bservations

A Monthly Publication Of The
CHESTER COUNTY ASTRONOMICAL SOCIETY

JUNE 2008
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Visit our website at www.ccas.us

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CCAS Summer Schedule

June 6/7 — Observing Session at BVA

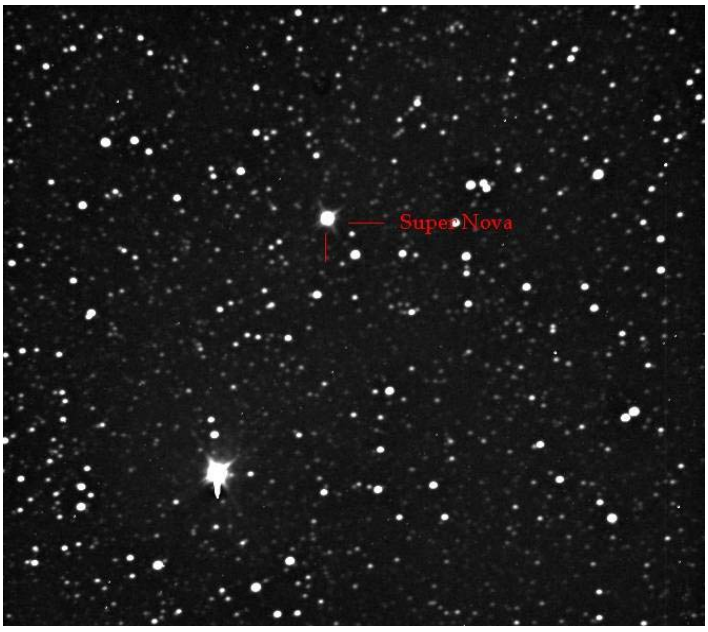
July 5 — Observing Session at BVA

August 1/2 —Observing Session at BVA

Noteworthy TV Series

When We Left Earth: The NASA Missions
Discovery Channel, Sundays at 9PM
Six episodes, starting June 8
Includes never-before-seen footage

Nova In Cygnus
Discovered April 10, 2008 in Japan
Imaged by Pete LaFrance from Chester County



"Sunflower Galaxy" image by Brent Crabb

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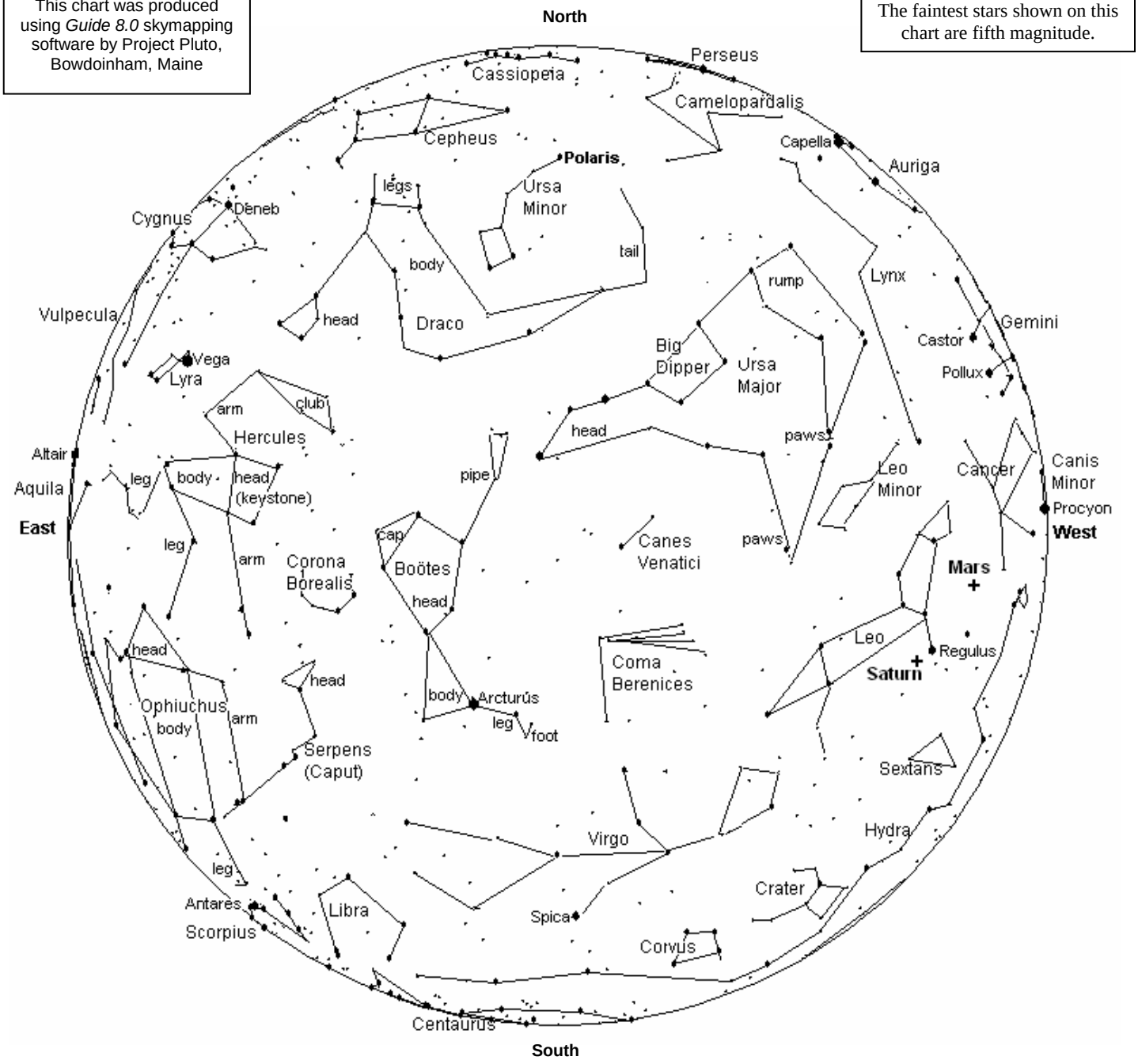
This chart was produced using *Guide 8.0* skymapping software by Project Pluto, Bowdoinham, Maine

The faintest stars shown on this chart are fifth magnitude.



The sky over Chester County

June 15, 2008 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

Date	Sunrise	Sunset
6/1	5:37 a.m.	8:26 p.m. EDT
6/15	5:34 a.m.	8:34 p.m. EDT
6/30	5:38 a.m.	8:36 p.m. EDT

Moon Phases	
New Moon	6/03
First Quarter	6/10
Full Moon	6/18
Last Quarter	6/26

June Observing Highlights

by Don Knabb, CCAS Observing Chair

June 3	New Moon, 3:23 p.m.
June 7	Mars is close to the Moon.
June 10	First quarter Moon, 11:04 a.m.
June 18	Full Moon, 1:30 p.m., the Full Strawberry Moon according to Native American Algonquin tribes.
June 20	Summer solstice, 7:59 p.m., the shortest night of the year.
June 26	Last quarter Moon, 10:57 p.m.
June 30	Mars and Regulus are close in the evening sky.

The Planets: June is a great planet viewing month. You can see Saturn and Mars early in the evening and Jupiter rises a few hours later.

Mercury: The planet Mercury is directly behind the Sun on June 7th, so you won't see it until late June when it rises about an hour ahead of the Sun.

Venus: Venus is the only naked eye planet that you cannot see this month because it is also behind the Sun. We won't see Venus until August when it emerges from behind the Sun as "the evening star."

Mars: In early June the Red Planet is about one-third of the way up the western sky as night falls. On June 7th Mars and the Moon are very close in the sky.

Jupiter: Mighty Jupiter and its herd of moons are rising about an hour and a half after sunset by mid-June. During June Jupiter is near its maximum brightness and size for the year. But Sun is high in the sky during the day, meaning that the ecliptic rides low in the sky at night. Jupiter will therefore only get approximately 30° above the southern horizon.

Saturn: The ringed beauty is still the highlight of an evening at the telescope during June. At Astronomy Day in Hoopes Park in West Chester we had many delighted guests enjoy the sight of Saturn in a telescope. So enjoy Saturn before it slips further into the west as the summer months pass.

Uranus and Neptune: Uranus and Neptune can be found in the southeast before morning twilight brightens the sky. Use the finder charts at SkyandTelescope.com/UranusNeptune to aid your quest.

Pluto: The "ex-planet" Pluto is at opposition on June 20th so it is visible all night and is highest at midnight. You'll need a clear night with no Moon and at least an 8 inch telescope. Finder charts are in the June issue of Sky and Telescope.

Constellations: Ah, the summer sky. Yes, you must stay up later to see the stars but at least you won't be shivering! Leo the Lion with Mars just in front of him and Saturn under his front paw is diving into the west. Look for Scorpius if you have a clear southern horizon and see the bright star Antares shining like a red heart in the big bug of summer. In the east we have bright Vega in Lyra followed by the birds of summer: Cygnus the swan and Aquila the Eagle.

Messier/deep sky: There are many wonderful deep sky objects to see during June. My favorites this time of year are the globular clusters. Look for M3 and M5 high overhead, then find M4 near Antares in Scorpius. Then seek M10 and M12 in Ophiucus. Of course I cannot forget to mention the brightest globular cluster in northern skies, M13 in Hercules.

Comets: There are no bright comets in the sky during June.

Meteor showers: On June 26/27 you might catch a few meteors from the Boötid shower, but the last quarter Moon will wash out the faintest shooting stars after midnight. Your best opportunity to see meteors is around 10:30 p.m

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Welcome!

This month we welcome two new members to the Society: Perry Bickel of Blue Bell, and Thomas Hooper of West Chester. We're glad you decided to join us under the stars! Clear Skies to you both!

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Treasurer's Report

by Bob Popovich

April 2008 Financial Summary

Beginning Balance	$1,826
Deposits	95
Disbursements	390
Ending Balance	$1,531

Membership Renewals Due

06/2008:	Churchman
	Hebding
	Siskind
07/2008	Hockenberry
	Scarfo
	Stevens
	Tobery
08/2008	Fellwock
	Fragale
	Knabb

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* on page 13 in this newsletter.

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Astronomy Day at Hoopes Park in West Chester
by Kathy Buczynski

On May 10th the club hosted a Star Party and Astronomy Day celebration at Hoopes Park in West Chester with the Borough of West Chester's Recreation Department. All day the skies were cloudy, but as evening approached the clouds parted and the skies were clear.

We had great help from many CCAS members. Nine telescopes were set up, which is the most I have seen at any of our star parties. Approximately 60 to 70 people from West Chester attended the event.

Deb Goldader set up a "Kids Corner" and Kathy Buczynski hosted a Girl Scout troop early in the evening. We had a table set up by the Pennsylvania Outdoor Lighting Council and a CCAS table where printed materials were handed out and red flashlights were sold.

Here are a few pictures from the event:

Setting up the club's 20-inch Dob.

David Hockenberry setting up his 10 inch Meade.

Gary Zibinski setting up his 8 inch Meade.

Jim Anderson (at left, back to camera) with his self-built 10-inch Dobsonian reflector.

The observing field as it was getting dark.

A young observer looking through Nicholas La Para's refractor

Ed and Linda looking for faint fuzzies in the sky

Bob Richter's telescope and binoculars

The biggest hit of the night was probably Saturn. Mars was also popular. The sight of the Moon through the telescopes really wowed people. Star clusters, double stars, and galaxies rounded out the celestial buffet.

Gary Calobrisi with his Dobsonian reflector.

David Linskens at the eyepiece of the club's 20 inch Dobsonian reflector

David Hockenberry hunting for galaxies.

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The New Backyard Observing Class Ends

by Kathy Buczynski

In February, the Education Committee started the new and improved Backyard Observing Classes. The objective of the class was to teach participants how to start observing and get them excited about the night sky.

Topics included, How to prepare for observing, Moon, The Benefits of Joining a Club, Telescope Demo, The Solar System, Targets of Opportunity, Stars, and Faint Fuzzies Part 1 and 2.

It was a fun and interesting journey through the classes. They seemed to be well received and well attended. And of course we scheduled some observing sessions for these new observers. We tried and tried but couldn't seem to schedule a cloudless night. If we could only predict the weather…

As with all the other classes we have given, the last class features a drawing for a book. In this class, we gave away the excellent beginners observing guide, *Turn Left at Orion*. In addition, we had a second prize, *Falling Stars, A Guide to Meteors & Meteorites*, and a book on Pluto.

The grand prize was awarded to Manfred Klepacz who was not in attendance, unfortunately, but his wife promised to give it to him. The second prize was awarded to Larry Reimer.

Congratulations to Manfred and Larry. We hope you enjoy the books.

I'd like to take this opportunity to thank all the presenters whose time and dedication made these classes possible: Jim Anderson, Deb Goldader and Nicholas LaPara; you've all done a wonderful job. I'd also like to thank all those members who helped out with registration, set up and the Telescope Demo: Don Knabb, Ed Lurcott, Bob Richter, Marty Bower, Robert Fellwock, and Bob Popovich. Your help was immeasurable, and greatly appreciated.

Because the observing sessions were a bust, I'd like to invite all participants to attend the Hercules Cluster Observing meetings on Tuesday evenings. For more information on the Hercules Cluster, please watch for upcoming emails.

Mason-Dixon Star Party 2008

July 30 to August 3, 2008

The 19th Annual Mason Dixon Star Party is a fun event for all members of the family. This location offers a large and level camping and observing area with unlimited space for attendees in southern York country, with reasonably dark skies. This event will also bracket a new moon to provide optimal observing.

The Milky Way is easily seen at this site and stars can be seen less than 10 degrees above the horizon!

This is a fun filled Star Party geared for everyone! There will be workshops, speakers, vendors, field trips and raffle prizes for all ages. We also have camping areas, bunk houses, food, showers and facilities, horse shoe pits, sand volley ball courts and a swimming pool too!

For more information and on-line registration see:

http://masondixonstarparty.org/

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Black Forest Star Party: Sept. 5-7, 2008

This star party is held at Cherry Springs State Park in Potter County, Pennsylvania. Cherry Springs State Park is one of the darkest sites in the state of Pennsylvania and has been designated as Pennsylvania's first Dark Sky Park by the PA Department of Conservation and Natural Resources (DCNR). CCAS members who have attended past Star Parties at Cherry Springs have attested to the excellent observing conditions at the Park.

Registration for the Black Forest Star Party is now open.. More information and on-line registration is at:

http://www.bfsp.org

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Through the Eyepiece: The Coma Cluster of stars

by Don Knabb, CCAS Observing Chair

Barb and I were enjoying the night sky at a dark sky location (yes, the Pocono house) during the Memorial Day weekend and we saw a sight neither of us had enjoyed before. We were looking east of Leo when Barb asked “What is that big fuzzy spot?” I really did not know, as I had never seen it before. With planisphere close at hand, as always, I quickly identified the object as the Coma cluster of stars, also known as Melotte 111 after its entry in the catalogue of deep sky objects by the astronomer P. J. Melotte. This cluster is in the constellation Coma Berenices.

The Coma Cluster is a small but nearby star cluster in our galaxy. Its stars all have a common proper motion, making it a true physical cluster, not just a visual alignment of widely distant stars. It used to be known as Leo's tail. This open cluster is 288 light-years away, roughly twice as distant as the Hyades, and covers an area of more than 5 degrees on the sky. The cluster is approximately 450 million years old.

I could not find many good photos of the Coma Cluster that were not copyrighted, but the one below, taken from England, is in the public domain.

Image credit: http://en.wikipedia.org/wiki/Image:Comastarcluster.jpg

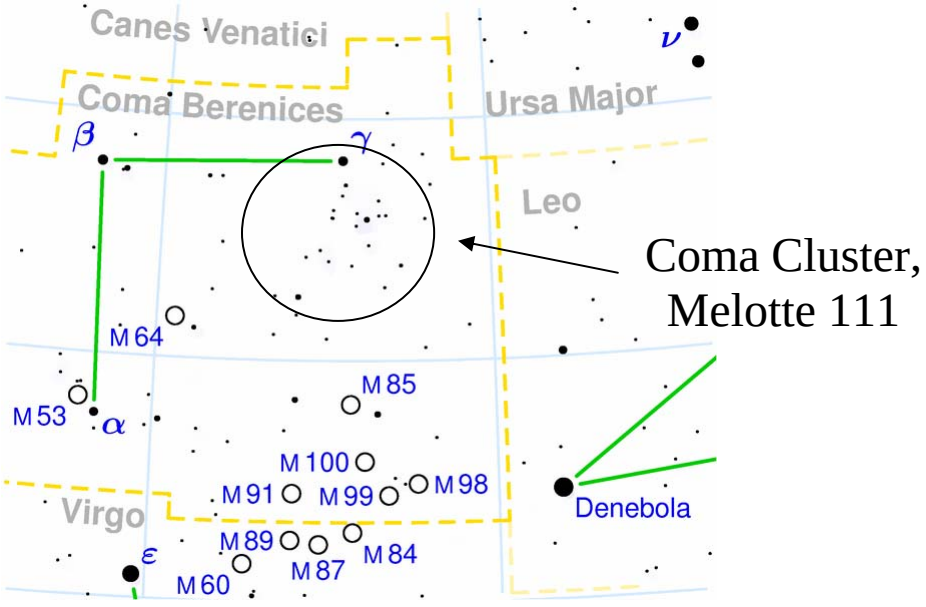
This is a star cluster similar in nature to the Pleiades and Hyades but is further away and slightly fainter. The Coma star cluster is currently neither approaching nor receding from us. This makes it one of the nearest open star clusters; only the Ursa Major Cluster and the Hyades are closer.

Coma Berenices lies in the direction of our galaxy's North Pole and away from the obscuring gas and dust between the stars. As such, telescopes show numerous distant galaxies, many of which lay more than 300 million light years away in the so-called Coma Cluster of galaxies which should not be confused with the Coma Cluster of stars.

The cluster was never cataloged as a Messier or NGC object, even though it's very visible. At least 37 stars have been identified as members of this cluster. Its brightest stars are 50 times brighter than our sun and its faintest are 1/3rd the sun's brightness.

Melotte 111 is too large for a telescope. It is a wonderful naked eye object or use low powered binoculars to see this large cluster. Some of its stars are visible to the naked eye but it needs binoculars to reveal its true potential. There is also some background nebulosity and larger telescopes will also show that many of the "stars" visible to binoculars as small fuzzy patches are really galaxies.

The diagram below will help you find the Coma Cluster. If you can't see it naked eye from your observing location, use binoculars and scan east from Leo's tail.



Sky map credit:http://en.wikipedia.org/wiki/Image:Coma_Berenices_constellation_map.png

Information credits:

http://en.wikipedia.org/wiki/Coma_Berenices

http://www.seds.org/messier/xtra/ngc/mel111.html

http://en.wikipedia.org/wiki/Mel_111

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Ozone, the Greenhouse Gas

By Patrick L. Barry

We all know that ozone in the stratosphere blocks harmful ultraviolet sunlight, and perhaps some people know that ozone at the Earth's surface is itself harmful, damaging people's lungs and contributing to smog.

But did you know that ozone also acts as a potent greenhouse gas? At middle altitudes between the ground and the stratosphere, ozone captures heat much as carbon dioxide does.

In fact, pound for pound, ozone is about 3000 times stronger as a greenhouse gas than CO2. So even though there's much less ozone at middle altitudes than CO2, it still packs a considerable punch. Ozone traps up to one-third as much heat as the better known culprit in climate change.

Scientists now have an unprecedented view of this mid-altitude ozone thanks to an instrument aboard NASA's Aura satellite called the Tropospheric Emission Spectrometer—“TES” for short.

Most satellites can measure only the total amount of ozone in a vertical column of air. They can't distinguish between helpful ozone in the stratosphere, harmful ozone at the ground, and heat-trapping ozone in between. By looking sideways toward Earth’s horizon, a few satellites have managed to probe the vertical distribution of ozone, but only to the bottom of the stratosphere.

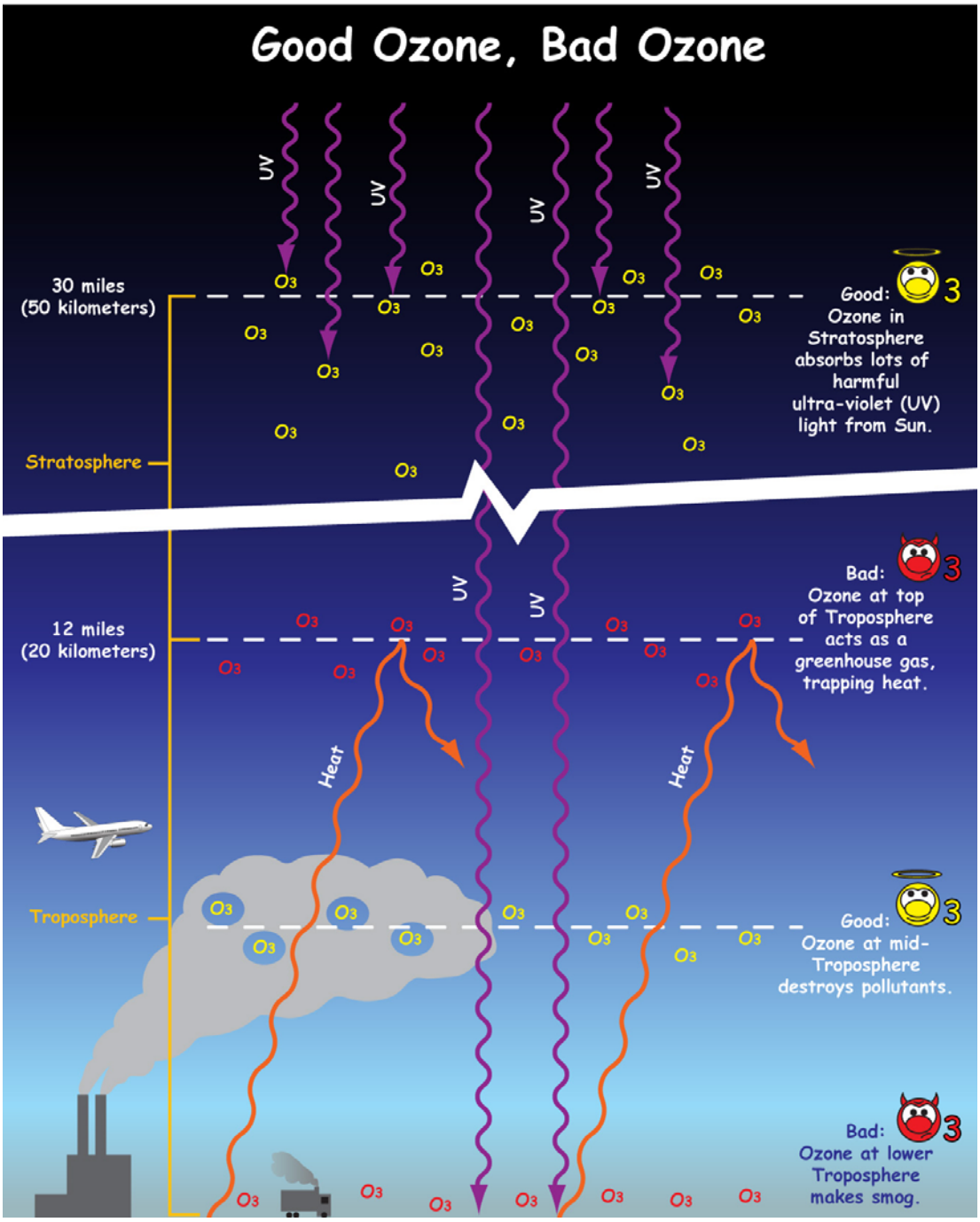
Unlike the others, TES can measure the distribution of ozone all the way down to the heat-trapping middle altitudes. "We see vertical information in ozone that nobody else has measured before from space," says Annmarie Eldering, Deputy Principal Investigator for TES.

The global perspective offered by an orbiting satellite is especially important for ozone. Ozone is highly reactive. It is constantly being created and destroyed by photochemical reactions in the atmosphere and by lightning. So its concentration varies from region to region, from season to season, and as the wind blows.

Data from TES show that ozone's heat-trapping effect is greatest in the spring, when intensifying sunlight and warming temperatures fuel the reactions that generate ozone. Most of ozone's contribution to the greenhouse effect occurs within 45 degrees latitude from the equator.

Increasing industrialization, particularly in the developing world, could lead to an increase in mid-altitude ozone, Eldering says. Cars and coal-fired power plants release air pollutants that later react to produce more ozone.

"There's concern that overall background levels are slowly increasing over time," Eldering says. TES will continue to monitor these trends, she says, keeping a careful eye on ozone, the greenhouse gas.



Ozone behaves differently at different altitudes in the atmosphere. High in the stratosphere and at mid-troposphere it has positive effects on life at the surface. At the top of the troposphere ozone is a greenhouse gas and at the surface it makes smog.

Learn more about TES and the science of ozone at **tes.jpl.nasa.gov/**.

Kids can get a great introduction to good ozone and bad ozone at **spaceplace.nasa.gov/en/kids/tes/gases**.

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

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Dark sky vacation house available for weekend or weekly rental from Barb and Don Knabb

Greetings, greetings fellow star gazers. Barb and I just finished building a chalet in the Pocono Mountains. One of the main reasons we built this house is to have a dark sky site available for star gazing. The house has a 10 by 30 foot deck that faces southwest. The deck is approximately 10 feet off the ground and for many miles to the east, south and west are state game lands with no ground lights. We have neighbors to the east, west and north, but the house or trees block their lights.

The tree line allows viewing to within 15 to 20 degrees of the horizon. From the west end of the deck one can see Polaris so a polar alignment is possible. I have not yet determined the faintest magnitude star that we can see.

The house is approximately 15 minutes from the intersection of the Northeast Extension of the PA turnpike and Route 80. It is 5 minutes from Lake Harmony. It is in a private development with a lake and sandy beach. There are several state parks nearby that offer excellent hiking.

The main floor is on the 2nd level with the kitchen, a bathroom and the master bedroom. Downstairs are two bedrooms, a game room and a bathroom. There is a loft on the 3rd level. Counting a futon in the game room, the house sleeps 10.

If you are interested in renting the house that we call Pocono Starry Nights, send an e-mail to dknabb00@comcast.net or observing@ccas.us and I will give you prices and more information. All rentals will be handled by a realtor. CCAS members get a 10% reduction from the regular rental prices.

"THAT SMALL GROUP OF STARS? OH, THAT'S THE PEANUT CLUSTER."

Cartoon by Nicholas La Para

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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

Telephone: 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:

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.

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

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Good Outdoor Lighting Website

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? Now there is a web site and business intended to address that very problem. At this site you can find information on all kinds of well-designed (that is, star-friendly) outdoor lighting fixtures. This company, Starry Night Lights, intends to make available all star-friendly fixtures they can find, and information on them, in one place. Check it out, and pass this information on to others. Help reclaim the stars! And save energy at the same time!

http://www.starrynightlights.com/

Local Astronomy Store: *Skies Unlimited*

There is an astronomy equipment store called ***Skies Unlimited*** in our area, in Pottstown to be specific, at:

Suburbia Shopping Center
52 Glocker Way
Pottstown, PA 19465
Telephone: 610-327-3500 **or** 888-947-2673

http://www.skiesunlimited.net/

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Another Good Outdoor Lighting Website

http://www.greenearthlighting.com

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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

Take the time to learn about this health threat and how to protect yourself and your family. It is truly "time well spent"!

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New Astronomy Store Opens in Manayunk

Spectrum Scientifics

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

stargazer1956@comcast.net

Or mail the contribution, typed or handwritten, to:

Jim Anderson
1249 West Kings Highway
Coatesville, PA 19320-1133

Get 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 Jim Anderson, the newsletter editor, at:

stargazer1956@comcast.net

CCAS Website

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

http://www.ccas.us/

John welcomes any additions to the site by Society members. The contributions can be of any astronomy subject or object, or can be related to space exploration. The only requirement is that it is your own work; no copying copyrighted material! Give your contributions to John Hepler (484-266-0699) 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 "star nights" for school, scout, and other civic groups.

CCAS Executive Committee

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

President:	Kathy Buczynski 610-436-0821
Vice Pres:	Jim Anderson 610-857-4751
ALCor and Treasurer:	Bob Popovich 610-363-8242
Secretary:	Don Knabb 610-436-5702
Newsletter:	Jim Anderson 610-857-4751
Librarian:	Linda Lurcott Fragale 610-269-1737
Observing:	Don Knabb 610-436-5702
Education:	Kathy Buczynski 610-436-0821
Webmaster:	John Hepler 484-266-0699
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 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: 610-363-8242
e-mail: 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.

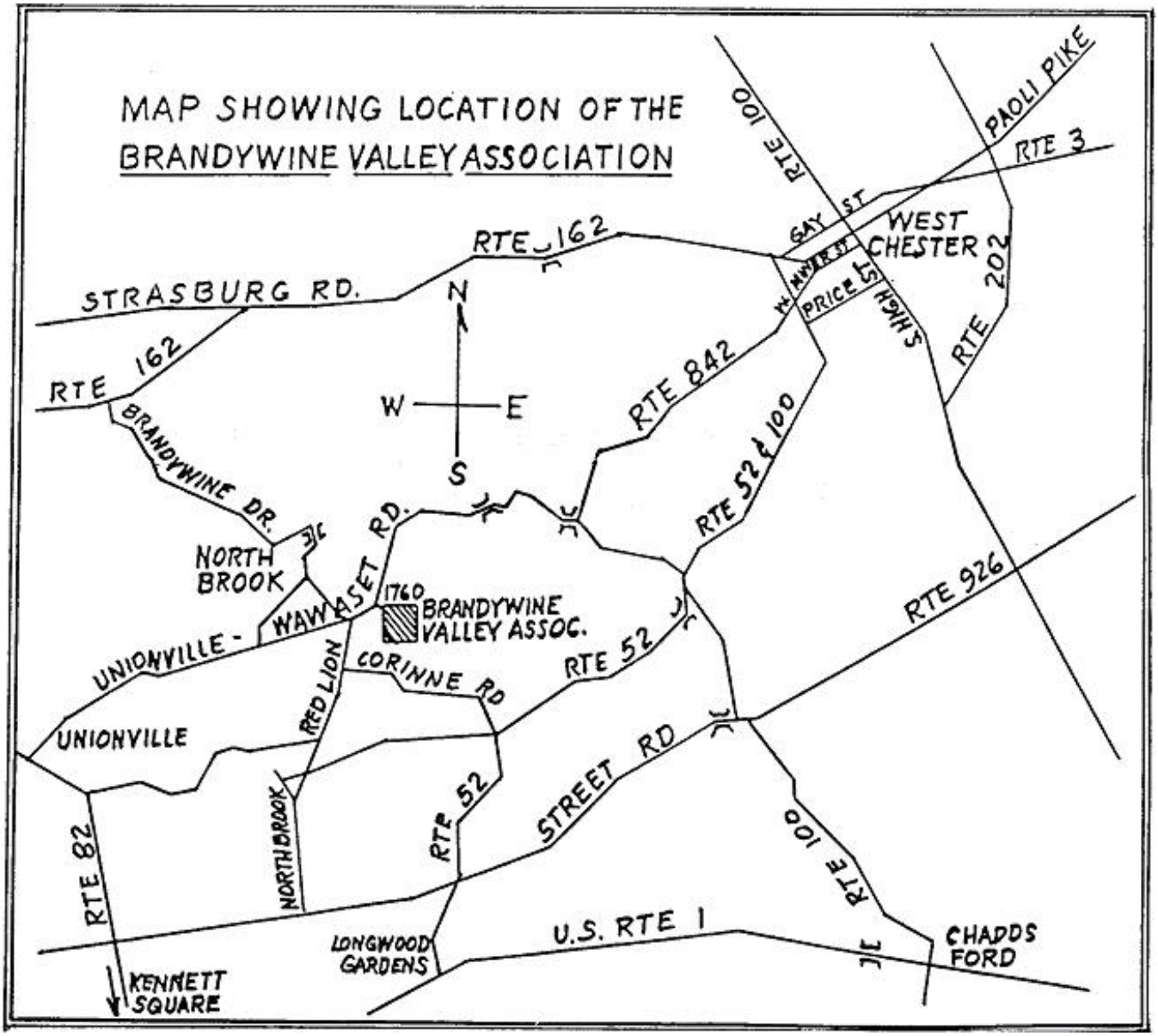
To **start** a **new** subscription, make **sure** you make out the check to the **Chester County Astronomical Society**, note that it's for *Sky & Telescope*, and mail it to Bob Popovich.

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 **(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.**



To get to the Myrick Conservation Center of the Brandywine Valley Association 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 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 up the farm lane to the left; it's about 800 feet or so to the top of the hill. 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).