OBSERVATIONS

APRIL 2003

(VOLUME 11, NO. 4)

A MONTHLY PUBLICATION OF THE

Chester County Astronomical Society

http://www.ccasastro.org

CCAS April Meeting—Field Trip!

DATE: **Tuesday April 8, 2003**
TIME: 7:30 p.m. EDT
PLACE: **Eastern College Observatory**
McInnis Learning Center
Eastern College
LOCATION: off King of Prussia Road
St. Davids, PA (see map)

Note the special location for our April meeting!

From Route 30 near the I-476 (Blue Route) interchange, go north on King of Prussia Road. At the intersection with Eagle Road (there's a traffic light there), turn into the main entrance of Eastern College. Drive straight back the main road until you reach a large parking lot. At the other end of the lot is McInnis Learning Center (it has two telescope domes on top of it). Park in this lot or in the one on the side of McInnis. Go inside and make your way to the top floor of the building.

The McInnis Learning Center at Eastern College houses a planetarium and an observatory. The observatory consists of two computerized 16-inch diameter Schmidt-Cassegrain telescopes, each of which is housed under an automated dome. The telescopes and the CCD (digital) cameras on them are controlled from within a climate-controlled, shirtsleeve-warm room. The observatory is used primarily by astronomy students for class assignments and professional research, but is also open to the public one night per week. The planetarium has a 20-foot diameter dome, which houses a Viewlux Model Apollo instrument and more than 50 auxiliary projectors. Astronomy classes as well as thousands of school children, and other community groups use the planetarium, each year.

The McInnis Learning Center

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CCAS April Observing Session

The next CCAS Observing Session will be on Friday April 25, 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 April 26, 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.

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CCAS Beginning Astronomy Class

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

To be rescheduled from Feb. 18: The Moon

April 1	Stars by Design
April 15	The Secret Life of Stars
May 6	Planetarium Field Trip (WCU)
May 20	Telescopes, Binoculars and Mounts

The classes will be held at the University of Pennsylvania's Flower and Cook Observatory in Willistown Township. The FCO is located just a few miles south of Malvern. It is located near the intersection of Warren Avenue and Providence Road, just west of Warren Avenue on Providence Road.

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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:

Pete LaFrance
413 Church Rd.
Avondale, PA 19311-9785

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April Skies

Daylight Savings Time Begins on April 6

"Spring ahead, Fall back." Before going to bed on Saturday April 5 remember to turn your clocks ahead by one hour. This also means that when converting Universal Time (UT) to our local time, you now subtract 4 hours from UT to get EDT. To go from EDT to UT, you add 4 hours to EDT.

Universal Time: once known as Greenwich Mean Time, this method of coordinating clocks worldwide is widely used in astronomical publications to list the time when astronomical events occur. UT is expressed using a "24 hour clock," sometimes called "military time." Midnight is 00:00, 1 a.m. is 01:00, noon is 12:00, 11 p.m. is 23:00. Once you learn the basic rule of how many hours to add/subtract for your local time zone, using Universal Time isn't very difficult. What can make it tricky for us in the United States is our use of Daylight Saving Time. When we're on DST, you use 4 hours to do the conversions (in the Eastern Time zone); when we're not on DST you use 5 hours. So from April 6 until October 26 this year, use 4 hours.

Moon Phases

New Moon	4/1	
First Quarter	4/9	
Full Moon	4/16	"Full Pink Moon"
Last Quarter	4/23	

The Native American name for this month's Full Moon was obtained from the *Farmer's Almanac* website. One of the earliest-blooming widespread native flowers in the Northeast US is called moss pink, or wild ground phlox. This is where the name came from. Another common name for this month's Full Moon was Full Fish Moon, for the annual shad runs in coastal streams. This Full Moon was also sometimes called Full Sprouting Grass Moon or the Full Egg Moon.

The Planets

Mercury is in our evening sky in the first half of April. Around April 16 will be the best time to look for it, because then it will be as far from the Sun as it will get during this appearance. It will then be setting in the west about 90 minutes after the Sun sets. After April 26, though, it will disappear again. Because the twilight sky is bright, it can sometimes be easier to find Mercury with binoculars.

Venus remains in the morning sky this month, but is now very low in the east at morning twilight.

Mars is also in the morning sky, and gets dramatically brighter in April. It is high in the southeast at dawn. In August Mars will be at its closest to us in a lifetime! In fact, precise computations indicate that this opposition will be the closest one within the whole span of recorded human history!

Jupiter is the brightest "star" in our evening skies, blazing away in the south. Seeing Jupiter in a telescope is always an impressive experience! On April 3, Jupiter will be only 1.1° degree away from the Beehive Cluster (M44) in Cancer. With a wide-angle eyepiece, you might be able to see both Jupiter and the Beehive in a telescope at the same time.

Saturn is well placed for telescopic observations as soon as night falls. Furthermore, Saturn is at perihelion in July 2003, meaning that it is the closest it has been to the Sun (and therefore us) in 29 years. Plus, its rings are tilted at their greatest angle in the last 15 years. Don't miss this show!

Uranus is in the morning sky in April, in Capricornus.

Neptune is also in the morning sky this month, in Capricornus.

Pluto is high in the south as morning twilight breaks, in Ophiuchus. You need good dark skies, at least an 8" telescope, good star charts, and lots of patience to find Pluto.

Lyrid Meteor Shower: April 22

This meteor shower features a condensed peak that lasts less than a day. The highest rates this year are predicted to occur at about 16:00 or 17:00 UT (that's 12:00 noon to 1:00 p.m. EDT), so we'll miss the best part of it. In the early morning hours of April 22, however, you may be able to see a few Lyrids.

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Calendar Notes

May 6, 2003 (Tuesday)	Beginning Astronomy Class Location: Flower & Cook Observatory 7:00 p.m. EDT
May 10, 2003 (Saturday)	**National Astronomy Day**
May 13, 2003 (Tuesday)	CCAS Meeting Location: West Chester University 7:30 p.m. EDT
May 15, 2003 (Thursday)	**Total Lunar Eclipse** convenient evening hours!
May 20, 2003 (Tuesday)	Beginning Astronomy Class Location: Flower & Cook Observatory 7:00 p.m. EDT
May 23/24, 2003 (Friday/Saturday)	CCAS Observing Session Location: BVA sunset

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NASA's Space Place

Musical Satellites

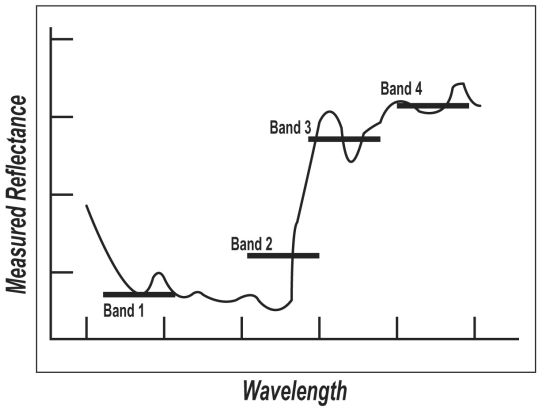
By Dr. Tony Phillips

If light were sound, then chemicals would play chords.

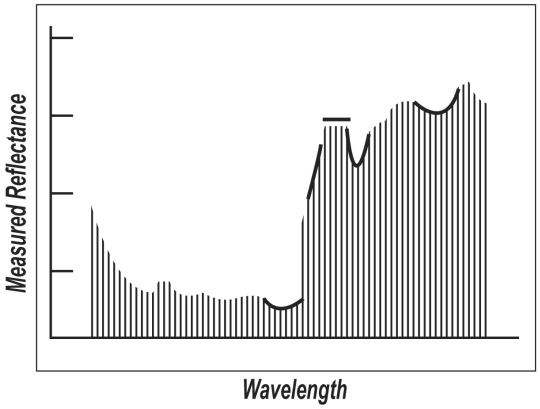
Water: C major. Cyanide: A minor. Chlorophyll: G diminished 7th. (Please note that the choice of chords here is only for the sake of illustration, and not meant to reflect the actual spectra of these chemicals.)

It's a loose metaphor, but an apt one. Musical chords are combinations of frequencies of sound (notes), while chemicals leave unique combinations of dips in the frequency spectrum of reflected light, like keys pressed on a piano. Spectrographs, machines that recognize chemicals from their "chords of light," are among the most powerful tools of modern chemistry.

Most earth-watching satellites, like the highly successful Landsat series, carry spectrographs onboard. These sensors measure the spectra of light reflected from forests, crops, cities, and lakes, yielding valuable information about our natural environment. Current satellites do this in a fairly limited way; their sensors can "hear" only a few meager notes amid the symphony of information emanating from the planet below.



Multispectral Imaging (few bands)



Hyperspectral Imaging (hundreds of bands)

The Hyperion instrument distinguishes hundreds of wavelength bands, while current Landsat instrument images only a few.

EO-1 could change that. Short for "Earth Observing 1," EO-1 is an experimental NASA satellite in orbit since 2000. It's testing out a more advanced "spectrometer in the sky"-the Hyperion hyperspectral imager. How good is it? If Landsat were "chopsticks," EO-1 would be Gershwin's "Rhapsody in Blue."

The Hyperion sensor looks at 220 frequencies in the spectrum of visible and infrared light (0.4 to 2.5 microns) reflecting off Earth's surface. Landsat, in contrast, measures only 10. Bryant Cramer, who manages the EO-1 project at the Goddard Space Flight Center, puts these numbers in perspective. "If we flew Landsat over the northeastern United States, it could readily identify a hardwood forest. But using hyperspectral techniques, you probably can . . . tell the oak trees from the maple trees."

Future earth-watching satellites may use Hyperion-like instruments to vastly improve the environmental data they provide. EO-1 is paving the way for these future missions by taking on the risk of flight-testing the sensor for the first time.

For farmers, foresters, and many others, this new remote sensing technology will surely be music to the ears.

Read about EO1 at http://eo1.gsfc.nasa.gov . Budding young astronomers can learn more at http://spaceplace.nasa.gov/eo1_1.htm

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

The *Space Place* now offers a three-minute answer to a space-related question on a toll-free phone line. Dr. Marc Rayman, Deep Space 1 Manager (and an amateur astronomer himself), answers a question about space or space exploration. Call (866) 575-6178 to hear the monthly message.

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Newsletter Deadlines

These are the deadlines for submitting material for publication in the newsletter, through the June 2003 issue.

Issue	Deadline
May 2003	04/25/2003
June 2003	05/23/2003

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Join the Fight for Dark Skies!

You can help fight light pollution, conserve energy, and save the night sky for everyone to use and enjoy. Join the nonprofit International Dark-Sky Association (IDA) today. Individual memberships start at $30.00 for one year. Send to:

International Dark-Sky Association
3225 N. First Avenue
Tucson, AZ 85719-2103

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Greetings from Tucson!

The weather has been a bit better here than in PA. I know that for a fact because I visited for a couple of days in January and nearly froze. It has been in the 80's here with clear skies.

I have included an image of the moon and M-42 taken on Jan 8 early in the evening. The images were from my 5" AstroPhysics refractor with my SBIG ST-10ME Camera.

I haven't done much imaging this month because I have been enjoying the views through my Obsession 20" reflector. Hope to do some imaging over the next couple of weeks while the moon is favorable.

Stay warm and great viewing.

Regards,

Kent Patterson

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Astronomus

A Journal for Younger Astronomers

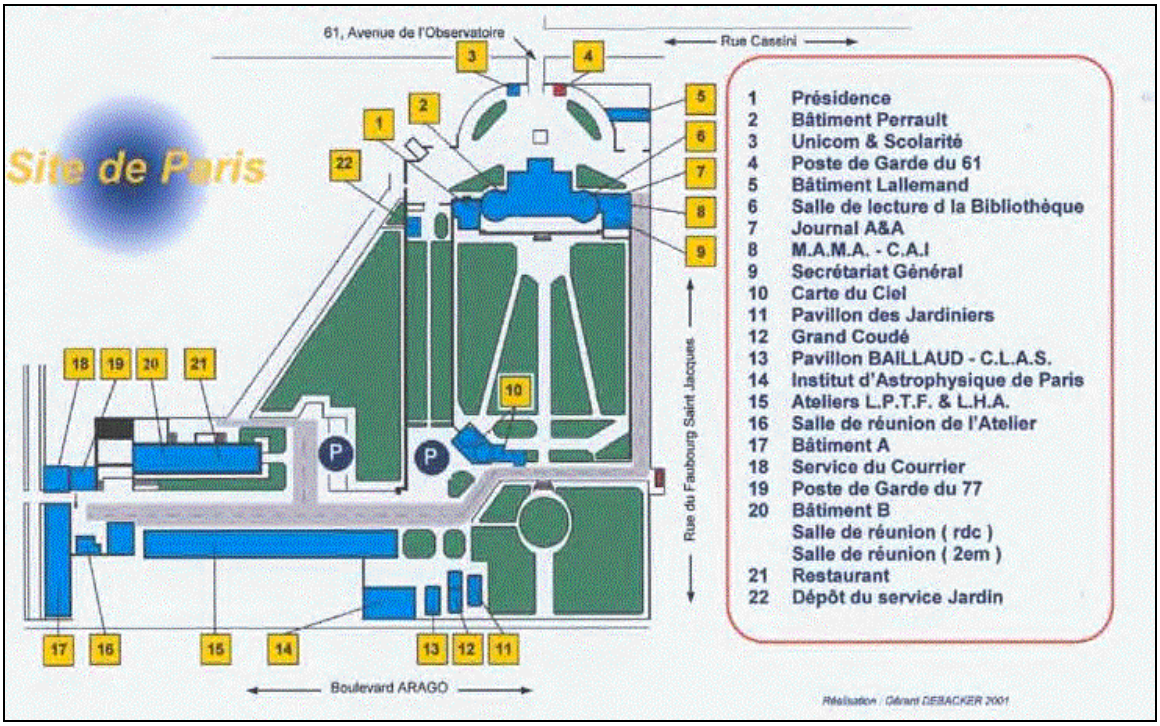
By Bob Popovich

"Astronomy From the Other Side"

I should say at the outset that this article has nothing to do with any out-of- body experience or alien visitation. Having said that, here we go…

To be honest with you, completion of one month's article often finds me in want of a topic for the succeeding article. So I challenge myself. I write down a title for the next article without actually drafting an outline. It's sort of like playing Jeopardy- given an "answer" (a title); I need to phrase the "question" (the story itself). This month's article is a case in point…

Having completed the March contribution to our newsletter, I thought that the April story might be something relating to a visit to Paris that Betsy and I were planning during the first week of March. Specifically, a tour the world's oldest functioning observatory (built in 1667) might just be the ticket. But as it turned out, astronomy from the other side was far more fruitful than merely a visit to a 336 year-old observatory. And not only that, what was to actually transpire turned my thoughts back to home and to the Society. Astronomy in France was to extend considerably beyond the grounds of the Paris Observatory.



Map of the area in Paris described in the text.

We were staying in a small hotel in the Montparnasse district. Once encompassing the "orbits" of such luminaries as Picasso and Hemingway, it was also the home of the Paris Observatory. On Saturday, March 2nd we started our day with the obligatory espresso and croissant and then headed over to the observatory. Starting down Huyghens Street, we crossed over a boulevard to Observatory Avenue. Strolling past the Observatory Café, the Observatory Bistro and the Observatory Post Office, we came to the imposing wrought iron gate and observatory entrance located at the avenue's intersection with Cassini Street.

There, guarding the north entrance, stood a larger-than-life statue of one of the observatory's most illustrious astronomers—Urbaine LeVerrier[1], the discoverer of Neptune. At this point, I was really psyched about touring the observatory. The blue historical marker served only to heighten my interest: the observatory was once home to not only LeVerrier, but Cassini, Foucault and Delambre as well.

The sign on the gate, however, took the wind out of my sails—for the moment. In my mediocre French, I understood it to say that only 1 tour per month was offered at 2:30 PM on the first Saturday of each month (which was that very day) but that advance reservations in writing were required. (Either that's what it said, or it was a recipe for crepes.)

Though I was not destined to pass through the gates, my view of astronomy from the other side was just beginning to come into focus. The names of these astronomers of the past tugged at my mind repeatedly over the next few days. All the stories of their lives and work that I had read over and over as a child were alive once more. And just to show that the French honor even those who never lived in France, near a statue of Washington in United States Square, are found streets named after Galileo, Newton and Kepler.

Statue of Urbaine LeVerrier, the discoverer of Neptune

Window at Chartres Cathedral

Rounding things out, the Cathedral at Chartres had a stained glass window and stone carvings that included the constellations of the zodiac. Now the church would never have allowed *astrological* symbols, but it would have allowed figures that symbolized the glory of the heavens and the passage of time. We were told that the church was constructed in large part by donations from nobility and various brotherhoods (guilds). I can only surmise that one of these brotherhoods may have been faculty of the university.

Pondering the work of the craftsmen who built the 13th century cathedral of Chartres along with the monumental achievements of the astronomers honored on the streets of Paris, I found myself not only intellectually satisfied, but inspired as well.

Inspired to ask you to consider this: why don't we have a street or two with an astronomical name? Aside from Saturn, Taurus and Aries, we hardly ever encounter anything celestial on the streets of this area. Philadelphia has a lovely square named in honor of David Rittenhouse, but why not have a memorial designation in front of the Fels Planetarium or one of the observatories in the area? And such a designation should certainly include educational materials that would instruct local school children about the person and their contribution to science. This is a project tailor-made for several societies to do together.

What do you think?

Next time: "Field Trip!"

[1] LeVerrier's impressive tomb was recently restored in part by donations from the school children of his hometown.

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Observing Notes for April

by Ed Lurcott

If any of you have never seen the planet Mercury, April presents the best opportunity to see it this year. Beginning with the first week of April Mercury can be spotted low in the west about 30 minutes after sunset. You will want to find a location with a clear view of the western horizon. Mercury will be at magnitude –1.1 and appear in a gibbous phase when viewed through a telescope. During the second week it will have faded to +0.2 magnitude but will be easier to see for it will be at its greatest eastern elongation (20°) from the Sun. This allows us an hour and three-quarters to watch Mercury before it sets.

As Mercury sinks in between the Earth and the Sun it is on its way to a transit across the disc of the Sun. This transit favors Asian and European observers. For us on the northeast coast of North America the Sun will rise on the morning of May 7th with the transit already in progress. Only 33 minutes will remain before Mercury moves off the west-northwest limb of the Sun.

Minor planet Vesta (4) is now an easy binocular object in Virgo at magnitude 5.9 (on April 1st) to 6.3 (on April 30th). In the evening of March 23 at 9:30 p.m. I was able to locate Vesta with the help of the finder chart included in the March issue of *Observations*. With light pollution and high cirrus clouds I had to use my 6-inch telescope to find the star pattern between Beta (β) Leonis and Delta (δ)

Virginis and thus find Vesta. It was about the same brightness as 30 and 33 Virginis and formed an equilateral triangle with them. The clouds moved off and I could now see Vesta easily with my old 7x50 binoculars. Two nights later (March 25th) at 9:15 p.m. I was able to locate Vesta with binoculars only. It had moved about one-half degree northwestward since my last observation.

Vesta will remain an easy object for binoculars for another three months, fading to magnitude 7.3 by the end of June.

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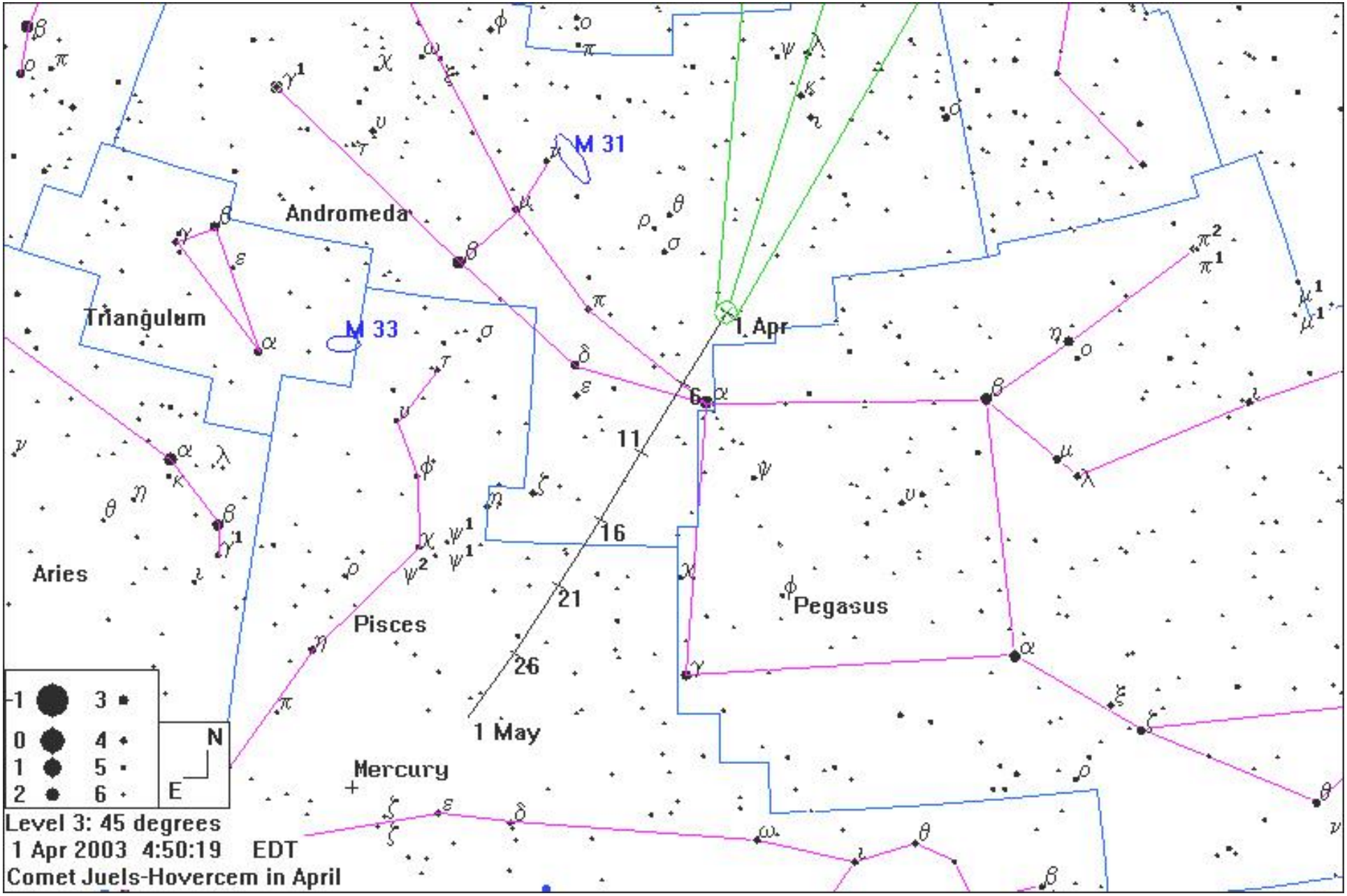
Cartoon by Nicholas La Para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CCAS Information Directory

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 **jim.anderson@mckesson.com**

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:

jim.anderson@mckesson.com

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: Pete LaFrance
(610) 268-2616

Secretary: Doug Liberati
(610) 827-2149

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 our Treasurer, Pete LaFrance. Mail to:

Pete LaFrance
413 Church Rd.
Avondale, PA 19311-9785

Sky & Telescope Magazine Group Rates

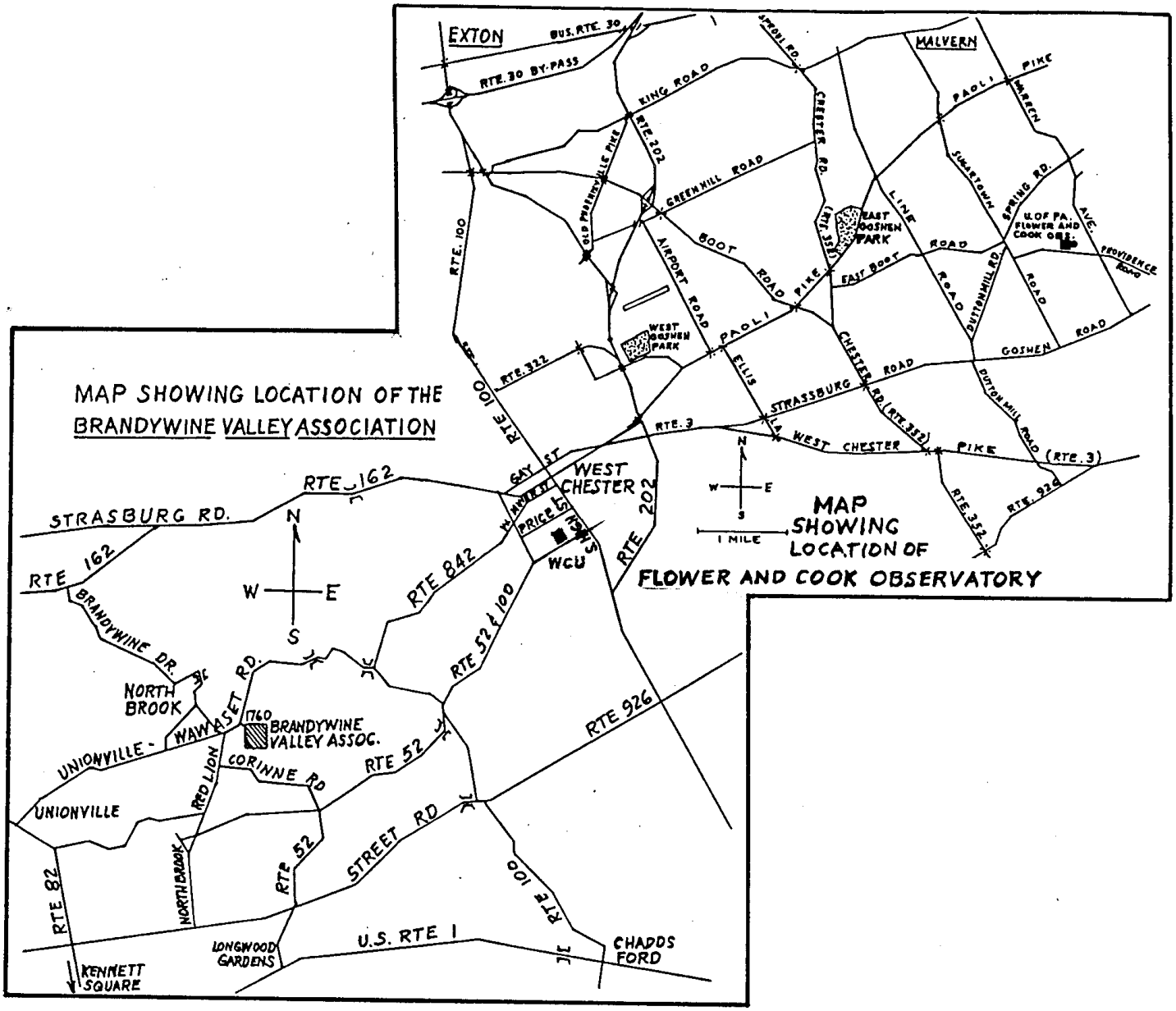
Subscriptions to this excellent periodical are available through the CCAS at a reduced price of **$29.95** which is much less than the newsstand price of $54.00, and also cheaper than individual subscriptions ($39.95)! Make out a check to the Chester County Astronomical Society, note that it's for *Sky & Telescope*, and mail to Pete LaFrance. Or you can bring it to the next Society meeting and give it to Pete 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:

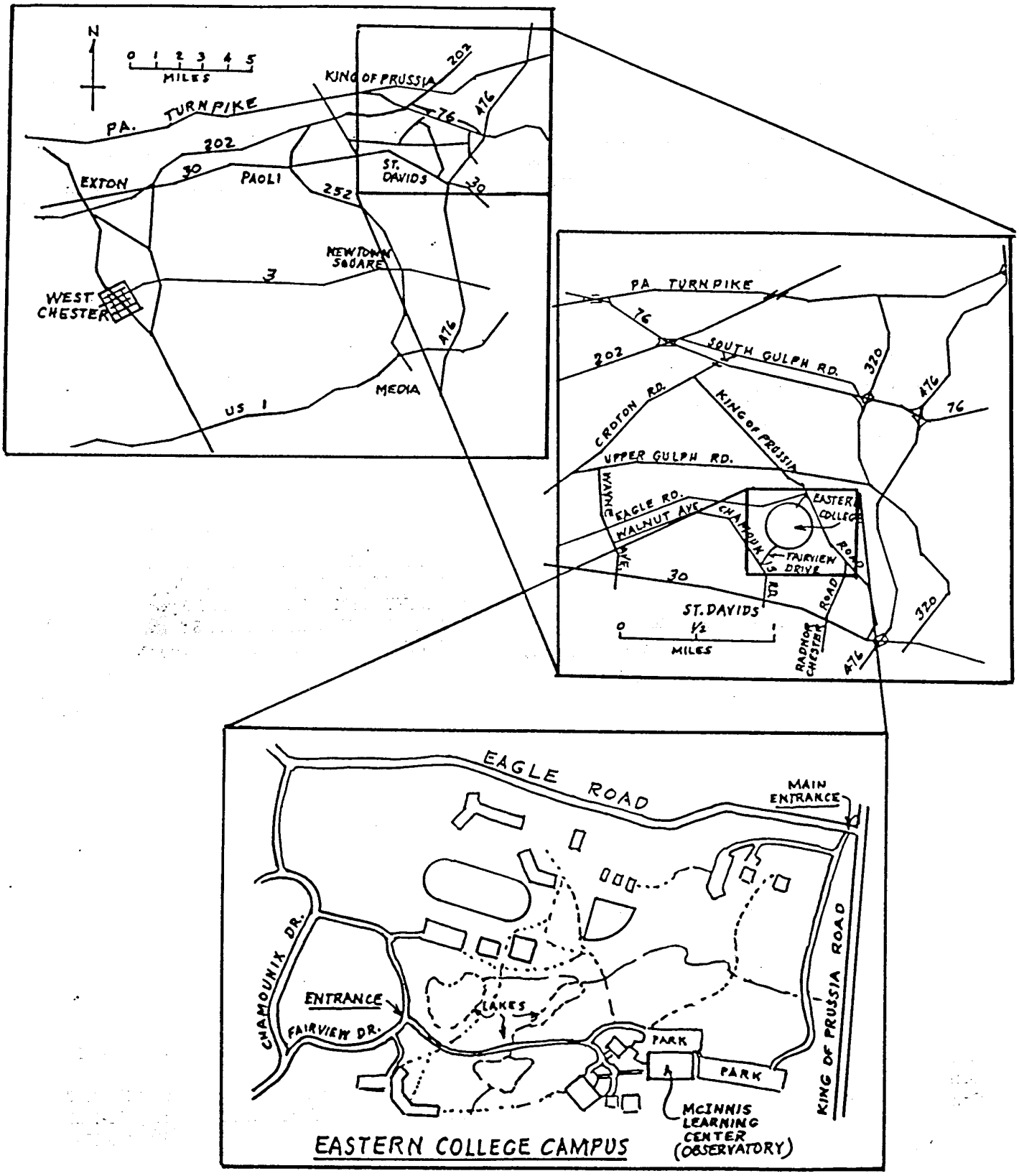
http://www.ccasastro.org/

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).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KING of PRUSSIA
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WALNUT AVE
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McINNIS LEARNING CENTER (OBSERVATORY)
EASTERN COLLEGE CAMPUS