bservations

A Monthly Publication Of The
CHESTER COUNTY ASTRONOMICAL SOCIETY

NOVEMBER 2004
(VOLUME 12, NO. 11)
Visit our website at www.ccas.us

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CCAS 20-inch telescope

Important November 2004 Dates

1 Backyard Observing class meets at West Goshen Township Building. Class starts at 7:00 p.m. EST.

Topic: Cassiopeia and Cepheus

5 Last Quarter Moon

Look for Venus and Jupiter very close together in the morning sky: see page two.

9 CCAS Meeting 7:30 p.m. EST, topic: *High Energy Vision: The Chandra X-Ray Observatory*. Details on page 3.

12 New Moon

CCAS Observing session at Myrick Conservation Center (BVA) starts at sunset. Map with directions is on page 10.

13 Cloud date for CCAS Observing session

15 Backyard Observing class meets at West Goshen Township Building. Class starts at 7:00 p.m. EST.

Topic: Perseus

17 Leonid meteor shower peaks in the early morning hours.

19 First Quarter Moon

26 Full Moon

29 Backyard Observing class meets at West Goshen Township Building. Class starts at 7:00 p.m. EST.

Topic: Taurus

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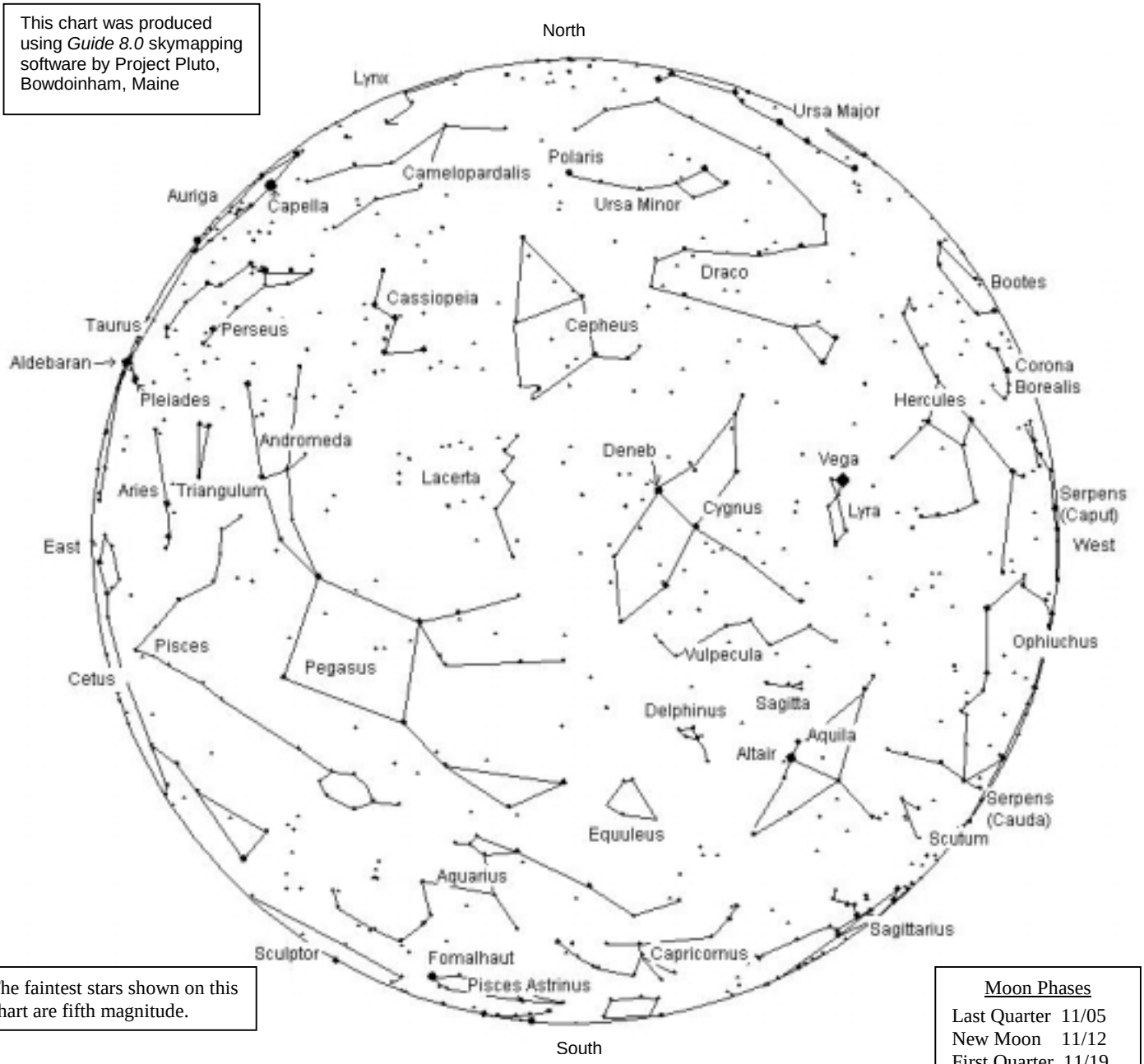
This chart was produced using *Guide 8.0* skymapping software by Project Pluto, Bowdoinham, Maine



The faintest stars shown on this chart are fifth magnitude.

Moon Phases

Last Quarter	11/05
New Moon	11/12
First Quarter	11/19
Full Moon	11/26

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

The Planets

Mercury is in the evening sky in late November; very low in the southwest about 30-40 minutes after sundown.

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

Mars is in the morning sky, fairly low and hard to spot.

Jupiter is close to Venus in early November. On November 5 you can probably see both of them in a telescope at the same time. Jupiter is somewhat dimmer than Venus.

Saturn is rising around 10:00 p.m. in early November, and as early as 8:00 p.m. by the end of the month.

Uranus is in the evening sky, in Aquarius. Uranus is well placed for telescopic viewing in the evening hours.

Neptune is also in the evening sky, in Capricornus.

Pluto is behind the Sun this month.

November 8: Taurid meteor shower is active around this date; it can last for a week or two (it has no well-defined "peak").

November 17: Leonid meteor shower peaks in the early morning hours.

President's Message

by Mike Turco

We have obtained copies of the November/December issue of the new magazine *Nightsky* from Sky Publishing. Anyone attending the November meeting will receive a free copy of this issue along with the Sky Publishing 2004 Holiday Catalog.

This *Nightsky* issue contains articles on getting your first telescope, how to observe the Pleiades or "Seven Sisters" star cluster, and what's happening in the late fall/early winter sky, with plenty of pictures and all in easy-to-understand language, which is the hallmark of this magazine. Plus the 2004 Catalog is just in time for the holidays and has some great gift ideas for either budding or experienced skywatchers.

See you at the meeting!

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CCAS November Meeting

DATE:	**Tuesday November 9, 2003**
TIME:	7:30 p.m. EST
PLACE:	Department of Geology and Astronomy Lecture Room (Room 113 – Boucher Building) West Chester University
LOCATION:	South Church Street West Chester, PA

A map of the campus showing the location is on page 11.

At the November CCAS meeting, we will see the video *High Energy Vision: The Chandra X-Ray Observatory*, which Steve Limeburner borrowed for us from the NASA Space Place video lending library (sorry, it's not open to individuals). Steve has previewed the video and says it is **very** interesting. Here is a description from the NASA Space Place video lending site:

Narrated by Nichelle Nichols (*Star Trek*'s Uhuru), the tape explores X-ray telescopes and how Chandra came to be the most sophisticated X-ray telescope ever built. Launched from the Columbia space shuttle in 1999, the telescope is capable of viewing the hottest places in the universe in x-ray light. The images of black holes and newborn stars are extraordinary.

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CCAS November 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 November 12, 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 November 13, 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.

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Coming Soon...

Tennis shirts embroidered with the official CCAS logo! More details, including prices, are expected soon.

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CCAS Backyard Observing Class

This is the remaining schedule:

Nov. 1	Cassiopeia and Cepheus
Nov. 15	Perseus
Nov. 29	Taurus
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).

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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.

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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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Treasurer's Report by Bob Popovich

September 2004 Financial Summary

Beginning Balance	$1,239
Deposits	223
Disbursements	772
Ending Balance	$690

Membership Renewals Due

11/2004:	Hepler
	Okpaku
	Zimmer
12/2004:	Limeburner
01/2005:	Kovacs
	Ramondo

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Newsletter Deadline

The deadline for submitting material for publication in the December newsletter is Friday November 26, 2004.

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Calendar Notes

November 1, 2004 (Monday)	Backyard Observing class Location: West Goshen Twp. Bldg. 7:00 p.m. EST
November 9, 2004 (Tuesday)	CCAS Meeting Location: West Chester University 7:30 p.m. EST
November 12/13, 2004 (Friday/Saturday)	CCAS Observing Session Location: BVA sunset
November 15, 2004 (Monday)	Backyard Observing class Location: West Goshen Twp. Bldg. 7:00 p.m. EST
November 29, 2004 (Monday)	Backyard Observing class Location: West Goshen Twp. Bldg. 7:00 p.m. EST
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

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NASA's Space Place

A Summer Vacation Tracking Down UFOs

By Diane K. Fisher

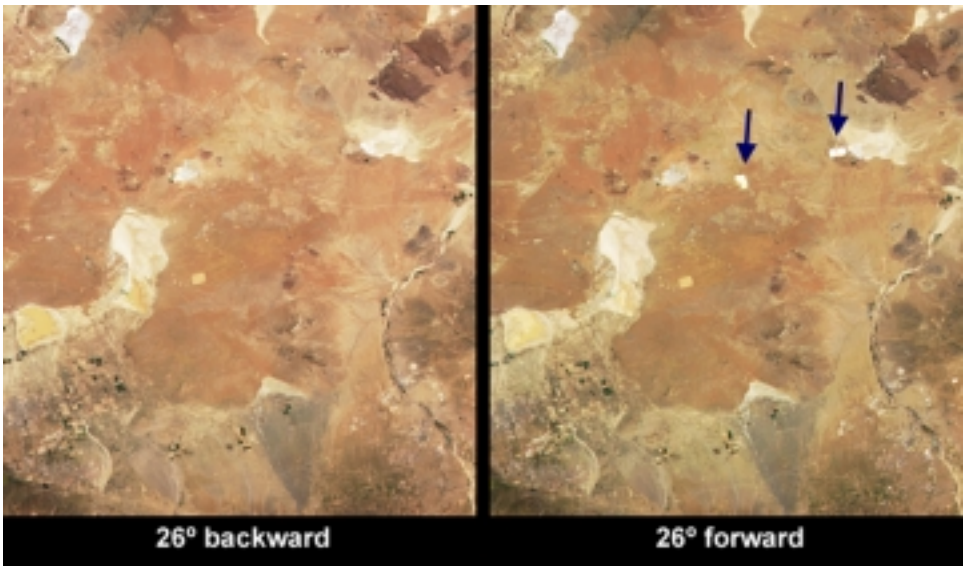
Erin Schumacher's summer job for NASA was to look for UFOs. Erin is a 16-year-old high school student from Redondo Beach, California, attending the California Academy of Mathematics and Science in Carson. She was one of ten students selected to work at NASA's Jet Propulsion Laboratory (JPL) in Pasadena as part of the Summer High School Apprenticeship Research Program, or SHARP.

But is studying UFOs a useful kind of NASA research? Well, it is when they are "unidentified flashing objects" that appear in certain images of Earth from space. Erin worked with scientists on the Multi-angle Imaging SpectroRadiometer (MISR) project to track down these mysterious features. MISR is one of five instruments onboard the Earth-orbiting Terra satellite. MISR's nine separate cameras all point downward at different angles, each camera in turn taking a picture of the same piece of Earth as the satellite passes overhead. Viewing the same scene through the atmosphere at different angles gives far more information about the aerosols, pollution, and water vapor in the air than a single view would give. Ground features may also look slightly or dramatically different from one viewing angle to another.

When Erin began working at JPL, scientists on the MISR project had already identified two large flashes out in the middle of the Mojave Desert in Southern California. These turned out to be from solar power generating stations. Soon, Erin began finding flashes all over the place. She learned how to apply her math knowledge to figuring out how the objects would have to be oriented in order to be seen by a particular MISR camera. One time, she and a team of MISR scientists and students went on a field trip to the exact locations of some flashes, where they found greenhouses, large warehouses with corrugated metal roofs, a glass-enclosed shopping mall, and a solar-paneled barn. For some flashes, they could find nothing at all. Those remain "UFOs" to this day!

Learn more about SHARP at www.nasasharp.com and Earth science applications of MISR at www-misr.jpl.nasa.gov. Kids can do an online MISR crossword at spaceplace.nasa.gov/en/kids/misr_xword/misr_xword1.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.



Two cameras on MISR made these images of the same part of the Mojave Desert. The camera pointed at an angle of 26 forward saw the flashes from two solar electric power generating stations. These objects are nearly invisible at the other angle.

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Astronomus

"The Less-Traveled Well-Traveled Road"

By Bob Popovich

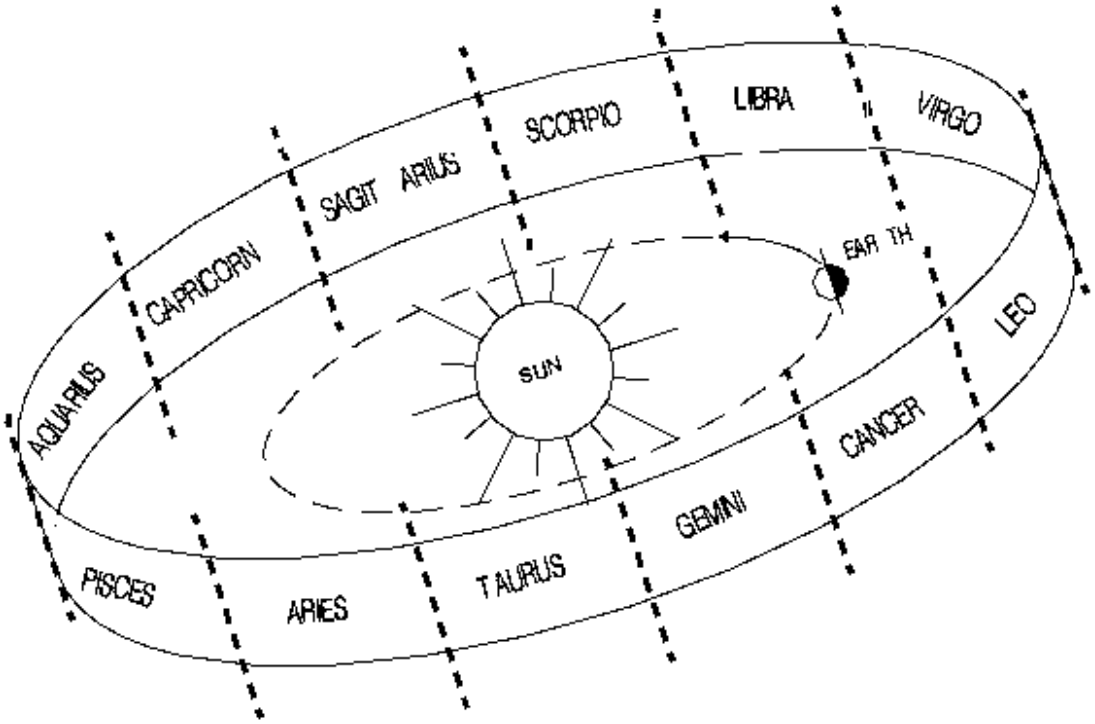
Similar to all scientific disciplines, astronomy prides itself on exercising the scientific method in all its work. Factual, accurate, verifiable, logical. All of these are qualities of astronomical research, aren't they? Yes, but what about imaginary lines, mythical creatures and predicting the future? These, too, are qualities of astronomy. "What?!" you exclaim. "No way!" But before you post your telescope on e-Bay, let's take a trip down one of astronomy's imaginary paths to see the study of the heavens as a discipline steeped in myth and imagination. In particular, let's set our sights on one of the most important of these imaginary astro-markers: the ecliptic. Our current ecliptic is marked by 12 constellations as organized by the Greeks. These 12 are collectively known as the circle of animals—the zodiac[1]. Within a few degrees above or below the ecliptic plane, these constellations host the sun, the moon and all the planets at some time or another. Pluto, if it is a planet at all, is the lone exception.

Since time travel is a regular feature of astronomy, let's go back and think about how the ancients perceived what they saw when they gazed up into the celestial sphere. What was set before them (and what's still available to us today) was a wondrous array of points of light smeared with the occasional fuzzy patch of white. Though they speculated on the nature of what they saw, the ancients devoted much time to looking, organizing and recording. And while our predecessors were equally drawn to the beauty of the stars, the Milky Way, Andromeda, the Magellanic Clouds and such, they had a special fascination with monitoring the motion of sun, the moon and those five wandering stars (*planetos* in Greek) that we know as the "classical" planets: Mercury, Venus, Mars, Jupiter and Saturn.

Most of the ancient civilizations devoted much time and effort to studying this pathway of the planets, upon which eclipses occur (hence the name ecliptic). Surely this path and the constellations through which it passes must be very special. In fact, they reasoned, it must be blessed with magic powers. And what could be more magical (and more useful to the local king/emperor) than predicting the future? Early science mixed freely with myth. Astronomers got royal support in exchange for divining things yet to be.

But leave it to the Greeks to establish a scientific order. In the second century BC, the Greek astronomer Hipparchus decided to set up a system for measuring positions of stars and other fixed objects in the heavens. But he needed a starting point. He decided upon one of the two places where the sun crossed the "celestial equator," an extension of Earth's equator out into the sky. The sun crossed this plane in its northward journey along the ecliptic towards the summer solstice. Thus, the vernal equinox, the sun's position at the beginning of spring, became the reckoning point for the heavens. In contemporary terms, zero hours right ascension. And since it's on the celestial equator, the declination is zero as well. Like Greenwich on the equator, if you will.

Just where on the ecliptic was this point? During Hipparchus' time this very special point was located in the constellation of Aries, the ram. So, one of the smallest and dimmest constellations of the zodiac became famous as the "First Point of Aries."



Notice that the Earth's position on this illustration allows us to see Leo & Virgo, meaning that it's spring. But the apparent position of the sun is Pisces/Aquarius—astrological signs of late winter/early spring.

However (you knew there would be a "however", didn't you?), due to the wobbling of the Earth on its axis over a period of about 26,000 years, this point of orientation has been slowly shifting since the moment it was set. This movement, called the precession of the equinox, means that the "First Point of Aries" entered Pisces in about AD 70. It will enter Aquarius in AD 2600. (Are you humming the Fifth Dimension song yet?).

For our friends and relatives who subscribe to the mythology of astrology, we can take special glee in pointing out that the "house" (constellation) which the sun was "in" at their birth is based on the apparent position of the sun as it was when the First Point of Aries was truly in Aries. In other words, it's 2,000 years out of sync with reality.

So as you venture out to observe this time of year, you can see Aries a bit south and east of the Great Square of Pegasus. To its west lie Sagittarius and Capricornus. None of these are particularly stunning constellations and I must admit that it is rare for me to travel down this part of the ecliptic. Yet it is part of the path upon which glide the sun, moon and planets. It is on a point in this part of the path where Hipparchus decided to stake his celestial marker. If for no other reasons than these, this area of the autumn sky is worth a spot on your observing calendar. Observing with a story in mind is a wonderful way to get lost in the moment. And that, my friends, is one of the best things about astronomy.

(1) As we all know, the zodiacal constellations aren't all animals. I have yet to find an explanation for this historical inaccuracy. If you have the answer, please let me know!

Next Time: Bowl Game

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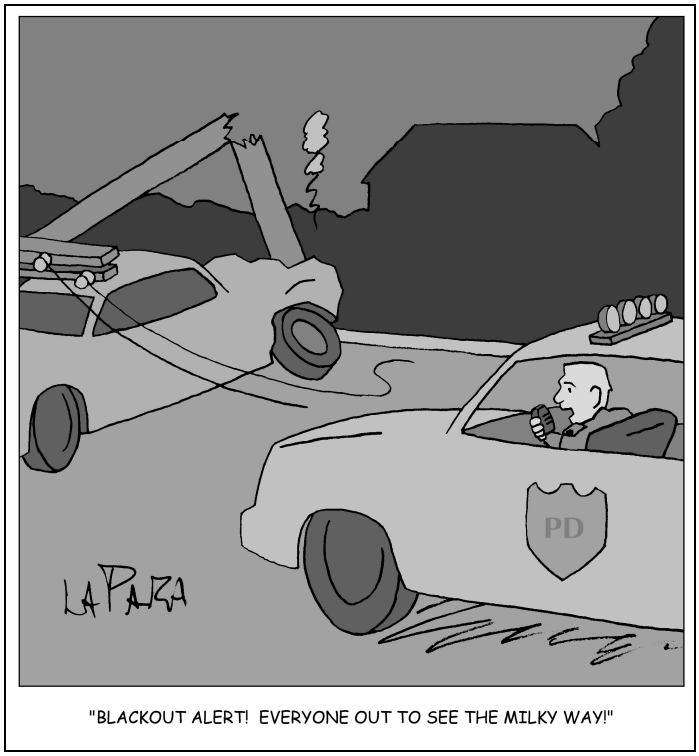


"BLACKOUT ALERT! EVERYONE OUT TO SEE THE MILKY WAY!"

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): 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

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

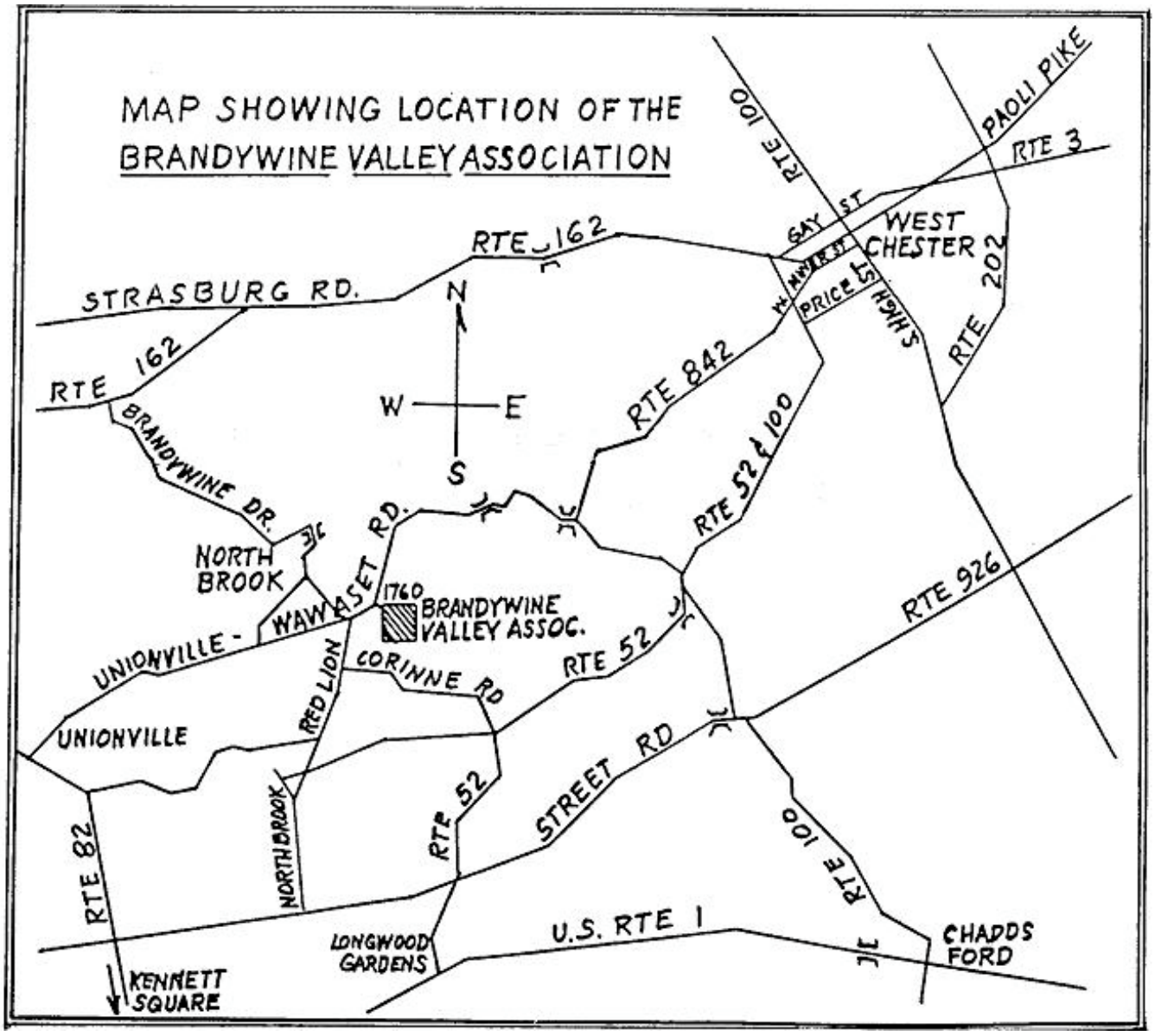
Subscriptions to this excellent periodical are available through the CCAS at a reduced price of **$32.95** which is much less than the newsstand price of $66.00, and also cheaper than individual subscriptions ($42.95)! Make **sure** you make out the check to the **Chester County Astronomical Society**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

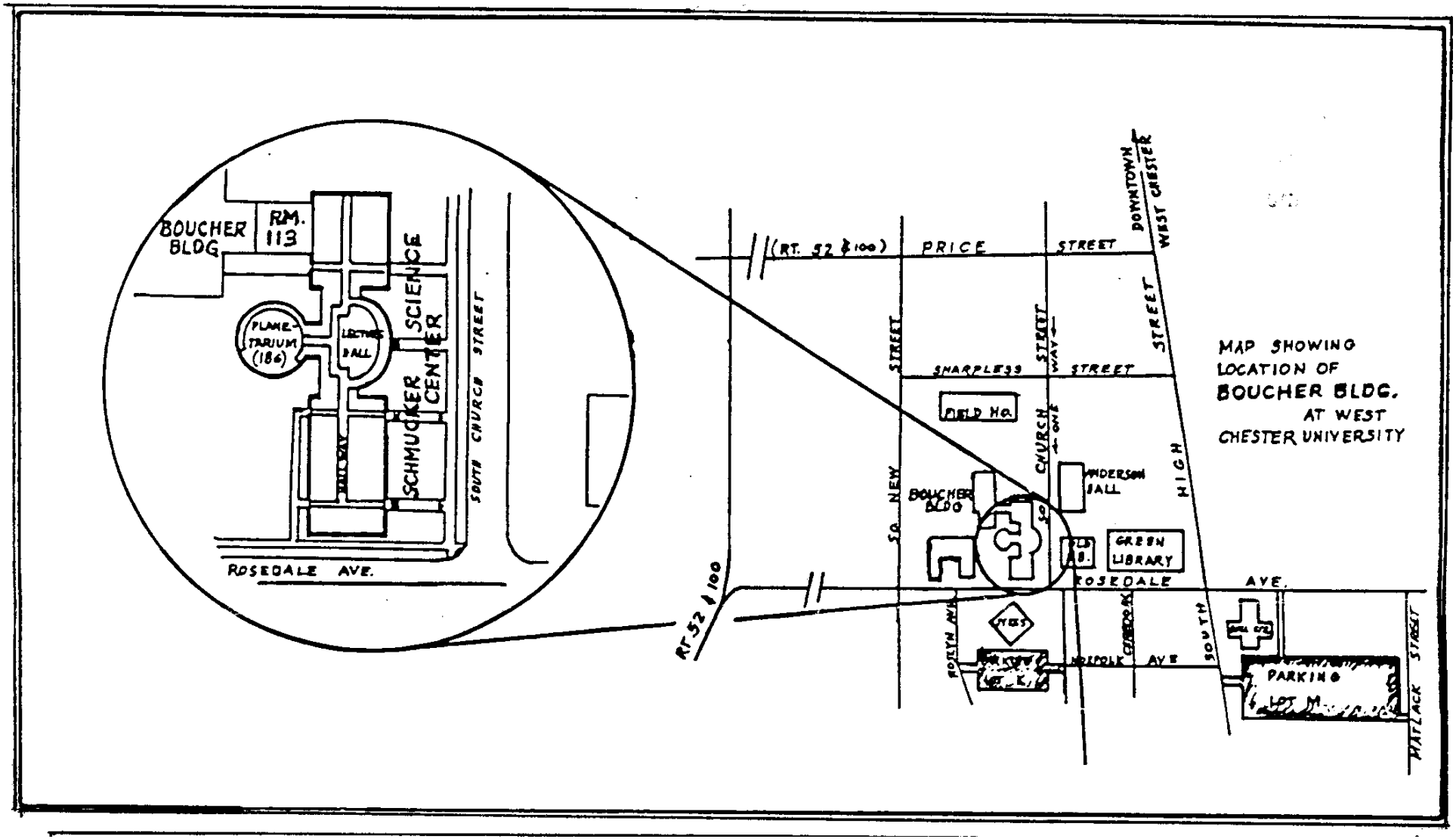
http://www.ccas.us/

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**

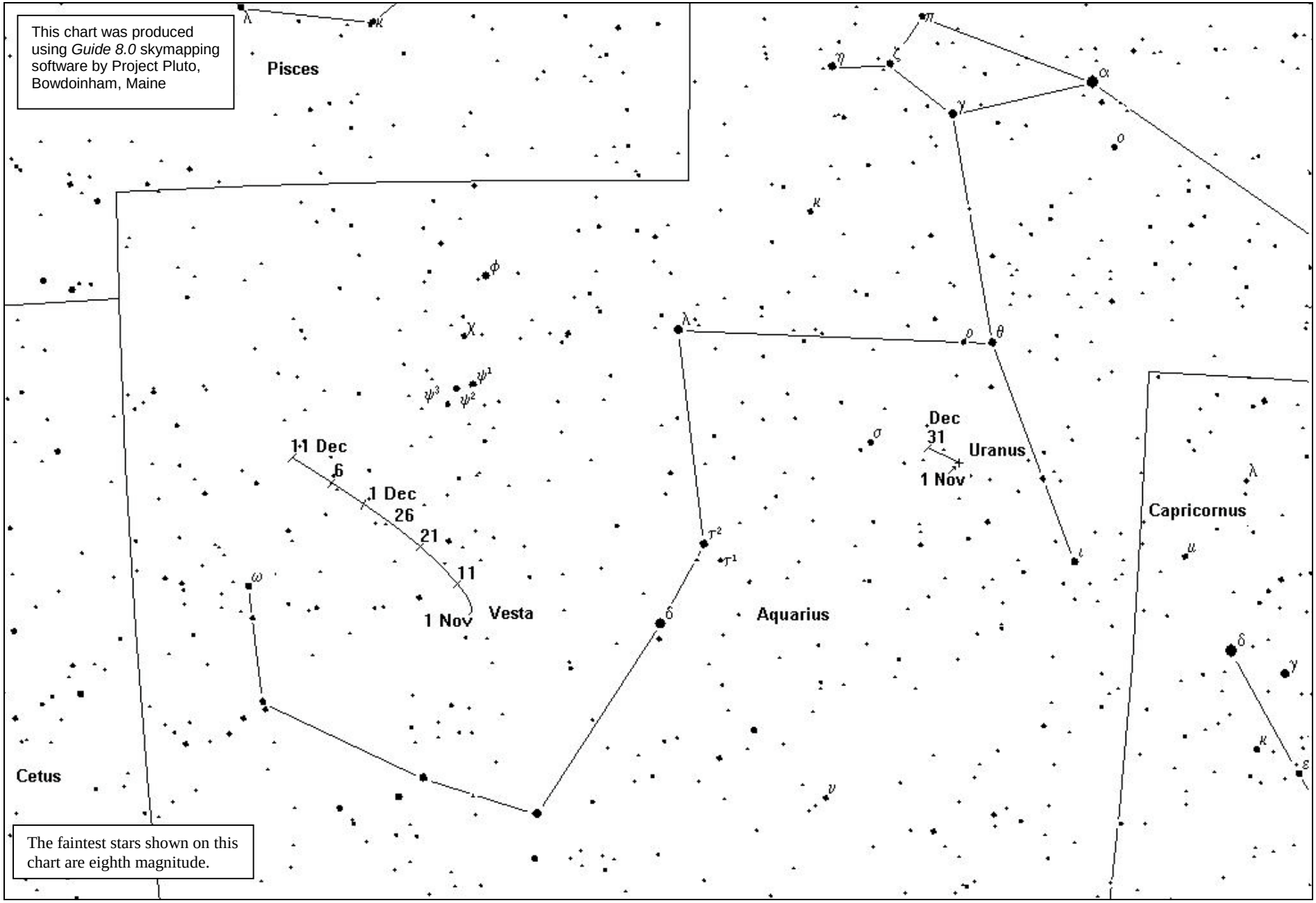


To get to the Myrick Conservation Center of the Brandywine Valley Association from West Chester, go south on High Street in West Chester past the Courthouse. At the next traffic light, turn right on Miner Street, which is also PA Rt. 842. Follow Rt. 842 for about 6 miles.

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).



Parking is available behind Sykes Student Center on the south side of Rosedale Avenue (Parking Lot K), and behind the Bull Center at the corner of Rosedale Avenue and South High Street (Parking Lot M). If you arrive early enough, you may be able to get an on-street parking space along South Church Street, or along Rosedale Avenue. You can take the Matlack Street exit from Rt. 202 South; Matlack Street is shown on the map at the lower right corner with Rt. 202 off the map. If approaching West Chester from the south, using Rt. 202 North, you would continue straight on South High Street where Rt. 202 branches off to the right. This would bring you onto the map on South High Street near Parking Lot M, also in the lower right corner.



Path of asteroid 4 Vesta and the planet Uranus in Aquarius during November 2004