



# Observations

A Monthly Publication Of The  
CHESTER COUNTY ASTRONOMICAL SOCIETY

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June 2009

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## CCAS Upcoming Nights Out

CCAS has several "nights out" over the next few months. Members are encouraged to help out during these events any way they can. See below for more information.

- ✘ Saturday, June 13th, we are hosting the Nottingham County Park Star Party in southern Chester county. Turn to page 14 for more information and directions to the park.
- ✘ Saturday, June 27th, we are hosting an observing event at Ridley Creek State Park during the National Wildlife Federation's Great American Backyard Campout. Turn to page 15 for more information and directions to the park.
- ✘ Saturday, September 19th, we are hosting a night out at Anson Nixon Park in Kennett Square.
- ✘ Saturday, October 19th, we are co-hosting (with the West Chester Recreation Dept.) a night out at Hoopes Park, West Chester.

## Important June 2009 Dates

- 7th** • Full Moon at 2:12 p.m.
- 15th** • Last Quarter Moon at 6:15 p.m.
- 21st** • Summer solstice, 1:46 a.m.
- 22nd** • New Moon at 3:35 p.m.
- 27th** • June Boötids meteor shower peaks in the early morning.
- 29th** • First quarter Moon, 7:28 a.m.



## Membership Renewals Due

|         |   |
|---------|---|
| 06/2009 | Bickel<br>Churchman<br>Hebding<br>Hooper<br>Leiden<br>Siskind |
| 07/2009 | Goldader & Family<br>Hockenberry & Family<br>Rybski<br>Tobery |
| 08/2009 | Fellwock<br>Fragale<br>Given<br>Knabb & Family                |

## Spring 2009 Society Events

### June 2009

2nd • Hercules Observing Cluster meets in West Goshen Township, weather permitting. Contact Kathy Buczynski for directions and details.

3rd • PA Outdoor Lighting Council monthly meeting, Bucktown Branch of National Penn Bank, 1111 Ridge Rd, (Rt. 23 just west of Rt. 100) in South Coventry Township, PA, starting at 7:30 p.m.

9th • Hercules Observing Cluster meets in West Goshen Township, weather permitting. Contact Kathy Buczynski for directions and details.

13th • CCAS is hosting the Nottingham County Park Star Party in southern Chester county. See page 11 for more details and driving directions.

16th • Hercules Observing Cluster meets in West Goshen Township, weather permitting. Contact Kathy Buczynski for directions and details.

23rd • Hercules Observing Cluster meets in West Goshen Township, weather permitting. Contact Kathy Buczynski for directions and details.

26th • Deadline for newsletter submissions for the July 2009 edition of Observations.

27th • CCAS Monthly Observing Session, Ridley Creek State Park. The event takes place during the park's "Great American Backyard Campout" event.

30th • Hercules Observing Cluster meets in West Goshen Township, weather permitting. Contact Kathy Buczynski for directions and details.

### July 2009

1st • PA Outdoor Lighting Council monthly meeting, Bucktown Branch of National Penn Bank, 1111 Ridge Rd, (Rt. 23 just west of Rt. 100) in South Coventry Township, PA, starting at 7:30 p.m.

7th • Hercules Observing Cluster meets in West Goshen Township, weather permitting. Contact Kathy Buczynski for directions and details.

14th • Hercules Cluster meets at dusk in West Goshen Township, weather permitting. Contact Kathy Buczynski for directions and details.

21st • Hercules Cluster meets at dusk in West Goshen Township, weather permitting. Contact Kathy Buczynski for directions and details.

24th • CCAS Monthly Observing Session, Myrick Conservancy Center, BVA (inclement weather date July 25th). The observing session starts at sunset.

26th • Deadline for newsletter submissions for the August 2009 edition of Observations.


28th • Hercules Cluster meets at dusk in West Goshen Township, weather permitting. Contact Kathy Buczynski for directions and details.

## Minutes of the May 12, 2009 meeting of the CCAS

- Approximately 20 members were in attendance.
- Video presentation: *Stars: Distant Suns* DVD was shown.
- Program – *Pulsars* by Dr. Fronefield Crawford, Franklin & Marshall University.
- Constellation of the month – Virgo presented by David Hockenberry.
- Awards – Jim Anderson presented Kathy Buczynski with an Edwin T. Lurcott Founders Award. Kathy Buczynski presented Don Knabb with an Edwin T. Lurcott Founders Award.
- Certificates of participation in the 100 Hours of Astronomy were presented to Kathy Buczynski and Don Knabb. Certificates will be mailed to Ed Lurcott, Eric Bronstein and Bob Popovich. These certificates were available because our event at Hoopes Park was registered with the 100 Hours of Astronomy website.
- Department reports – the meeting ran too late for our usual reports.
- Education – Project Astro information was sent by e-mail along with the May newsletter.
- Elections – Ed Lurcott, Steve Leiden and Perry Bickle managed the CCAS election process and Steve presented the results. Roger Taylor is the new CCAS President and Kathy Buczynski is the new Vice President. Bob Popovich and Don Knabb continue their roles as Treasurer and Secretary. We thank Ed, Steve and Perry for helping with the election process.

## IYA2009 Award for Chester County Astronomical Society

Participation in the 100 Hours of Astronomy Celebration 2009




The 100 Hours of Astronomy Task Group of the International Year of Astronomy 2009 thanks

Chester County Astronomical Society

for being an official participant in the historic outreach event that took place worldwide from the 2 to 5 April, 2009 and reached over one million people!

*Clear Skies and Keep Looking to the Stars!*



Mike Simmons, Co-Chair  
Douglas Pierce-Price, Co-Chair  
Donna Smith, Sidewalk Astronomy Organizer

## Outgoing President's Message

by Kathy Buczynski, CCAS President, 2005-2009

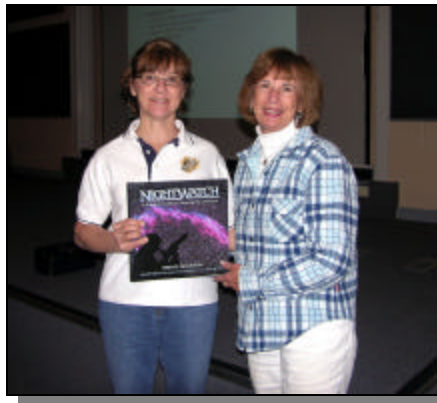
It has been a privilege to serve as your President for the past 4 years. In that time we have given many awards, had a profile of CCAS in the Astronomical Leagues quarterly publication *Reflector*, grown our membership by 20%, have held countless "nights out" with schools and civic organizations, and done many other things. None of this would be possible without the involvement of many people.

### Ed Lurcott, Founder.

This Society would not exist if it were not for Ed Lurcott. In September of 1993, Ed and a few loyal amateur astronomers, family and friends started the Chester County Astronomical Society in cooperation with West Chester University. Ed has been a guiding light and in April of 2006 the "Edwin T. Lurcott Founder's Award" was established to recognize those members who follow in Ed's footsteps and have given exemplary service to the Society. Ed is still very much involved in club activities and is often at star parties, observing sessions and nights out with groups; he is also a member of the Education Committee giving two Intro Class presentations. I have often said that Ed will forget more astronomy than I will ever know, and he's still my go-to guy when someone asks me a question I cannot answer. Thank you, Ed, for being an inspiration to me and to all the members. I hope I have continued your vision of what the Society could be.

### Jim Anderson, Vice President, Program Chair, Newsletter Editor.

I would not have run for President if Jim Anderson didn't run for Vice President in 2005. Jim's enthusiasm for improving the Society has not diminished over these past 4 years. Not long after the elections four years ago my personal life was in turmoil; my health was in question and I've had some family issues to deal with. Jim has been there to support me, run meetings, coordinate the programs, teach classes, edit the newsletter, win multiple awards for the newsletter (including Editor of the Year in 2006) and attend some nights



Kathy & Spring 2009 Intro to Astronomy Course *NightWatch* drawing winner Carol Lerman.

out. In April of 2006 he was the first recipient of the "Edwin T. Lurcott Founder's Award". In July of 2008, Jim decided to reduce some of his responsibilities and stepped down as *Observations* newsletter editor after more than ten years. Thank you, Jim, for all that you do. Your talents are truly appreciated.

### Vic Long, Secretary.

From June, 2005 to May, 2007, Vic had been Secretary of CCAS. Not a long-time member at the time of his election, Vic stepped up to the task when we needed him. Recently, Vic has been submitting wonderful photos he has been taking from his webcam. Vic also has given a how-to presentation on his equipment. Thank you, Vic, for your service and keep up the good work.

### Bob Popovich, Treasurer.

Bob has not only handled our finances over the last six years and will continue to do so, he has updated the Member Directory, continues as ALCor (Astronomical League Correspondent), continues to work with the Education Committee, wrote the monthly article "Astronomus" for the newsletter from 2001 to 2007, organized an outing to see the play "Galileo", and can be relied upon to make an appearance at the observing sessions and nights out. Bob received the second "Edwin T. Lurcott Founder's Award" in August 2008. Your contribution to the society has been invaluable. Thank you Bob, you certainly deserve to be singled out and thanks for writing the "call to action" article for the newsletter after receiving the Founder's Award.

### Deb Goldader, Public Relations.

After searching and searching

(Continued on page 4)



## Outgoing President's Message

(Continued from page 3)

for someone to do some advertising and PR for us, Deb stepped up to the challenge. Deb has coordinated all the names of all the people to email whenever we have a public event. She also has written and submitted many a press release for events we have hosted over the past few years. Having a young family, Deb, doesn't get a chance to join us at many of the events she advertises for us but has found the time to teach the "Stars" at the Introductory Astronomy Classes. Deb, you have saved me many hours when it came time to get the word out about many events, especially the classes. Thanks.

### **Linda Fragale, Librarian.**

Did you know that we have an extensive collection of Astronomy periodical and books? Linda has cataloged, and more importantly, housed this huge collection of materials and has also posted it on our website. These titles are for members to check out and return. Thank you, Linda, for coordinating the library and especially for giving up a portion of your house to store them.

### **John Hepler, Webmaster, Newsletter Editor.**

One of my first privileges as President was to present the Astronomical League Webmaster of the Year Award to John. John took the website to a new level. The website has grown with his expertise and creativity. Unfortunately, we cannot submit the



*Kathy and Spring 2009 Intro to Astronomy Course NASA Space Place drawing winner Sarah Cooperman.*

website again for a few years; it has maintained its award-winning status and deserves all the praise it gained that first year thanks to John's continued efforts. Not that that was enough. John stepped forward to take over *Observations* last summer when Jim resigned as editor. John also is a full-time student at WCU, works part-time at a veterinarian office and does other volunteer work. In addition, he has joined the Education Committee and taught his first class this year on planetarium software at the Introductory Astronomy Class. John, if you have a minute I'd like you to . . . Just kidding, but if I had something he would be there to help. Thanks, John. Get some rest, you deserve it.

### **Don Knabb, Secretary, Observing Chair.**

In August of 2004, Don and his wife Barb joined CCAS and

quickly were involved in club activities. But it wasn't until January 2006 when Don became Observing Chair that we really found out about Don's talents. Immediately he started writing observing articles for the newsletter; reporting on observing sessions, listing observing highlights for the month and giving us targets for our own observing. Don schedules and coordinates all the nights out with groups and leads the observations for the evening. He plans and schedules the Society's observing sessions at BVA and even when the skies look gloomy, Don shows up to be sure that any stray observers are taken care of. Don took the responsibility to get us out of the Mall on Astronomy Day and coordinate it as a night out with the West Chester Recreation Department at Hoopes Park where we reached many more people. In July, 2007 Don and Barb hosted our first Lunar X party and we actually got a chance to see the X. Even though Don was not an official member of the Education Committee, he showed up at the classes to help out and give moral support and volunteered to give a class. He's now been made a member of the Education Committee. In addition to all the work Don does for CCAS, he also finds time to host observing sessions for his neighborhood group at his Pocono home. Because of Don's commitment to CCAS and astronomy, Don has been awarded the third "Edwin

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## Outgoing President's Message

(Continued from page 4)

T. Lurcott Founder's Award" for outstanding service to the Society. Don, thank you for your infectious enthusiasm and dedication.

### Members.

This Society is dedicated to the exploration of the sky and sharing that information within the membership and with the general public. CCAS has many members who share their knowledge and are very involved with CCAS events. I'd like to acknowledge some members-at-large who are not part of the Executive Committee:

**Nicholas La Para** is a member of the Education Committee, our resident cartoonist and is often found sharing his eyepiece with the public at observing sessions, nights out and at the Hercules Cluster meetings.

**Dave Hockenberry** has taken observing and astrophotography to a new level with the construction of his backyard observatory. Dave has also been active at nights out and has given presentations the members at our meetings.

**Gary Calobrisi** and **Bea Mazziotta** have taken to observing and ran with it. I don't think I've ever seen anyone buy so much equipment so soon after joining. And as a new member, Bea has made more observations of the night sky in the shortest amount of time than anyone I've



*Some photos taken during Kathy's tenure as CCAS president: Manning the booth & meeting Sally Ride at the Sally Ride Science Festival on 10/09/2005; teaching elementary students at Willistown Country Day School on 06/01/2006; pointing out constellations at the Anson Nixon Park Night Out on 09/15/2007; and relaxing with Don Knabb at our Annual Holiday Party on 12/09/2008. Thanks for 4 great years Kathy!*

met; many of them at the Hercules Cluster. I hope that Backyard Observing Classes they attended had something to do with it.

Even with his busy schedule, **Bob Richter** has participated in countless nights out, observing sessions and Hercules Cluster meetings. Bob attends many CCAS meetings and classes and his contributions are always welcome.

There are many members who have contributed to the efforts of the Society and I thank them all. My hope is that you all will continue to be a part of this Society. Its success depends upon your involvement.

### A New Era.

Roger Taylor has been elected as your new President. I think he has been a member of CCAS from almost the beginning. His reach into the local astronomy culture will prove beneficial as he brings CCAS into a new era. Congratulations, Roger. You have a fine group of members to lead.

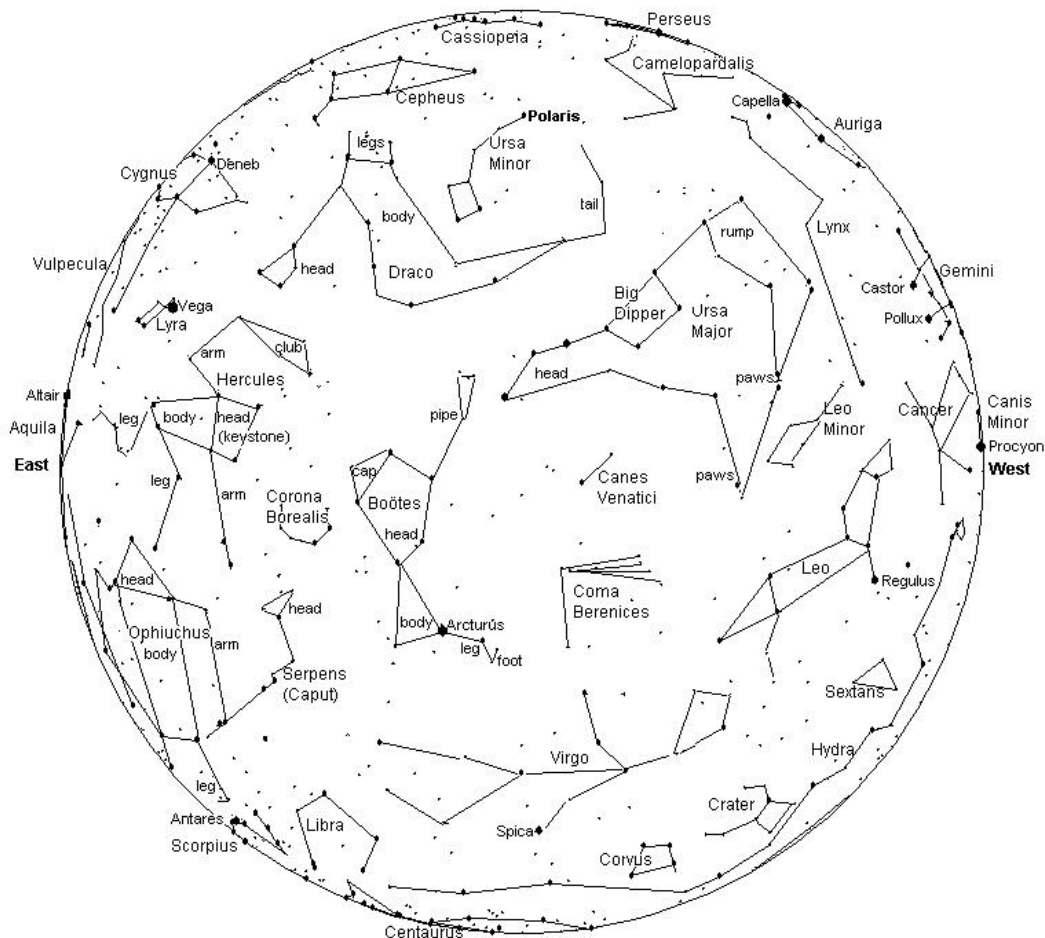
Thank you all for allowing me to lead you over the past four years. I look forward to being your Vice President.

Keep looking up,

Kathy Buczynski  
Vice President, Chester County  
Astronomical Society  
June 2009

## The Sky Over Chester County June 15, 2009 at 9:00 p.m. EDT

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* skymapping software by Project Pluto, Bowdoinham, Maine

The faintest stars shown on this chart are fifth magnitude.

| Date       | Sunrise       | Sunset        | Moon Phases   |            |                |
|------------|---------------|---------------|---------------|------------|----------------|
| 06/01/2009 | 5:34 a.m. EDT | 8:24 p.m. EDT | First Quarter | 06/29/2009 | 11:28 a.m. EDT |
| 06/15/2009 | 5:31 a.m. EDT | 8:31 p.m. EDT | Full Moon     | 06/07/2009 | 6:12 p.m. EDT  |
| 06/30/2009 | 5:35 a.m. EDT | 8:33 p.m. EDT | Last Quarter  | 06/15/2009 | 10:15 p.m. EDT |
|            |               |               | New Moon      | 06/22/2009 | 7:35 p.m. EDT  |



## June 2009 Observing Highlights

by Don Knabb, CCAS Observing Chair

|         |  |
|---------|--|
| June 7  | Full Moon, 2:12 p.m.                                   |
| June 15 | Last quarter Moon, 6:15 p.m.                           |
| June 21 | Summer solstice, 1:46 a.m.                             |
| June 22 | New Moon, 3:35 p.m.                                    |
| June 27 | June Boötids meteor shower peaks in the early morning. |
| June 29 | First quarter Moon, 7:28 a.m.                          |

**The Planets:** Unless you are an early riser or a very late night person the only planet that is well placed for viewing is Saturn. All the other planets are not visible until the wee small hours of the morning.

**Mercury:** The planet closest to the Sun is visible in the pre-dawn morning sky, but this is not a particularly good viewing opportunity.

**Venus:** Venus is rising about 2 hours before the Sun and on June 5<sup>th</sup> reaches greatest elongation in the constellation Pisces. Venus is like a beacon in the pre-dawn darkness, shining at magnitude -4.3, you might need sunglasses!

**Mars:** The red planet is rising about 2½ hours before the Sun and is shining at magnitude 1.1 so it is a definite red spot in a telescope.

**Jupiter:** Stay up until midnight and you can see the king of the planets peeking over the eastern horizon. Or, like me, wait a month or two when it will be rising much earlier and you won't need to stay up so late to enjoy the beautiful sight of Jupiter.

**Saturn:** Don't wait too long into the summer to get another good, long look at Saturn. During June it is halfway up in the southwest at nightfall and is setting at 1 a.m. The rings have turned into a nearly straight line because they are tilted only slightly, so it is hard to call Saturn "the ringed one." "The lined one" might be more appropriate.

**Uranus and Neptune:** Both outer gas giants are visible in the early morning sky. Neptune rises about the same time as Jupiter and Uranus about an hour later. Finder charts for Uranus and Neptune can be found on the Sky and Telescope website at: <http://www.skyandtelescope.com/observing/highlights/41561382.html>

[skyandtelescope.com/observing/highlights/41561382.html](http://www.skyandtelescope.com/observing/highlights/41561382.html)

**Pluto:** The ex-planet reaches opposition on June 23<sup>rd</sup>, placing it high in the sky around midnight. The June issue of Sky and Telescope has a finder chart if you are looking for a challenge and happen to own a really large telescope.

**The Moon:** Full moon occurs on June 7<sup>th</sup>. I always enjoy the June full moon! It seems so bright, shining on the bright green leaves of the trees, that the leaves almost seem to glow in the dark. Native Americans called this the Full Strawberry Moon because the relatively short season for harvesting strawberries comes each year during the month of June.

**Constellations:** During June we need to stay up late just to see the stars come out. But when they do they are a great sight! Bright Arcturus in Boötes is shining in the south with the beautiful Corona Borealis to its left. Then another red star, Antares in Scorpius is low on the southeastern horizon. And in the east is bright Vega, one star of the summer triangle. If you are at a dark sky site look for the Coma Cluster of stars to the right of Arcturus.

**Messier/Deep Sky:** Grab your binoculars or telescope and find the globular clusters M10 and M12 in faint Ophiuchus, then head south to see M4, another globular cluster just to the west of Antares in Scorpius. If you are a late night person you'll be able to see the numerous wonders that are in Sagittarius as it rises in the southeast.

**Comets:** If you need to see a comet during June your best opportunity is the first week or the last 10 days when you can see Comet Kopff in the early morning hours without the Moon painting the sky gray. There is a finder chart in the June issue of *Sky and Telescope* magazine.

**Meteor showers:** The June Boötids peak before dawn on June 27<sup>th</sup>. This meteor shower is unpredictable, but has been known to show more than a meteor per hour which would be quite a show. Take a look a day before and after the peak date. The Moon sets before midnight so this is a good opportunity to see a shooting star!

## Through the Eyepiece: The Sombrero Galaxy, M104

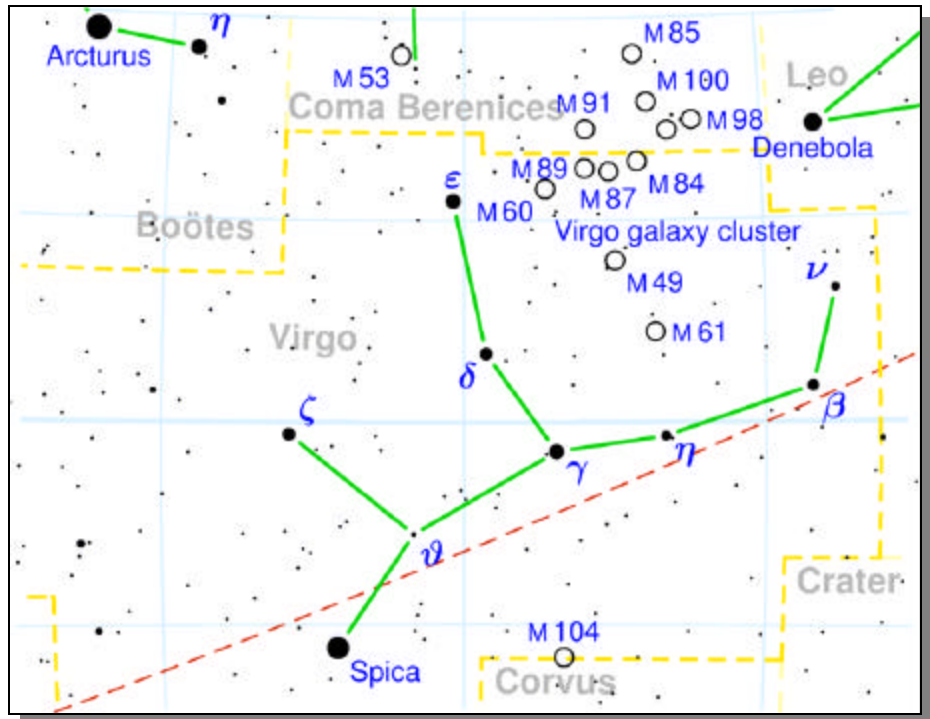
by Don Knabb, CCAS Observing Chair

June is a good time of year to look for galaxies, and one of the most famous is the Sombrero Galaxy, also known as M104. Just after it gets dark look to the southwest at the border of Virgo and Corvus.

Barb and I recently looked at the Sombrero galaxy with our 8 inch Meade LX-90 at 140 power. M104 was a faint glow with a clearly bright center. The viewing was not very good so we were not able to see the dark dust lane. It looked something like it appears in the right side of the photo to the right, taken by Brent Crabb in Southern California.

The Sombrero Galaxy is an unbarred spiral galaxy in the constellation Virgo. It has a bright nucleus, an unusually large central bulge, and a prominent dust lane in its inclined disk. The galaxy has an apparent magnitude of +8 so it is not visible with the naked eye, but it is easily seen with amateur telescopes. The large bulge, a central supermassive black hole, and the dust lane all attract the attention of professional astronomers.

The Sombrero Galaxy was discovered in March of 1767 by Pierre Méchain. Charles Messier made a hand-written note about this and five other objects (now collectively recognized as M104 - M109) to his personal list of objects now known as the Messier Catalogue, but it was not "officially" included until



Look for M104 in the constellation Virgo, close the boundary with the constellation Corvus.



Photo credit: Brent Crabb, astrophotographer

1921 when Camille Flammarion found Messier's list of these five objects. Since this time, the

Sombrero Galaxy has been known as M104.

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## The Sombrero Galaxy

*(Continued from page 8)*

To the right is a more detailed photo from Brent Crabb in which the central bulge and dark dust lane is clearly visible.

NASA's Hubble Space Telescope has trained its razor-sharp eye on the Sombrero galaxy. As seen from Earth, the galaxy is tilted nearly edge-on. We view it from just six degrees north of its equatorial plane. This brilliant galaxy was named the Sombrero because of its resemblance to the broad rim and high-topped Mexican hat.

Hubble easily resolves M104's rich system of globular clusters, estimated to be nearly 2,000 in number — 10 times as many as orbit our Milky Way galaxy.

Close inspection of the bulge in the photograph to the right shows many points of light that are actually globular clusters. M104's spectacular dust rings harbor many younger and brighter stars, and show intricate details astronomers don't yet fully understand.

We don't need to understand the details of this galaxy to appreciate its beauty. The long exposure photographs, both from amateurs like Brent Crabb or from the Hubble Telescope, show tremendous details that we cannot perceive with a telescope and the naked eye.

But put M104 in your eyepiece, then remember these photos and



*Photo credit: Brent Crabb, astrophotographer*



*Photo credit: Credit: HST/NASA/ESA*

use your naked eyes and your mind's eye to enjoy the Sombrero Galaxy on a warm June night!

*Information credits:*

<http://hubblesite.org/newscenter/archive/releases/2003/28/image/a/>  
<http://chandra.harvard.edu/photo/2007/sombrero/>  
[http://en.wikipedia.org/wiki/Sombrero\\_Galaxy](http://en.wikipedia.org/wiki/Sombrero_Galaxy)

## A Small Victory Against Light Pollution

by Nicholas La Para

My wife and I have been attending the Supervisor's monthly meeting in our township for more than a couple of years now to keep up on what's happening in our township. (I have to say that I've been impressed with the supervisors' dedication, thoughtfulness, and hard work on behalf of the people of the township).

One of the benefits of consistent attendance is that we find out things that otherwise we might never hear about. For instance, a few months ago the supervisors were considering changes to our zoning ordinance. One of the changes was to require that lights illuminating signs do so from overhead, and not by point-

ing up. This change was recommended by Chester County, precisely to avoid more light pollution. The supervisors seemed not to have much leaning one way or the other, so I got up and spoke in favor of the change (I'll tell you later the reasons I put forward). The result was that the change was passed and became part of the zoning law.

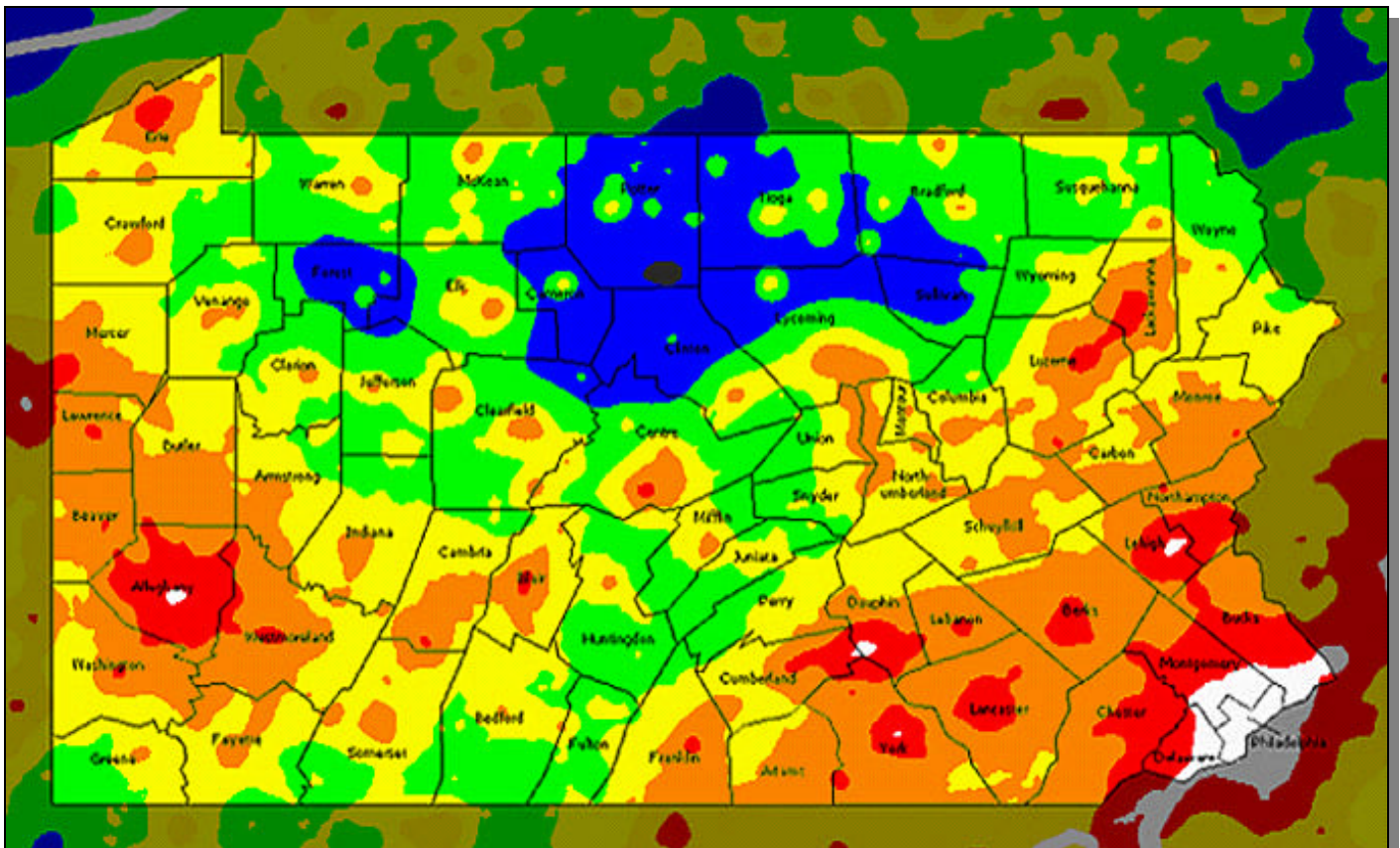
I think that two of the main reasons my words were effective were these: The supervisors have shown themselves in the past to be environmentally sensitive, in particular to saving trees when developments are proposed. I knew this, and tried to tie into that by pointing out that the

night sky was a natural resource too, one we were losing but could protect.

The second reason is that they knew me from my long attendance, and knew that I was interested in township affairs and their work. I think they also get that I respect their work. I also make a point of not jumping up and speaking on anything and everything. (I also did not embarrass them by pointing out that the sign for the township building is illuminated by an upward-pointing light! You have to pick your battles and your timing.)

Well, a week or so ago, the first

*(Continued on page 11)*



*Pennsylvania Light Pollution Map courtesy of the Pennsylvania Outdoor Lighting Council.*



## Light Pollution

(Continued from page 10)

request for a variance to avoid the new lighting ordinance came before the Zoning Hearing Board. My wife and I were there, and I had prepared in my mind what I would say. The points I (briefly!) made were these:

I mentioned my membership in Chester County Astronomical Society. I told how we often run night events for the public, and these were well-attended, especially by families. I listed some, particularly the ones run for West Chester Recreation, Kennett Square Parks, for Boy and Girl Scouts, and school groups. This, I pointed out showed that interest in the night sky ran

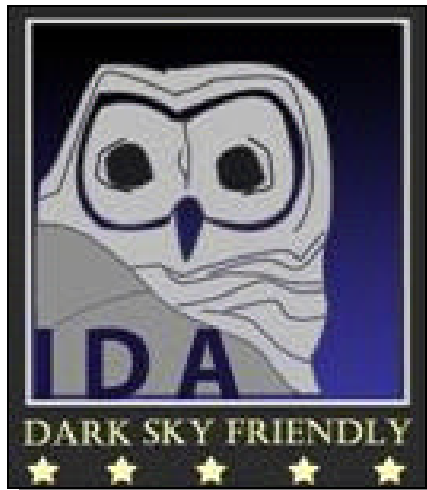
strong with the public. I pointed out that over the years we have lost more and more of the sky, particularly the Milky Way.

But all was not lost; we could still show people the stars and constellations (I left telescopes out of this mix; I thought it diffused the point I was trying to make). I argued it was still worthwhile to do all that we could to preserve the sky that we still had. I asked them to protect a natural resource for future generations. (These are essentially the same things I said to the supervisors). I also pointed out that according to the dimensions given by the variance requestor,

the lighting would have to *point up*, and not be horizontal, as he tried to make out.

They voted 3-2 *not* to grant the variance. I think two of the 3 votes were already on our side, but I have reason to believe that the third vote was moved by what I said. This board member indicated to me later that he hadn't realized how we were losing the Milky Way. He also indicated he was going to ask his Homeowners Association to reconsider their own upward-pointing sign lighting.

Sometimes, you can make a difference.



Look for these logos next time you are looking to replace your home's outdoor lighting fixtures.

## CCAS Astrophotography: Leo Trio, by Gaston Baudat



The Leo Trio: M65, M66, and NGC3628. Photo processed from 8 images of 300 second each taken on April 27th 2009 from my backyard observatory in Glenmoore PA. Photo details: Apochromat Eon 80mm refracting telescope, Celestron CGE mount, SBIG ST2000XCM color CCD camera, and Orion SkyGlow imaging filter. The image was taken and processed with Maxim DL software.



## Scoring More Energy from Less Sunlight

by Jet Propulsion Laboratory

For spacecraft, power is everything. Without electrical power, satellites and robotic probes might as well be chunks of cold rock tumbling through space. Hundreds to millions of miles from the nearest power outlet, these spacecraft must somehow eke enough power from ambient sunlight to stay alive.

That's no problem for large satellites that can carry immense solar panels and heavy batteries. But in recent years, NASA has been developing technologies for much smaller microsattellites, which are lighter and far less expensive to launch. Often less

than 10 feet across, these small spacecraft have little room to spare for solar panels or batteries, yet must still somehow power their onboard computers, scientific instruments, and navigation and communication systems.

Space Technology 5 was a mission that proved, among other technologies, new concepts of power generation and storage for spacecraft.

“We tested high efficiency solar

cells on ST-5 that produce almost 60 percent more power than typical solar cells. We also tested batteries that hold three times the energy of standard spacecraft batteries of the same size,” says Christopher Stevens, manager of NASA's New Millennium Program. This program flight tests cutting-edge spacecraft technologies so that they can be used safely on mission-critical satellites and probes.

“This more efficient power sup-

*(Continued on page 13)*



*Helen Johnson, a spacecraft technician at NASA's Goddard Space Flight Center, works on one of the three tiny Space Technology 5 spacecraft in preparation for its technology validation mission.*

## Less Sunlight

(Continued from page 12)

ply allows you to build a science-grade spacecraft on a miniature scale,” Stevens says.

Solar cells typically used on satellites can convert only about 18 percent of the available energy in sunlight into electrical current. ST-5 tested experimental cells that capture up to 29 percent of this solar energy. These new solar cells, developed in collaboration with the Air Force Research Laboratory in Ohio, performed flawlessly on ST-5, and they’ve already been swooped up and used on NASA’s svelte MESSENGER probe, which will make a flyby of Mercury later this year.

Like modern laptop batteries, the

high-capacity batteries on ST-5 use lithium-ion technology. As a string of exploding laptop batteries in recent years shows, fire safety can be an issue with this battery type.

“The challenge was to take these batteries and put in a power management circuit that protects against internal overcharge,” Stevens explains. So NASA contracted with ABSL Power Solutions to develop spacecraft batteries with design control circuits to prevent power spikes that can lead to fires. “It worked like a charm.”

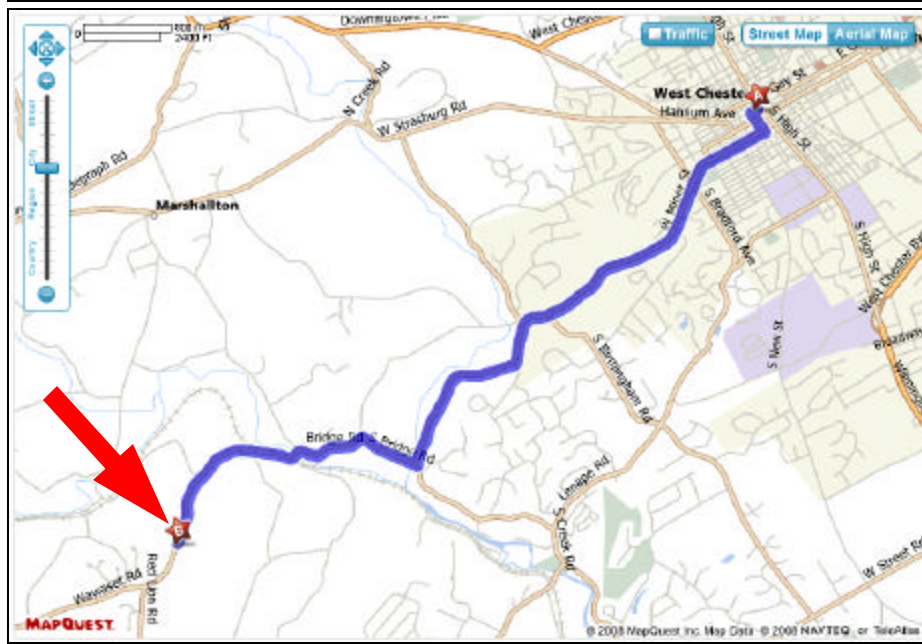
Now that ST-5 has demonstrated the safety of this battery design, it is flying on NASA’s THEMIS mission (for Time History of

Events and Macroscale Interactions during Substorms) and is slated to fly aboard the Lunar Reconnaissance Orbiter and the Solar Dynamics Observatory, both of which are scheduled to launch later this year. Thanks to ST-5, a little sunlight can go a really long way.

Find out about other advanced technologies validated in space and now being used on new missions of exploration at [nmp.nasa.gov/TECHNOLOGY/scorecard](http://nmp.nasa.gov/TECHNOLOGY/scorecard). Kids can calculate out how old they would be before having to replace lithium-ion batteries in a handheld game at [spaceplace.nasa.gov/en/kids/st5\\_bats.shtml](http://spaceplace.nasa.gov/en/kids/st5_bats.shtml).

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

## CCAS Directions



### 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).

### 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.



## Nottingham County Park Night Out, June 13th, 2009

by Don Knabb, CCAS Observing Chair

On Saturday evening, June 13th, CCAS is hosting a night out at Nottingham County Park, which is part of the Chester County Parks and Recreation organization. You can find more information about the park at this web site: <http://dsf.chesco.org/ccparks/cwp/view.asp?a=1550&q=616472&ccparksNav=|34716|>

The night out is scheduled for 8:30 p.m., so please arrive in time to have your equipment set up by then. If you don't have equipment please attend the star party to assist others and to share your knowledge of the night sky.

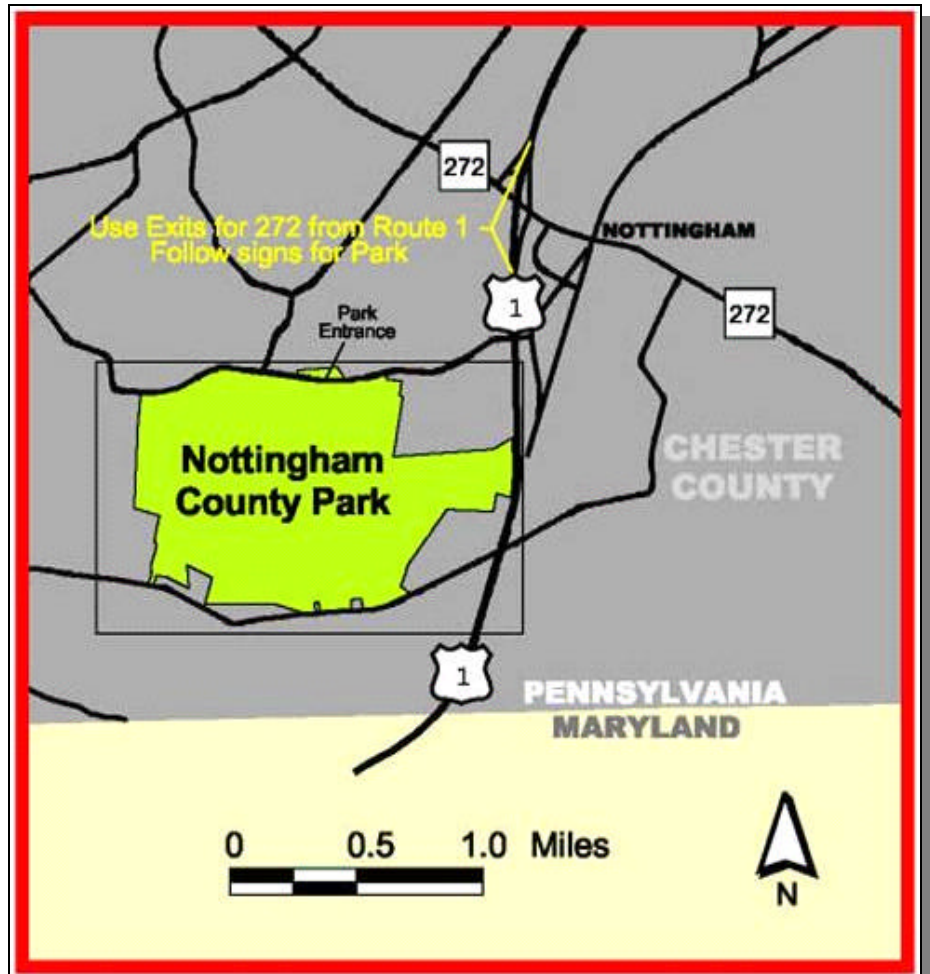
Below are directions to the park, and to the right, a map:

From West Chester and North:

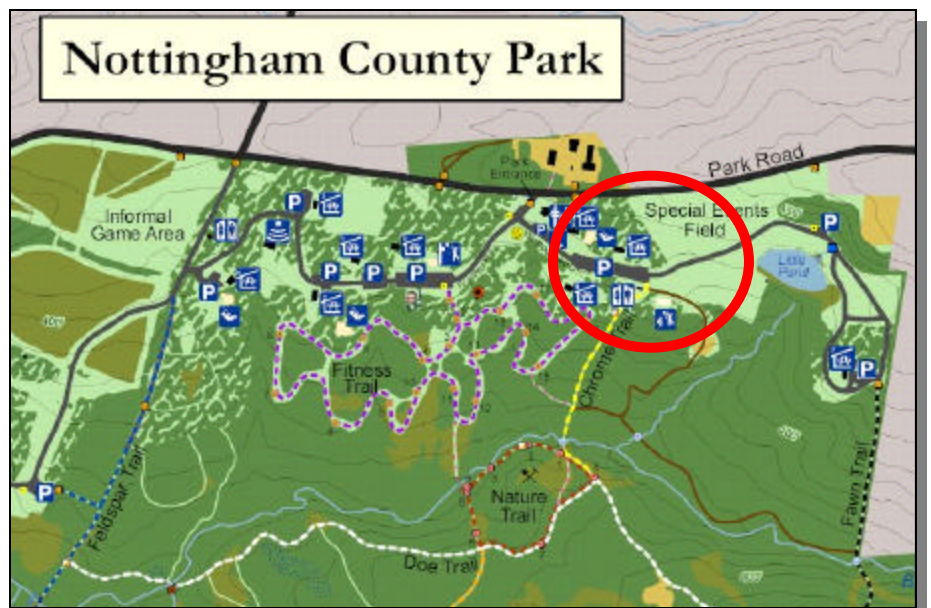
- Rt. 202 South to Rt. 1 South past Kennett Square & Oxford
- Exit onto Rt. 272, Nottingham
- Left onto Rt. 272 South; Proceed .25 miles to Herr Dr.
- Right onto Herr Drive
- Right onto Old Baltimore Pike
- Right onto Park Road; Follow signs to entrance on left

To the right is a close up of the park entrance and the area where we will hold the event. Our contact at the park has selected the area where the Freedom Fest fireworks are held every summer. When you come into the park, take a left and go past the office. The road will turn to gravel and then a large field opens up. This area should offer

(Continued on page 17)



Driving directions to Nottingham County Park from the West Chester borough area.

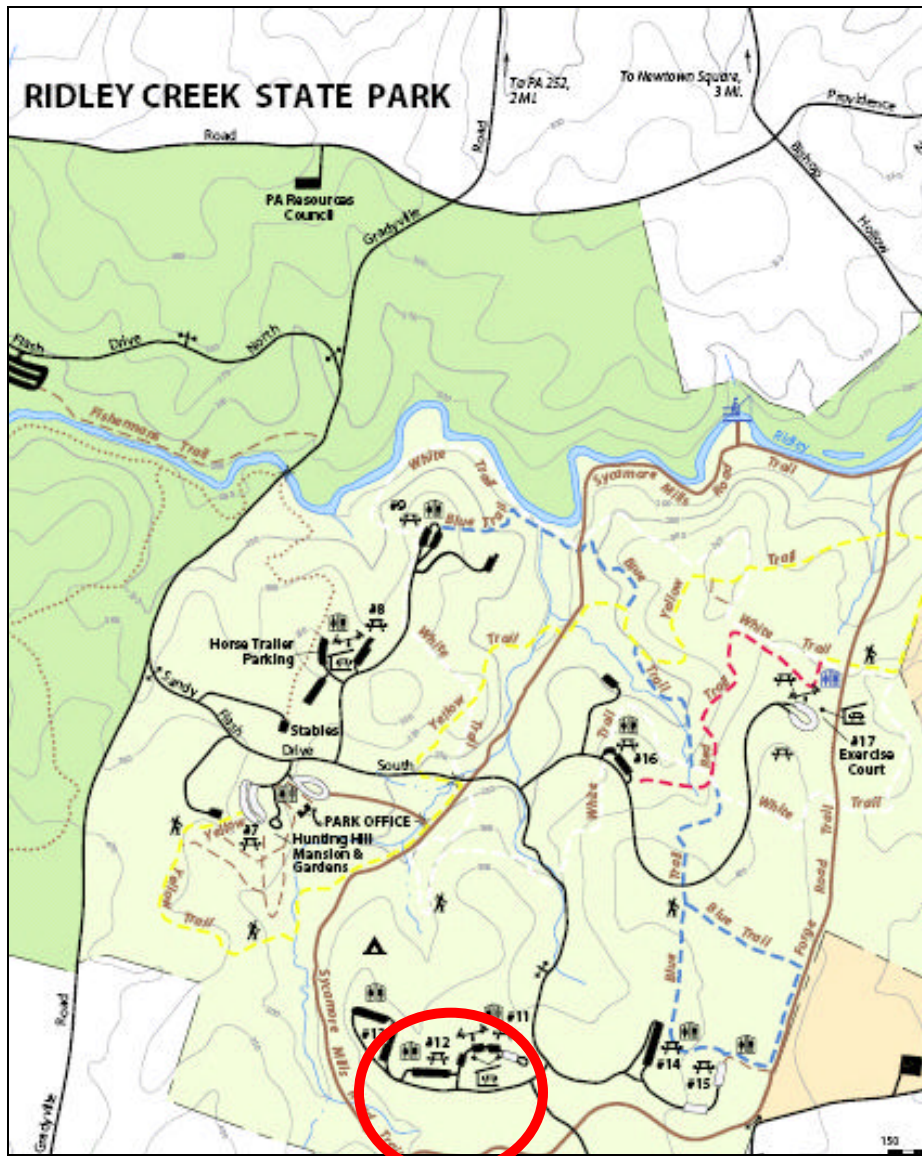


The night out will be held in the Special Events Field. Map courtesy of the National Parks Service.



## Ridley Creek State Park Night Out, June 27th, 2009

by Bruce Holenstein



The night out will be held in area 11 of the park. Map courtesy of the National Parks Service.

CCAS will host a night out at Ridley Creek State Park on June 27th, during the National Wildlife Federation's Great American Backyard Campout event.

The focus of the Great American Backyard Campout (GABC) is to reattach with nature, so participants are urged to turn off their TVs, iPods, Play Stations, computers, and cell phones and experience a night outside. As

part of GABC, sleeping over is recommended, but not required. Persons not staying overnight and children under 8 must leave the park by 10 pm. \$5 per person camping. \$2 per person if not camping.

The CCAS night out starts at dusk and is free to the public. Everyone should bring a blanket or a folding lawn chair and dress for the weather.

CCAS members are encouraged to participate in the event. It will be held in area 11 of the park (see circled camp area to the left); the camp out is happening nearby in area 13. Members helping out should have their telescopes set up and pointed at various interesting objects in the sky. The moon will be visible, as will Saturn, clusters, double stars, and maybe even a meteor or a passing satellite. It promises to be an interesting and educational event.

Should the weather be cloudy, there are picnic tables and a pavilion nearby where we can give a presentation about astronomical topics of interest, including the different types of telescopes, and how to find one that will work well for a beginner.

From West Chester borough, follow Rt. 3 (West Chester Pike) east to Rt. 352. Turn right on Rt. 352 (South Chester Rd.) and proceed approximately 4 miles on Rt. 352. Turn left on Gradyville Rd.

If you want to follow a GPS unit or use MapQuest to get directions to the park, use the following address: 351 Gradyville Road, Newtown Square, PA 19073. The main entrance gate to the park is opposite this address at the intersection of Sandy Flash Drive South and Gradyville Road. Turn right into the park and follow Sandy Flash Drive to camping area 11. Parking is nearby and well-marked.

## International Year of Astronomy 2009 in Canada

submitted by André De Léan, Société d'astronomie du Planétarium de Montréal

[Earlier this year I wrote that I planned to contact organizations around the world and ask them to share IYA2009 stories and photos. This is the first response. Ed.]

“Our over-arching theme is to offer all Canadians the possibility of enjoying a ‘Galileo Moment’ sometime during 2009.

A Galileo Moment is ‘an engaging astronomy experience’ during IYA2009 (AMA2009). More specifically, a Galileo Moment is the participation in, or attendance at, an event that is officially sanctioned as an IYA2009 Activity posted on [www.astronomy2009.ca](http://www.astronomy2009.ca). It includes:

- Looking through a telescope/binoculars (sidewalk astronomy, star parties, at a science centre or observatory, etc.);
- Daytime solar viewing;
- Visiting a planetarium;
- Visiting an IYA event, show or display at a science centre;
- Attending an astronomy talk or lecture;
- Visits by amateur and professional astronomers to schools and youth groups;
- Attending a concert or art exhibit or public display that both entertains and educates around a theme inspired by astronomy.

The objective is to reach 1 million Galileo moments throughout Canada. We have already accumulated over 260,000 events, of which at least 100,000 were ob-



“The Universe within Range of the Eye” Official logo for the 34th Annual Convention of the Federation of Amateur Astronomers of Quebec (FAAQ).

tained in Québec (25% of the population of Canada). Many astronomy clubs are very active. The annual meeting of the Fédération des astronomes amateurs du Québec ([www.faaq.org](http://www.faaq.org)) will occur on September 25-27 in the Montreal area. The Société d'astronomie du Planétarium de Montréal ([www.sapm.qc.ca](http://www.sapm.qc.ca)) is organizing this meeting and I am in charge of the organization.

During the opening ceremony, which will be held at the Planétarium ([www.planetarium.montreal.qc.ca](http://www.planetarium.montreal.qc.ca)), we plan to present short video messages origi-

nating from amateur astronomers from various part of the world.

***We are inviting you to prepare a short video-clip of (at most) one minute of members of your club expressing messages of cordiality on the occasion of the IYA (AMA). We will send to you a similar video message of members of our club (SAPM). This will demonstrate and emphasize that astronomy is an activity which is shared by all people of all countries; and that the passion for this activity is bringing people closer together.”***

(Continued on page 17)

## Nottingham Park

(Continued from page 14)

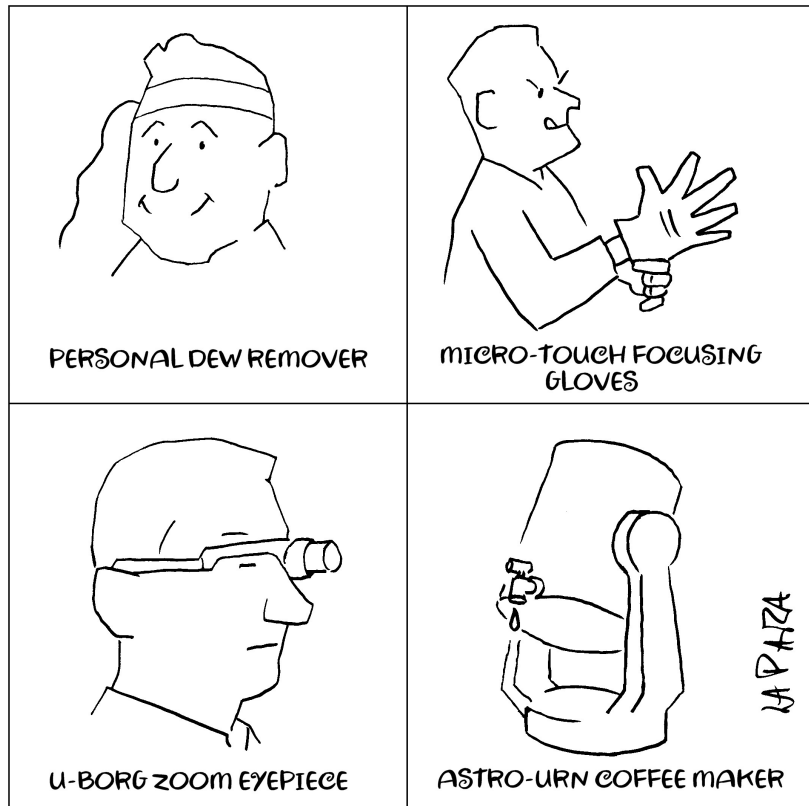
a good view of the night sky. It is also not far from “portapotties” and the ranger office. There is a camping event going on that weekend as well. I am guessing that we will set up in the area labeled Special Events Field.

I have not been to this park for a few years, but it seemed to be away from any major light sources, so we should have a dark sky. Saturn will be a great sight! The sun sets at 8:30 and the Moon does not rise until just after midnight.

I’ll bring some star maps to hand out. All CCAS members are encouraged to participate in this event as part of our efforts to promote the International Year of Astronomy 2009.

## Nicholas’s Cartoon Corner

by Nicholas La Para



## WEIRD ASTRO STUFF

## AMA2009 Video Clip

(Continued from page 16)

Participating in this event is a great way to promote CCAS. Over the past few years we’ve had good exposure in the Astronomical League; participating in this IYA2009 event is a great opportunity to promote CCAS on the international stage. Please contact John Hepler if you are interested in participating in filming the video.

I hope the deadline for submitting the video clip is after our September 8th monthly meeting. We could film the greeting that evening after our regularly scheduled meeting activities.



Logo for the Montreal Planetarium Astronomical Society ([www.sapm.qc.ca](http://www.sapm.qc.ca))

I’ll have more details about the video submission in a few weeks. I’ll communicate any ad-

ditional information via e-mails and future *Observations* articles.



## CCAS Directions

### West Chester University Campus

The monthly meetings (September through May) are held in Room 113 in Merion Science Center, 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).



### Links to Blogs

by John C. Hepler

I recently added links to the “official” blogs of Sky & Telescope magazine, NASA, and the Hubble and Chandra telescopes to the CCAS website. Look for them and many others under “e-Astronomy” on the main menu.

What is a blog? A blog (a contraction of the term weblog) is a type of website, usually maintained by an individual (known as a “blogger”) with regular entries of commentary, descriptions of events, or other material such as graphics or video.

Check them out next time you’re online!

### CCAS Membership Information and Society Financials

#### Treasurer’s Report

by Bob Popovich

#### Apr. 2009 Financial Summary

|                   |         |
|-------------------|---------|
| Beginning Balance | \$1,841 |
| Deposits          | \$0     |
| Disbursements     | \$0     |
| Ending Balance    | \$1,841 |

#### New Meeting Location?

No, CCAS hasn’t moved, the WCU building where we meet just has been renamed. On Friday, April 24th, 2009, West Chester University’s Boucher Hall became the Merion Science Center, named to honor **Retired Army Brigadier General Richard D. Merion**, class of '59.

#### 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:

[www.darksky.org](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 [www.ccas.us](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:

[www.POLCouncil.org](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:

[www.LymePA.org](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

[www.starrynightlights.com](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

[www.greeneearthlighting.com](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

[www.skiesunlimited.net](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

[www.spectrum-scientifics.com](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:

[www.ccas.us](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<br>610-430-7768          |
| <b>Vice Pres:</b>                | Kathy Buczynski<br>610-436-0821       |
| <b>ALCor and Treasurer:</b>      | Bob Popovich<br>484-467-5562          |
| <b>Secretary:</b>                | Don Knabb<br>610-436-5702             |
| <b>Librarian:</b>                | Linda Lurcott Fragale<br>610-269-1737 |
| <b>Observing:</b>                | Don Knabb<br>610-436-5702             |
| <b>Education:</b>                | Kathy Buczynski<br>610-436-0821       |
| <b>Webmaster and Newsletter:</b> | John Hepler<br>484-266-0699           |
| <b>Public Relations:</b>         | Deb Goldader<br>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**.