



OBSERVATIONS



A MONTHLY PUBLICATION OF THE
Chester County Astronomical Society

★ *President:* Mike Turco
★ *Treasurer:* Pete LaFrance

APRIL 2002
(VOLUME 10, NO. 4)

★ *Vice President:* Steve Limeburner
★ *Secretary:* Doug Liberati

http://members.tripod.com/~ccas_2/ccas.html

CCAS April Meeting

DATE: Tuesday April 9, 2002
TIME: 7:30 p.m. EDT
PLACE: Department of Geology and Astronomy Lecture Room (Room 113 – Boucher Building) West Chester University
LOCATION: South Church Street West Chester, PA (see map on a later page)

CCAS member Jeff Goldader, professor at the University of Pennsylvania, will deliver a talk entitled "Far-Infrared Galaxies in the Far Ultraviolet," about his research work with the Hubble Space Telescope.

Using the Hubble Space Telescope to observe galaxies at both infrared and ultraviolet frequencies (frequencies of light beyond the visible spectrum), high-resolution images have been obtained which give us new insight into the properties of galaxies. Steve Limeburner has seen the images already, and reports they are quite interesting. Jeff's work is scheduled to be published in the April 1, 2002 edition of the *Astrophysical Journal*.

In May, CCAS member Nicholas La Para will discuss "basic optics without math," an explanation of how telescopes work and the different types of telescopes.



CCAS April Observing Session

The next CCAS Observing Session will be on Friday April 12, 2002 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 13, 2002. 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 'scope. CCAS Observing Sessions are always free of charge. Children are always welcome as long as an adult accompanies them.

A map showing the location of the BVA is included on a later page.



National Astronomy Day is Saturday April 20

We have made arrangements for the CCAS to have an exhibit at the Exton Square Mall for National Astronomy Day. We plan to have tables with displays and telescopes inside, and solar observing outside (if it's clear that day). **We need people to help man the tables and the outside solar telescope!** We will be there from 10:00 a.m. until 6:00 p.m. You don't need to stay the whole 8 hours. Even if you can only be there for an hour that will be a big help. That will allow us to give people meal breaks or rest breaks. Also, any ideas you think of for enhancing our display that day are most welcome. We usually start arriving at the Mall between 9:00 and 10:00 that morning to set up. We will be in the "North Court," which is outside one of the entrances to Strawbridge's, between the Food Court and Sears. There is an Au Bon Pain Deli right next to this location (so you don't have to fight the crowds in the Food Court at lunchtime...)

Please contact Ed Lurcott (610-436-0387) to help us stage a great Astronomy Day exhibit! And, believe it or not, it really is a lot of fun!



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 will be 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:

April 2	Stars
April 16	Constellations
May 7	Planetarium Field Trip (WCU)
May 21	Telescopes and Binoculars

The classes will be held at the 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 0.3 miles west of Warren Avenue on Providence Road. A map is included on a later page.



Newsletter Deadlines

<u>Issue</u>	<u>Deadline</u>
May 2002	04/26/2002
June 2002	05/24/2002

April Skies

Daylight Saving Time: April 7

“Spring ahead, Fall back.” Before going to bed on Saturday April 6 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 7 until October 27 this year, use 4 hours.

Moon Phases

Last Quarter	04/04
New Moon	04/12
First Quarter	04/20
Full Moon	04/26

The Planets

Starting this month, the five “naked eye” planets (Mercury, Venus, Mars, Jupiter, and Saturn) start gathering together in our evening sky. The closest groupings will be in May, but the show in April just keeps getting better as the planets move ever closer to each other. Starting on April 14, the crescent Moon will join the show for four nights, moving higher on the chain of planets each night.

Mercury appears on the stage in the western sky after sundown around mid-month. At first it will be hard to find, but each day it gets further from the Sun and higher in the sky. By April 30 it is visible for about 1.5 hours after sunset, and is quite close to much brighter Venus. This will be the best chance to get a decent telescopic look at Mercury this year. In the “lineup of planets” this month, Mercury will be the one closest to the horizon (lowest in the sky).

Venus is second in line, although for the first half of April it will be the lowest (until Mercury shows up). It will be the brightest of the five planets, and the first one to “pop out” of the twilight each night.

Mars is next in our evening sky lineup. We are too far away from Mars to see any details in a telescope. It is the faintest of the five planets, and will remain in the middle position throughout April. By April 30 it will be getting very close to Saturn.

Jupiter is still in Gemini, outshining every other star in that part of the night sky. It is very high in the west as darkness falls. You can get a good look at Jupiter in a telescope now as soon as it’s dark. Jupiter will be the “highest” of the planets all month (appropriate for the “king of planets”).

Saturn is now high in the west (in Taurus) at nightfall, high enough for good telescopic viewing. Saturn is a glorious sight, with the rings tipped fully open to our view. Saturn is the second “highest” of our five evening planets, in between Jupiter and Mars.

Uranus and Neptune are both in Capricornus, and are getting high enough in the morning sky before sunrise to make decent telescopic observations.

Pluto is still in Ophiuchus in 2002, and in April is getting high in the southern sky by sunrise. You’d have to be up pretty late (or early, depending on how you look at it) to catch Pluto.

Lyrid Meteor Shower: April 22

This annual meteor shower peaks on the night of April 22. The gibbous Moon will wash out a lot of the fainter meteors, but between 4:00 a.m. (when the Moon sets) and sunrise should be a good time to see this shower this year. The Lyrids typically produce 10 to 20 meteors per hour, but have been known to provide occasional bursts of much higher rates. So far these bursts have eluded prediction efforts completely, so expect 10 to 20. The Lyrids have been known and observed as a regular shower for over 2,000 years.

Want to be a certified lunatic?

Yes, your friends and relatives have already concluded you’re crazy because you spend so much time outside at night staring up at the sky when sensible people are in their snug warm homes watching the endless drivel on TV. Did you know you can get an actual official certificate from a national organization **proving** that you’re a lunatic? One of the Astronomical League’s many observing programs is the “Lunar Club.” This is one of the easiest of the observing programs to work on: finding the Moon is never hard! And it’s visible year round. Well, except for the few days each month when it’s too close to the Sun to be seen. To earn the award, there is a list of 100 things on the Moon you have to find. You do not have to draw anything. You do not have to “pass a test.” All you have to do is find the object on your own, to your satisfaction that you’re seeing the correct object, and then write the date and time next to the object on the list. When you’ve found all 100 objects, you give your log to Lunar Club Coordinator Ed Lurcott for “review,” and if it looks like you wrote down reasonable dates and times for each object, you get the award. It’s that easy! What are you waiting for? Call now, operators are on duty... Seriously, there will be a gathering of anyone interested in this observing program at the April CCAS meeting, after the main presentation. Look for certified lunatic Jim Anderson, who will have more information for you about this program.



Help Needed at FCO: Friday April 12, 2002

There will be a group of Tiger Cubs visiting the FCO on April 12, and help is needed from CCAS members and telescopes to provide a good star night for them. Call Deb Goldader if you can help. Thanks. Deb’s number is 610-407-9213.



Calendar Notes

May 7, 2002
(Tuesday) Beginning Astronomy Class
Location: Flower & Cook Observatory
7:00 p.m. EDT

May 10/11, 2002
(Friday/Saturday) CCAS Observing Session
Location: BVA
sunset

May 14, 2002
(Tuesday) CCAS Meeting
Location: West Chester University
7:30 p.m. EDT

May 21, 2002
(Tuesday) Beginning Astronomy Class
Location: Flower & Cook Observatory
7:00 p.m. EDT

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Book Offer

Author Jim Mullaney has spoken to the CCAS on several occasions about deep-sky observing (most recently on double and multiple stars, at our October 1999 meeting).

The second printing of Jim's self-published book *Celestial Harvest: 300-Plus Showpieces of the Heavens for Telescope Viewing & Contemplation* is almost sold out. Jim is selling the remaining copies at a discounted price of \$23 each, including Priority Mail shipping. These are spiral-bound books, with protective plastic covers front and back. Gary Seronik, an editor at *Sky & Telescope*, recently stated that it will become "even more of a collector's item than it already is" after they are all gone. Anyone interested in obtaining a copy should please send a check or money order made out to Jim Mullaney at:

P.O. Box 1146
Exton, PA 19341

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Abrams Sky Calendar for April 2002

Included with this month's newsletter is a copy of the one-page *Sky Calendar* for the month of April. This fine naked eye and binocular guide to the night sky is published monthly by the Abrams Planetarium at Michigan State University. They have kindly allowed us to make copies for free distribution in connection with National Astronomy Day on April 20. We will be passing out copies at our NAD display at the Exton Square Mall. Since you are a member of the CCAS, you get your copy early. Happy National Astronomy Day!

If you would like to get your own subscription to the *Sky Calendar*, the needed information is included right on the calendar page. It's only \$10.00 a year. One thing that's not clear from the calendar page is that checks or money orders should be made payable to Michigan State University.

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Welcome New Members!

Quite a few people have joined the Society since we last welcomed new members in the October 2001 issue of *Observations*. Obviously, it's high time we did it again! It's a long list; here's hoping I don't miss anybody...

The CCAS warmly welcomes:

Paul Bigas of Atglen,
John Kovacs of West Chester,
Carolyn Lachowicz and family of Media,
John Pastore and family of West Chester,
Sharyn Rocklage of West Chester,
Harry Schultz of Ridley Park,
Michael Sullivan of Glen Mills,
Fred Swager of Glen Mills,
Michael Tempone of Upper Darby,
Richard Sherwin of Malvern,
Tammy Mayer of West Chester,
Keary Larson of West Chester,
and Dave Fehr of Lionville.

Hello and clear skies to all!

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Thinking of moving?

By Jim Anderson

If you're thinking of moving, you may want to consider moving to West Caln Township in Chester County. The township's Comprehensive Plan calls for keeping the township rural in nature. As such, there are not a lot of large developments in the township. There are also a number of large Amish farms within the township, and the Amish don't use electricity, so their farms are **dark** at night. There are some non-Amish farms as well, but of course even they don't light up their fields at night. Most of my neighbors also leave their outdoor lights off at night, so it can be quite dark at night. For example, on the night of March 5 we enjoyed clear skies for the Beginning Astronomy class at the Flower & Cook Observatory. As we pointed out the constellations to the students that night, someone mentioned that in between Leo and Gemini was the faint constellation of Cancer, which has a large star cluster in it that you can see with the naked eye under dark skies. When I got home that night, I paused for a while in my front yard, right along PA Route 340, to look around the sky a bit. To my surprise (I hadn't looked for it before; we only moved here 9 months ago) I could clearly see a hazy patch of light in between Leo and Gemini: the Beehive Cluster in Cancer! Why am I "promoting" the township? No, I'm not getting kickbacks from real estate agents. I was simply thinking the other day when I saw a "sale" sign on a house that it would be nice if some of the houses for sale in West Caln Township were bought by other amateur astronomers: people who would also want to keep the skies dark at night...

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Astronomus: 12

A Journal for Young Astronomers

By Bob Popovich

“Surf & Turf”

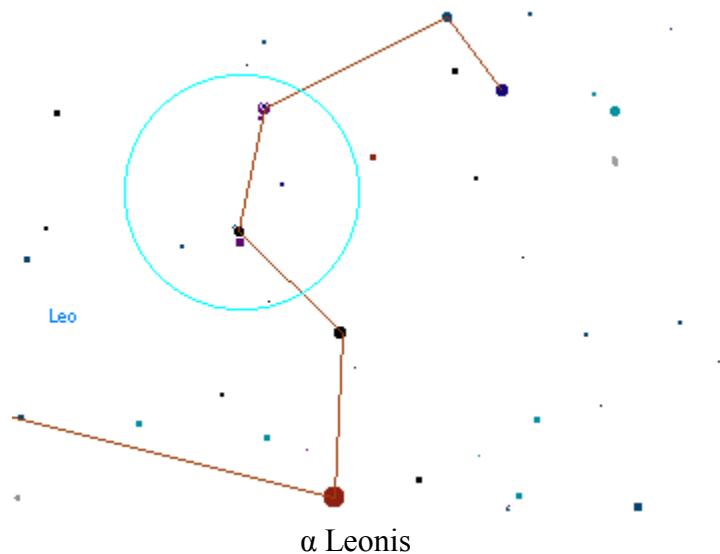
Let’s go out to a favorite local nightspot for some surf & turf. Hold on though, we need to put down our knife and fork because we’ll need to have our binoculars for this feast. “I love astronomy as much as anyone, but how do we eat with binoculars?” Well, our feast this month is food for the mind and the spirit, not the body. The evening’s fare features two zodiac constellations of the spring: Leo the lion and Cancer the Crab. But if you insist, and don’t mind the muffled snickers of your fellow astronomers, you can still wear the lobster bib.

While we don’t have to prepare the feast, we do need to organize ourselves so we can enjoy it. First of all, if it’s past April 6, our “reservations” will need to be an hour later because of daylight savings time. Second, since spring dew can be very heavy, let’s be sure to dress well and look for high ground. And last, let’s not forget to allow plenty of time for our eyes to become dark-adapted.

A lion and a crab might seem as unrelated as can be but like any great meal, these “ingredients” can be blended together beautifully. Ready? How about an appetizer to start off? Facing south, look nearly overhead (and a bit to the west). Can you find last month’s friends—Gemini the twins? Place Pollux’s foot in your binocular field of view (FOV) and move about six FOVs to the east (left). That’ll put you right at a bright blue-white star that is the heart of the lion—Regulus (α Leonis). Notice the sickle (or backward “?”) rising up from Regulus. That represents his head and mane. Tasty, isn’t it? And if we look to the left a bit we’ll see a neat triangle that represents his hindquarters. What do you think—a lion or a sphinx? Either way, it’s delightful.

How about some crab for the next course? Looking about half way between Regulus and Pollux we’ll see (if our eyes are dark adapted) five rather dim stars making the shape of an upside down “Y.” That’s Cancer the crab. Unlike Leo, imagining the animal that this pattern represents requires a heaping portion of imagination. But let’s try anyway—it’s fun.

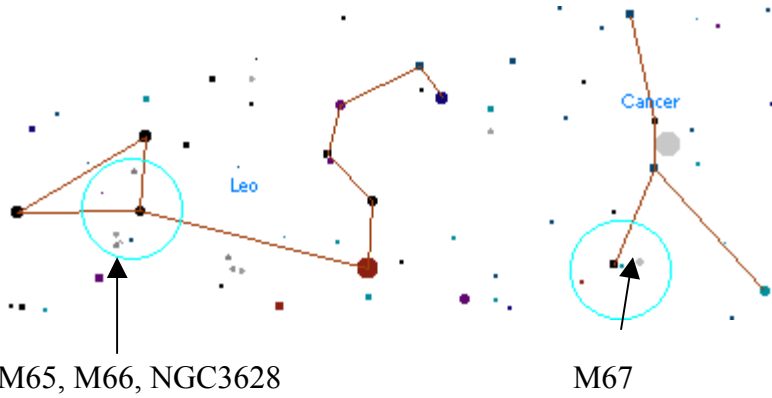
I said this was a feast; so here comes the next course. Going back to Leo’s sickle, aim your binoculars as shown below. Look at the stars here—a double and a triple. And notice the colors! Delicious, aren’t they? Clearly the work of a master chef. Send me an e-mail at b2n2@aol.com and let me know what colors you see.



How about some entertainment? Looking to the east after 10:00 PM we see Hercules step on our celestial stage. He’s got a story to tell. Apparently, Hercules encountered the Nemean lion as his first labor. The lion’s skin was impenetrable so Hercules killed it by strangling the beast. Then, using the lion’s claws, he skinned the lion and took the hide as protection. On his second labor, Juno sent a crab to harass him. Hercules dispatched that crab but Juno placed it in the heavens in gratitude for its service. So there they both are, two unsuccessful challengers to the mighty Hercules brought together for our dining pleasure this evening.

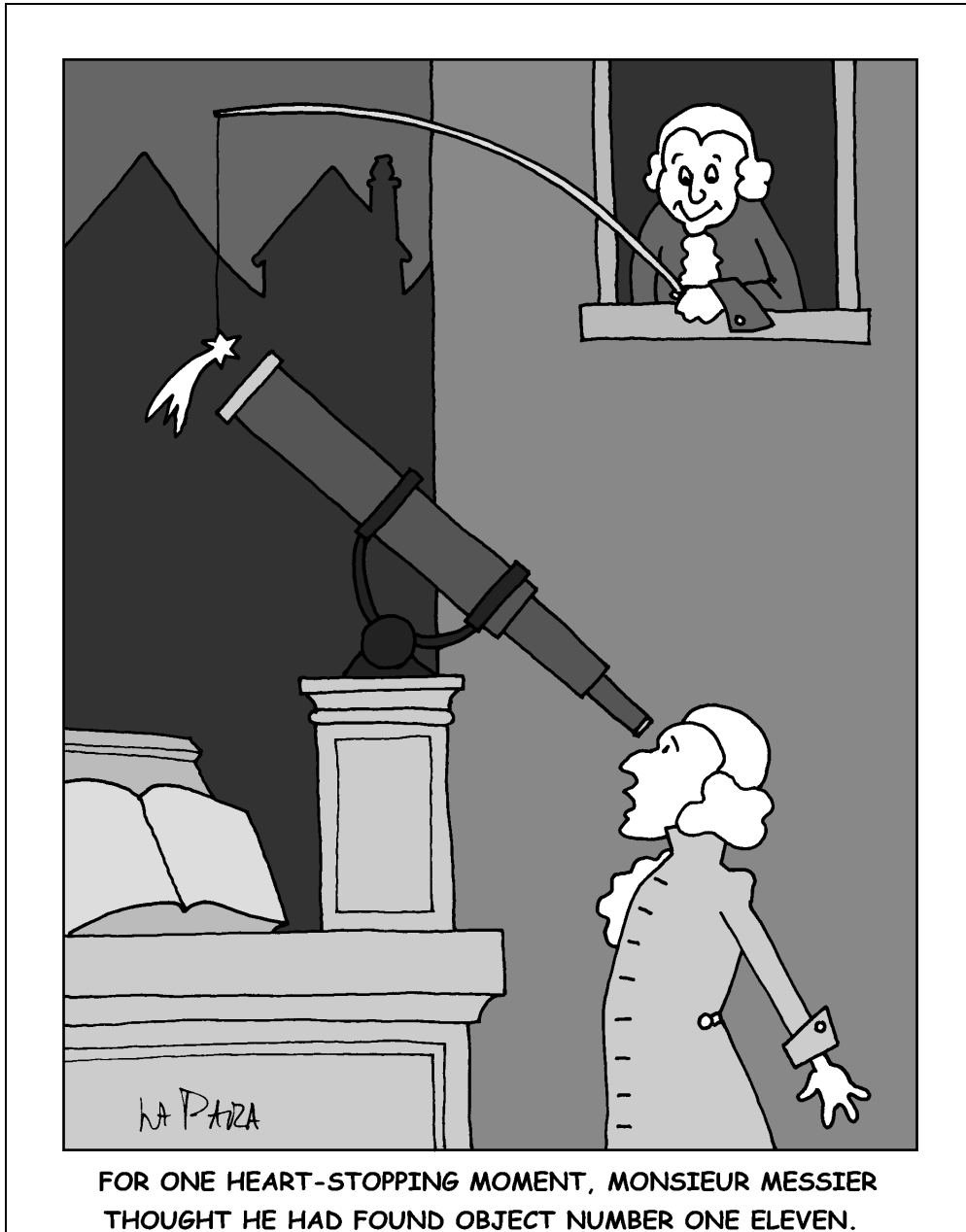
For the main course we return to Cancer. If we aim our binoculars a bit above the star that marks the fork in the “Y” we’ll see item number 44 in Mr. Messier’s catalog. This spectacular cluster is known by two names—*Praesepe* in Greek and The Beehive Cluster in English. Savor this delicacy for as long as you can. Doesn’t it look like a swarm of bees around a hive? Do you hear the music “Flight of the Bumblebee” playing in your head? And if the sky is especially clear, I think we might even be fortunate to see an orange queen in the midst of the swarm of stars. A satisfying meal without a doubt.

If we can squeeze in some dessert, we have two choices—M67 at the lower left of the “Y” of Cancer or a cluster of three galaxies (M65, M66 and NGC3628) in Leo. These treats test the limits of our binoculars but let’s be patient—it’s worth it.



I don't know about you, but this was a truly memorable meal. And the best thing is that we can do it all over again night after night because this surf & turf is calorie-free!

Next time: "Big Deal"



FOR ONE HEART-STOPPING MOMENT, MONSIEUR MESSIER THOUGHT HE HAD FOUND OBJECT NUMBER ONE ELEVEN.

Cartoon by Nicholas La Para

CCAS Information Directory

CCAS Lending Telescope

Contact Kathy Buczynski to make arrangements to borrow the Society's lending telescope. CCAS members can borrow the 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 email 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

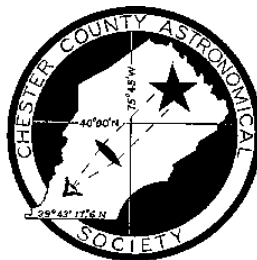
Secretary: Doug Liberati
(610) 827-2149

**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



CCAS Membership Information

The present membership rates are as follows:

REGULAR MEMBER.....\$20/year
SENIOR MEMBER.....\$10/year
STUDENT MEMBER.....\$ 5/year
JUNIOR MEMBER.....\$ 5/year
FAMILY MEMBER.....\$ 30/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

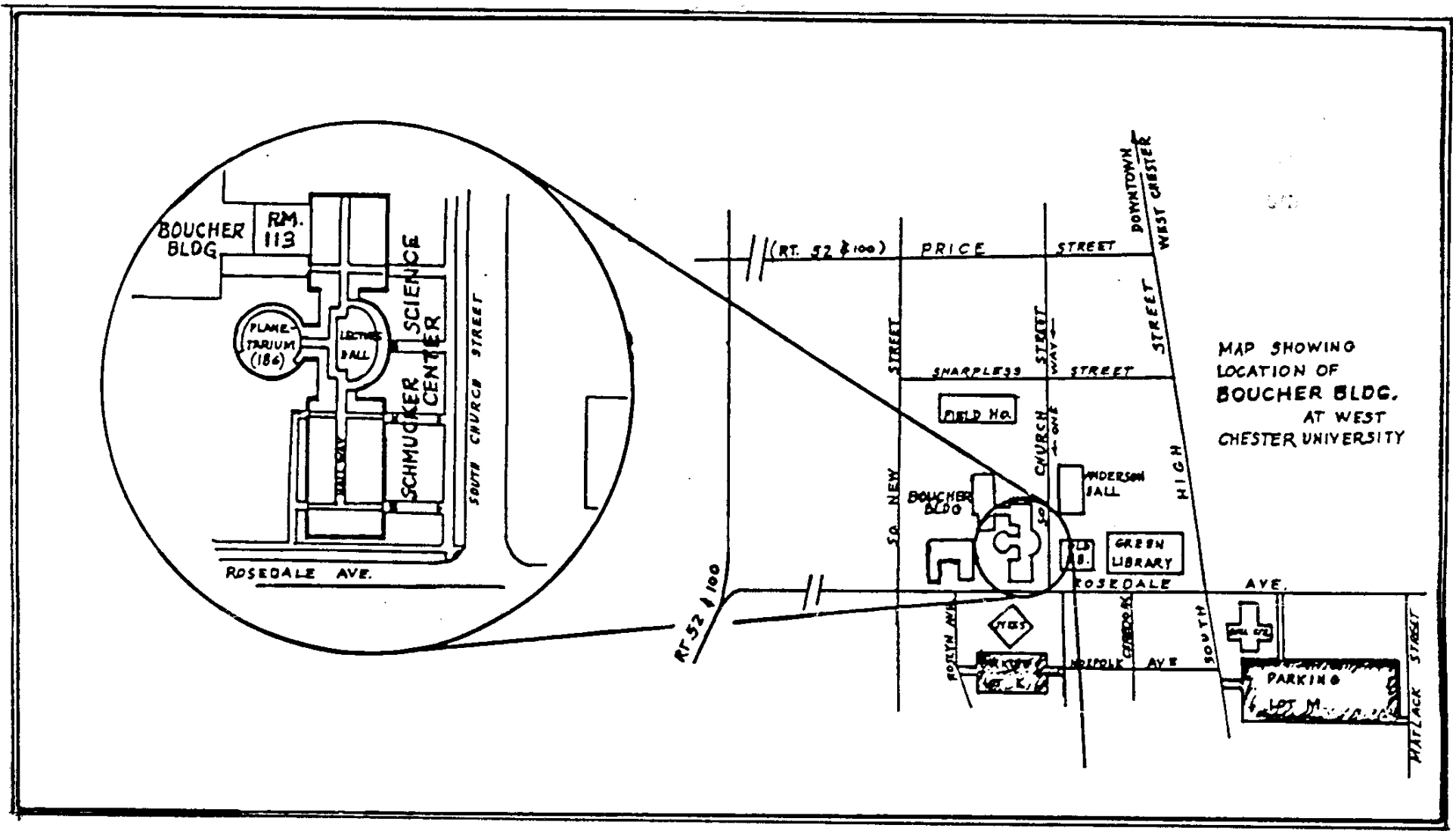
Sky & Telescope Magazine Group Rates

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.

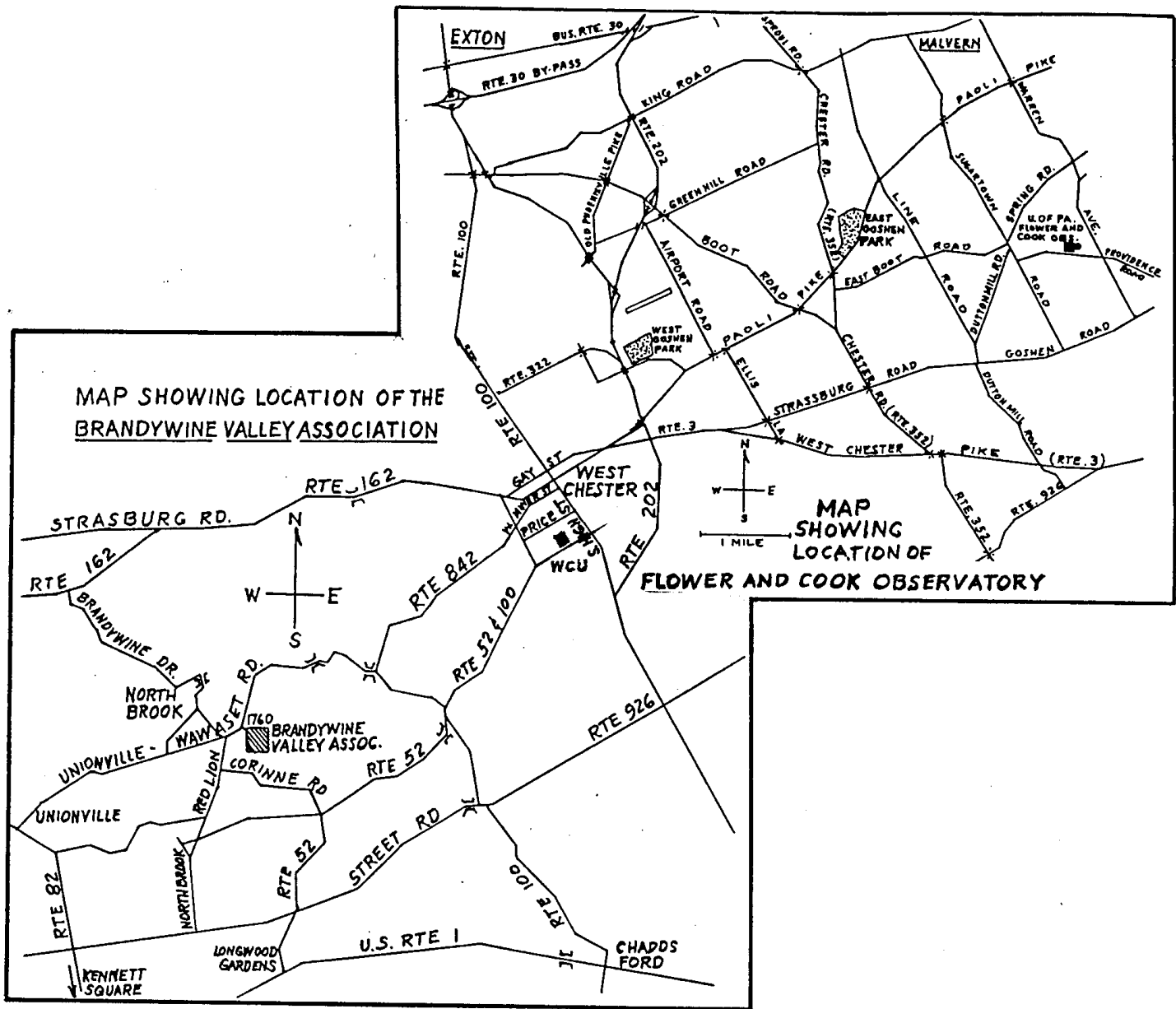
CCAS Website

Pete LaFrance is the Society's Webmaster. You can check our Website at:
http://members.tripod.com/~ccas_2/ccas.html

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 them to lafrance@chesco.com



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.



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).

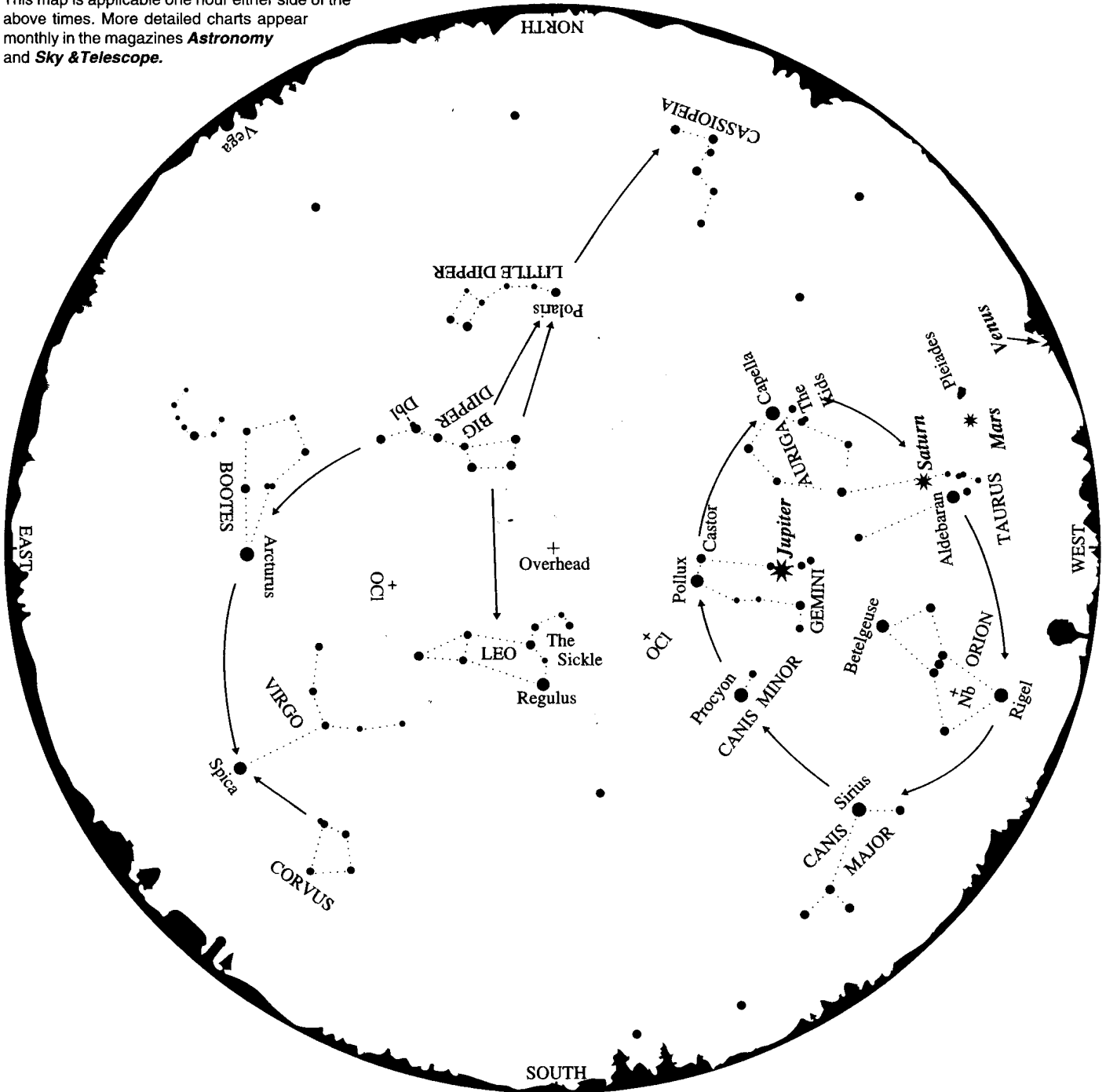
April Evening Skies

This chart is drawn for latitude 40° north, but should be useful to stargazers throughout the continental United States. It represents the sky at the following local standard times:

Late March	10 p.m.
Early April	9 p.m.
Late April	8 p.m.

© 2001 Abrams Planetarium
Subscription: \$10.00 per year, from *Sky Calendar*,
 Abrams Planetarium, Michigan State University,
 East Lansing, MI 48824-1324.

This map is applicable one hour either side of the above times. More detailed charts appear monthly in the magazines *Astronomy* and *Sky & Telescope*.



The planets Venus, Mars, Jupiter, and Saturn are plotted for mid-April 2002. At chart time 14 objects of first magnitude or brighter are visible. In order of brightness they are: Venus, Jupiter, Sirius, Arcturus, Vega, Saturn, Capella, Rigel, Procyon, Betelgeuse, Aldebaran, Spica, Pollux, and Regulus. In addition to stars, other objects that should be visible to the unaided eye are labeled on the map. The double star (Dbl) at the bend of the handle of the Big

Dipper is easily detected. The famous Orion Nebula, a cloud of gas and dust out of which stars are forming, is marked (Nb) in that constellation. The open or galactic star cluster (OC1) known as the "Beehive" can be located between the Gemini twins and Leo. Coma Berenices, "The Hair of Berenice," is another open cluster (OC1), between Leo and Bootes. Try to observe these objects with unaided eye and binoculars.

—D. David Batch

