



# Observations

A Monthly Publication Of The  
CHESTER COUNTY ASTRONOMICAL SOCIETY

**AUGUST 2004**

(VOLUME 12, NO. 8)

Visit our website at [www.ccas.us](http://www.ccas.us)

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## Important August 2004 Dates

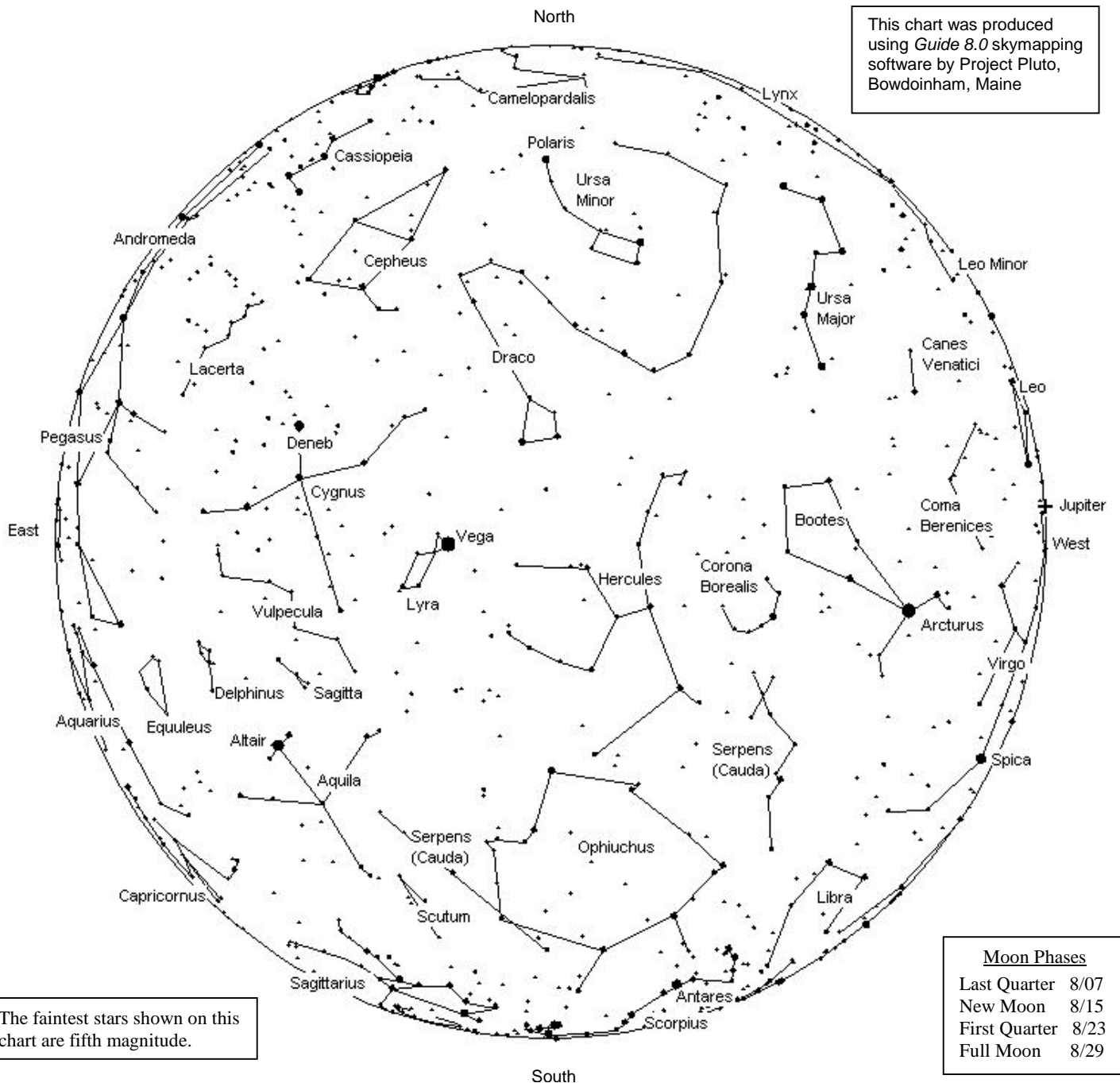
- 5** Neptune reaches opposition tonight. That means that it is directly opposite the Sun in our sky.
- 7** Last Quarter Moon
- 12** **Perseid meteor shower** peaks in the early morning hours. This will be a good year for the Perseids because the Moon will not be very bright. You'll be able to see fainter (and therefore more) meteors.
- 13/** CCAS Observing session at Myrick
- 14** Conservation Center (BVA) starts at sunset. Map with directions is on page 10.
- 15** New Moon
- 17** Venus reaches its greatest western elongation from the Sun. That means Venus is as far from the Sun in our morning sky as it will get during this apparition.
- 23** First Quarter Moon
- 27** Uranus is at opposition tonight. That means that it is directly opposite the Sun in our sky. Tonight Uranus rises as the Sun sets, and then in turn sets as the Sun rises.
- 29** Full Moon



Become a certified  
**Constellation Hunter!**

For more information  
see page 3.





South

## The sky over Chester County

August 15, 2004 at 9:00 p.m. EDT

### The Planets

**Mercury** is in the evening sky in early August, low in the west after sunset near Jupiter.

**Venus** is in the morning sky, rising as much as four hours before the Sun. You can't miss it; it's the brightest "star" in the sky after 2:30 a.m. or so when it rises.

**Mars** is in the evening sky, near Mercury. It's now very faint; look for it with binoculars about 25 minutes after sunset.

**Jupiter** is in the west after sunset. It's too low in the sky to get good telescopic views this month.

**Saturn** is in the morning sky, getting closer to Venus as the month progresses.

**Uranus** is in the evening sky, in Aquarius. Uranus reaches opposition on the night of August 27-28.

**Neptune** is also in the evening sky, in Capricornus. Neptune reaches opposition on the night of August 5-6.

**Pluto** is in the evening sky, high in the south at sunset in Ophiuchus. You'll need at least an 8-inch telescope, good star charts, dark skies, and patience to find Pluto.

**August 12, 2004: Perseid Meteor Shower** peaks in the early morning hours, between midnight and sunrise. Look to the northeast.

## Astronomical League Honors *Observations*

by Jim Anderson

Bob Gent, President of the Astronomical League, recently informed me that I placed second in the A.L.'s annual Mabel Sterns Newsletter Award program. This award, named in honor of the AL's first newsletter editor, is to recognize outstanding newsletters among the AL's nearly-300 member societies. I thank Mike Turco for nominating this newsletter for the award. It's always nice to feel appreciated. Thanks!

*Observations* was also the second-place winner in the 2000 and 2001 Mabel Sterns Award competitions. That kind of consistency in the quality of a newsletter is due to the contributions of many people in the Society. It is far easier to assemble a good newsletter every month when I know I can count on such high-quality efforts as Nicholas La Para's original cartoons and Bob Popovich's remarkable column "Astronomus." (The NASA "Space Place" column from our good friends at the Jet Propulsion Laboratory doesn't hurt, either.). Add to that the many other contributions I receive, like astroimages from Vic Carlucci, Pete LaFrance, Steve Limeburner, and Roy & Elise Furman; photographs from Ed Lurcott, Kathy Buczynski, Bruce Hostenstein, and Lisa Compton; articles and information from Mike, Ed, Pete, Nicholas, Kathy, Steve, Bob, and... Well, I think you get the idea. I could easily go on for pages listing everyone who helps. We have a great newsletter because so many of our members provide so much great material to put into it! Thanks to all for your contributions to our newsletter, and thanks again to Mike for nominating us for the award.

A scan of the award letter is included on page 8.

### Ed Lurcott Wins Eyepiece

CCAS member Ed Lurcott won the Grand Prize door prize at the Grand Opening of *Skies Unlimited*, a new astronomy equipment store in Glenmoore. Ed won a TeleVue 11mm Nagler eyepiece, MSRP about \$280.00. Congratulations, Ed!

Here is the phone number, (610) 321-9881, and Website URL, [www.skiesunlimited.net](http://www.skiesunlimited.net), for Skies Unlimited.

Directions: Go four miles north of the Downingtown exit of the PA Turnpike on PA-100; turn left onto PA-401, then immediately turn left again into Ludwig's Village. The store is next to Ludwig's Village Market.

### CCAS August Meeting and Observing Session

The next CCAS Observing Session and Meeting will be at the Brandywine Valley Association's Myrick Conservancy Center (see map on page 10) on Friday August 13, 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 August 14, 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.

The **Constellation Hunter Club** will have a meeting at the August Observing Session. This "club" is simply any CCAS member who wishes to work on the Astronomical League's Constellation Hunter Award. At the meeting, we can cover any questions people have about working on the award; members can share tips and experiences, and encourage one another to keep looking up! If we get some decent seeing, we'll also get started on the observing together. Copies of the program description will be available at the meeting, or you can get your own copy from the A.L. website at [www.astroleague.org](http://www.astroleague.org). You may want to bring along a dim or red flashlight, some paper and something firm to write/draw on (you have to keep a logbook), a pencil with eraser, and a planisphere or monthly star chart (like the one on page 2). No telescope is needed—this is a "naked-eye" observing program. Come on out and learn the constellations and stars. Hope to see you there!

### CCAS September Observing Session

The September Observing Session will be held on Friday September 10, 2004 at the Brandywine Valley Association's Myrick Conservancy Center. If it's too cloudy on Friday, then we'll try again on Saturday September 11, 2004.

### CCAS September Meeting

The September Meeting will be held on Tuesday September 10, 2004 at West Chester University in West Chester. Meetings start at 7:30 p.m. in Room 113 in the Boucher Building. A map of the campus showing the location is on page 11.

### Treasurer's Report by Bob Popovich

#### June 2004 Financial Summary

Beginning Balance	\$1,495
Deposits	93
Disbursements	389
Ending Balance	\$1,199

#### Membership Renewals Due

08/2004:	Morgan Reilly
09/2004:	Compton Furman
10/2004:	Hogate Liberati Smith Volcheck

### 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.



## Calendar Notes

August 13/14, 2004 CCAS Observing Session  
(Friday/Saturday) Location: BVA  
sunset

September 10/11, 2004 CCAS Observing Session  
(Friday/Saturday) Location: BVA  
sunset

September 14, 2004 CCAS Meeting  
(Tuesday) Location: West Chester University  
7:30 p.m. EDT

★ ★ ★ ★ ★

## Newsletter Deadlines

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

<u>Issue</u>	<u>Deadline</u>
September 2004	08/27/2004
October 2004	09/27/2004
November 2004	10/27/2004
December 2004	11/26/2004

★ ★ ★ ★ ★

## Photos from July Observing Session

Bruce Holenstein was kind enough to send in some photos he took at the July CCAS Observing Session. These pictures show Nicholas La Para with his new telescope. Nicholas says, "It's a 12.5" StarMaster f/4.5, with Zambuto mirror. It's designed to be used with a Paracorr coma corrector, which I do use. I've had it out only four times (you know how the weather has been) only two of which were nights of decent transparency—and then it was stunning, especially on globular clusters. I'm dying to look at the wonderful objects in Sagittarius with it, but so far, no cooperation from the weather."



Nicholas La Para and his new 12.5" telescope.

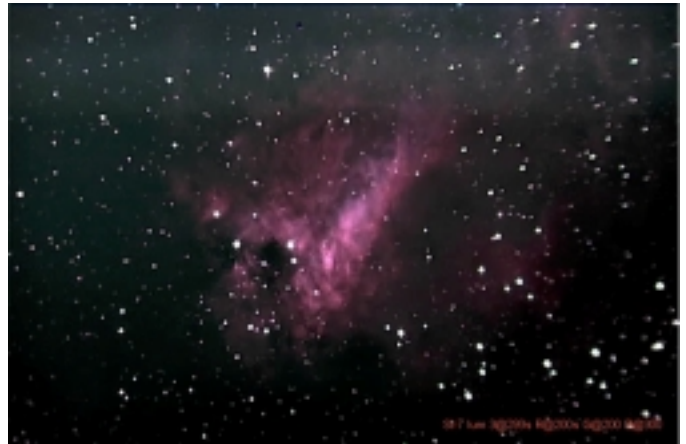


The "heart" of the telescope: the 12.5" diameter mirror.

★ ★ ★ ★ ★

## Astroimages from Pete LaFrance

Here are several astroimages Pete LaFrance sent in for publication in the newsletter. Pete says these were taken with his ST-7me. He noted: "Given the quality of our northeast weather they came out better than I expected. For the most part I really didn't spend much time on taking the images nor processing them. Basically I'm still experimenting with calibrating both the camera and the mount. I expect better images in the near future."



M17, nebula and embedded star cluster in Sagittarius. "The Omega Nebula", or "The Swan Nebula"



M27, planetary nebula in Vulpecula.  
"The Dumbbell Nebula"



M51 and NGC 5195, galaxies in Canes Venatici.  
"The Whirlpool Galaxy"



### Waiting for Cassini's "Safe Arrival" Call

By Diane K. Fisher

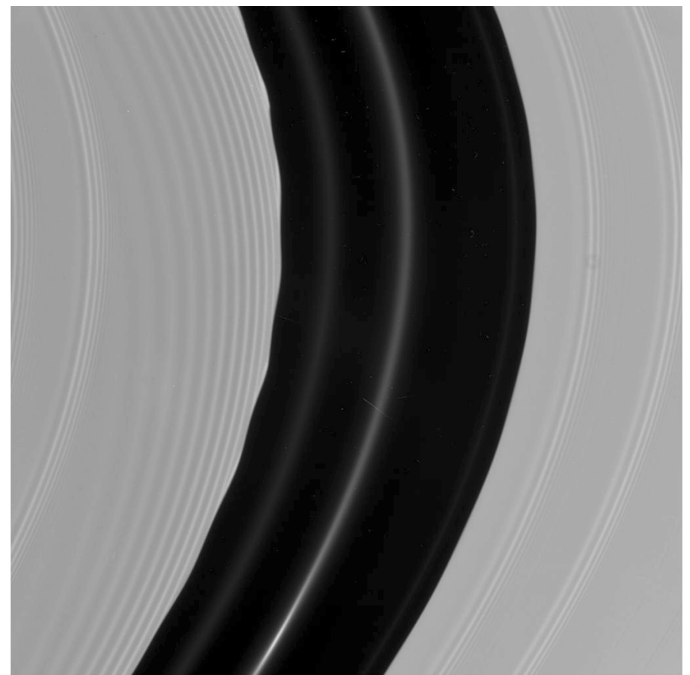
The evening of June 30, 2004, was nail-biting time at Cassini Mission Control. After a seven-year journey that included gravity assist flybys of Venus, Earth, and Jupiter, Cassini had finally arrived at Saturn. A 96-minute burn of its main engine would slow it down enough to be captured into orbit by Saturn's powerful gravitational field. Too short a burn and Cassini would keep going toward the outer reaches of the solar system. Too long a burn and the orbit would be too close and fuel reserves exhausted.

According to Dave Doody, a Cassini Mission Controller at the Jet Propulsion Laboratory (JPL) in Pasadena, California, there was a good chance the Earth-bound Cassini crew would have to wait hours to learn whether or not the burn was successful. Of the three spacecraft-tracking Deep Space Network (DSN)

complexes around the globe, the complex in Canberra, Australia, was in line to receive Cassini's signal shortly after the beginning of the burn. However, winds of up to 90 kilometers per hour had been forecast. In such winds, the DSN's huge dish antennas must be locked into position pointed straight up and cannot be used to track a tiny spacecraft a billion miles away as Earth turns on its axis. "The winds never came," notes Doody.

The DSN complex at Goldstone, California, was tracking the carrier signal from Cassini's low-gain antenna (LGA) when the telltale Doppler shift in the LGA signal was seen, indicating the sudden deceleration of the spacecraft from the successful ignition of the main engine. Soon thereafter, however, Goldstone rotated out of range and Canberra took the watch.

After completion of the burn, Cassini was programmed to make a 20-second "call home" using its high-gain antenna (HGA). Although this HGA signal would contain detailed data on the health of the spacecraft, mission controllers would consider it a bonus if any of that data were actually captured. Mostly, they just wanted to see the increase in signal strength to show the HGA was pointed toward Earth and be able to determine the spacecraft's speed from the Doppler data. If possible, they also wanted to try to lock onto the signal with DSN's closed-loop receiver, a necessary step for extracting engineering data. *[Editor's note: "engineering data" is a bit of "NASA-speak" which includes the marvelous pictures we've all been admiring, like this one below.]*



Right after entering Saturn orbit, Cassini sent this image of the part of the Encke Gap in Saturn's rings. Image credit NASA/JPL/Space Science Institute.

Normally it takes around one minute to establish a lock on the HGA signal once a DSN station rotates into range. Having only 20 seconds' worth of signal to work with, the DSN not only established a lock within just a few seconds, but extracted a considerable amount of telemetry during the remaining seconds.

"The DSN people bent over backwards to get a lock on that telemetry signal. And they weren't just depending on the technology. They really know how to get flawless performance out of it. They were awesome," remarks Doody.

Find out more about the DSN from JPL's popular training document for mission controllers, *Basics of Space Flight* ([www.jpl.nasa.gov/basics](http://www.jpl.nasa.gov/basics)), and from the DSN website at [deepspace.jpl.nasa.gov/dsn](http://deepspace.jpl.nasa.gov/dsn). For details of the Cassini Saturn orbit insertion, see [www.jpl.nasa.gov/basics/soi](http://www.jpl.nasa.gov/basics/soi). Kids (of all

ages) can check out The Space Place website at [spaceplace.nasa.gov/en/kids/dsn\\_fact1.shtml](http://spaceplace.nasa.gov/en/kids/dsn_fact1.shtml) to learn about the amazing ability of the DSN antennas to detect the tiniest spacecraft signals.

*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

### "Where The Earth Meets The Sky"

By Bob Popovich

...is, of course, the horizon. The horizon is of particular fascination to me because, from my home in Exton, I cannot see it. In any direction. My best view, to the northwest, still leaves my line of sight about 20° above the point where the Earth meets the sky.

Given this limitation (not to mention the light pollution), observing the night sky from a vantage point with an unobstructed 360° view to the horizon was most tantalizing. Our week at the Delaware shore was to be such an opportunity. I enjoy the beach well enough, but I envisioned the week's centerpiece as the night sky and not the daytime surf.

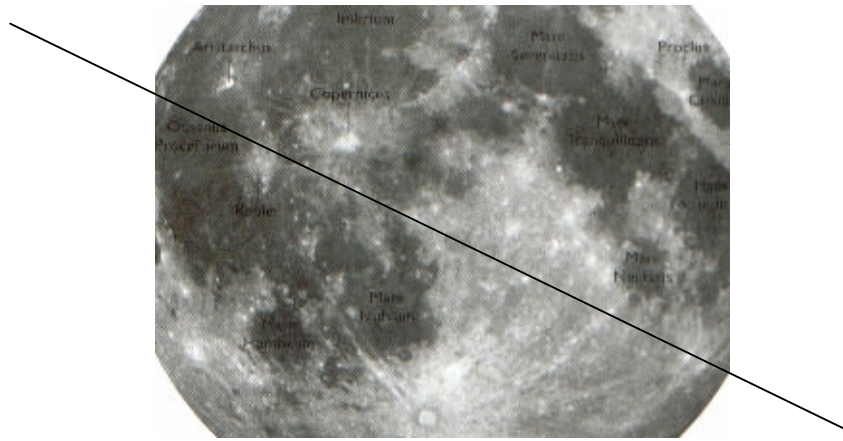
Arriving at North Shores to a crystal clear sky, I anticipated the coming evening even more than taking a dip in the ocean. The first thing I did upon entering the top-floor condominium we had rented was to go out on the deck. Nothing above but the sky, and nothing impeding my view in any direction. A state park to the north, low-rise Rehoboth about a mile to the south, a lake to the west and the ocean to the east. Scanning the horizon with my 7x50s I could see Cape May to the northeast with two ferries in transit between Lewes and that southernmost tip of New Jersey. The ocean and the sky met at a sharp line of blue that held the promise of a beautiful night of stargazing. I could hardly wait!

There was however, one recollection trying to neutralize my adrenaline. I remember reading an article describing viewing conditions at the shore as poor. Poor, but with no explanation. I didn't understand what they could have meant because the reality of the moment was anything but poor. I concluded that whoever wrote those words obviously just had a spell of bad luck. "Someone else's bad luck would not be mine," I thought. Think again, Bob.

Desiring a bird's eye view of moonrise, I left the beach at 5:30 to snuggle into my perch for the 5:49 PM curtain time. But the sky had changed. The razor-like line of blues had blurred. Gray was challenging the blue- and seemed to be winning. "Hmm," I thought. "Perhaps just some passing haze." 5:49 arrived—no moon. I scanned the horizon from Cape May to Rehoboth—nothing. 5:59 and still no moon. The same was true for 6:09 and 6:19, too. Finally, 6:29 saw the emergence of the waxing gibbous at an azimuth of 160° (remember that 180° is due south) and an altitude of nearly 10° above the point where the Earth meets the sky. I had envisioned seeing a moon as big as a pizza pie slicing the horizon. But no such luck. "Oh, well. Let's see how things look at nightfall." Well, I'll tell you how they looked—lousy. Stars did become visible as darkness fell, provided of course that their magnitude did not fall below 3. Imagine that, a cloudless sky with little light pollution but with a limiting magnitude of 3! A seemingly clear night that barely allowed me to see Albireo. I was perplexed and confused. And as the skies didn't improve for over an hour, I decided to spend some time enjoying the moon and then to let it go until the morrow. "Tomorrow will be better." I could hardly wait.

The next day was as lovely as the first. And the evening just as disappointing. In fact, the entire week featured lovely days and, from an astronomical point of view, lousy nights. How I missed the clear skies of Exton! Just what was going on? Well, here's the problem with observing at the shore: Warm, sunny days spawn a great deal of evaporation of seawater. This vapor, suspended in the air above the ocean, creates the familiar haze at the beach. A breeze off the land will keep the vapor cloud over the water while a sea breeze can push it over the shoreline creating the foggy conditions that sometimes prevail. The cooling of the night air causes the vapor to condense as the morning temperature bottoms out. Then the temperature begins to rise again- repeating the process. For us stargazers, the result is poor seeing conditions.

Conceding to nature, I turned my attention to the moon and began three nights of pleasant, leisurely observing towards earning my lunar certificate. These three nights washed away my disappointment as surely as the tide. With my elbows resting on the armrests of my beach chair, I had the opportunity to do what you're supposed to do on a vacation—relax. Rather than making astronomy happen, I allowed it to happen by sitting comfortably and observing the moon for extended periods. For this I was rewarded by seeing its subtleties emerge. Slowly and imperceptibly features seemed to rise up off of the lunar surface to present themselves. Details I had never noticed before. Targets I had concluded were beyond the reach of my 7x50s were clearly visible. Delight and fascination overtook me. But I was really amused at what the full moon presented on my final night of observing. The craters whose ejecta blankets appear white at full phase stood out like a 3-D line of poorly spaced rivets.



This photo doesn't really convey the astounding clarity and depth of what I observed that night, but I encourage you to add it to your list of observing targets. And since the full moon precludes observing much else, you can do so at your leisure—which is the way it's supposed to be.

While it's a good idea to plan out observing sessions, this vacation reminded me of what truly draws us all to astronomy—the sheer delight of just looking at what's there. Seeing the unexpected—even in a familiar old friend—is an extra treat that is the unmatched wonder of stargazing.

Am I discouraging you from taking binoculars to the shore? Quite the contrary, I would encourage you to do so. Just don't plan any particular observing targets. Get comfy and let the night sky show you what it will...

Next Time: Jungle Stargazing



"LOOKS LIKE HENDERSON'S BEEN DOING TOO MUCH SOLAR OBSERVING AGAIN!"

Cartoon by Nicholas La Para





# ASTRONOMICAL LEAGUE

A FEDERATION OF ASTRONOMICAL SOCIETIES  
A NON-PROFIT ORGANIZATION

- ★ *To promote the science of astronomy;*
- ★ *By fostering astronomical Education;*
- ★ *By Providing incentives for astronomical observation and research;*
- ★ *By assisting communication among amateur astronomical societies.*

July 12, 2004

Robert L. Gent  
President, Astronomical League  
151 Somerville Street  
Alexandria, VA 22304-7731  
[RLGent1@aol.com](mailto:RLGent1@aol.com)

James Anderson  
1249 W. Kings Highway  
Coatesville PA 19320-1133

Dear James,

On behalf of the officers and 20,000 members of the Astronomical League, I would like to congratulate you for your 2<sup>nd</sup> place finish in the 2004 Mabel Sterns Newsletter Award program. The competition was intense for this award, and your achievement is absolutely superb.

The newsletter editor is a crucial part of a club's success. This is the person who keeps the membership informed about and interested in the club's activities. As a former newsletter editor, I know the hard work that is involved in publishing a high-quality newsletter such as the *Observations* you publish for the Chester County Astronomical Society.

Based upon your outstanding achievements, we plan to publish an article about you in an upcoming issue of the *Reflector*. Again congratulations on your outstanding accomplishment.

Sincerely,



## 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](mailto: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](mailto: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

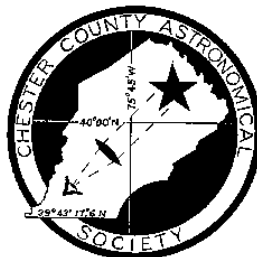
**ALCor and  
Newsletter:** Jim Anderson  
(610) 857-4751

**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

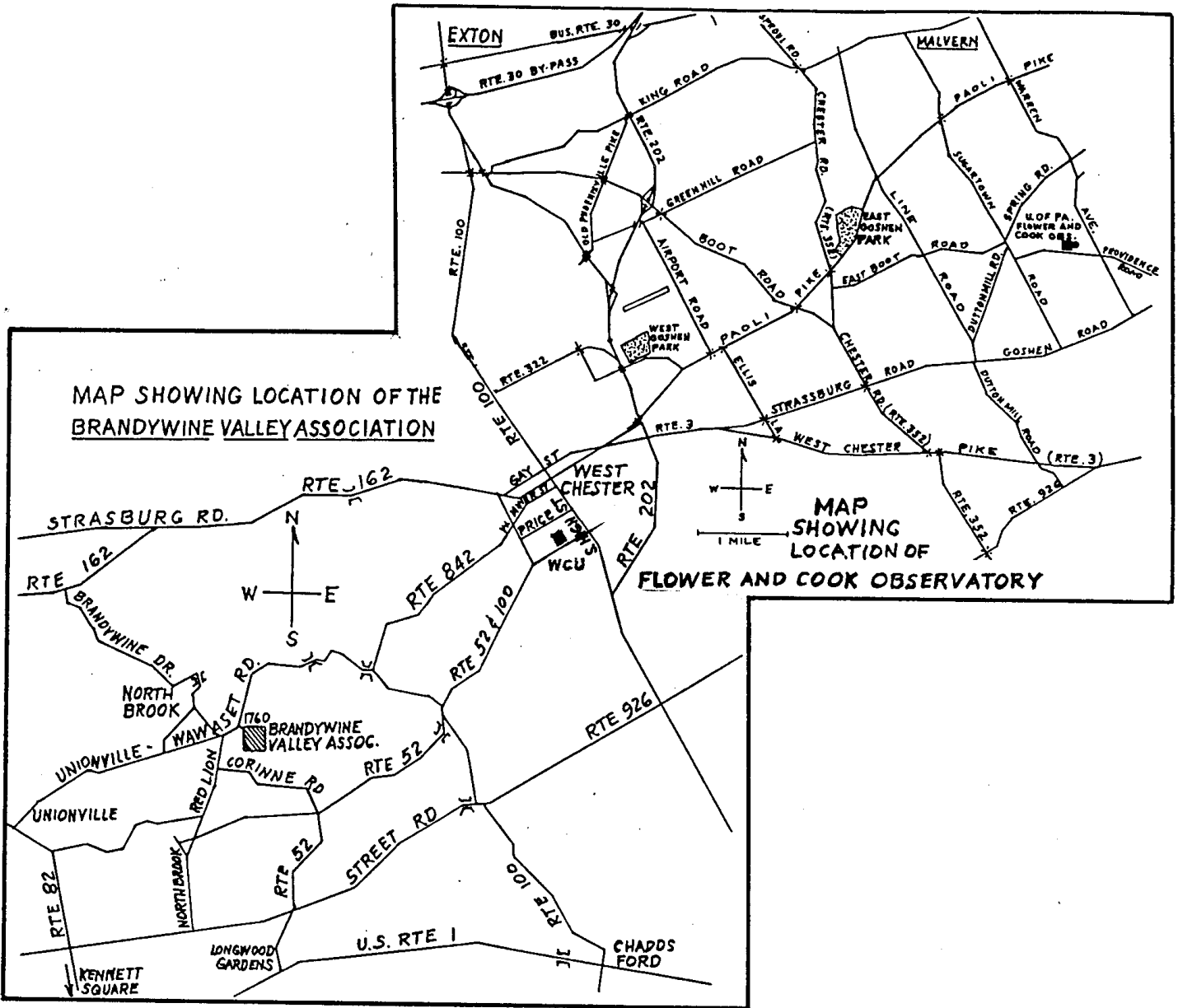
Subscriptions to this excellent periodical are available through the CCAS at a reduced price of **\$32.95** which is much less than the newsstand price of \$66.00, and also cheaper than individual subscriptions (\$42.95)! Make **sure** you make out the check to the **Chester County Astronomical Society**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

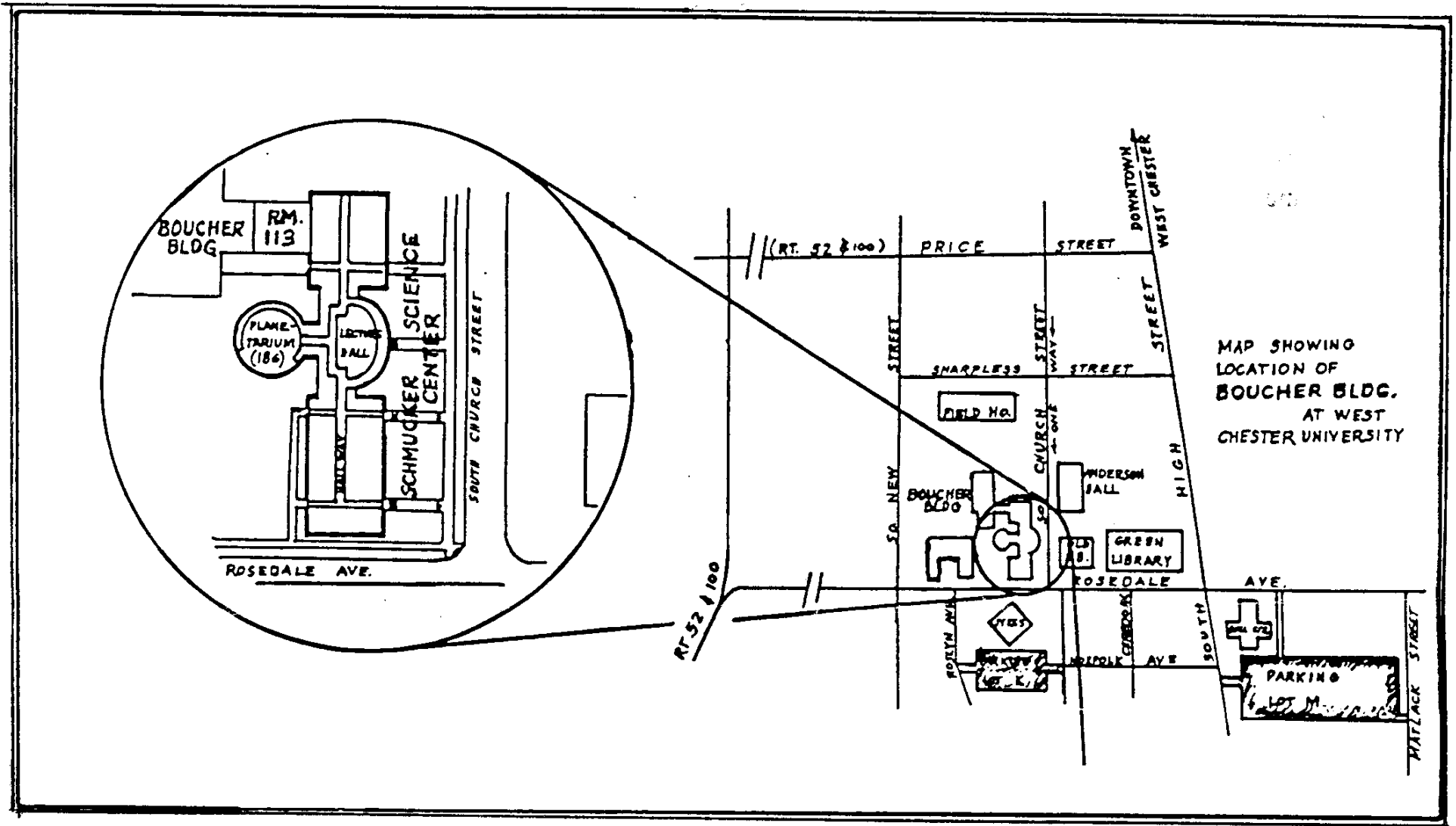
<http://www.ccas.us/>

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](mailto:lafrance@kennett.net)



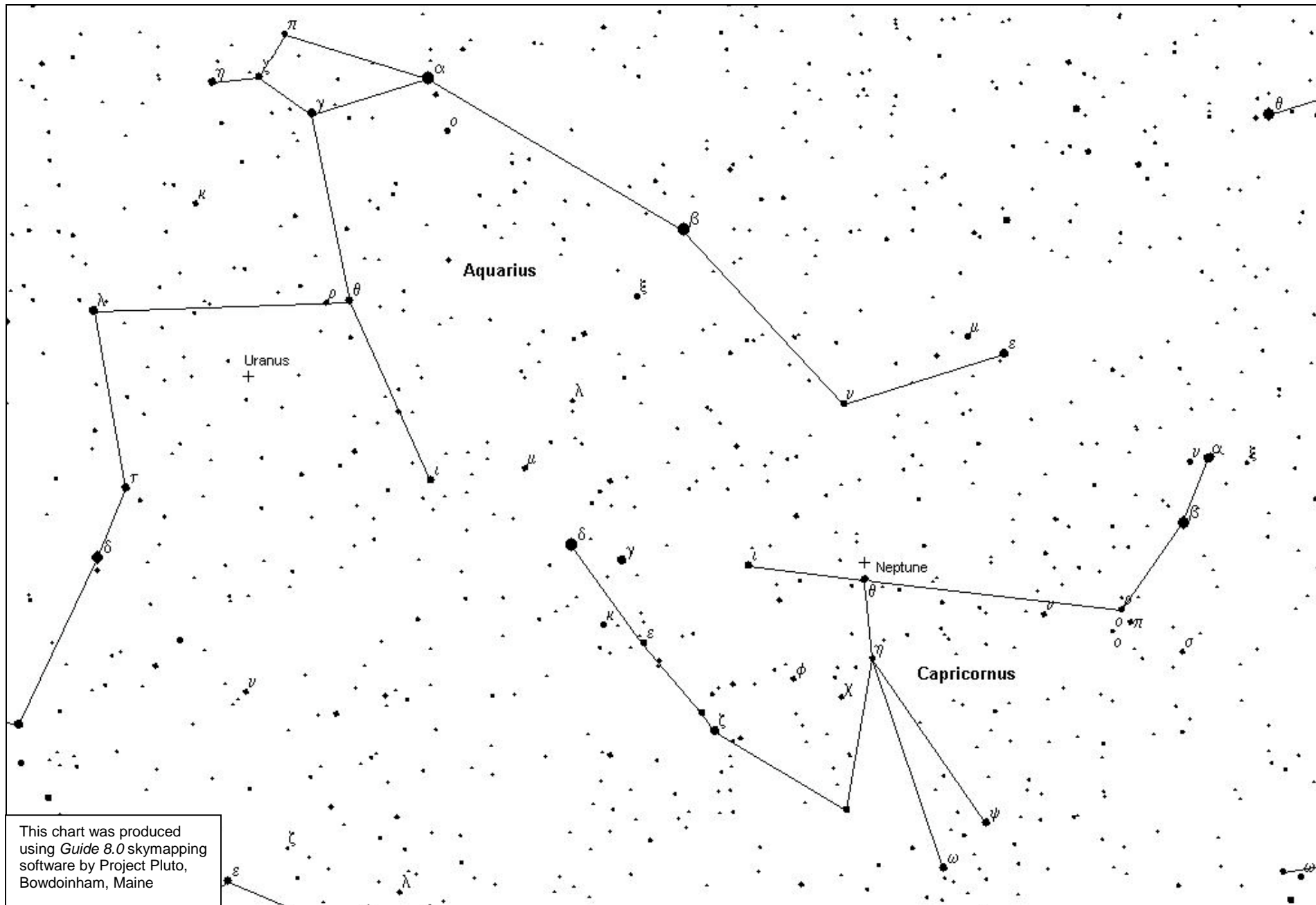
To get to the Myrick Conservation Center of the Brandywine Valley Association from West Chester, go south on High Street in West Chester past the Courthouse. At the next traffic light, turn right on Miner Street, which is also PA Rt. 842. Follow Rt. 842 for about 6 miles.

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.





Positions of Uranus and Neptune in the month of August 2004