



Observations

A Monthly Publication Of The
CHESTER COUNTY ASTRONOMICAL SOCIETY

DECEMBER 2004

(VOLUME 12, NO. 12)

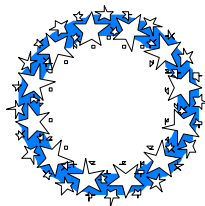
Visit our website at www.ccas.us

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Important December 2004 Dates

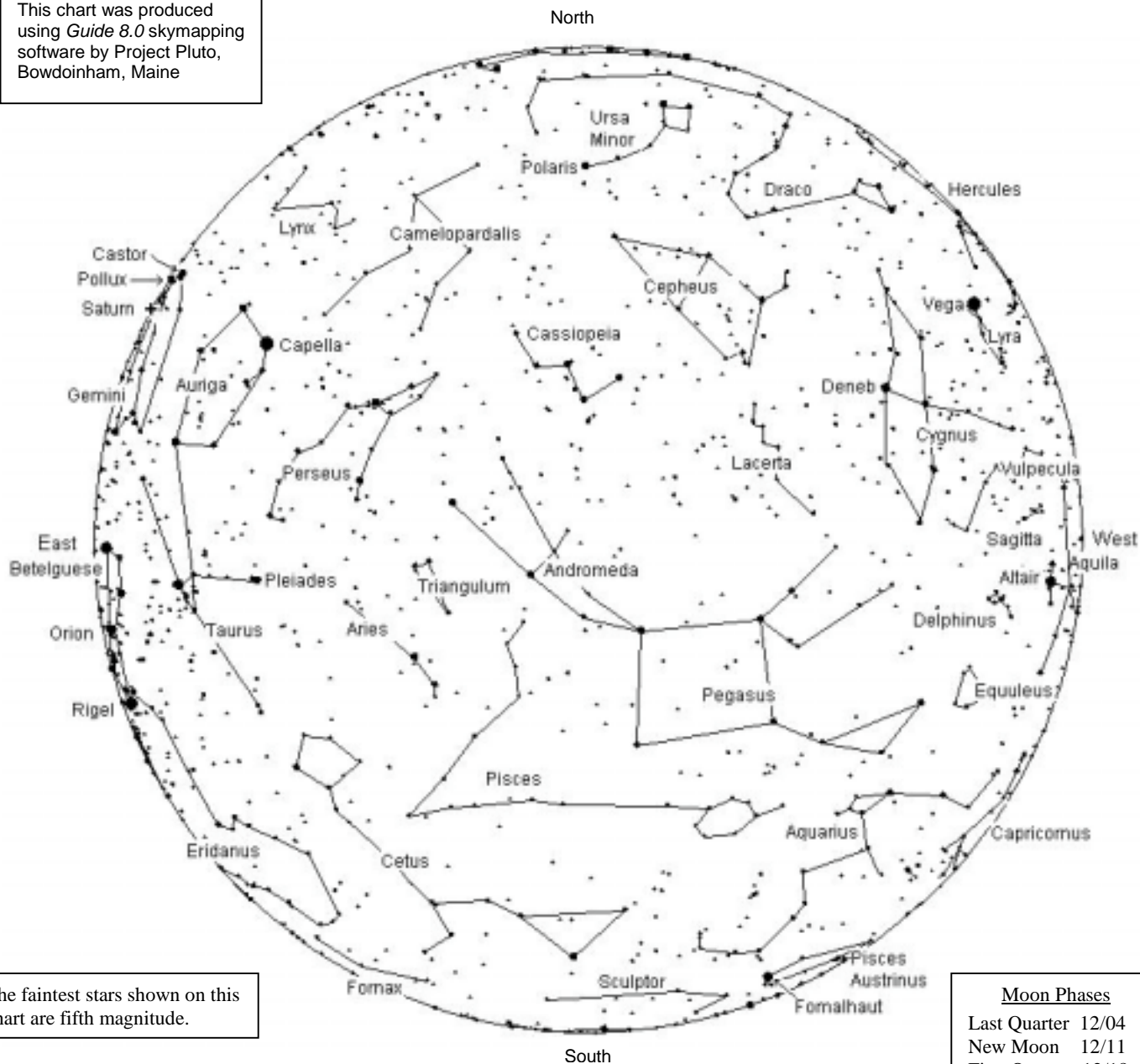
- 4 Last Quarter Moon
- 7 Crescent Moon occults Jupiter
 Jupiter disappears behind Moon: 3:55 a.m. EST
 Jupiter re-appears: 5:05 a.m. EST
- 10/ CCAS Observing session at Myrick
- 11 Conservation Center (BVA) starts at sunset.
 Map with directions is on page 10.
- 11 New Moon
- 13 Backyard Observing class meets at West
 Goshen Township Building. Class starts at 7:00
 p.m. EST.
 Topic: What can I see with my telescope?
- 13 Geminid meteor shower peaks late tonight and
 into tomorrow morning.
- 14 **CCAS Holiday Gathering 7:30 p.m. EST**
 Iron Hill Brewery in West Chester
 Details on page 3.
- 18 First Quarter Moon
- 21 **Winter Solstice**
 At 7:42 a.m. EST the Sun is as far south in our sky as
 it gets; after that it starts moving northward again.
- 26 Full Moon
- 27-31 Mercury very close to Venus in morning sky



Happy Holidays and Clear Skies to All!



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.

| Moon Phases | |
|---------------|-------|
| Last Quarter | 12/04 |
| New Moon | 12/11 |
| First Quarter | 12/18 |
| Full Moon | 12/26 |

The sky over Chester County December 15, 2004 at 7:00 p.m. EST

The Planets

Mercury is in the morning sky in late December. It's very close to Venus from the 27th on, close enough to see both planets at once in a wide-angle eyepiece in a telescope.

Venus is in the morning sky, rising about two hours before the Sun. You can't miss it; it's the brightest "star" in the morning sky.

Mars is in the morning sky, passing close enough to Venus around the 5th that you may be able to see both of these planets in a wide-angle eyepiece in a telescope.

Jupiter is rising by about 3:00 a.m. in early December, and is occulted by the Moon on the morning of the 7th. By month's end it is rising as early as 1:00 a.m.

Holiday Comet: Comet C/2004 Q2 (Machholz) climbs up into our sky from the south, passing near Rigel in Orion around Dec. 19 when it may be as bright as 5th magnitude. By January 1 it may be near naked-eye visibility at magnitude 4.0 as it crosses Taurus. See chart on page 10.

Saturn is rising around 8:00 p.m. in early December, and as early as sunset by the end of the month.

Uranus is in the evening sky, in Aquarius, low in the southwest after sunset.

Neptune is also in the evening sky, in Capricornus, low in the southwest after sunset.

Pluto is behind the Sun this month.

CCAS Holiday Gathering

DATE: **Tuesday December 14, 2004**
TIME: 7:30 p.m. EST
PLACE: **Iron Hill Brewery and Restaurant**
LOCATION: Corner of Gay Street & High Street
West Chester, PA

The Executive Committee invites all members to join in some holiday cheer at this fine establishment starting at 7:30 p.m. On-street parking at the meters is free after 5:30 p.m. Parking stubs from the parking garage can also be validated at the restaurant. Our treasurer, Bob Popovich, will be on hand with the new CCAS polo shirts if you would like to buy one. Hope to see you all there!



CCAS December Observing Session

The next CCAS Observing Session will be at the Brandywine Valley Association's Myrick Conservancy Center (see map on page 10) on Friday December 10, 2004 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 11, 2004. 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.



CCAS Backyard Observing Class

This is the remaining schedule:

Dec. 13 What can I see with my telescope?

All classes are held at the West Goshen Township Building at the intersection of Paoli Pike and Five Points Road, just outside West Chester. Classes will begin at 7:00 p.m. (ET).

If you have any questions about the classes, please contact Kathy Buczynski (610-436-0821).



Star Party: Help Needed!

Marilyn Marchant, the Program Chair of the Delaware Valley Astronomical Society, is urgently requesting the help of CCAS members for a star party to be held on Monday December 20, 2004, from 6:00 p.m. to 8:00 p.m. EST. This event will be at the Avon Grove Charter School in southern Chester County.

In her email, Marilyn said:

"The sponsor is Laura Lester, a 6th grade teacher at Avon Grove Charter School. Laura is an enthusiastic and lovely young woman, and she inspires her students. She is doing an astronomy unit, and she wants us to bring out telescopes for her youngsters. She will also invite other teachers, students, and parents. She usually gets a crowd of about 50. We did a star party for her a couple of years ago when she was teaching at a school in Norristown, St. Theresa of Avila. It was a lot of fun.

"I believe you and some of your members are located closer to Avon Grove Charter School than most DVAA members are, so

I am hoping members of CCAS can join me and the Southern residents of the DVAA.

"Note: There is NO cloud date for this event. If you can see the Moon, we will be ON. If not, we will have the event sometime next year."

Directions:

From Route 1, southwest of Kennett Square: Exit from Rt. 1 at the West Grove Exit, which is Route 841. Make a right turn off the exit.

Follow that road to the end, until you reach Old Baltimore Pike (the first intersection) and make a right turn there.

At the first traffic light, make a left turn.

Follow this road until you reach a four-way stop sign intersection, and make a left turn onto State Road.

Follow State Road. You will pass Avon Grove High School on the right. Avon Grove Charter School is a bit further down the road on the left.

Address: 110 State Road, West Grove, PA 19363.



Treasurer's Report by Bob Popovich

November 2004 Financial Summary

| | |
|-------------------|-----------|
| Beginning Balance | \$957 |
| Deposits | 225 |
| Disbursements | <u>41</u> |
| Ending Balance | \$1,141 |

Membership Renewals Due

12/2004: Limeburner
01/2005: Kovacs
 Ramondo
02/2005: Carlucci
 Cuttler
 Deeney
 Ehrgott
 Farrelly
 La Para
 Levy
 Marcelli
 Renshaw
 Ruggeri
 Viallet
 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.



Help Us To Keep in Touch...And Save Money, Too!

by Bob Popovich

Receiving CCAS correspondence by email allows you to have the latest award-winning newsletter and to be informed about special activities—all in the twinkling of an eye! You also get to see the newsletter (and the pictures therein) in full color. It also saves all of us the cost of postage and printing. If you have email and are not now receiving the newsletter in this manner, please send a note to Bob Popovich at b2n2@aol.com.



Newsletter Deadlines

These are the deadlines for submitting material for publication in the newsletter, through the June 2005 issue.

| Issue | Deadline |
|---------------|------------|
| January 2005 | 12/29/2004 |
| February 2005 | 01/26/2005 |
| March 2005 | 02/25/2005 |
| April 2005 | 03/28/2005 |
| May 2005 | 04/27/2005 |
| June 2005 | 05/27/2005 |



Calendar Notes

| | |
|-------------------------------------------|-------------------------------------------------------------------------------|
| December 10/11, 2004 (Friday/Saturday) | CCAS Observing Session Location: BVA sunset |
| December 13, 2004 (Monday) | Backyard Observing class Location: West Goshen Twp. Bldg. 7:00 p.m. EST |
| December 14, 2004 (Tuesday) | CCAS Holiday Gathering Location: Iron Hill Brewery 7:30 p.m. EST |
| January 11, 2005 (Tuesday) | CCAS Meeting Location: West Chester University 7:30 p.m. EST |
| February 8, 2005 (Tuesday) | CCAS Meeting Location: West Chester University 7:30 p.m. EST |
| March 8, 2005 (Tuesday) | CCAS Meeting Location: West Chester University 7:30 p.m. EST |
| April 12, 2005 (Tuesday) | CCAS Meeting Location: West Chester University 7:30 p.m. EDT |
| May 10, 2005 (Tuesday) | CCAS Meeting Location: West Chester University 7:30 p.m. EDT |



Seasons Greetings

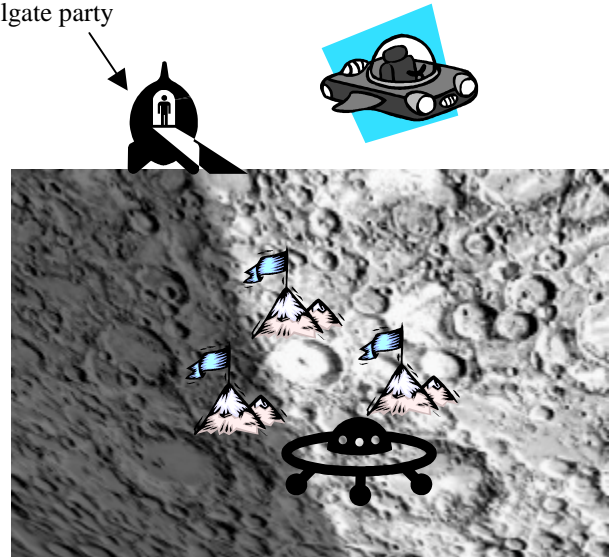
Astronomus

"Bowl Game"

By Bob Popovich

Greetings astronomy fans! The time is upon us for Astro Bowl I. As the shadows lengthen on a chilly December day, amateur astronomers, traveling even from beyond the Oort Cloud, are streaming towards the sight of this contest. You may ask, "Who's competing in this pan-galactic spectacle?" My reply is "You are."

tailgate party



Put on the thinking cap of your choice

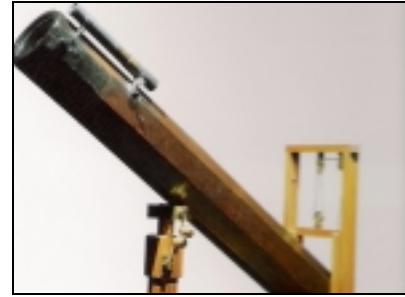


and set your sights on answering these questions. There is no doubt that the club member who answers all of these questions correctly is well read. So, what could be more fitting than to further this love of learning about astronomy with a book? To that end, the noble club member who is first to submit the correct answers to all the questions will receive, courtesy of *Astronomus*, a \$25 gift card to Border's Book Store. You can submit your answers to b2n2@verizon.net or 416 Fairfax Drive Exton, PA 19341. Decision of the judges (Betsy & I) is final. Should there be two or more flawless submissions that have the same date and time stamp, the winner will be determined by a drawing.

[Editor's Note: The staff of Observations may not enter this contest, due to the unfair advantage we would enjoy from having had the questions for several days before everyone else. And now back to the Bowl Game, still in progress.]

1. The moon appears larger at perigee or apogee
 - a. True
 - b. False
 - c. It doesn't matter
 - d. These are words from a magic spell from *Bed Knobs and Broomsticks*
2. In what constellation would we find the star Mira "The Wonderful"?
 - a. Maria
 - b. Menelaus
 - c. Musca
 - d. Cetus
3. Taurus contains a nebula that is a remnant of a supernova that appeared in
 - a. 1066 AD
 - b. 32 BC
 - c. 1054 AD
 - d. 1609 BC
4. Fomalhaut is from the Arabic and means
 - a. star
 - b. fish's mouth
 - c. yellow blob
 - d. formaldehyde
5. What star is nicknamed the "Demon star"?
 - a. El Diablo
 - b. Al demono
 - c. Algol
 - d. Capella
6. Who once commented that if he had seen farther than others it was because he had "stood on the shoulders of giants"?
 - a. Newton
 - b. Kepler
 - c. Hawking
 - d. Tattoo
7. The first person to announce the existence of mountains and craters on the moon was:
 - a. Lunovsky
 - b. Galileo
 - c. Brahe
 - d. Hubble
8. If you want to look towards the center of the Milky Way, you should face:
 - a. Cygnus
 - b. Wawa
 - c. Sagittarius
 - d. Orion
9. Which of the following is not a name of a lunar crater?
 - a. Birt
 - b. Tycho
 - c. Eudoxus
 - d. Big Dig
10. There is a gap in the rings of Saturn that is called
 - a. The Gap
 - b. Gapa Saturna
 - c. Newton's space
 - d. Cassini Division

11. The beauty pictured below was meticulously made by:
 - a. William Herschel
 - b. Tycho Brahe
 - c. Ptolemy
 - d. Carl Sagan



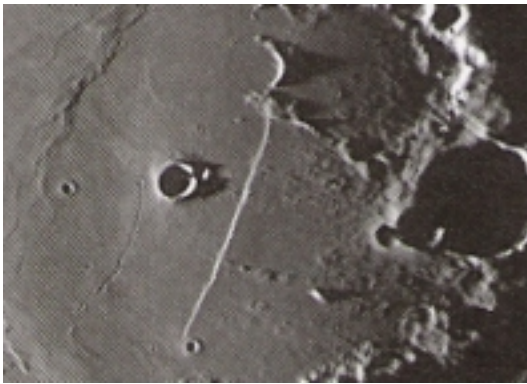
12. Which of the following constellations does *not* represent an animal, either real or imaginary?
 - a. Pavo
 - b. Draco
 - c. Eminem
 - d. Vela
13. One of the first great celestial atlases was composed by Johann Bayer. It was named:
 - a. Atlischen
 - b. Uranometria
 - c. The Big Book
 - d. De Stella Nova
14. The 3 Messier objects in this photograph (below) are:
 - a. M1, M2 & M3
 - b. M31, M32 & M110
 - c. M14, M41 & M110
 - d. M111, M112 & M199



15. The Garnet Star is found in the constellation
 - a. Bailey
 - b. Draco
 - c. Cassiopeia
 - d. Cepheus
16. Put these discoveries/events in chronological order from earliest to most recent:

Neptune, quasars, the supernova of 1604, launch of the Hubble Space Telescope

17. When Neil Armstrong touched down on the moon, the lunar module had enough fuel left (for the descent) to last about how much longer?
 - a. 1 minute
 - b. 2 minutes
 - c. Less than 30 seconds
 - d. 5 minutes
18. The "Double Double" is found in:
 - a. Alalaga
 - b. Europa
 - c. Ophiuchus
 - d. Lyra
19. A full moon appears about a big as a _____ held at arm's length:
 - a. Penny
 - b. Dime
 - c. Nickel
 - d. Susan B. Anthony dollar
20. The straight line shown in this photograph (below) of the lunar surface is called:
 - a. The straight line
 - b. Linus Deepus
 - c. Rupes Recta
 - d. Valus Scarus



Next Time: My Favorite Month



Galactic Surprise

By Patrick L. Barry and Dr. Tony Phillips

Open an old astronomy textbook. The basic sketch you'll find there of galaxy formation is fairly simple: a vast cloud of diffuse hydrogen and helium gas condenses under gravity, and dense spots in the cloud collapse to form stars. Voila! A galaxy.

But real galaxies are much more complex than that. A galaxy is a swirling "soup" of billions of stars and roaming black holes, scattered clouds of gas and dust, random flashes of star birth and exploding supernovas, and an unseen and mysterious substance called "dark matter." Over time, all these ingredients mix and interact—pulling and compressing and colliding—and

somehow that interplay leads to the galaxies we see today. No wonder it's such a hard problem to solve!

Just over one year into its three-year mission, GALEX is already shedding some new light on the problem.

"Some of the discoveries GALEX has made will change our understanding of how galaxies develop and when, where, and why stars form in galaxies," says Peter Friedman, a researcher at Caltech and Project Scientist for GALEX.

This small space telescope, called the Galaxy Evolution Explorer (GALEX for short), makes its discoveries by taking pictures of millions of galaxies scattered over the whole sky. Some of these galaxies are close by (at least by astronomical standards of "close"), while others are as much as 10 billion light-years away. Because light takes time to travel through space, we see these distant galaxies as they appeared billions of years ago. Comparing young galaxies from the distant past with older, modern galaxies will teach scientists about how galaxies change over time.

Looking at these pictures, scientists were surprised to find many newborn stars in the outer parts of old, mature galaxies. Scientists had assumed that as a galaxy ages, the clouds of gas needed to form new stars in these outer reaches either got used up or blown away. Finding so many new stars in these regions of old galaxies (such as Centaurus A, Messier 101, and Messier 81) shows that, apparently, they were wrong.



M81 is 10 million light years away. The image on the left was made from GALEX data and shows UV light from hot, new stars. These star forming regions are not detectable in the visible light image on the right (McGraw-Hill Observatory, Kitt Peak, Arizona, Greg Bothum, Univ. of Oregon.)

Friedman says that astronomers don't know yet how to explain these new findings. Rethinking and improving theories to explain unexpected discoveries has always been the way science makes progress—and GALEX is certainly making progress.

One thing is certain: It's time to re-write some old textbooks.

For more information, see <http://www.galex.caltech.edu/> . Kids can do a galaxy art project and learn more about galaxies and GALEX at <http://spaceplace.nasa.gov/en/kids/galex/art.shtml> .

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

WEIRD TELESCOPES NO. 6



"THE FEMINIQUE":
LACE-TRIMMED
SHROUD, GUCCI
EYEPIECE CASE,
WOVEN STRAW
DUST COVER WITH
RIBBON

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. 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

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): Jim Anderson
(610-857-4751)

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 Executive Committee

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

President: Mike Turco
(610) 399-3423

Vice Pres: Steve Limeburner
(610) 353-3986

**ALCor and
Treasurer:** Bob Popovich
(610) 363-8242

Secretary: Caitlin Grey
(610) 918-9049

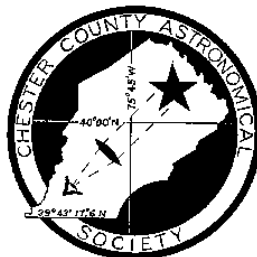
Newsletter: Jim Anderson
(610) 857-4751

Librarian: Linda Lurcott Fragale
(610) 269-1737

Observing: Ed Lurcott
(610) 436-0387

Education: Kathy Buczynski
(610) 436-0821

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

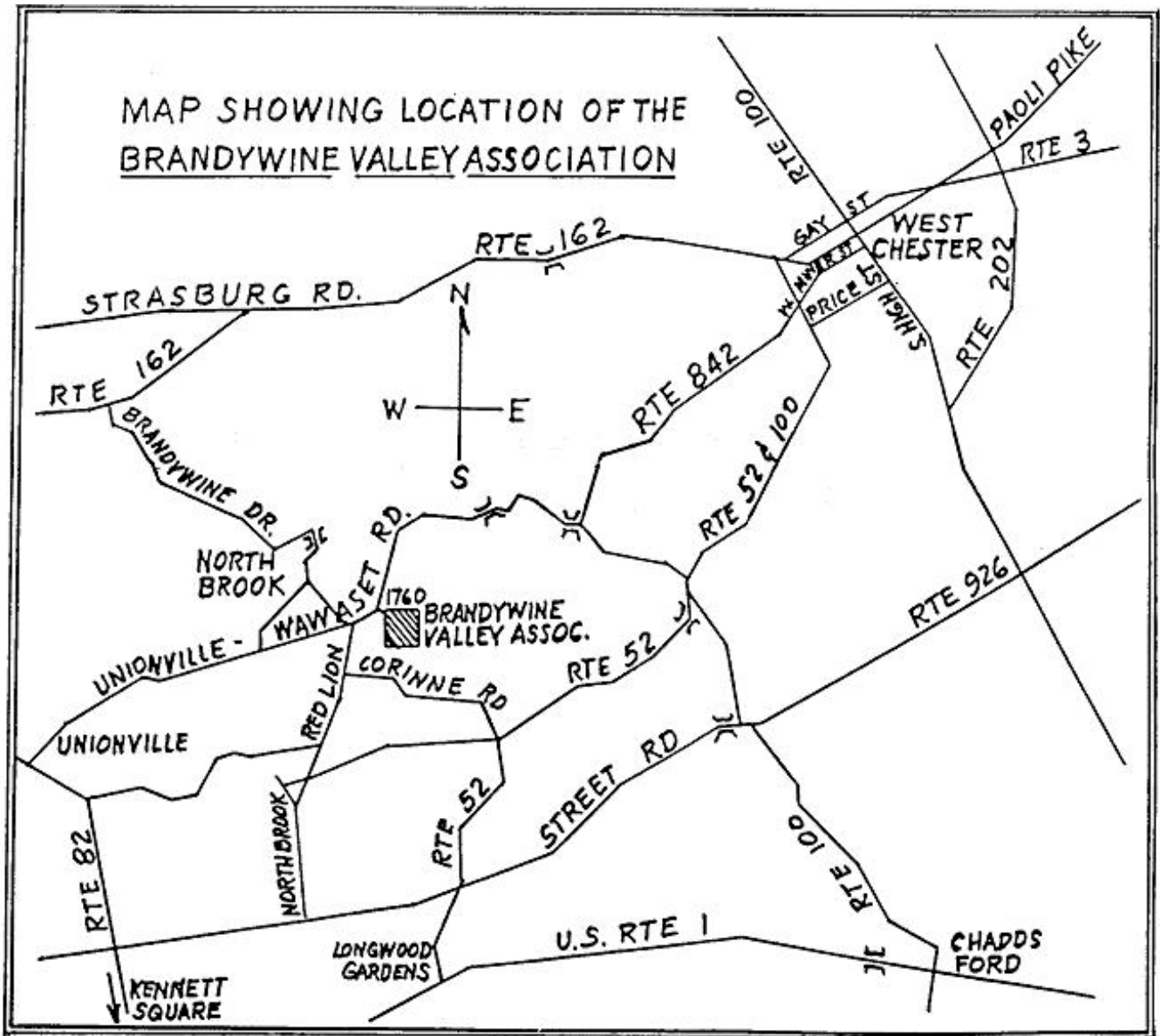
Subscriptions to this excellent periodical are available through the CCAS at a reduced price of **\$32.95** which is much less than the newsstand price of \$66.00, and also cheaper than individual subscriptions (\$42.95)! Make **sure** you make out the check to the **Chester County Astronomical Society** (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

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

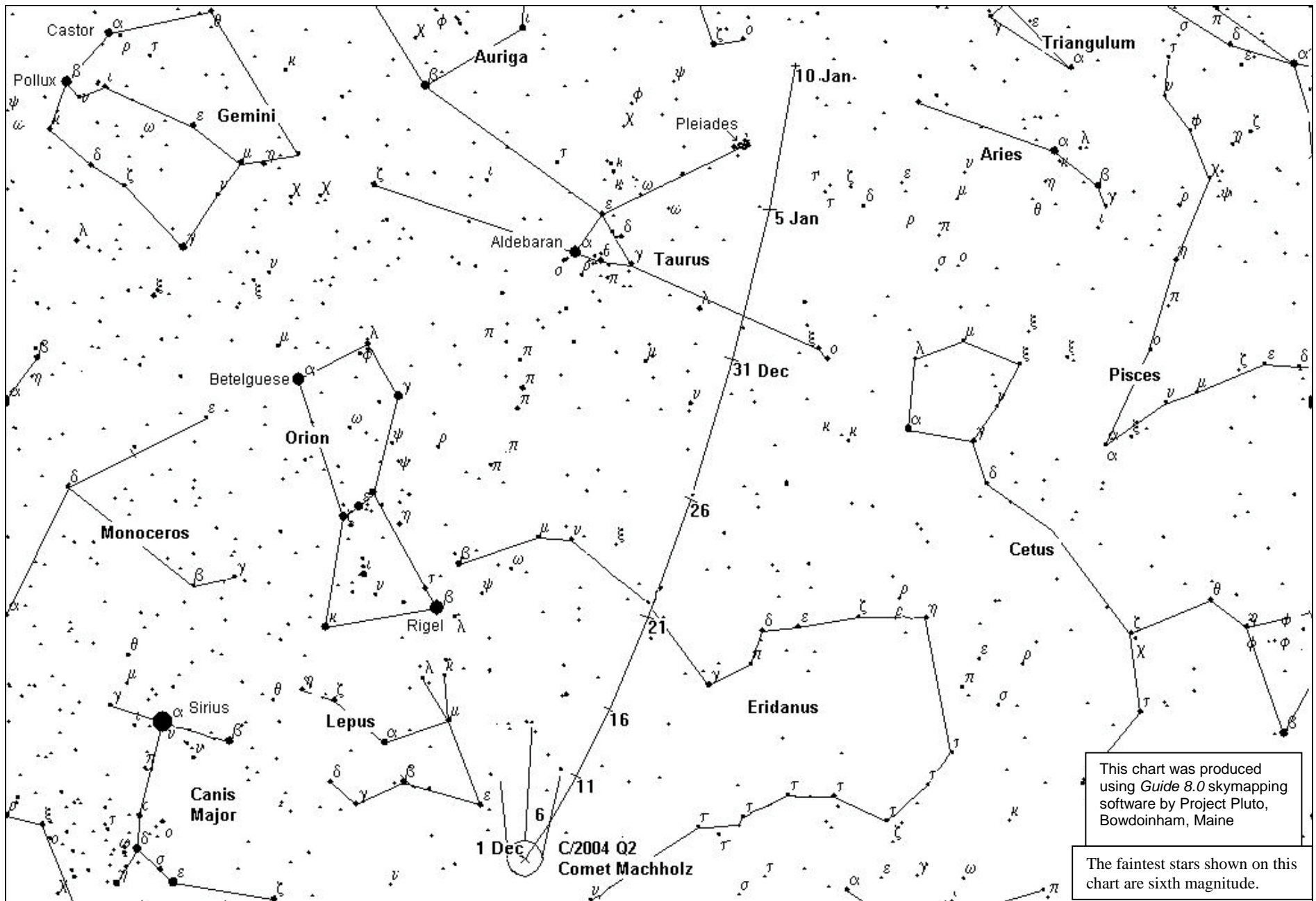
<http://www.ccas.us/>

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).



Path of Comet Machholz (C/2004 Q2) from December 1, 2004 through January 10, 2005