In This Issue

CCAS Autumn 2013 Events	2
September 2013 Meeting Minutes ...	2
Nicholas's Humor Corner	2
Fall 2013 Meeting Speakers.....	3
CCAS Celebrates 20 Years	3
The Sky Over Chester County:	
October 2013	4
October 2013 Observing	
Highlights	5
NASA's Space Place.....	6
CCAS Directions: Brandywine	
Valley Association.....	7
Through the Eyepiece: Ghostly	
Objects in the Sky.....	8
CCAS Original	
Astrophotography	10
Voyager Leaves Solar System	11
Membership Renewals	12
New Member Welcome	12
CCAS Directions:	
WCU Map	12
Treasurer's Report.....	12
CCAS Information	
Directory.....	13-14

Van den Berg 152



Image by Dave Hockenberry, CCAS Program Chair. For more info, see pg. 10

Important October 2013 Dates

- 4th** • New Moon, 8:35 p.m.
- 11th** • First Quarter Moon, 7:03 p.m.
- 18th** • Full Moon, 7:38 p.m.
- 21st** • Orionid Meteor Shower Peaks
- 26th** • Last Quarter Moon, 7:41 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, October 12, 2013.** CCAS Special Observing Session, Anson Nixon Park Star Party, Kennett Square.

☼ **Friday, November 1, 2013.** CCAS monthly observing session at BVA. The observation session starts at dusk.

Membership Renewals Due

10/2013	Conrad Gonzalez Leiden Payne Toth Vence
11/2013	Buczynski DiGregorio Hepler Holenstein Taylor
12/2013	Bogusch O'Leary

Autumn 2013 Society Events

October 2013

2nd • 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 October 5th). The observing session starts at sunset.

10th • CCAS Monthly Meeting, Room 112, Merion Science Center (former Boucher Building), West Chester University. The meeting starts at 7:30 p.m. Guest Speaker: Paul Evenson, PhD from the University of Delaware Physics and Astronomy Department who will be presenting "The Construction and Operation of the Ice Cube Neutrino Observatory at the South Pole."

10th • The von Kármán Lecture Series: [Theodore Von Karman and the Creation of JPL](#), Jet Propulsion Laboratory, Pasadena, California. Live stream of free lecture presented by NASA & Caltech.

12th • [Fall Astronomy Day](#). Learn more about Astronomy Day events by checking the web site of the Astronomical League.

18th • West Chester University Planetarium Show: "Venus, the Evening Star," in the Schmucker Science Building. For more information and reservations, visit the [WCU Public Planetarium Shows](#) webpage.

20th • Open call for articles and photographs for the November 2013 edition of [Observations](#).

26th • Deadline for newsletter submissions for the November 2013 edition of [Observations](#).

November 2013

1st • CCAS Monthly Observing Session, Myrick Conservancy Center, BVA (inclement weather date November 2nd). The observing session starts at sunset.

3rd • Daylight Savings Time Ends - Turn clocks back one hour (2:00 AM EST)

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.

7th • The von Kármán Lecture Series: [From IRAS to Spitzer and Beyond: 30 years of Space-Based Infrared Astronomy](#), Jet Propulsion Laboratory, Pasadena, California. Live stream of free lecture presented by NASA & Caltech.

12th • CCAS Monthly Meeting, Room 112, Merion Science Center (former Boucher Building), West Chester University. The meeting starts at 7:30 p.m. Guest Speaker: Dave Goldberg, PhD from Drexel University Physics and Astronomy.

15th • West Chester University Planetarium Show: "Comet ISON," in the Schmucker Science Building. For more information and reservations, visit the [WCU Public Planetarium Shows](#) webpage.

20th • Open call for articles and photographs for the November 2013 edition of [Observations](#).

26th • Deadline for newsletter submissions for the November 2013 edition of [Observations](#).

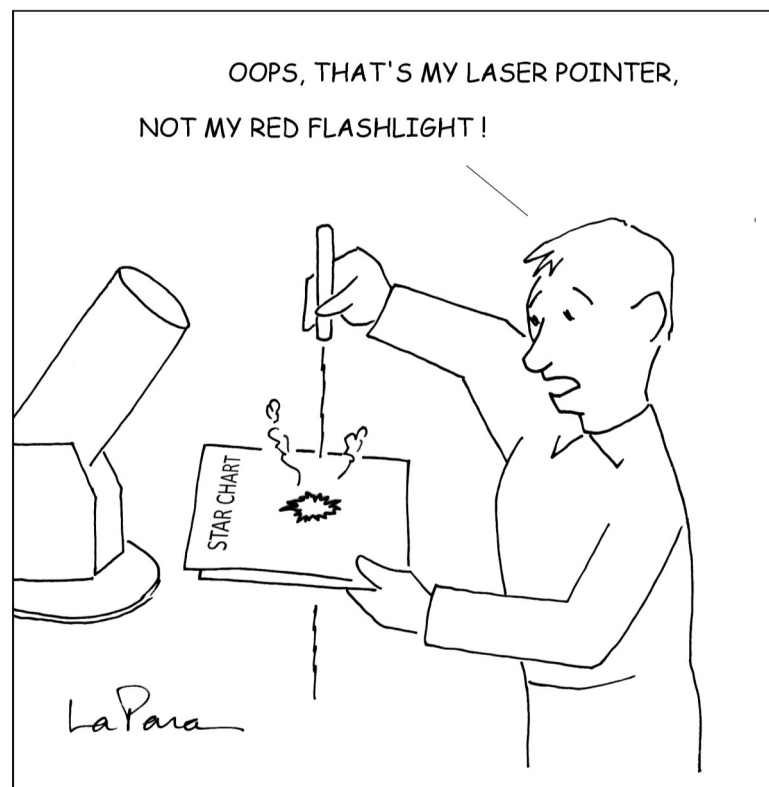
Minutes of the September 2013 Meeting

by Ann Miller, CCAS Secretary

- Roger Taylor welcomed 26 members and guests to the September meeting. He reminded the group of the upcoming star party at Hoopes Park in West Chester, PA on Saturday, September 14, 2013.
- To our great surprise, Ed Lurcott was able to join us to celebrate the 20th anniversary of the founding of CCAS. He was met with a rousing cheer and applause.
- Don Knabb, our observing chair, gave our monthly Stellarium tour of the night sky.
- Kathy Buczinski reminded the club of the star party at Tyler Arboretum on Friday, September 13, 2013. It is a family event and she will present Phases of the Moon.
- David Hockenberry, program chair introduced our guest speaker, Mark Delvin, PhD, from the University of Pennsylvania. He presented BLAST Balloon Borne Large Aperature Submillimeter Telescope. The talk was opened with a movie trailer for the documentary "BLAST!" by Paul Devlin, a documentary film maker who is the brother of our presenter.
- Dennis O'Leary, our NASA solar system ambassador, encouraged our members to sign up to become ambassadors. NASA is looking to add 150 ambassadors to the area.
- Ed Lurcott thanked the present and past officers and members for making the CCAS a successful club. Cake was cut and shared by all.

Nicholas's Humor Corner

by Nicholas La Para



Celebrating CCAS's 20th Anniversary

by John Hepler, CCAS Webmaster & Newsletter Editor



Current CCAS President Roger Taylor and founder Ed Lurcott hold CCAS 20th anniversary cake.

Last month's meeting, on September 10, 2013, was a special night for more than one reason. First, CCAS members celebrated the 20th anniversary of the founding of the Society with a cake and light refreshments.

More importantly, founder Ed Lurcott, on the mend from re-

cent surgery, surprised everyone with his arrival at the meeting.

Guest speaker Dr. Mark Delvin from the University of Pennsylvania presented "BLAST Balloon Borne Large Aperature Submillimeter Telescope."

A memorable evening indeed!

Speakers for Autumn 2013 CCAS Meetings

by Dave Hockenberry, CCAS Program Chair

Our next meeting will be held on October 8, 2013, starting at 7:30 p.m. The meeting will be held in **Room 112, Merion Science Center** (former Boucher Building), West Chester University. Guest Speaker: Paul Even-son, PhD from the University of Delaware Physics and Astronomy Department. He will present "The Construction and Operation of the Ice Cube Neutrino Observatory at the South Pole."

Dave Goldberg, PhD from Drexel University Physics and Astronomy, will be our guest speaker at the November 12th meeting. His topic is not settled yet, but will either be about his research in Gravitational Lensing or on his new book "Symmetry - the Universe in the Rear View Mirror."

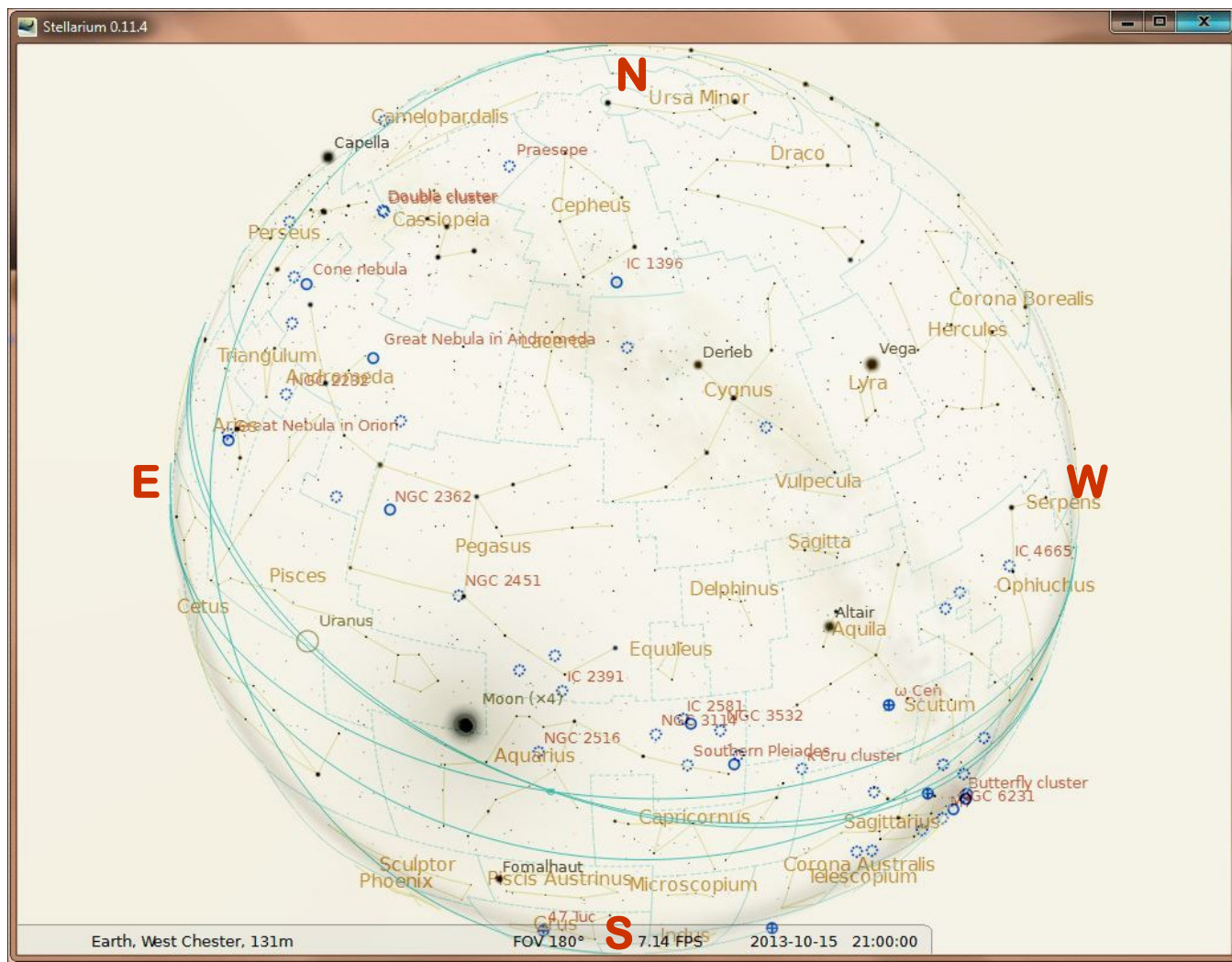
Please note that inclement weather or changes in speakers' schedules may affect the program. In the event there is a change, CCAS members will be notified via e-mail with as much advance notice as possible.

We are looking for presenters for future meetings in 2014. 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

October 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
10/01/2013	6:30 a.m. EDT	6:57 a.m. EDT	6:43 p.m. EDT	7:10 p.m. EDT	11h 45m 28s
10/15/2013	6:44 a.m. EDT	7:11 a.m. EDT	6:21 p.m. EDT	6:48 p.m. EDT	11h 09m 27s
10/31/2013	7:01 a.m. EDT	7:29 a.m. EDT	5:59 p.m. EDT	6:27 p.m. EDT	10h 30m 25s

Moon Phases					
New Moon	10/04/2013	8:35 p.m. EDT	Full Moon	10/18/2013	7:38 p.m. EDT
First Quarter	10/11/2013	7:03 p.m. EDT	Last Quarter	10/26/2013	7:41 p.m. EDT

October 2013 Observing Highlights

by Don Knabb, CCAS Treasurer & Observing Chair

3	Uranus is at opposition
4	The zodiacal light is visible for the next two weeks from a dark sky site
4	New Moon
11	First-quarter Moon
12	Fall Astronomy Day
12	The Lunar Straight Wall is visible
12	The Moon occults Beta Capricorni
15	Comet ISON is near Mars in the pre-dawn sky
18	Full Moon
21	The Orionid meteor shower peaks
26	Last Quarter Moon

The best sights this month: For an observing challenge, find a low western horizon on October 6th and use binoculars to scan low in the west in the glow of the sunset. You will find a thin crescent Moon near Saturn and Mercury. Bright Venus shines far above them.

Mercury: Mercury shines fairly bright but is quite low in the west. It reaches greatest elongation on October 9th.

Venus: Venus passes close to Antares on October 16th. On October 31st Venus reaches greatest elongation and will show a half-lit disk in a telescope.

Mars: Mars rises around 3 a.m. and spends the month close to Regulus in the constellation Leo. It has a close encounter with Comet ISON on October 15th.

Jupiter: The King of the Planets rises around midnight at the start of October but near 10 p.m. by the end of the month.

Saturn: The ringed beauty fades into the glow of the setting sun by the third week of October. I guess it is afraid to be out on Halloween night!

Uranus and Neptune: Uranus is at opposition on October 3rd, when it is opposite the Sun in our sky and therefore visible all night. Neptune was at opposition in late August, so it will also be in excellent viewing position all night. You can find a sky map to help you locate these gas giants at skypub.com/urnep, the website of Sky and Telescope magazine.

The Moon: Full Moon occurs on October 18th. This full Moon is often referred to as the Full Hunter's Moon, Blood Moon, or Sanguine Moon. Many moons ago, Native Americans named this bright moon for obvious reasons. The leaves are falling from trees, the deer are fattened, and it's time to begin storing up meat for the long winter ahead. Because the fields were traditionally reaped in late September or early October, hunters could easily see fox and other animals that come out to glean from the fallen grains. Probably because of the threat of winter looming close, the Hunter's Moon is generally accorded with special honor, historically serving as an important feast day in both Western Europe and among many Native American tribes.

Constellations: High up in the sky we still see the Summer Triangle overhead. Look to the left of the large triangle and you'll find another geometric shape in the sky, the Great Square of Pegasus. And a bit toward the east and nearly overhead is the constellation Cassiopeia in the shape of a large "W". According to Greek myths, Cassiopeia was the Queen of Ethiopia. Her husband, Cepheus the King is honored by the constellation just to the west of Cassiopeia that is in the shape of a house.

Messier/deep sky: October is a great month to study the Andromeda galaxy, M31. This is the most distant object you can ever see without binoculars or a telescope to help, although you'll need to go to a dark sky site to pick out the soft glow of our sister

(Continued on page 7)

How to Hunt for Your Very Own Supernova!

by Dr. Ethan Siegel

In our day-to-day lives, stars seem like the most fixed and unchanging of all the night sky objects. Shining relentlessly and constantly for billions of years, it's only the long-term motion of these individual nuclear furnaces and our own motion through the cosmos that results in the most minute, barely-perceptible changes.

Unless, that is, you're talking about a star reaching the end of its life. A star like our Sun will burn through all the hydrogen in its core after approximately 10 billion years, after which the core contracts and heats up, and the heavier element helium begins to fuse. About a quarter of all stars are massive enough that they'll reach this giant stage, but the *most* massive ones -- only about 0.1% of all stars -- will continue to fuse leaner elements past carbon, oxygen, neon, magnesium, silicon, sulphur and all the way up to iron, cobalt, and nickel in their core. For the rare ultra-massive stars that make it this far, their cores become so massive that they're unstable against gravitational collapse. When they run out of fuel, the core implodes.

The intruding matter approaches the center of the star, then rebounds and bounces outwards, creating a shockwave that eventually causes what we see as a core-collapse supernova, the most common type of supernova in the Universe! These occur only a few times a century in

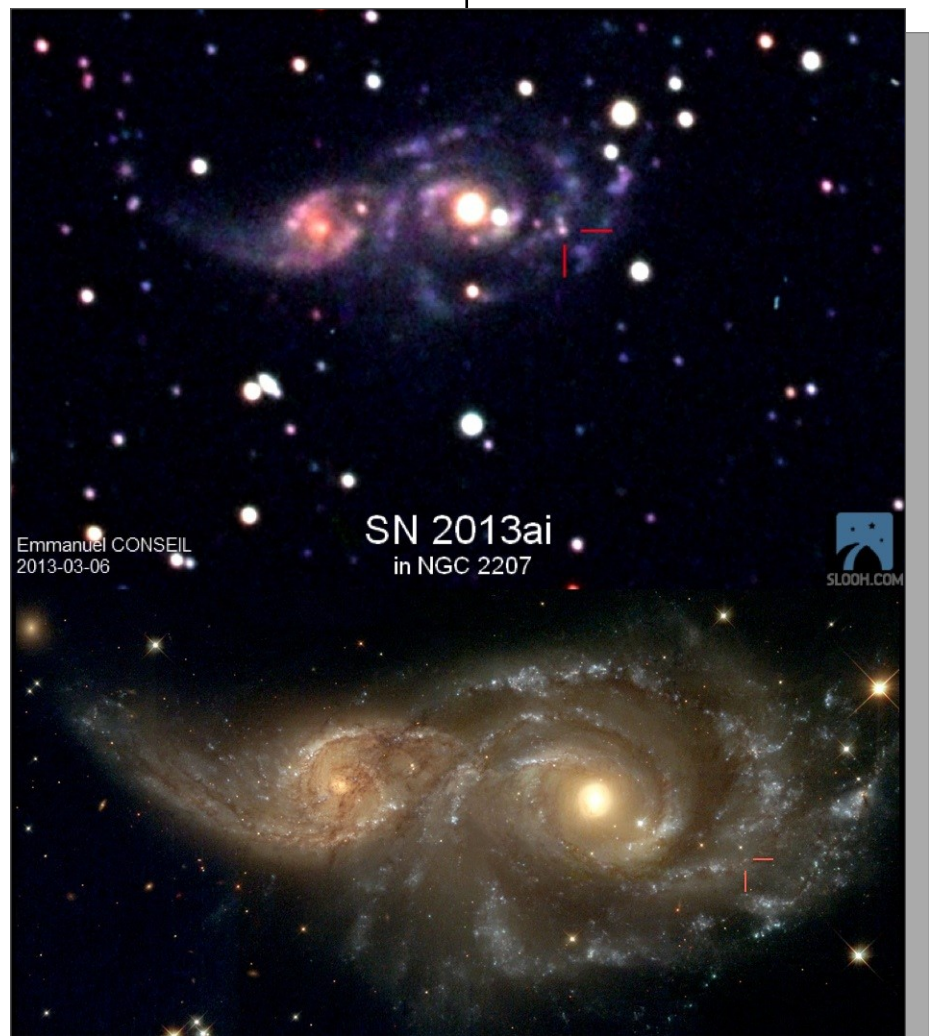


most galaxies, but because it's the most massive, hottest, shortest-lived stars that create these core-collapse supernovae, we can increase our odds of finding

one by watching the most actively star-forming galaxies very closely. Want to maximize your chances of finding one for yourself? Here's how.

Pick a galaxy in the process of a major merger, and get to know it. Learn where the foreground stars are, where the apparent bright spots are, what its distinctive features are. If a supernova occurs, it will appear first as a barely perceptible bright spot

(Continued on page 7)



SN 2013ai, via its discoverer, Emmanuel Conseil, taken with the Slooh.com robotic telescope just a few days after its emergence in NGC 2207 (top); NASA, ESA and the Hubble Heritage Team (STScI) of the same interacting galaxies prior to the supernova (bottom).

Observing (Cont'd)

(Continued from page 5)

galaxy. It is many times further away than any star in the sky. It is so far away that the light you see as that fuzzy spot in the sky left Andromeda 2.5 million years ago! In Chester County skies we need to use binoculars or a telescope, but the view is still wonderful.

Comets: Comet ISON should be brightening to the point that it will be visible in a telescope. On October 15th it is near Mars in the pre-dawn sky.

Meteor showers: The Orionid meteor shower peaks in the early morning hours of October 21st. You could see up to 30 "shooting stars" per hour. Unfor-

Space Place (cont'd)

(Continued from page 6)

that wasn't there before, and it will quickly brighten over a few nights. If you find what appears to be a "new star" in one of these galaxies and it checks out, report it *immediately*; you just might have discovered a new supernova!

This is one of the few cutting-edge astronomical discoveries well-suited to amateurs; Australian Robert Evans holds the all-time record with 42 (and count-

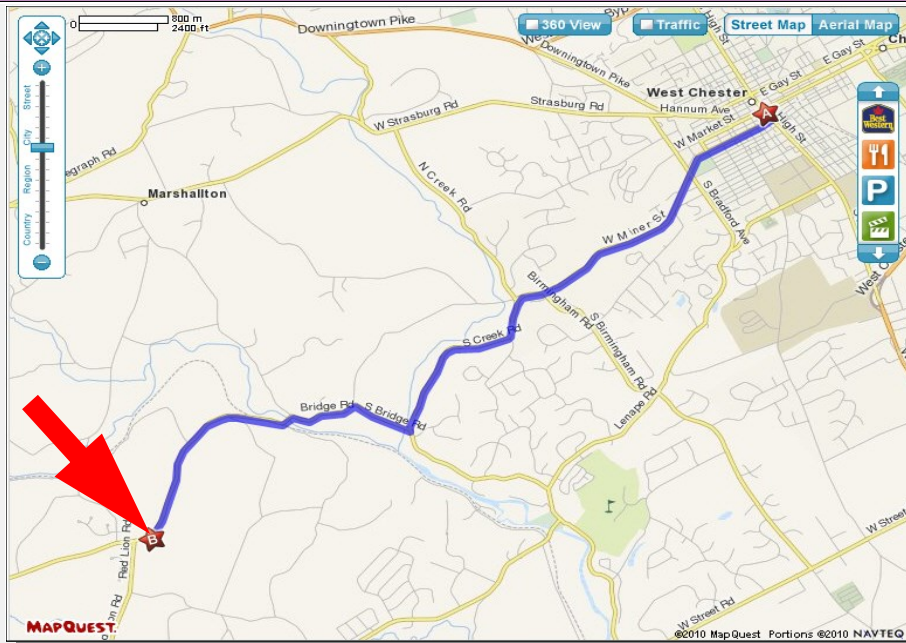
unately a bright gibbous Moon will wash out all but the brightest meteors.

ing) original supernova discoveries. If you ever find one for yourself, you'll have seen an exploding star whose light traveled millions of light-years across the Universe right to you, and you'll be the *very first* person who's ever seen it!

Read more about the evolution and ultimate fate of the stars in our universe: <http://science.nasa.gov/astrophysics/focus-areas/how-do-stars-form-and-evolve/>.

While you are out looking for supernovas, kids can have a blast finding constellations using the Space Place star finder: <http://spaceplace.nasa.gov/starfinder/>.

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: Ghostly Objects in the Sky

by Don Knabb, CCAS Treasurer & Observing Chair

When I write these articles I try to write about an object that is interesting and not too difficult to find with binoculars or a reasonably sized telescope. For this month I'm going off that path a bit to have a little fun sharing some of the unusual objects that can be seen with long exposure astrophotography. One might be able to glimpse some of the objects I discuss below, but they would be only faint and fuzzy in even a large reflector.

What I want to share this month are objects with a Halloween theme. There are several interesting objects that I have seen on the APOD website. That's the Astronomy Picture of the Day. The photo to the right, the Reflection Nebula VdB 152, was taken by our club program chair, Dave Hockenberry.

Dave's photo shows a ghostly shape that seems to be dancing among the stars. Described as a "dusty curtain" or "ghostly apparition", mysterious Reflection Nebula VdB 152 really is very faint. This cosmic phantom is nearly 1,400 light-years away. Also catalogued as Ced 201, it lies along the northern Milky Way in the royal constellation Cepheus. Near the edge of a large molecular cloud, pockets of interstellar dust in the region block light from background stars or scatter light from the embedded bright star giving parts of the nebula a characteristic blue color.



Photo credit: Dave Hockenberry, CCAS Program Chair



Ghost Head Nebula

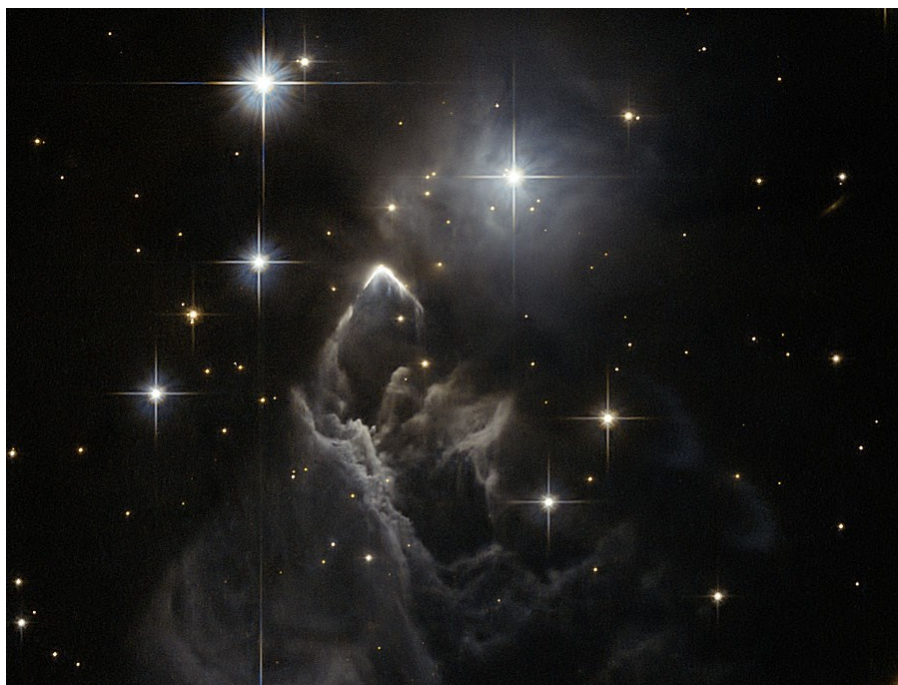
Photo credit: NASA Hubble Space Telescope

In the image of the Ghost Head Nebula, I see two eyes looking at me, and perhaps I see a ghostly cat face. Halloween's origin is ancient and astronomical. Since

the fifth century BC, Halloween has been celebrated as a cross-quarter day, a day halfway between an equinox (equal day /

(Continued on page 9)

Eyepiece (Cont'd)



IRAS 05437+2502: An Enigmatic Star Cloud from Hubble
Photo credit: NASA Hubble Space Telescope

this ancient holiday is this view of the Ghost Head Nebula taken with the Hubble Space Telescope. Similar to the icon of a fictional ghost, NGC 2080 is actually a star forming region in the Large Magellanic Cloud, a satellite galaxy of our own Milky Way Galaxy. The Ghost Head Nebula spans about 50 light-years and is shown in representative colors.

I find this photo to be particularly spooky. If I stare into it I see all kinds of demons and goblin. What's lighting up nebula IRAS 05437+2502? No one is sure. Particularly enigmatic is the bright upside-down V that defines the upper edge of this floating mountain of interstellar dust, visible near the image center. In general, this ghost-like nebula involves a small star forming region filled with dark dust that was first noted in images taken by the IRAS satellite in infrared light in 1983. Shown above is a spectacular, recently released image from the Hubble Space Telescope. Small, faint IRAS 05437+2502 spans only 1/18th of a full moon toward the constellation of the Bull (Taurus).

The Witch Head Nebula is one of my favorite Halloween images. By starlight this eerie visage shines in the dark, a crooked profile evoking its popular name, the Witch Head Nebula. In fact, this entrancing telescopic portrait gives the impression the witch has fixed her gaze on



The Witch Head Nebula
Photo credit: Star Shadows Remote Observatory
<http://www.starshadows.com/aboutus/>

(Continued from page 8)

equal night) and a solstice (minimum day / maximum night in the northern hemisphere).

Halloween's modern celebration retains historic roots in dressing to scare away the spirits of the dead. Perhaps a fitting tribute to

Eyepiece (Cont'd)

(Continued from page 9)

Orion's bright supergiant star Rigel. Spanning over 50 light-years, the dusty cosmic cloud strongly reflects nearby Rigel's blue light, giving it the characteristic color of a reflection nebula. Cataloged as IC 2118, the Witch Head Nebula is about 1,000 light-years away.

Spooky shapes seem to haunt this starry expanse, drifting through the night in the royal constellation Cepheus. Of course, the shapes are cosmic dust clouds faintly visible in dimly reflected starlight. Far from your own neighborhood on planet Earth, they lurk at the edge of the Cepheus Flare molecular cloud complex some 1,200 light-years away. The core of the dark cloud on the right is collapsing and is likely a binary star system in the early stages of formation. Even so, if the spooky shapes could talk, they might well wish you a happy Halloween.

Information credits:

<http://apod.nasa.gov/apod/ap121031.html>

<http://apod.nasa.gov/apod/ap101031.html>

<http://apod.nasa.gov/apod/ap100809.html>

<http://apod.nasa.gov/apod/ap081031.html>

<http://apod.nasa.gov/apod/ap111031.html>



The Ghost of the Cepheus Flare

Photo credit: Adam Block

<http://www.caelumobservatory.com/index.html>

CCAS Original Astrophotography

by Dave Hockenberry, CCAS Program Chair

Details of the original photograph on this month's edition of the newsletter.

Van den Berg 152, in Cepheus. Shot over several nights from 9/18/11 to 10/11/11 through AstroTech AT8RC telescope with QSI 583 wsg camera. Autoguiding with SX AO adaptive optics unit and SX Lodestar camera off-axis. Image capture with MaxIm DL. Images calibrated, stacked, Luminance deconvolution and RGB creation in CCDStack. Luminance-RGB merge and further adjustments in Photoshop CS5. 270 Minutes Luminance (15 minute iterations X18), 160 minutes each Red, Green and Blue frames (10 minute iterations x 16 each). This ghostly dust cloud is approximately 1,400 light years distant from Earth.

Voyager 1 Exits the Solar System

submitted by NASA/JPL



Image courtesy of NASA/JPL

NASA's Voyager 1 spacecraft officially is the first human-made object to venture into interstellar space. The 36-year-old probe is about 12 billion miles (19 billion kilometers) from our Sun.

New and unexpected data indicate Voyager 1 has been traveling for about one year through plasma, or ionized gas, present in the space between stars. Voyager is in a transitional region immediately outside the solar bubble, where some effects from our Sun are still evident.

"Now that we have new, key data, we believe this is mankind's historic leap into interstellar space," said Ed Stone, Voyager project scientist based at the California Institute of Technology in Pasadena. "The Voyager team needed time to analyze those observations and make sense of them. But we can now answer the question we've all been asking — 'Are we there

yet?' Yes, we are."

Voyager 1 first detected the increased pressure of interstellar space on the heliosphere, the bubble of charged particles surrounding the Sun that reaches far beyond the outer planets, in 2004. Scientists then ramped up their search for evidence of the spacecraft's interstellar arrival, knowing the data analysis and interpretation could take months or years.

Voyager 1 does not have a working plasma sensor, so scientists needed a different way to measure the spacecraft's plasma environment to make a definitive determination of its location. A coronal mass ejection, or a massive burst of solar wind and magnetic fields, that erupted from the Sun in March 2012 provided scientists the data they needed. When this unexpected gift from the Sun eventually arrived at Voyager 1's location 13 months later, in April 2013, the plasma

around the spacecraft began to vibrate like a violin string. On April 9, Voyager 1's plasma wave instrument detected the movement. The pitch of the oscillations helped scientists determine the density of the plasma. The particular oscillations meant the spacecraft was bathed in plasma more than 40 times denser than what they had encountered in the outer layer of the heliosphere. Density of this sort is to be expected in interstellar space.

The plasma wave science team reviewed its data and found an earlier, fainter set of oscillations in October and November 2012. Through extrapolation of measured plasma densities from both events, the team determined Voyager 1 first entered interstellar space in August 2012.

"We literally jumped out of our seats when we saw these oscillations in our data — they showed us the spacecraft was in an entirely new region, comparable to what was expected in interstellar space, and totally different than in the solar bubble," Gurnett said. "Clearly we had passed through the heliopause, which is the long-hypothesized boundary between the solar plasma and the interstellar plasma."

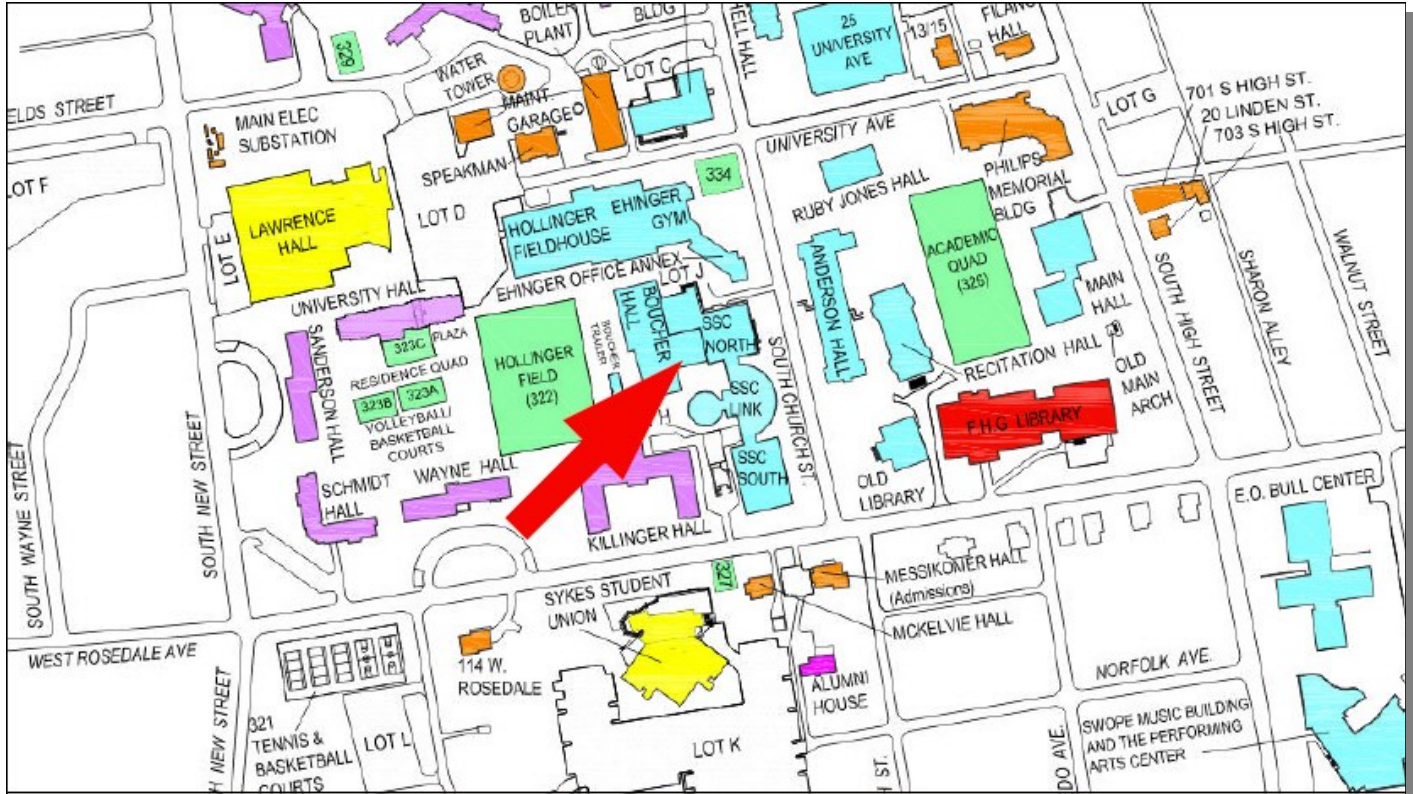
Voyager 1 and its twin, Voyager 2, were launched 16 days apart in 1977. Both spacecraft flew by Jupiter and Saturn. Voyager 2

(Continued on page 12)

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).



Timeline (Cont'd)

(Continued from page 11)

also flew by Uranus and Neptune. Voyager 2, launched before Voyager 1, is the longest continuously operated spacecraft. It is about 9.5 billion miles (15 billion km) away from our Sun.

Scientists do not know when Voyager 1 will reach the undisturbed part of interstellar space where there is no influence from our Sun. They also are not certain when Voyager 2 is expected to cross into interstellar space, but they believe it is not very far behind.

CCAS Membership Information and Society Financials

Treasurer's Report by Don Knabb

Sept. 2013 Financial Summary

Beginning Balance	\$1,246
Deposits	\$183
Disbursements	<u>\$0</u>
Ending Balance	\$1,429

New Member Welcome!

Welcome new CCAS members Herb & Harriet Rosenblatt of Broomall, PA; and Hari Zandler of Newtown Square, 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:

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!



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 organization. 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 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 & 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 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**.