OBSERVATIONS

A MONTHLY PUBLICATION OF THE

Chester County Astronomical Society

FEBRUARY 2001

(VOLUME 9, NO. 2)

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

★*President:* Mike Turco ★*Vice President:* Steve Limeburner

★*Treasurer:* Pete LaFrance ★*Secretary:* Doug Liberati

Moon Rocks Rock Caln Elementary School

Before the rush: CCAS members set up telescopes on the playground at the rear of the Caln Elementary School in Thorndale. At left, Mike Turco is starting to assemble his AstroPhysics refractor. Bill O'Hara walks past Jim Anderson's Dob *Skywalker*, on his way to set up his own telescope after helping Mike unload his car.

On Thursday January 11, 2001, there was a "Moon Rocks Night" from 6:00 – 8:00 p.m. at Caln Elementary School in Thorndale. Two of the teachers in the Coatesville Area School District became NASA-certified lunar sample handlers last year. They went to Goddard Space Center and brought back a set of lunar sample "disks" and a "large sample" from the Apollo 16 mission for this special event. They had a Starlab Planetarium set up, and our own Bob Popovich demonstrated how lunar eclipses occur, as well as explaining the phases of the Moon. Outside, CCAS members Jim Anderson, Kathy Buczynski, Vic Carlucci, John Imburgia, Steve Limeburner, Ed Lurcott, Bill O'Hara, and Mike Turco provided telescopic views of the heavenly sights, as well as answers for a wide range of questions. They were joined by Pete Kellerman of the ChesMont Astronomical Society, who also brought his telescope and provided views and answers to the assembled masses. After the public left, we had the opportunity to examine the moon rocks at our leisure. The thrill of holding in your hands a Moon rock, one that is 3.9 billion years old, is hard to describe. Michael DeHaut, the teacher and NASA-certified handler who organized the event, estimates that about 500 people turned out. It seems that everyone had a good time!

Why only one picture of such a big event? Well, you see, it's like this… we were all very very BUSY! The waiting lines at the telescopes started forming BEFORE the official starting time of 6:00, and for the next 2+ hours the lines were 10-20 people long at each telescope… When it was over and we were handling the Moon rocks we were so "pumped" we just plain forgot about taking pictures…

FCO Tour and Observing for Gladwyne Elementary School Students

On November 28, 2000, the University of Pennsylvania's Flower & Cook Observatory in Malvern provided a tour of the Observatory for some of the students of the Gladwyne Elementary School. Through scattered clouds, the students also got to see Saturn and Jupiter through the 27.5" reflecting telescope. In the photo at left, FCO Director Deb Goldader is showing the students how the telescope's control system works. The end of the telescope is the large cylinder to the right and above Deb's head; the eyepiece (with CCD camera attached) is just in front of Deb's face. CCAS members Jim Anderson, Nicholas La Para, Steve Limeburner, and Ed Lurcott were also on hand to assist with crowd control and extra telescopes outside the big dome. As is usual at such events, the parents were as excited about seeing Saturn and Jupiter through the telescopes as the children were!

Assembling the Society's 20" Telescope

Ed Lurcott, our Observing Chair, began the demonstration by explaining the names and functions of the several parts of the telescope. In the photo above left, Bob Murray, Vic Carlucci, Elise Furman, Nicholas La Para, and Mike Turco (left to right) follow Ed's pointers. In the photo above right, starting just to the right of Ed and going on to the right, Steve Limeburner, Sylvia Hogate, Daniel Politica, and Bill O'Hara learn the function of the semi-circular side bearings. In the photo at right, Rolf Zimmer (back to camera) and Steve Limeburner assist in attaching the truss rods to the mirror box. The photo at right below shows the next step, attaching the top ring to the truss rods. Rolf Zimmer (back to camera) is assisted by Bill O'Hara to his right, and Mike Turco to his left. At this point the telescope assembly is largely finished. An additional weight for balancing purposes is added to the top ring, and a finderscope or two can be attached.

The final step before the telescope can be used is to make sure the two mirrors in it are properly aligned. This step is critical as the telescope will not focus properly otherwise. We use a laser device that projects a holographic pattern to make the final corrections. In the last photo directly below, a number of members watch from different angles to see the pattern and how it is used to adjust the mirrors. Starting at the left side and going to the right, you can see Kathy Buczynski (back to camera), Vic Carlucci, Steve Limeburner (just behind Vic's shoulder), Nicholas La Para, Mike Turco (bending forward to look at the main mirror), Daniel Politica, Bill O'Hara, Deb Goldader, and Elise Furman (kneeling on floor).

As you can see, the 20" is a mighty big telescope, and requires several people to set it up. We thank Ed Lurcott for bringing the telescope to the January meeting so we could all "get acquainted." Special thanks to Ed's son who lent us a truck to carry it!

***Observations* Editorial Staff**

Editor in Chief: James J. Anderson

Copy Editors: Donna G. Anderson
Edwin T. Lurcott

Contributing Members: Deborah Goldader, Pete LaFrance, Nicholas La Para, Steve Limeburner

Newsletter Deadlines

These are the deadlines for submitting material for publication in the newsletter, through the June 2001 issue.

Issue	Deadline
March 2001	02/26/2001
April 2001	03/27/2001
May 2001	04/26/2001
June 2001	05/28/2001

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CCAS February Meeting

DATE: Tuesday February 13, 2001
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
(see map on a later page)

Parking is available behind Sykes Student Center on the south side of Rosedale Avenue, and behind the Bull Center at the corner of Rosedale Avenue and South High Street. If you arrive early enough, you may be able to get an on-street parking space. CCAS meetings are always open to the public, and free of charge. Children are welcome as long as an adult accompanies them.

At the February meeting, Steve Davis of the University of Pennsylvania will present a talk on "Lunar Interferometry." Steve is a very dynamic undergrad who spent his summer vacation last year working for NASA! Apparently, while there, he and a friend approached NASA Director Dan Goldin with a proposal for a cheap way to put an interferometer on the Moon, and Goldin invited him to Washington to present his plan! Steve will also talk about the space program in general, drawing on his experiences there. This should be an interesting and informative talk.

If anyone has ideas for presenters and/or possible topics for the April and May meetings, please let Steve Limeburner know. You can send ideas to his e-mail address at sboy_44@hotmail.com. You can also tell Steve in person at the meeting, of course. Steve is really interested in hearing what you would like to see discussed at the meetings: after all, this is **your** Society. How about a live demonstration of a black hole? Seriously, what are you interested in? Please let Steve know. Thanks.

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Public Open House: F & C Observatory

There will be a **FREE** public open house program at the University of Pennsylvania's Flower & Cook Observatory in Malvern, PA on Friday February 23, 2001. The program starts at **8:00** p.m. EST with a talk by Dr. David Koerner, UPenn astronomer and author of the book *Here Be Dragons*. David works in the field of circumstellar disks (disks of dust surrounding stars, from which theory says planets form). This area is a main focus of NASA's "Origins" program. David will be talking about the serious possibility of life existing on planets other than Earth. This is sure to be a fascinating presentation! If the skies are clear, there will also be observing with the Observatory's telescopes. The Observatory is located on Providence Road, just west of the intersection with Warren Avenue. A map is included on a later page.

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CCAS February Observing Session

The next CCAS Observing Session will be on Friday February 23, 2001 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 February 24, 2001. 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. Make sure to dress warmly, as it gets cold rather quickly at this time of year.
To get to the observing site at the BVA, 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. A map showing the location of the BVA is included on a later page.

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CCAS Beginning Astronomy Class

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 classes will be held:

February 6	Introduction and Orientation
February 20	Spaceship Earth
March 6	Lunar Observing
March 20	Solar System
April 3	Planetarium Field Trip (WCU)
April 17	Constellations
May 1	Stars
May 15	Telescopes and Binoculars
May 22	**Private Open House at Flower & Cook Observatory for class members only**

The extra session on May 22 was just added, thanks to the generosity of Deb Goldader and the University of Pennsylvania.

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Calendar Notes

March 13, 2001 (Tuesday)	CCAS Meeting **Eastern College Observatory Field Trip** 7:30 p.m. EST
March 23/24, 2001 (Friday/Saturday)	**CCAS Observing Session & Messier Marathon** Location: BVA sunset
April 10, 2001 (Tuesday)	CCAS Meeting Location: WCU, Boucher Bldg.Rm.113 Topic: TBA 7:30 p.m. EDT
April 20/21, 2001 (Friday/Saturday)	CCAS Observing Session Location: BVA sunset
April 28, 2001 (Saturday)	**National Astronomy Day**
May 8, 2001 (Tuesday)	**CCAS Meeting & Officer Elections** Location: WCU, Boucher Bldg.Rm.113 Topic: TBA 7:30 p.m. EDT
May 18/19, 2001 (Friday/Saturday)	CCAS Observing Session Location: BVA sunset
June 15/16, 2001 (Friday/Saturday)	**CCAS Meeting & Observing Session** Location: BVA sunset

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February Skies

Moon Phases

First Quarter	2/01	
Full Moon	2/08	**Largest Full Moon of 2001!**
Last Quarter	2/14	
New Moon	2/23	

The Moon reaches perigee (closest point to Earth in its orbit) on February 7; ocean tides will be extra high that day. Since Full Moon is the next day, that will be the largest Full Moon of the year.

The Planets

Mercury will retreat from our evening sky where it starts the month, disappearing into the Sun's glare by mid-February. After that, you can't see it for the rest of the month.

Venus is in the evening sky this month, setting 3-4 hours after the Sun. It will be the first bright star you see after sunset, at its brightest for this year.

Mars is fairly high in the south in our morning sky during February, moving from Libra into Scorpius. By month's end it will be brighter than Antares (the "rival of Mars") in Scorpius. Mars will make a close approach to Earth in June of this year.

Jupiter and Saturn continue their glorious display in the south in our evening skies this month. They make quite a sight, especially with the Hyades and Pleiades star clusters close by. This month is a good time to observe both planets.

Uranus and Neptune are lost in the Sun's glare this month.

Pluto is low in the morning sky in February; it's not a good time to try for Pluto.

Stellar Notes

The meridian is awash with bright stars at nightfall in February. Near the zenith (straight overhead) is first magnitude Capella, in the constellation Auriga. Facing southward, just to the left of Auriga (to the east) is Gemini with its two first-mag stars Castor (a double star) and Pollux. Off to the right (west) is Taurus with its first mag star Aldebaran, and its two star clusters, the Hyades and the Pleiades. This month Taurus is also hosting two very bright intruders, the planets Jupiter and Saturn. Below Taurus (to the south) is Orion, with its two first-mag stars Betelguese and Rigel, and its famed "belt" of three bright second-mag stars. Most observers can detect an orangish tint to Betelguese, and a bluish-white coloring in Rigel. What do you think? Off to the left (east) of Betelguese you can see Procyon in Canis Minor. Below and to the left of Orion, you can see brilliant blue-white Sirius in Canis Major. Sirius is the brightest star visible from Earth in the night-time sky. In the daytime, of course, the Sun is the brightest star visible! It pays to learn these bright stars and constellations of the February sky, as they will continue to dominate our evening skies into March, and thus serve as signposts to finding other fainter objects of interest.

Occultation

The asteroid 174 Phaedra will pass in front of the mag. 8.9 star SAO 98586 on the night of February 16. This occultation should be visible with a telescope from our area. For more information see the article on page 116 in the February 2001 issue of *Sky & Telescope* magazine.

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A.L. Observing Awards Updates

CCAS Members also belong to the nationwide Astronomical League, which means they are eligible to receive observing awards in recognition of their development as observational astronomers. Below is a list of awards already awarded to CCAS members. Is anyone else working on an A.L. observing award? Let *Observations* know how you're doing.

CCAS Messier Certificates:

Jim Anderson, Basic (now has 87 of 110 objects)
Frank Angelini, Honorary
John Imburgia, Basic (now has 84 of 110 objects)
Ed Lurcott, Honorary

CCAS Lunar Certificates:

Jim Anderson
Elise Furman
Steve Limeburner

CCAS Double Star Certificates:

Jim Anderson
Steve Limeburner
Ed Lurcott
Mike Turco

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Cooling Aperture Fever by Nicholas La Para

We all love to look through a big telescope. But would we love to *buy and own* a big telescope? To help get some perspective on this question, I put together comparative data on some Dobsonian telescopes (the only way for amateurs to get really big) with mirrors from 6" to 20" in diameter.

The scopes were chosen from those readily available and which have gotten good reviews in the magazines or on the Web (see the table below for a list). For the larger scopes (12.5" and up) I gave them the best advantage I could by picking a brand that has the lightest components I could find for that size. Thus, these are the easiest large scopes to tote around *if you are lifting the pieces.* Note that other large scopes with heavier components can be moved by using wheelbarrow handles (like the club 20" scope) rather than lifting individual heavy pieces like the mirror and its box. At the same time, if you ever have to lift a mirror for some reason such as to clean it, have it recoated, or to put it in the scope in the first place, light weight will be a boon.

The comparative data takes no account of *optical quality.* In this category, note that the bigger scopes (from 12.5" up) all use mirrors made by Zambuto, which, from everything I've read, are top of the line in optical quality. So, for example, someone might be willing to pay $1400 for a 10" Starsplitter (not listed in the table) with a Zambuto mirror (and no eyepieces or finderscope included) over the Orion 10" at $650 including 2 eyepieces and finderscope.

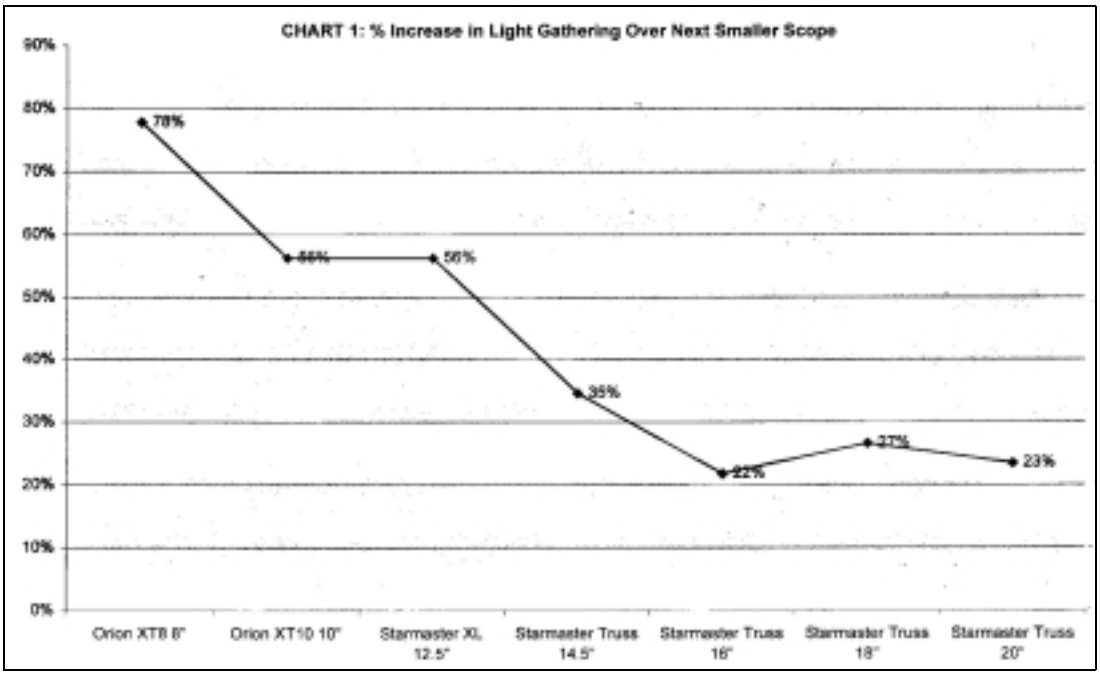
Now let's look at table 1. Some things are absolute. For instance, if you don't want to make observing into ladder-climbing, then you are not going over about a 14-15" scope. If you aren't willing or able to lift over 40 lbs, and keep on lifting it for the rest of your observing career, then the size limit is about 14-15". Finally, if you aren't going to spend thousands on a scope, your limit is about 10".

TABLE 1: Dobsonian Properties

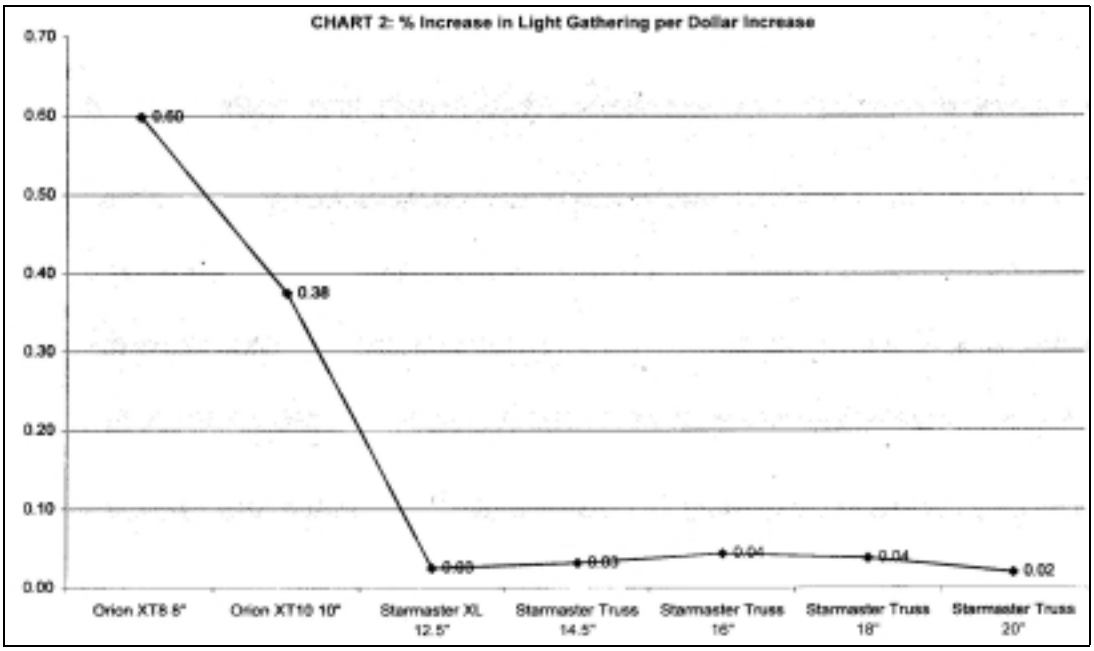
Scope	Mirror Diameter: inches	Weight of Heaviest Component: Lbs	Maximum Eyepiece Height: Inches*	F ratio	% Increase in Light Gathering Over Next Smaller Scope	% Increase in Light Gathering Per Dollar Increase	% Increase in Light Gathering Over 6" Scope	Light Gathering per Pound (Area per Pound of Heaviest Part)	Price: Dollars	Dollars per Light Gathering (Dollars per Area)
Orion XT6 6"	6	24	48	8	0%	0.00	0	1	370	129.09
Orion XT8 8"	8	23	48	6	78%	0.60	78%	2	500	98.13
Orion XT10 10"	10	35	48	5	56%	0.38	178%	2	650	81.64
Starmaster XL 12.5"	12.5	44	65	5	56%	0.03	334%	3	2900	233.11
Starmaster Truss 14.5"	14.5	36	65	4.3	35%	0.03	484%	5	4000	238.95
Starmaster Truss 16"	16	42	71	4.3	22%	0.04	611%	5	4500	220.78
Starmaster Truss 18"	18	50	78	4.3	27%	0.04	800%	5	5200	201.56
Starmaster Truss 20"	20	59	86	4.3	23%	0.02	1011%	5	6400	200.96

* Estimated for Orion scopes

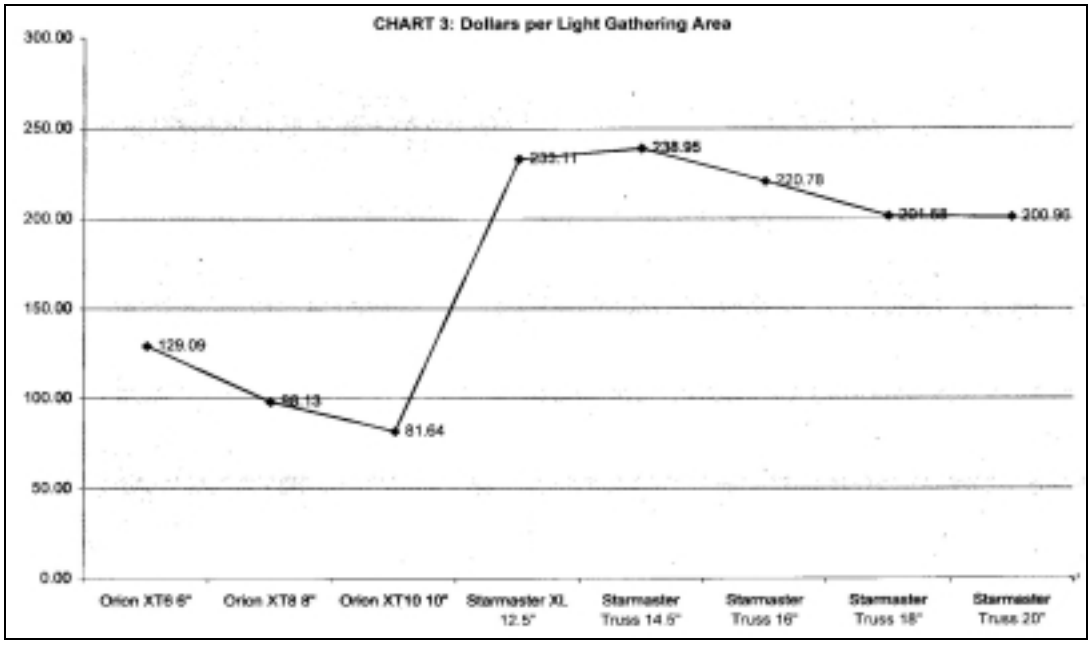
But is all this something to grieve over? Making some comparisons based on the table is very revealing. You get a bigger scope because you want to see more, right? But notice from Chart 1 that diminishing returns set in. Chart 1 shows you how much you gain at each step by going to the next bigger scope. You get good returns in light gathering up to about 12.5", then the returns for increased aperture fall off pretty steeply.



And you pay steeply for these smaller gains too! Look at Chart 2. This tells you how much gain *per extra dollar* you get by going to the next larger scope, and that drops off dramatically also.



Finally, chart 3 shows how many dollars you pay for unit of light gathering area (remember I'm cutting the big scopes a break, because I haven't included the cost of buying eyepieces and a finderscope). The cost jump starts right where the big boys begin.



David Kriege is the owner of Obsession Telescopes, maker of some of the most coveted large scopes around. His line doesn't even start until 15", and goes up from there. Here's what he says in his book *The Dobsonian Telescope* about smaller scopes: "…an 8-inch is terrifically handy. Short and compact…set it up and be observing in five minutes…" (pp. 39-40) " Scopes in the 8- to 10- inch range can give you a lifetime of observing and not break the bank…Take the planets. On nights when the seeing is poor, you still get a good view of Jupiter…Best of all, observing is hassle-free…you swept the Milky way from Sagittarius to Cygnus and never ran out of things to see" (p. 83)

On scopes 12 to 16 inches: "A 12-inch is a commitment. From the back porch it takes two trips to carry the scope and a third trip for the eyepiece box. You need a minivan or station wagon to carry it." (pp. 39-40) "Everything about it says, 'This is a serious telescope.' You like the solidity of the mounting and the ease with which you can point to one object after another. It's the perfect size for quick, precise observing." (p. 83)

So it's up to you. You want to get a really big telescope? Great! Just invite me over. As for me, I think my next telescope will be a 10 inch or smaller.

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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@itb.mckhboc.com

Or mail the contribution, typed or handwritten, to:

Jim Anderson
19 Bluff Road
Thorndale, PA 19372-1104

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@itb.mckhboc.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
(610-380-4512)

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) 380-4512

Librarian: William O’Hara
(610) 696-1422

Observing: Ed Lurcott
(610) 436-0387

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

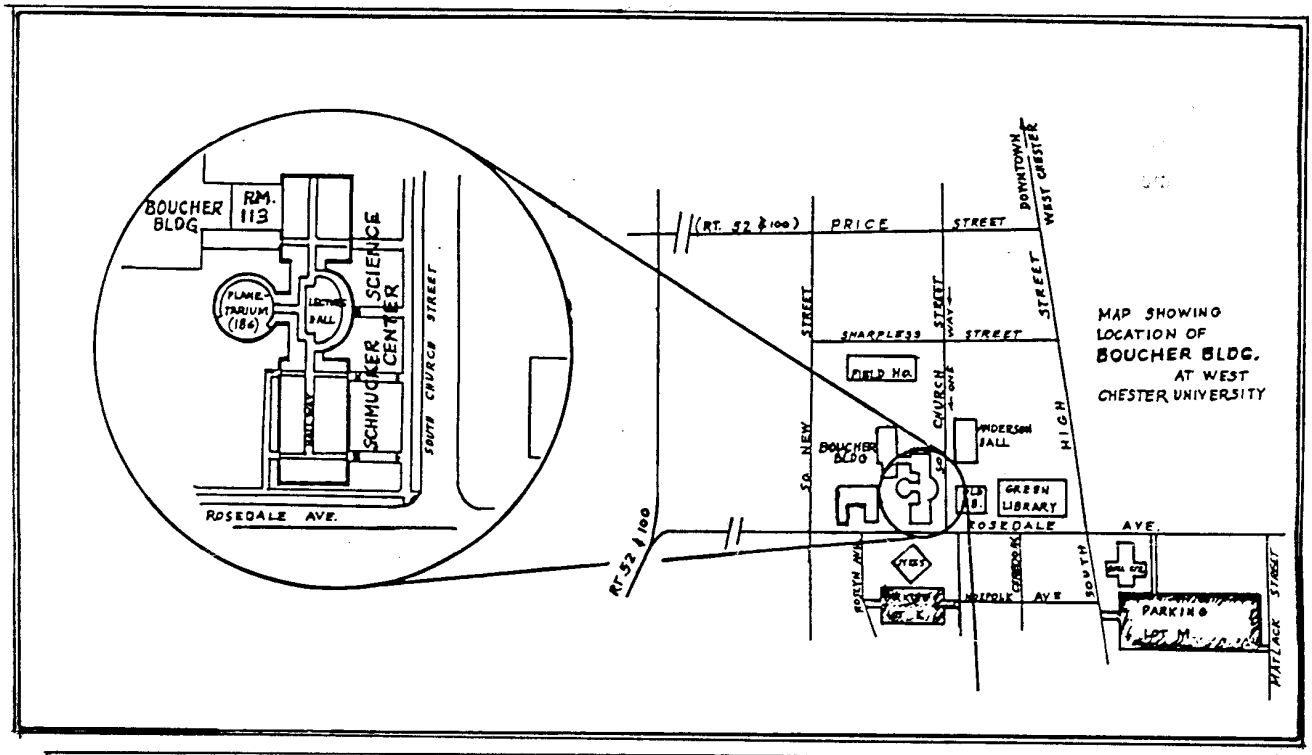
Sky & Telescope Magazine Group Rates

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 to lafrance@chesco.com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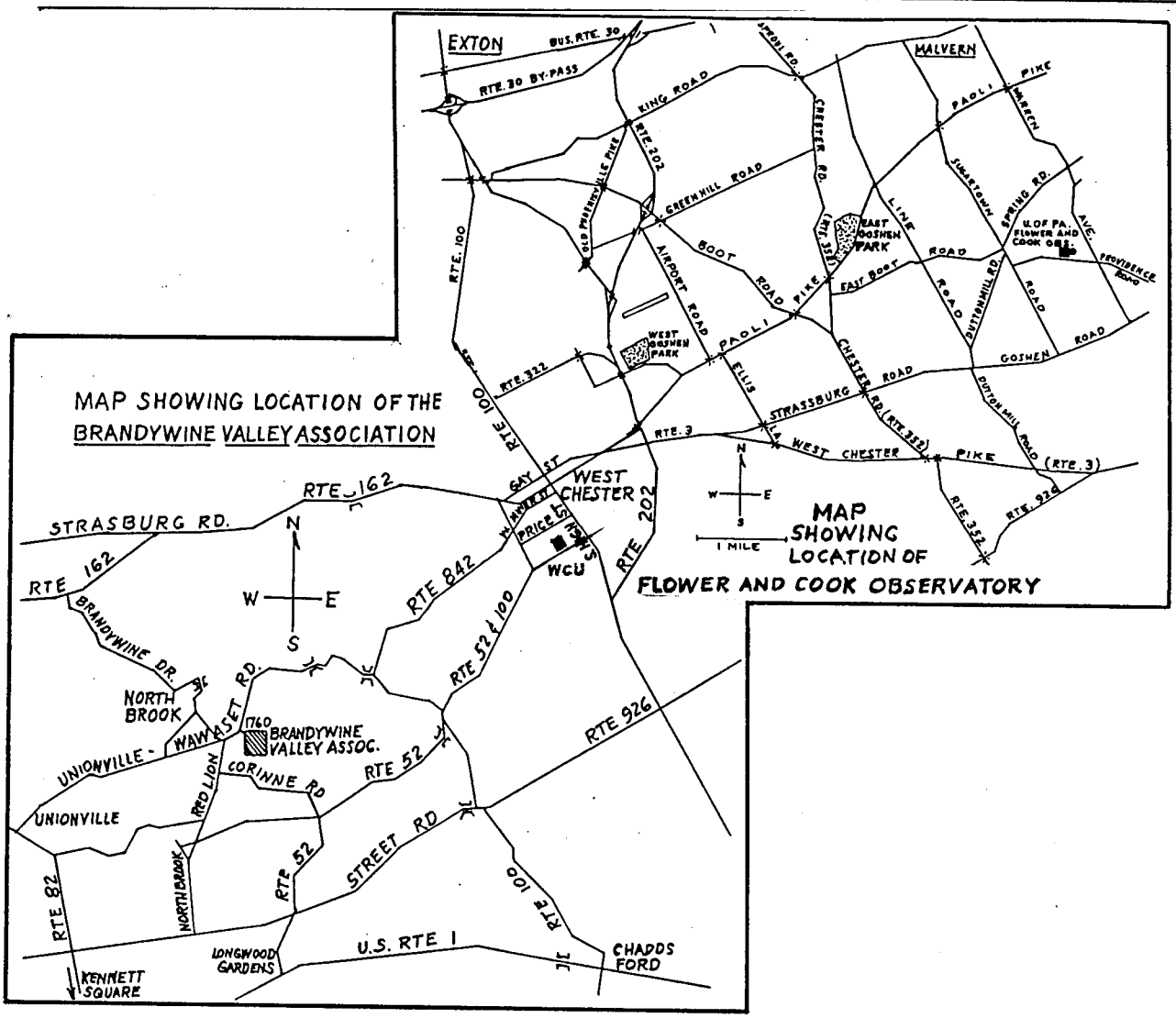
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RTE. 30 BY-PASS
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PIKE
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EAST BOOT ROAD
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GOSHEN ROAD
PROVIDENCE ROAD
AVE.
OLD PA. FLOWER AND COOK OBS.
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