Observations

A Monthly Publication Of The
CHESTER COUNTY ASTRONOMICAL SOCIETY

DECEMBER 2003
(VOLUME 11, NO. 12)
Visit us online at www.ccasastro.org

Happy Holidays

CCAS Holiday Party
Tuesday December 9

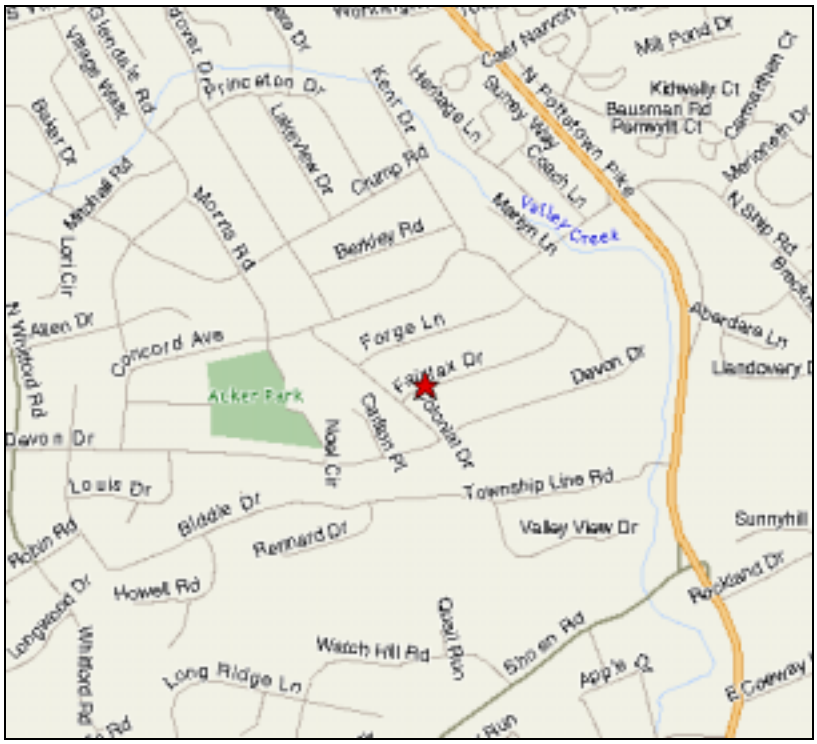
Bob and Betsy Popovich will host our Annual Holiday gathering this year at their home in Exton. It will last from 7:00 p.m. to 9:30 p.m. Light buffet and drinks will be served. All members are welcome.

Their address is 416 Fairfax Drive; please call them at (610) 363-8242 before the party so they will know how many people to expect. Thanks.

The Popovich home is in the Marchwood development, behind Marchwood Shopping Center. It is about halfway up Fairfax Drive. Look for the orange door!

On the map at the right, Route 100 is the wide yellow line labeled "N. Pottstown Pike." The Exton Shopping Mall and Route 30 are off the map at the bottom; Route 113 and the PA Turnpike are off the map at the top.

Holiday Greetings to all!



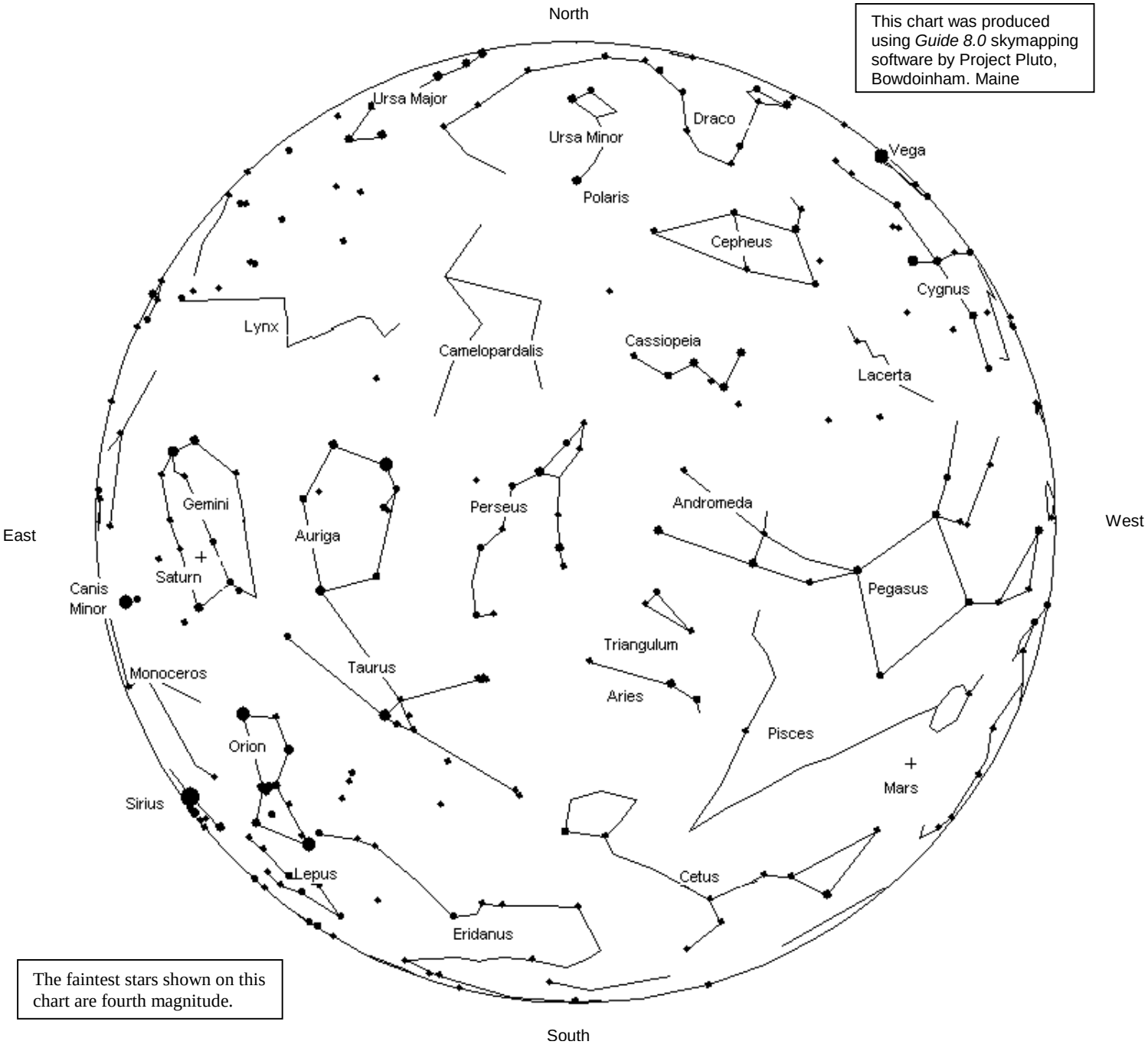
Directions

From the Exton Bypass interchange with Route 100:

Go north on Route 100 about 2.2 miles from the interchange to the jug-handle turn (on right) for Marchwood Road. Using the jug-handle, cross Route 100 and go to the end of Marchwood Road (about ¼ mile). Turn left on Concord Avenue and go to the second street on the right, which is Fairfax Drive. Turn right on Fairfax and go to 416.

From the intersection of Route 113 and Route 100:

Go south on Route 100 about 1.5 miles to the turn for Marchwood Road (on right). Turn right and go to the end of Marchwood Road (about ¼ mile). Turn left on Concord Avenue and go to the second street on the right, which is Fairfax Drive. Turn right on Fairfax and go to 416.



The sky over Chester County
December 15, 2003 at 9:00 p.m. EST

Moon Phases

Full Moon	12/08
Last Quarter	12/16
New Moon	12/23
First Quarter	12/30

This month's Full Moon is called the "Full Cold Moon," because the winter coldness settles in this month. This Native American name for the Full Moon comes from the *Farmers' Almanac* Website.

The Planets

Mercury is in the evening sky, below Venus, until about December 20.

Venus is in the evening sky, setting about 2.5 hours after the Sun by month's end.

Mars is in the evening sky.

Jupiter is rising earlier each night, but is still best seen in the early morning hours.

Saturn is now rising as early as 7:00 p.m. EST. The rings are nicely tipped for good viewing, and as a matter of fact, this year is one of the best years to see the rings!

Uranus is in the evening sky in Aquarius.

Neptune is in the evening sky, in the Southwest in Capricornus.

Pluto is now too close to the Sun to see.

Other Notes: The annual Geminid meteor shower peaks on the morning of December 14, 2003.

CCAS December Observing Session

The next CCAS Observing Session will be at the Brandywine Valley Association's Myrick Conservancy Center (see map on a later page) on Friday December 19, 2003 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 20, 2003. 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 always free of charge. Remember to dress warmly!

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CCAS Backyard Observing Class

The final session of the fall class, *Backyard Observing*, is on Tuesday, December 2 at 7:00 p.m. EST. The constellation Taurus will be the topic of discussion. The class is held at the Flower & Cook Observatory, located in Willistown Township on Providence Road, just west of the intersection with Warren Avenue.

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Treasurer's Report by Bob Popovich

October 2003 Financial Summary

Beginning Balance	$1,030
Deposits	180
Disbursements	65
Ending Balance	$1,145

Membership Renewals Due

12/2003:	Patterson
01/2004:	Kovacs
	Whitman
02/2004:	Carlucci
	Deeney
	Ehrgott
	Farrelly
	La Para
	Marcelli
	Picklo-Smith
	Rahling
	Thomson

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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.

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For Sale: *Skywatch '04*

The *SkyWatch '04* annual magazine from Sky Publishing, which includes September 2003 to December 2004 monthly star charts, excellent articles about telescopes, 2004 astronomical highlights, astrophotography and much, much more, is now available to CCAS members at a reduced rate. Newsstand price: $6.99 plus tax. Buy it here for ONLY $6.00—WHILE SUPPLIES LAST (the proceeds, which aren't much, benefit the Education Fund of your Society).

This magazine would make an excellent stocking stuffer or Hanukkah gift.

Call Kathy Buczynski @ 610-436-0821 to reserve your copy.

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Price Increase: *Sky & Telescope*

The special subscription rate for astronomy club members, available to CCAS members, has been raised to $32.95 per year for any "new" subscription. If you received a renewal notice from Sky Publishing that lists the old club rate of $29.95, they will honor that price until January 2004. Contact Treasurer Bob Popovich for details on using this club benefit (610-363-8242).

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Calendar Notes

December 2, 2003 (Tuesday)	Backyard Observing Class Location: Flower & Cook Observatory 7:00 p.m. EST
December 9, 2003 (Tuesday)	CCAS Meeting Location: The Popovichs (see page 1) 7:00 p.m. EST
December 19/20, 2003 (Friday/Saturday)	CCAS Observing Session Location: BVA sunset

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Newsletter Deadlines

These are the deadlines for submitting material for publication in the newsletter, through the December 2004 issue.

Issue	Deadline
January 2004	12/26/2003
February 2004	01/28/2004
March 2004	02/25/2004
April 2004	03/26/2004
May 2004	04/28/2004
June 2004	05/26/2004
July 2004	06/25/2004
August 2004	07/28/2004
September 2004	08/27/2004
October 2004	09/27/2004
November 2004	10/27/2004
December 2004	11/26/2004

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Stardust

By Patrick L. Barry and Dr. Tony Phillips

Philosophers have long sought to "see a world in a grain of sand," as William Blake famously put it. Now scientists are attempting to see the solar system in a grain of dust—comet dust, that is.

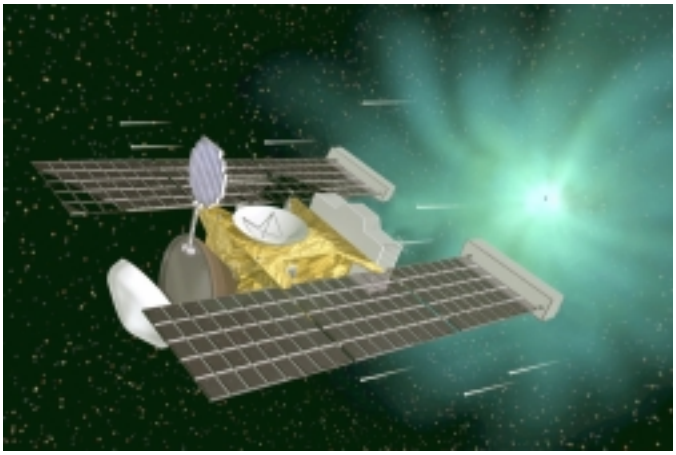
If successful, NASA's Stardust probe will be the first ever to carry matter from a comet back to Earth for examination by scientists. It would also be the first time that any material has been deliberately returned to Earth from beyond the orbit of the Moon.

And one wouldn't merely wax poetic to say that in those tiny grains of comet dust, one could find clues to the origin of our world and perhaps to the beginning of life itself.

Comets are like frozen time capsules from the time when our solar system formed. Drifting in the cold outer solar system for billions of years, these asteroid-sized "dirty snowballs" have undergone little change relative to the more dynamic planets. Looking at comets is a bit like studying the bowl of leftover batter to understand how a wedding cake came to be.

Indeed, evidence suggests that comets may have played a role in the emergence of life on our planet. The steady bombardment of the young Earth by icy comets over millions of years could have brought the water that made our brown planet blue. And comets contain complex carbon compounds that might be the building blocks for life.

Launched in 1999, Stardust will rendezvous with comet Wild 2 (pronounced "Vilt" after its Swiss discoverer) on January 2, 2004. As it passes through the cloud of gas and dust escaping from the comet, Stardust will use a material called aerogel to capture grains from the comet as they zip by at 13,000 mph. Aerogel is a foam-like solid so tenuous that it's hardly even there: 99 percent of its volume is just air. The ethereal lightness of aerogel minimizes damage to the grains as they're caught.



NASA's Stardust mission will capture dust from comet Wild 2 and bring it back to Earth for study.

Comet Wild 2 orbited the sun beyond Jupiter until 1974, when it was nudged by Jupiter's gravity into a Sun-approaching orbit—within reach of probes from Earth. Since then the comet has passed by the Sun only five times, so its ice and dust ought to be relatively unaltered by solar radiation. Some of this pristine "stuff" will be onboard Stardust when it returns to Earth in 2006, little dusty clues to life's big mysteries.

To learn more about Stardust, see the mission Website at stardust.jpl.nasa.gov. Kids can play a fun trivia game about comets at spaceplace.nasa.gov/stardust .

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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Useful Web Site from Lisa Compton

The link below is one that I found during my search for calculating sunrise/sunset, moonrise/moonset, and astronomical twilight times for my precise latitude and longitude. The really spiffy thing about this web-site is that you can print out a monthly calendar with all of the different times printed in each day's box. Very nice! As an aside, I also learned that, in addition to astronomical twilight, which is defined as when the sun is 18° below the horizon, there is also nautical twilight (the sun 12° below the horizon) and civil twilight (the sun 6° below the horizon).

http://www.sunrisesunset.com/

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Help Needed With Society's 20" Telescope

The Society's 20" telescope belongs to the whole Society; it is intended to be available for use by members at Observing Sessions, and even for short-term borrowing by Society members. The problem we have with implementing this policy is, simply put, lack of mobility. We need a member with a big enough truck or minivan, and preferably with the storage space at home for the telescope, to volunteer to be the telescope's "custodian" and "chauffeur." The custodian would of course be able to use the telescope whenever it wasn't out on loan. The biggest part of the telescope is the bottom part. We have wheels and handles that convert that piece into a large "wheelbarrow" for moving it, though, and ramps so it can be wheeled right into a vehicle. If you can help, please call Ed Lurcott at (610) 436-0387. Thanks.

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January CCAS Meeting

For January's meeting, Steve Limeburner is planning on showing a 35-minute time lapse video of November's Lunar Eclipse that he made with a 4" telescope and a Stellacam EX Video Camera. Any members who have photos, images, etc. of this lunar eclipse or others are welcome to share them at January's meeting. Also, any member's ideas for programs from March to May 2004 are welcome. Steve's e-mail address is stevelime@hotmail.com or sboy_44@hotmail.com and his phone number is 610-353-3986.

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Astronomical League Observing Awards

The Chester County Astronomical Society is a member of the Astronomical League (AL), a nationwide federation of astronomy clubs and societies. One of the benefits that brings to the individual member of the CCAS is the eligibility to earn AL Observing Awards. These awards are granted whenever an individual in a member society completes a designated observing program.

Most observing programs for these awards are lists of objects the observer is to find, and then record in a logbook. In most cases the log book consists of entries listing the date and time of the observation, notes on the seeing conditions and instruments used (if any), and the observer's impression of the object, usually in words (drawing is not required in most cases). When the observer has completed the whole list for an award, they submit their logbook to an official in their local society (often but not always this official is the Observing Chair). The reviewer checks the log book, and then the reviewer sends a request for the award for the observer to the AL's national coordinator for the award. In a few weeks (the national coordinators are all amateur astronomers with full-time jobs like us, so the response is not always immediate) the award certificate and lapel pin are sent back to the reviewer for presentation to the observer. In the CCAS, we usually present the award at one of our monthly meetings.

The observer works on the program at his or her own speed. You can work on more than one award at a time. There are no tests involved. You can work with other people also interested in the program, sharing experiences, helpful hints, and encouragement. If you want to work on a given award, and are wondering if anyone else in the Society is interested in working with you, just let me (Jim Anderson) know and we'll put a note in the newsletter so you can find out.

There are currently nineteen observing programs offered by the Astronomical League that you can work on. That's right, nineteen (19). I'm going to attempt listing these in groups according to difficulty level, but those judgements are of course subjective. One person's "piece of cake" can also be another person's "unattainable dream." So take these rankings with a grain of salt. You'll have to read the detailed requirements for each program and decide for yourself if it's "novice level," "intermediate level," or "advanced level."

Novice Level:

Universe Sampler

Urban Club

Binocular Messier

Intermediate Level:

Deep Sky Binocular Club

Southern Skies Binocular Club

Asteroid Observing Club

Caldwell Club

Double Star Club

Lunar Club

Messier Club

Meteor Club

Planetary Observers Club

Sunspotters Club

Advanced Level:

Arp Peculiar Galaxy Club

Earth Orbiting Satellite Club

Galaxy Groups & Clusters Club

Herschel 400 Club

Herschel II Club

Master Observer Club

In future issues of *Observations* I will provide brief descriptions of the various programs. For most of the programs, I won't be able to include the whole observing list for the award (several of them include 100+ objects). I'll be giving you a summary to whet your appetite (hopefully). You can then get fuller details from the Astronomical League's Website

http://www.astroleague.org

or by buying a copy of the booklet for the observing program from the AL's store. Details on the store and prices are in *The Reflector*, the AL's quarterly publication which all CCAS members receive as part of their CCAS membership.

The Urban Club

I'll start by describing the Urban Club this month. The purpose of the Urban Club is "to bring amateur astronomy back to the cities, back to those areas that are affected by heavy light pollution." Sound like your backyard? The lists of objects were selected by a team of observers living in different cities around the United States (Miami, Baltimore, Dallas, Houston, and Los Angeles are mentioned specifically) to demonstrate how much you can actually see from "poor" observing sites.

You may have noticed I said "lists of objects", where "list" was plural. There are two lists of objects for the Urban Club: a list of deep-sky objects; and a list of double and variable stars. From these two lists you are to observe a total of one hundred (100) objects and log your observations. The selection of specific objects is up to you. The observations can be made with the naked eye, binoculars, or a telescope. Observations made for this award can also count toward other awards (many Urban Club objects are also on the Messier List, the Caldwell List, or the Double Star Club list), and vice-versa.

There is a special requirement for this award, though: all observations must be made "in light polluted skies." Light polluted skies are defined as skies where you cannot see the Milky Way with the unaided eye when the sky is clear of clouds. That certainly applies to the skies where most of our CCAS members live. If you **can** see the Milky Way from your backyard, you won't have to travel far from home to find light polluted skies! So that means that everyone in the CCAS can work on the Urban Club observing program and receive the award, if you're interested. Are you?

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Astronomus

"Hi—ya like dees?""

By Bob Popovich

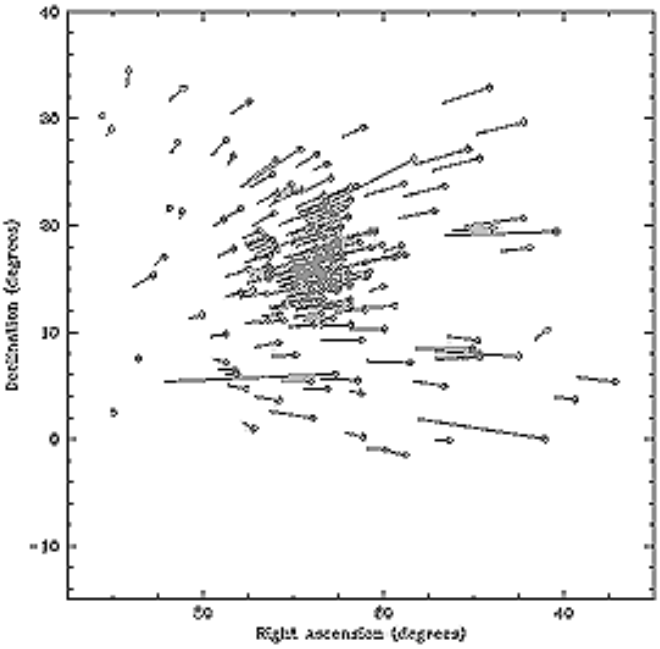
All of us have favorites in the night sky—constellations, asterisms or regions to which we return again and again. One of my favorites is a gem of the cold weather months—the open cluster in Taurus catalogued as Melotte 25, but known commonly as the Hyades. If you can spare a few moments, let's explore it together and see what captures our imagination.

To begin with, this cluster is just plain beautiful to look at. Hi—ya like dees?:

On a crisp, clear evening this time of year the cluster's apparent diameter of 5.5° easily fits into the field of view of my 7x50 binoculars. The "V" shape is recognizable and just a bit of imagination helps us see the snout of a bull with a fiery glint in one eye—the giant star Aldebaran. (Note that Aldebaran is not part of the Hyades—it lies in our line of sight at half the distance of the actual cluster.) That said, the cluster itself has over 100 stars within the reach of my binoculars (9th magnitude or brighter). It's a delightful old friend that helps warm the cold nights of winter.

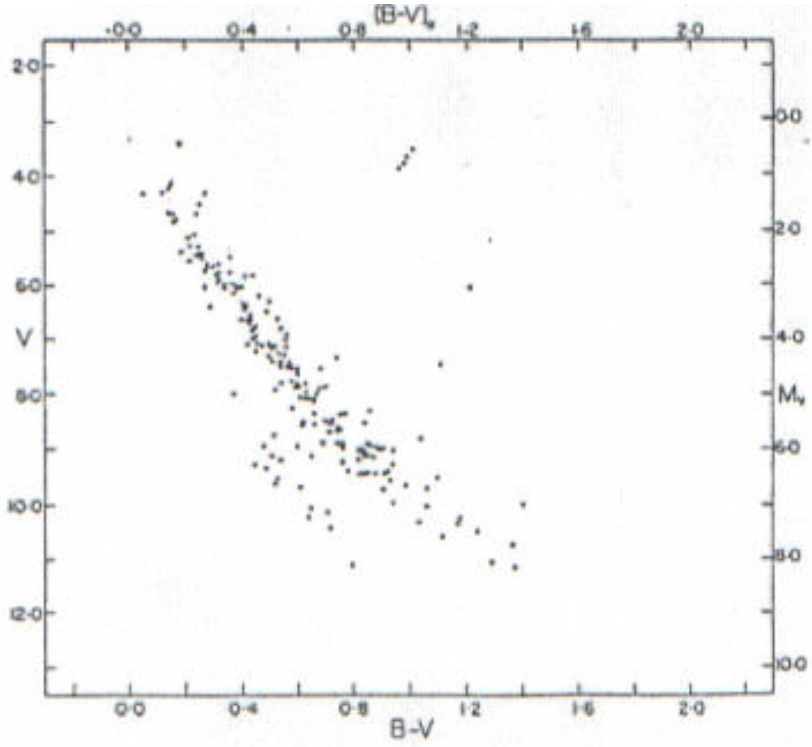
But beyond their beauty, the Hyades also contain numerous layers to peel back and study. If we're willing, we will be drawn to a most fascinating aspect of astronomy—what Einstein called the "thought experiment." Taking what we know to come to a greater understanding of things that are simply beyond our physical reach. For unlike many other scientific disciplines, astronomy is one where we cannot touch, smell or feel that which we study. Neither can we move or manipulate any celestial object. Though we may not have the tools or training to develop these "thought experiments," we can use what others have accomplished, perform our own mental gymnastics and increase our understanding. This skill is an acquired one that, over time, graces us with an ever-growing enjoyment of astronomy. But, if you remember, it's also what frustrated us as novices.

The Hyades is a cluster. The term *cluster* tells us that there exists some sort of mutual gravitational attraction and (more or less) common vector through space. But it doesn't *look* like a cluster (as the neighboring Pleiades do, for example). What can we do to see the Hyades as a cluster?



Well, hi—ya like dees? Each circle is a star with its direction and relative velocity plotted by the trailing lines. Differing relative velocities are denoted by lines of varying length. The stars are plotted by their right ascension and declination—their location in the sky. So we see that they're in the same part of the sky and that they're moving in roughly the same direction. And we have already established that it's a cluster, so the distance from us is (astronomically speaking) about the same. This adds a dimension to our understanding and enriches our observing. Think about it as you look through your binoculars.

This being a festive and colorful time of year, the Hyades also offers a full spectrum of star colors. In fact, Theta 1 (θ^1) is a piercing white star while Theta 2 (its optical double) is a ruddy red. Can you imagine the central stars of this cluster being plotted in a Hertzsprung-Russell diagram? Imagine no more! Thanks to HIPPARCOS, that work has been done:



The horizontal axis denotes color (blue/white on the left, red to the right) while the vertical axis shows absolute magnitude. Looks an awful lot like the main sequence, doesn't it? (Our sun would be in the middle of the plotted points.) And notice the four stars off to the upper right by themselves? They are red giants. See if you can track them down as you study this cluster. When you raise your binoculars with this knowledge in hand, the cluster takes on yet another added dimension—that of a middle-aged grouping composed of all sorts of stars, some of which are like our own sun.

So, we've examined the Hyades as individual stars, as gravitationally bound stars and as evolving stars. I hope you like *dees* as much as I like 'em.

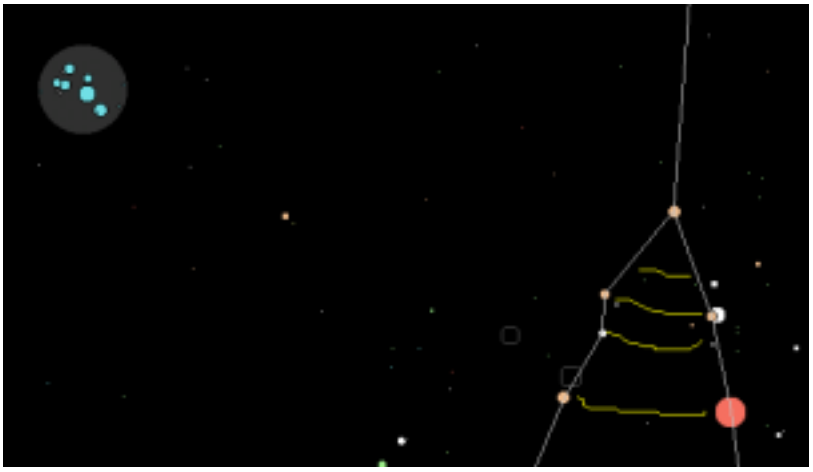
The next time you're out observing, do take time for this rich and complex cluster. And perhaps do a thought experiment of your own. Here's one I like:

FROM: The Pleiades

The Hyades

TO:

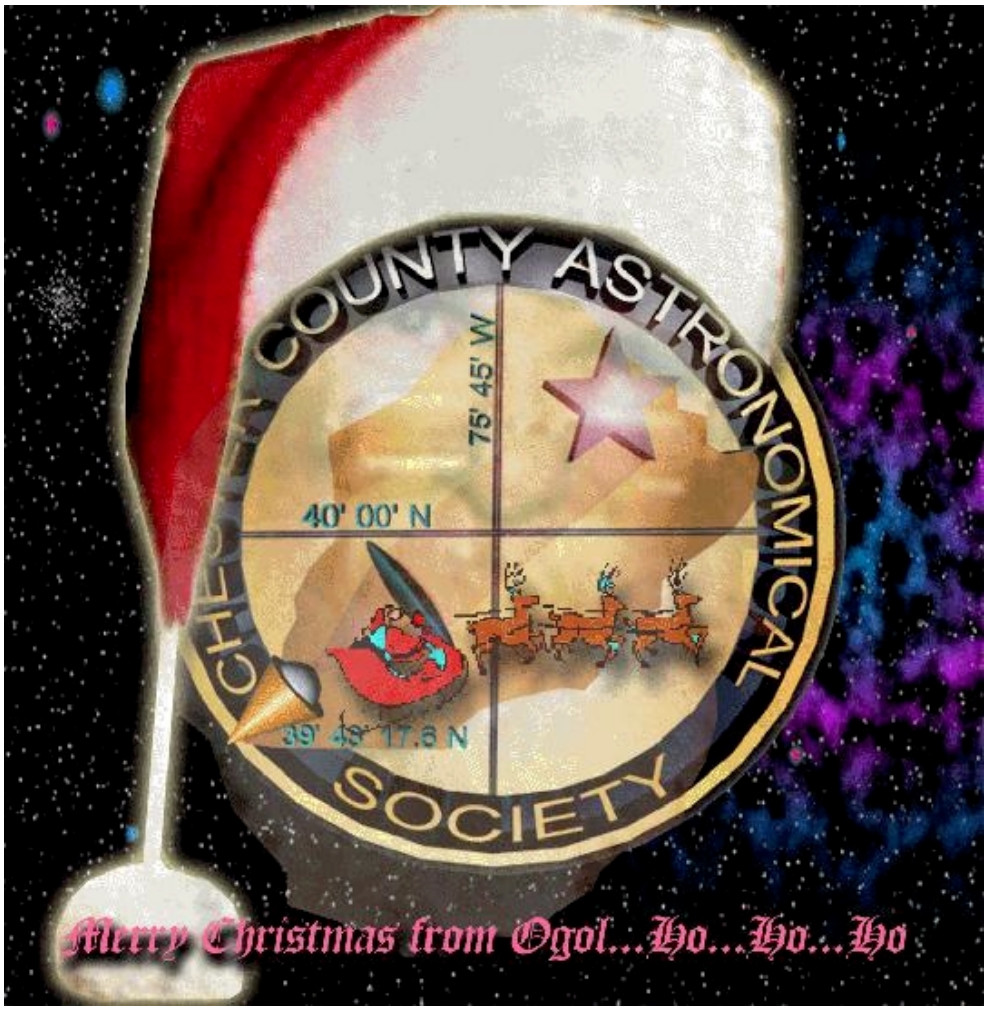
Extra ornaments The tree



Blessings to you all during the Holidays and throughout the coming year.

Next Time: “What Time Is It?”

★ ★



The special December masthead for the newsletter on page one, as well as this holiday greeting from Ogol, was produced by Vic Carlucci. Thanks Vic!

Get Your Personalized CCAS E-Mail Address Now!

By Lisa Compton

How would you like to have your very own personalized CCAS e-mail address? Well, now you can! The Internet domain ccas.us has been procured for the Chester County Astronomical Society. Members in good standing can have their own CCAS e-mail address.

How will my CCAS e-mail address look?

Your CCAS e-mail address will be in the form <first_initial><last_name>@ccas.us. For example, Jane Doe's CCAS e-mail address would be jdoe@ccas.us.

Does this mean I have another mailbox to check?

No! Your CCAS e-mail address will simply be a "forwarding rule." This means e-mail sent to your CCAS e-mail address will be forwarded to your already existing e-mail address. For example, let's say our member in good standing, Jane Doe, has an AOL account. Jane's AOL e-mail address is jdoe97434@aol.com. Any mail sent to Jane's CCAS e-mail address, jdoe@ccas.us, will be automatically forwarded to Jane's AOL e-mail account, jdoe97434@aol.com. Jane can continue to check her e-mail at AOL just as she always has.

Why would I want my own CCAS e-mail account?

Well, for one thing, it is spiffy! In addition to proudly displaying your CCAS membership, you can have your CCAS e-mail address for as long as you want—even if you change Internet service providers! For example, let's say Jane Doe, our volunteer illustration member, decides to change from AOL to Comcast High Speed Internet. Jane's new e-mail address is jdoe45@comcast.net. All Jane has to do is advise the CCAS e-mail forwarding administrator of her new e-mail address. Jane's CCAS e-mail address, jdoe@ccas.us, is forwarded to Jane's new Comcast e-mail address and all of Jane's subsequent e-mail is sent to Jane's new Comcast e-mail account. The best part of all is that Jane does not have to tell everyone her new e-mail address. Jane continues to receive e-mail sent to her CCAS e-mail address, jdoe@ccas.us, at her new Comcast e-mail account.

This sounds too good to be true! Will my CCAS e-mail address work everywhere?

Absolutely! You can use your CCAS e-mail address anywhere you would use any other e-mail address. But, remember to advise the CCAS e-mail forwarding administrator if you change Internet service providers so your CCAS e-mail address can be forwarded to your new e-mail account.

I'm worried. How can I be sure I do not lose any e-mails if I change Internet service providers?

It's easy! Before canceling your old Internet service account, advise the CCAS e-mail forwarding administrator of your new Internet service provider e-mail address. Once the CCAS e-mail forwarding administrator confirms that your CCAS e-mail address has been forwarded to your new Internet service e-mail account, you can cancel your old Internet service account without worry.

When will this service be available?

Now! In fact, role accounts for our astronomy club's officers have already been set up. Here is a list:

alcor@ccas.us ⇨	James Anderson
newsletter@ccas.us ⇨	James Anderson
education@ccas.us ⇨	Kathy Buczynski
pr@ccas.us ⇨	Victor Carlucci
webmaster@ccas.us ⇨	Pete LaFrance
programs@ccas.us ⇨	Steve Limeburner
vp@ccas.us ⇨	Steve Limeburner
observing@ccas.us ⇨	Edwin T. Lurcott
treasurer@ccas.us ⇨	Bob Popovich
president@ccas.us ⇨	Michael Turco

This is really neat! Can you set up distribution lists too?

Yes! In fact, one distribution list already exists. The distribution list e-mail address is officers@ccas.us. The members of this distribution list are the Chester County Astronomical Society's officers. Here is the list:

James Anderson, Alcor Chair & Newsletter Editor

Kathy Buczynski, Education Chair

Victor Carlucci, Public Relations

Pete LaFrance, Webmaster

Steve Limeburner, Vice-President & Program Chair

Edwin T. Lurcott, Observing Chair

Bob Popovich, Treasurer

Michael Turco, President

Now you can send an e-mail to all of the Society's officers using only one e-mail address!

Okay, now I want my CCAS e-mail address! How do I get it?

It's easy! Send an e-mail to the CCAS e-mail forwarding administrator (Lisa Compton) at **i.want.my.email@ccas.us**. In your message include your first and last name along with the e-mail address to which you want your e-mail forwarded. Your e-mail address will be set up, usually within 24 hours, and a confirmation e-mail will be sent back to you via your new CCAS e-mail address.

[Editor's note: The best part of all is—it's FREE! Many thanks to Lisa Compton for implementing this service for the Society!]

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, Bill O'Hara, to make arrangements to borrow one of the books in the CCAS lending library. Copies of the catalog are available at CCAS meetings. Bill's phone number is 610-696-1422.

Contributing to *Observations*

Contributions of articles relating to astronomy and space exploration are always welcome. If you have a computer, and an Internet connection, you can attach the file to an e-mail message and send it to **newsletter@ccas.us**

Or mail the contribution, typed or handwritten, to:

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

Get CCAS Newsletters via E-mail

You can receive the monthly newsletter by 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:

newsletter@ccas.us

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): Frank Angelini
(610-873-7929)

Lunar: Ed Lurcott
(610-436-0387)

Double Star: 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 Officers

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

President: Mike Turco
(610) 399-3423

Vice Pres: Steve Limeburner
(610) 353-3986

Treasurer: Bob Popovich
(610) 363-8242

Secretary: Caitlin Grey
(610) 918-9049

ALCor and Newsletter: Jim Anderson
(610) 857-4751

Librarian: William O'Hara
(610) 696-1422

Observing: Ed Lurcott
(610) 436-0387

Education: Kathy Buczynski
(610) 436-0821

Public Relations: Vic Carlucci
(610) 458-7457

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 date printed on the address label of this issue of *Observations*; "exp." appears in front of it, just after your name. If you are due to renew, you may send 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

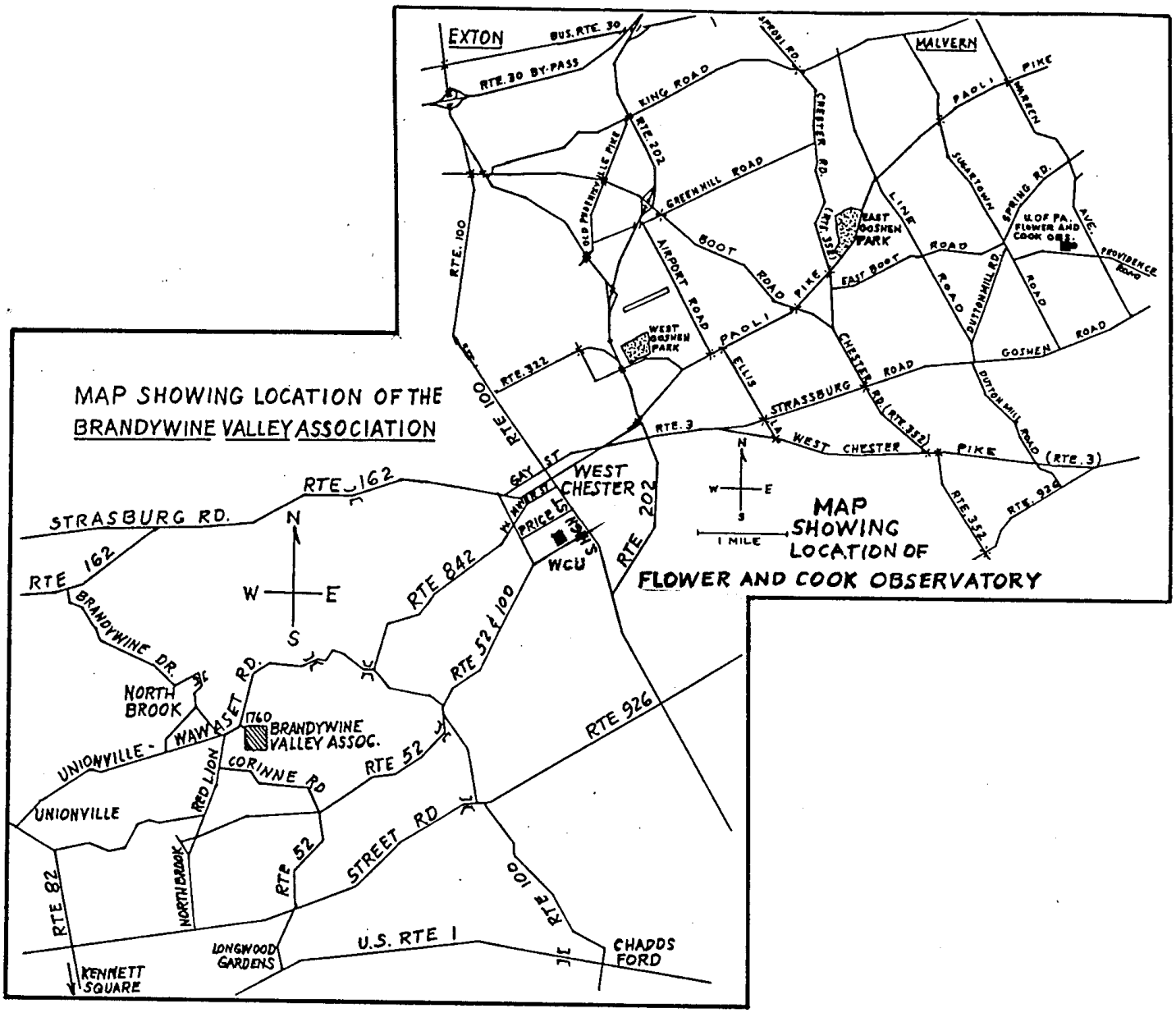
Subscriptions to this excellent periodical are available through the CCAS at a reduced price of **$29.95** which is much less than the newsstand price of $54.00, and also cheaper than individual subscriptions ($39.95)! Make out a check to the Chester County Astronomical Society, note that it's for *Sky & Telescope*, and mail to Bob Popovich. Or you can bring it to the next Society meeting and give it to Bob there. Buying a subscription this way also gets you a 10% discount on other Sky Publishing merchandise.

CCAS Website

Pete LaFrance is the Society's Webmaster. You can check our Website at:

http://www.ccasastro.org/

Pete 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 Pete LaFrance (610-268-2616) or e-mail to **lafrance@kennett.net**



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).