



Observations

A Monthly Publication Of The
CHESTER COUNTY ASTRONOMICAL SOCIETY

DECEMBER 2005

(VOLUME 13, NO. 12)

Visit our website at www.ccas.us

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Important December 2005 Dates

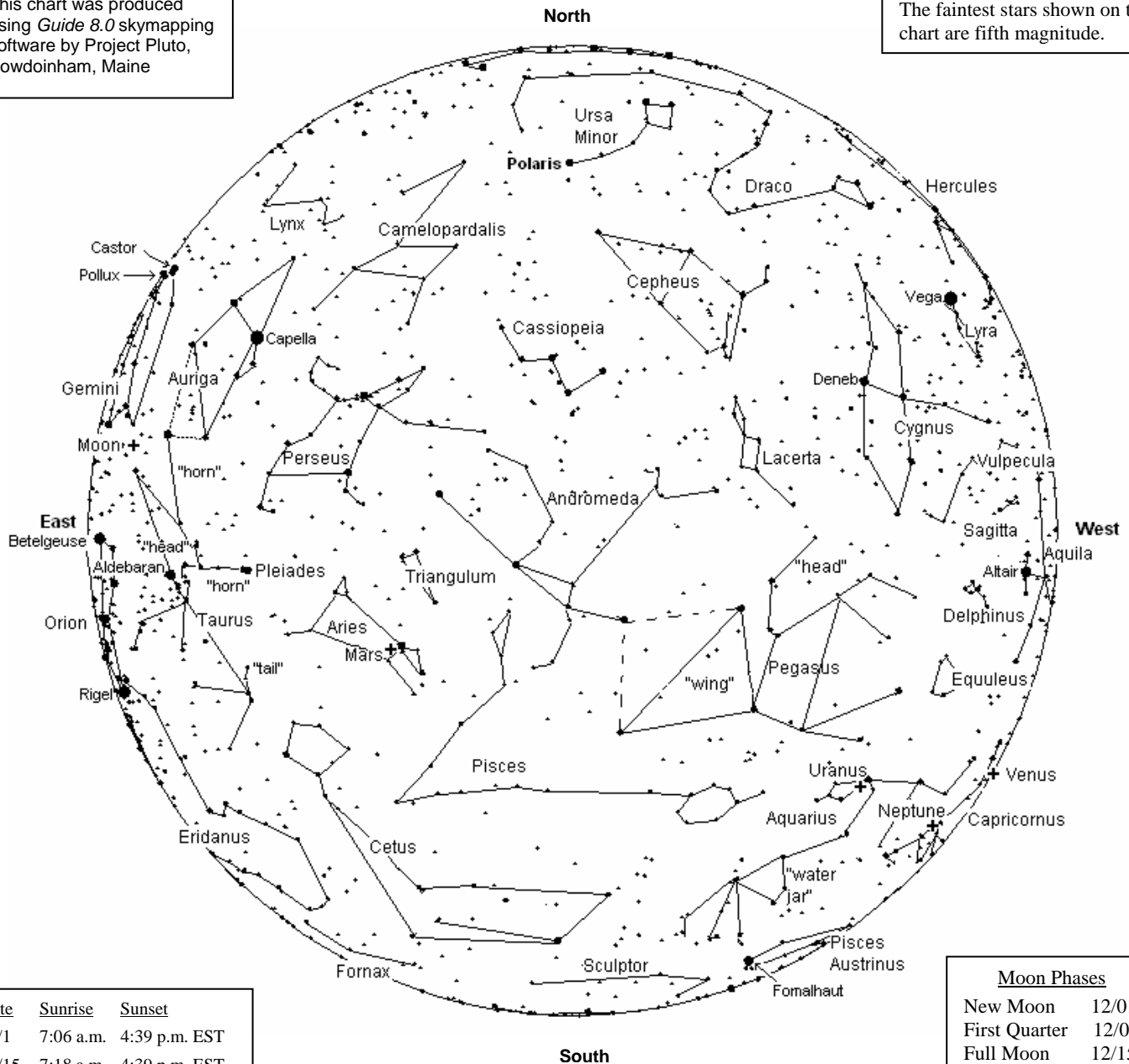
- 1 New Moon
- 6 Hercules Observing Cluster meets.
Call Kathy Buczynski at 610-436-0821 for details.
- 8 First Quarter Moon
- 09/ CCAS Observing Session**
- 10 Location: Brandywine Valley Association
Time: sunset, or earlier (see page 3)
- 13 **CCAS Holiday Gathering** 7:30 p.m. EST
See page 3 for details!

Also: Hercules Observing Cluster meets.
Call Kathy Buczynski at 610-436-0821 for details
- 15 Full Moon
- 20 Hercules Observing Cluster meets.
Call Kathy Buczynski at 610-436-0821 for details.
- 21 **December Solstice at 1:35 p.m. EST.**
First Day of Winter in Chester County.
- 23 Last Quarter Moon.
- 25 Moon occults Spica! 9:07 a.m.-10:26 a.m. EDT,
you can watch it with a telescope!
Oh, yeah, **Merry Christmas** too!
- 27 Hercules Observing Cluster meets.
Call Kathy Buczynski at 610-436-0821 for details.
- 30 New Moon



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
12/1	7:06 a.m.	4:39 p.m. EST
12/15	7:18 a.m.	4:39 p.m. EST
12/30	7:25 a.m.	4:47 p.m. EST

Moon Phases	
New Moon	12/01
First Quarter	12/08
Full Moon	12/15
Last Quarter	12/23
New Moon	12/30

The sky over Chester County
December 15, 2005 at 7:00 p.m. EST

The Planets

Mercury is in the morning sky all month, pretty low and hard to spot. Dec. 10 is the best morning to look, about 6:10-6:15 a.m. Much brighter Jupiter is to Mercury's upper right all month; use Jupiter as a help to find Mercury.

Venus is in the evening sky all month, shining as bright as it ever gets, but also appearing lower in the sky after sunset each night.

Mars: Mars is now getting further away from us, and slowly fainter, as December progresses. It's still worth taking a look at it in a telescope.

Jupiter is getting higher in the morning sky this month, with fainter Mercury to Jupiter's lower left most of the month.

Geminid Meteor Shower: peaks on December 13, but the Moon's brightness will interfere.

Dec. 25: The Moon occults (passes in front of) first-magnitude Spica in Virgo, 9:07 a.m. to 10:26 a.m. and can be seen in a telescope.

Saturn is now rising about 9:00 p.m. as December begins, and around 7:00 p.m. by month's end. M44, the Beehive Cluster in Cancer, is only about 3 degrees away from Saturn all month. This could be a nice sight in binoculars.

Uranus is in the southwest, and can be observed with binoculars or a telescope, as darkness falls.

Neptune is also in the southwest as darkness falls, and can still be found with a telescope.

Pluto is now out of reach for this year, disappearing behind the Sun. You'll have to wait for next spring to try for Pluto again.

CCAS Holiday Gathering

DATE: **Tuesday December 13, 2005**
TIME: **7:00 p.m. EST**
PLACE: **Kildare's**
18 West Gay Street
West Chester, PA

The Executive Committee invites all members to join them for an evening of socializing over good food to celebrate the holidays. We will start gathering at 7:00, so you can order dinner if you wish. In case you're not familiar with Kildare's, it is in the same block of Gay Street as Iron Hill Brewery, just down the street a bit further on the other side of the street. It's in the block of Gay Street just past High Street and the Court House. It is where the old "Restaurant and Bar" was located. We hope to see you all there!



CCAS December Observing Session What a Night for a Moon Gaze!

The next CCAS Observing Session will be at the Brandywine Valley Association's Myrick Conservancy Center (see map on page 13) on Friday December 9, 2005 starting at sunset; or earlier, if you can get there earlier. If it's too cloudy on Friday, then the Observing Session will be on Saturday December 10, 2005. Since First Quarter Moon is on December 8, we scheduled this session so we can all do some lunar observing. Work on your A.L. Lunar Observing club list if you'd like.

At the observing sessions, there will be help available to set up and use your telescopes. If you're having trouble using your telescope, or finding your way around the sky, come on out and get some assistance. All members are invited whether they have a telescope or not. Telescope owners are always glad to share the view through their telescope. CCAS Observing Sessions are free of charge and open to the public.



CCAS Trip to Washington Postponed

At the November meeting, we decided to postpone the trip to Washington to visit the U.S. Naval Observatory and the Air & Space Museum. Trip Coordinator Linda Fragale-Lurcott is working on lining up a new date, probably in February. Look for an update in the January newsletter.



CCAS Polo Shirts Available, Great Holiday Gift!

You can purchase a classy polo shirt with the CCAS logo embroidered on the left breast. Price is \$30.00 per shirt. Adult sizes S, M, L, XL only. Contact our Treasurer Bob Popovich to purchase yours!



Treasurer's Report by Bob Popovich

October 2005 Financial Summary

Beginning Balance	\$1,309
Deposits	275
Disbursements	<u>48</u>
Ending Balance	\$1,536

Membership Renewals Due

12/2005: Henderson
Limeburner
01/2006: Kovacs
Whitman
02/2006: Farrelly
La Para
Reimer
Renshaw
Wilcox



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 a later page in this newsletter.



CCAS Introductory Astronomy Class

The Education Committee of the CCAS is offering a class intended to introduce people to basic astronomy. This series of eight classes will be held on the first and third Tuesdays of each month, starting at 7:00 p.m. and ending at 8:00 p.m. These are the dates on which classes will be held:

February 7 Spaceship Earth
February 21 The Moon
March 7 The Other Kids on the Block
March 21 Planispheres/Star Charts
April 4 Stars by Design: Constellations
April 18 The Secret Life of Stars
May 2 Planetarium Field Trip (WCU)
May 16 Beyond Naked Eye

The classes will be held in the West Goshen Township Building at the intersection of Paoli Pike and Five Points Road. This is just a short distance from the Paoli Pike exit off U.S. Route 202 outside West Chester.

The cost for non-members is \$20.00 per person, and \$30.00 per family (with the same address). **For current CCAS members, the classes are free!** Space is limited to just 40 people, however, so call Kathy Buczynski to reserve your space **now** (610-436-0821). Also, please call Kathy if you'd like to help at the classes. We have all the instructors lined up, but we can always use help with registration and setup/takedown.

The advertising flyer/poster is included in this newsletter on page 12. Feel free to make copies of it and distribute it to friends, family, neighbors; post it in churches, libraries, grocery stores, in any place they will let you post it. Thanks for helping out with the advertising.



Needed: Bookshelves for Library

We need some bookshelves to hold the CCAS Library. If you would like to donate some bookshelves (in good, clean, usable shape) please contact our Librarian Linda Lurcott Fragale at 610-269-1737 to arrange a transfer of the shelves.

Thanks!



Call for Photos for CCAS Web Site

John Hepler, our Society's best-in-nation Webmaster, has asked for photographs/images of Society events to use in making a "photo album" page of what the Society does. If you have images that you can let us use for this album, please contact John at webmaster@ccas.us to arrange the transfer. Don't send any attached files with the email, because that address won't accept it. Just send a note telling John what you have, and he will get in touch to arrange the transfer.

John is also willing to accept astro-images taken by Society members for display on the Website. Contact John if you have images we can use, any pictures similar to the images by members we have shared with you in the newsletter in the past year or so.

Thanks!



Calendar Notes

December 6, 2005 (Tuesday)	Hercules Observing Cluster meets
December 9/10, 2005 (Friday/Saturday)	CCAS Observing Session Location: BVA sunset (moon gazing night)
December 13, 2005 (Tuesday)	CCAS Meeting Location: TBA 7:30 p.m. EST
December 13, 2005 (Tuesday)	Hercules Observing Cluster meets
December 20, 2005 (Tuesday)	Hercules Observing Cluster meets
December 21, 2005 (Wednesday)	December Solstice at 1:35 p.m. EST First Day of Winter in Northern Hemisphere
December 27, 2005 (Tuesday)	Hercules Observing Cluster meets
January 3, 2006 (Tuesday)	Hercules Observing Cluster meets
January 10, 2006 (Tuesday)	CCAS Meeting Location: West Chester University 7:30 p.m. EST
January 10, 2006 (Tuesday)	Hercules Observing Cluster meets
January 17, 2006 (Tuesday)	Hercules Observing Cluster meets
January 24, 2006 (Tuesday)	Hercules Observing Cluster meets

January 27/28, 2006 (Friday/Saturday)	CCAS Observing Session Location: BVA sunset
January 31, 2006 (Tuesday)	Hercules Observing Cluster meets
February 7, 2006 (Tuesday)	Introductory Astronomy class Location: West Goshen Twp. Building 7:30 p.m. EST
February 14, 2006 (Tuesday)	CCAS Meeting Location: West Chester University 7:30 p.m. EST
February 21, 2006 (Tuesday)	Introductory Astronomy class Location: West Goshen Twp. Building 7:30 p.m. EST
February 24/25, 2006 (Friday/Saturday)	CCAS Observing Session Location: BVA sunset
March 7, 2006 (Tuesday)	Introductory Astronomy class Location: West Goshen Twp. Building 7:30 p.m. EST
March 14, 2006 (Tuesday)	CCAS Lunar Eclipse Observing Location: TBA Sunset (or Moonrise, if you prefer)
March 21, 2006 (Tuesday)	Introductory Astronomy class Location: West Goshen Twp. Building 7:30 p.m. EST
March 24/25, 2006 (Friday/Saturday)	CCAS Observing Session Location: BVA sunset
April 4, 2006 (Tuesday)	Introductory Astronomy class Location: West Goshen Twp. Building 7:30 p.m. EDT
April 11, 2006 (Tuesday)	CCAS Meeting Location: West Chester University 7:30 p.m. EDT
April 18, 2006 (Tuesday)	Introductory Astronomy class Location: West Goshen Twp. Building 7:30 p.m. EDT
April 21/22, 2006 (Friday/Saturday)	CCAS Observing Session Location: BVA sunset
May 2, 2006 (Tuesday)	Introductory Astronomy class Location: West Chester University 7:30 p.m. EDT
May 9, 2006 (Tuesday)	CCAS Meeting Location: West Chester University 7:30 p.m. EDT
March 16, 2006 (Tuesday)	Introductory Astronomy class Location: West Goshen Twp. Building 7:30 p.m. EDT
May 19/20, 2006 (Friday/Saturday)	CCAS Observing Session Location: BVA sunset



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!

<http://www.starrynightlights.com/>



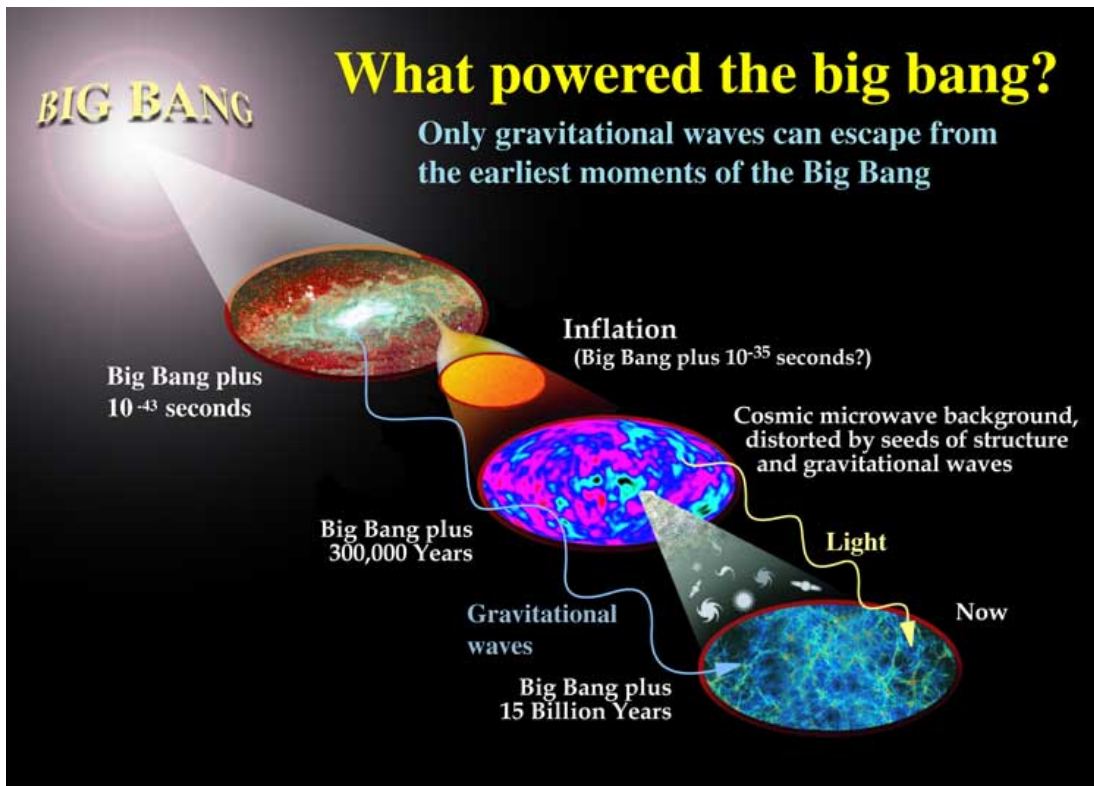
Voices From the Cacophony

By Trudy E. Bell and Dr. Tony Phillips

Around 2015, NASA and the European Space Agency plan to launch one of the biggest and most exacting space experiments ever flown: *LISA*, the Laser Interferometer Space Antenna.

LISA will consist of three spacecraft flying in a triangular formation behind Earth. Each spacecraft will beam a laser at the other two, continuously measuring their mutual separation. The spacecraft will be a mind-boggling 5 million kilometers apart (12 times the Earth-Moon distance) yet they will monitor their mutual separation to one *billionth* of a centimeter, smaller than an atom's diameter.

LISA's mission is to detect gravitational waves—ripples in space-time caused by the Universe's most violent events: galaxies colliding with other galaxies, supermassive black holes gobbling each other, and even echoes still ricocheting from the Big Bang that created the Universe. By studying the shape, frequency, and timing of gravitational waves, astronomers believe they can learn what's happening deep inside these acts of celestial violence.



LISA will be able to detect gravitational waves from as far back as 10⁻³⁶ second after the Big Bang, far earlier than any telescope can detect.

The problem is, no one has ever directly detected gravitational waves: they're still a theoretical prediction. So no one truly knows what they "sound" like.

Furthermore, theorists expect the Universe to be booming with thousands of sources of gravitational waves. Unlike a regular telescope that can point to one part of the sky at a time, *LISA* receives gravitational waves from many directions at once. It's a cacophony. Astronomers must figure how to distinguish one signal from another. An outburst is detected! Was it caused by two neutron stars colliding *over here* or a pair of supermassive black holes tearing each other apart in colliding galaxies *over there*?

"It's a profound data-analysis problem that ground-based astronomers don't encounter," says E. Sterl Phinney, professor of theoretical physics at the California Institute of Technology in Pasadena.

Profound, but not hopeless: "We have lots of good ideas and plans that work—in theory," he says. "The goal now is to prove that they actually work under real conditions, and to make sure we haven't forgotten something."

To that end, theorists and instrument-designers have been spending time together brainstorming, testing ideas, scrutinizing plans, figuring out how they'll pluck individual voices from the cacophony. And they're making progress on computer codes to do the job.

Says Bonny Schumaker, a member of the *LISA* team at the Jet Propulsion Laboratory: "It's a challenge more than a problem, and in fact, when overcome, a gift of information from the universe."

For more info about *LISA*, see <http://lisa.nasa.gov> . Kids can learn about black holes and play the new "Black Hole Rescue!" game on The Space Place Web site at <http://spaceplace.nasa.gov/en/kids/blackhole/> .

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

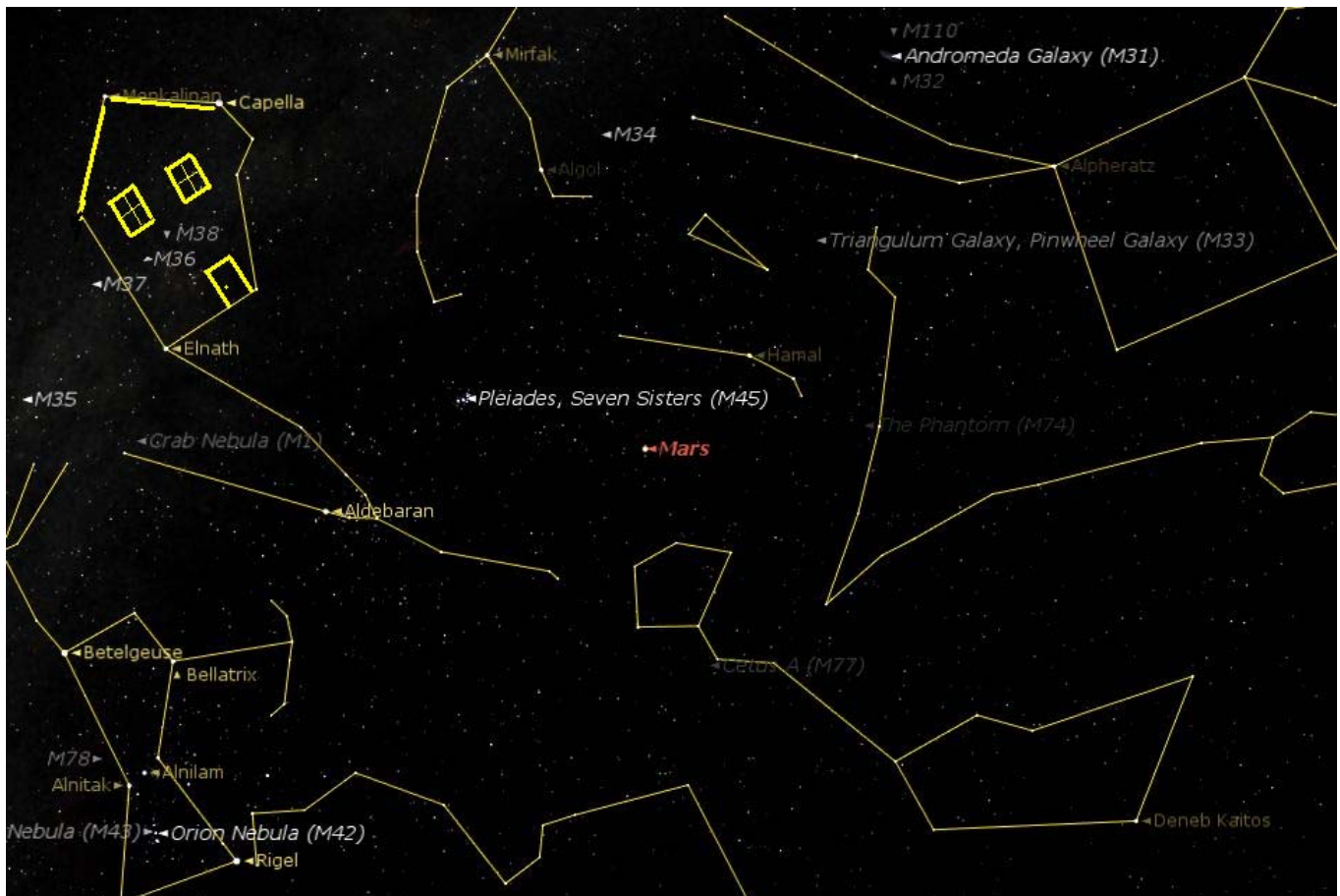


Astronomus

"Home for the Holidays"

By Bob Popovich

Does the title I've selected for this month's contribution conjure up an image of sitting in a luxurious wingback chair at fireside? And around you a festively adorned home with holiday music playing softly in the background? Well, while this Hollywood image is not bad, it doesn't hold a candle to *our* reality this time of year:



Other than us amateur astronomers, not many folks actually go *outside* to be home. But on a crisp, clear winter night we understand the meaning of “home is where the heart is.” So out we go!

I admit that our celestial home, Auriga, is a bit lopsided, but what is that amongst friends? It’s a convenient place to start our festivities and with so much to see so close to home, we don’t have far to stray.

Able to hold less moisture than at other times of year, the chill winter air tends to be freer of particulate dust. The result is better seeing—so who cares about the cold! And besides, since we all know to overdress for winter weather, we’re going to be just as comfortable as that poor soul sitting next to the fire, staring blankly at the Homer Simpson slippers dangling from his feet. And no matter how festive the decoration in your Earthly home might be this time of year, can anything compare to the magnificent decoration of this winter night sky? Ho Ho Ho, I think not!

Using our celestial house as a launching point, let’s take a tour of our magnificently decorated neighborhood, focusing on some of Messier’s finest.

To maximize your viewing time and minimize the fuss, I suggest relying on binoculars this time of year. There are so many celestial beauties within the reach of binoculars that the stereoscopic “oohs” and “aahs” will be non-stop. Bundle up, step out the door and come home!

Object #34 on Chucky Messier’s list is a beautiful open cluster in Perseus. Containing several double stars including an optical double at its heart, it appears to be the diameter of the full moon. It is hurtling through space in the same direction as another nearby cluster—Subaru. Oh, sorry. I meant the Pleiades.

And speaking of the Pleiades (M45), it’s a dazzling open cluster in Taurus whose principal stars look a bit like a mini-dipper. Not only is it distinguished by its beauty but also by the facts that it is easily visible without optical aid and that it’s the only star cluster mentioned in the Bible (twice in the Book of Job).

We need only go back home (Auriga) to capture three more holiday baubles—M36, M37 & M38—hanging on the Milky Way as if on a strand of garland.

Following the path out our front door brings us to yet another beauty—the Hyades. Though this one is more an optical cluster than a true cluster in that the stars aren’t all moving as a unit through space, it’s a holiday festoon that can’t be beat. Try defining the limit of the cluster and then count the stars. How many do you see?

A horn of Taurus points us to M35 in Gemini, a large and dense cluster that is most impressive. But while we’re on our way towards M35, if our trusty binoculars are powerful enough, we might stop near the tip of the horn and try to locate the wispy remnant of an exploded star that Monsieur Messier labeled #1 in his catalogue: The Crab Nebula. It will be a tough one to find, but it’s worth the effort for we can only imagine the titanic explosion that catapulted the mass of a star into the cosmos, leaving behind only this faintest of traces. It caught Messier’s eye as he searched for Halley’s Comet and inspired him to comb the skies and catalogue all the fuzzy things that he did not wish to mistake for a comet. So here we have a distant cloud that marks the birth of an astronomical pursuit which stills occupies a central spot in much of our observing.

If you’re not yet completely bedazzled by the magnificent decorations of our celestial hood, be sure to visit one of the jumbo homes that we just can’t help showing off—Orion. The Great Nebula never fails to transfix me and helps remind me what a gift we’ve received in our shared passion of astronomy.

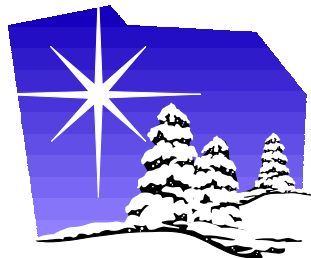
Be sure to take a break and grab an eggnog or hot chocolate and then return to the skies for more—M50 in Monoceros, M41 in Canis Major, and M46 & M47 in Puppis (which can both be seen in the same field of view).

All of these holiday decorations will be visible for quite some so enjoy them often. And if you can track them all down, you’ll have made a good start in the hunt for your Messier Club pin!

If I still have your kind attention, allow me to invite you to toast the holidays and your fellow amateur astronomers by joining CCAS at Kildare’s for our traditional December meeting—see the announcement elsewhere in this newsletter!

Merry Christmas, Happy Hanukah & a Healthy, Prosperous New Year to you all.

Next Time: Don’t Let *This* Sleeping Dog Lie



We wish all members a very safe, happy, and star-filled Holiday Season!

NASA's SANTA * Satellite



***S LEIGH-BASED ADVANCED NEAR-EARTH TELESCOPE ASSEMBLY**

Cartoon by Nicholas La Para



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 A.L. Award Coordinators

These are the members to contact when you have completed your observing log for the Messier, Binocular Messier, Lunar, or Double Star Awards:

Messier (both): Jim Anderson
(610-857-4751)

Lunar: Ed Lurcott
(610-436-0387)

Double Star: Jim Anderson
(610-857-4751)

Constellation Hunters: Jim Anderson
(610-857-4751)

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: Vic Long
(610) 399-0149

Newsletter: Jim Anderson
(610) 857-4751

Librarian: Linda Lurcott Fragale
(610) 269-1737

Observing: Ed Lurcott
(610) 436-0387

Education: Kathy Buczynski
(610) 436-0821

Webmaster: John Hepler
(610) 363-0811



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 your membership. If you are due to renew, you can mail in your renewal check made out to "Chester County Astronomical Society." Mail to:

Bob Popovich
416 Fairfax Drive
Exton, PA 19341-1814

Sky & Telescope Magazine Group Rates

Subscriptions to this excellent periodical are available through the CCAS at a reduced price of **\$32.95** which is much less than the newsstand price of \$66.00, and also cheaper than individual subscriptions (\$42.95)! Make **sure** you make out the check to the **Chester County Astronomical Society** (do **not** make the check out to Sky Publishing, this messes things all up big time), note that it's for *Sky & Telescope*, and mail to Bob Popovich. Or you can bring it to the next Society meeting and give it to Bob there. **If you have any questions by all means call Bob first (610-363-8242).** Buying a subscription this way also gets you a 10% discount on other Sky Publishing merchandise.

CCAS Website

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

<http://www.ccas.us/>

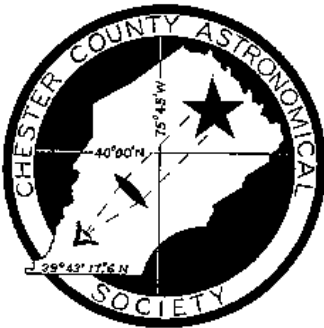
John welcomes any additions to the site by Society members. The contributions can be of any astronomy subject or object, or can be related to space exploration. The only requirement is that it is your own work; no copying copyrighted material! Give your contributions to John Hepler (610-363-0811) or e-mail to webmaster@ccas.us

Introductory Astronomy Class

February 7
through
May 16, 2006

8 one-hour classes
First & Third Tuesdays
7:00 p.m. to 8:00 p.m.

Sponsored by the
Chester County
Astronomical Society



All classes are taught by
members of the CCAS,
a club of amateur astronomers



Cost

\$20.00 per person
or
\$30.00 per family
(with same address)

For ages 9 - 90

Price Includes

- Parking
- Handouts
- 4-month CCAS membership
- CCAS Monthly newsletter
- Observing sessions
 - Star locator (planisphere)
- Drawing for excellent beginners' guide book *Nightwatch*

Enrollment limited to 40.
Call and reserve
your space now!

Kathy Buczynski
610-436-0821

Location:

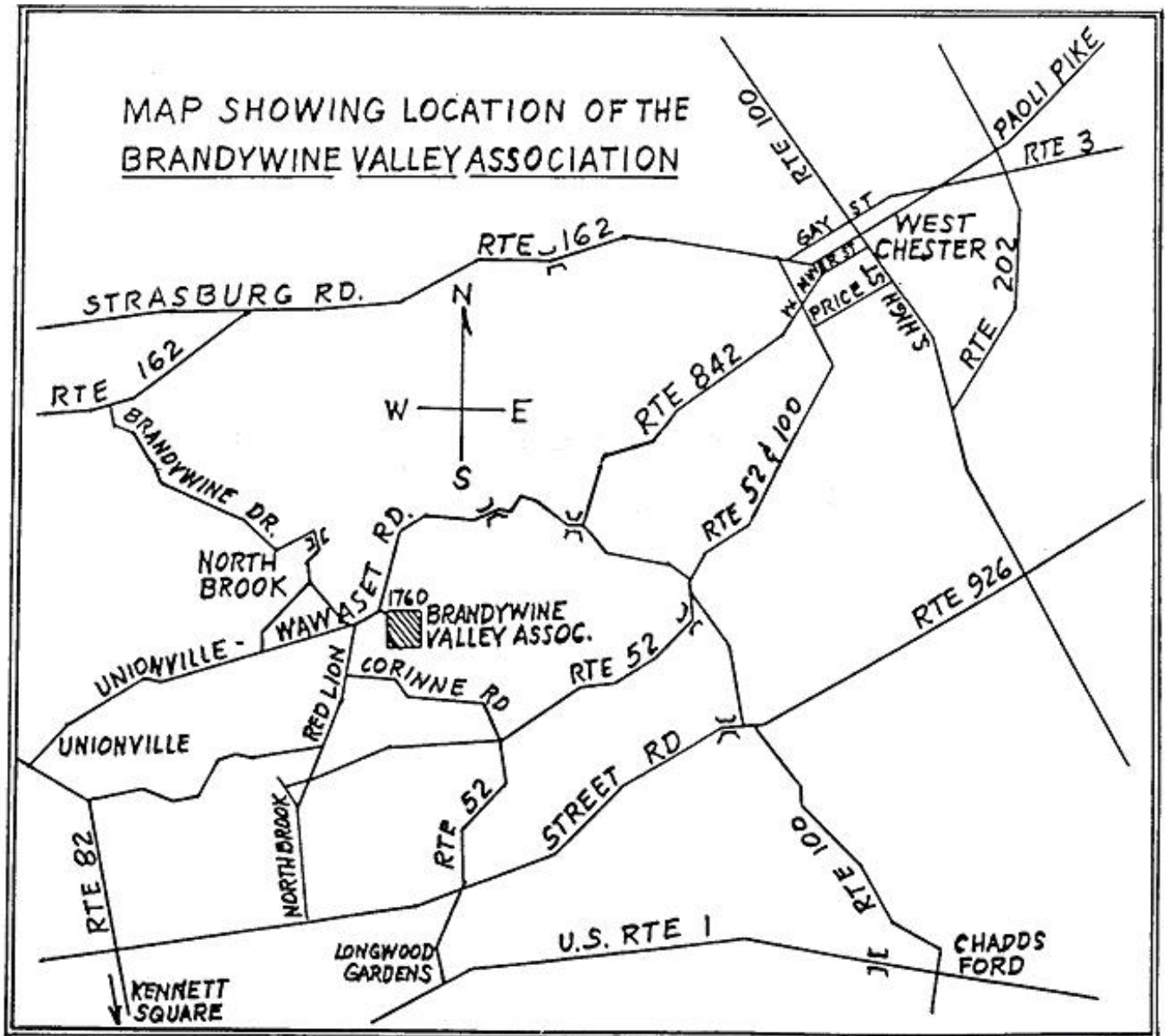
West Goshen
Township Building
At intersection of Paoli Pike
and Five Points Road
West Chester, Pa.

Learn:

- What's in the sky this month
- How to find stars and constellations in the sky
- How to find planets
- How to observe eclipses
- How to use binoculars
- How to use telescopes
- How to use star charts
- What's on the Moon
- The differences between stars
- The life cycle of stars
- About types of telescopes
- Why we have seasons
- How the Earth moves in space
- About the Solar System
- About light pollution



Note: Content of class sessions subject to change without notice



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).