

OBSERVATIONS



A MONTHLY PUBLICATION OF THE
CHESTER COUNTY ASTRONOMICAL SOCIETY

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

JANUARY 1999
(VOLUME 7, NO. 1)

★ *Vice President:* Kathy Buczynski
★ *Secretary:* Frank Angelini

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

CCAS January Field Trip

DATE: **Tuesday January 12, 1999**
TIME: **7:00 p.m. EST**
PLACE: Sproul Observatory
Swarthmore College
Swarthmore, PA

The tour will **start** at 7:00 p.m. at the Observatory on Tuesday January 12, 1999. **Make sure you are there by 7:00 p.m. or you will miss the tour!** If the weather that night is just cloudy, but the roads are good, we will still go to the Observatory. If the weather forecast (for Tuesday 1/12) on Monday is threatening, we will most likely cancel the trip. If you have any doubts about what to do on January 12, call Kathy Buczynski at 610-436-0821 during the day. If the trip is cancelled, Kathy is the one who will be deciding go/no-go with Dr. Heintz at the Observatory. More information about Sproul Observatory is in an article below. A map with directions to the Observatory is also included below.

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January Observing Session

The next CCAS Observing Session will be on Friday January 15, 1999 starting at about 7:00 p.m. If it's too cloudy on Friday, then the Observing Session will be on Saturday January 16, 1999. At the observing sessions, there will be help available to set up and use your telescopes. 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 free of charge. Children are always welcome as long as an adult accompanies them. Dress warmly, because it gets cold quickly when you're standing around a telescope in a meadow in January!

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Dr. Rex Saffer describing Blue Stragglers

Photo by Frank Angelini, *Observations* Staff Photographer

At the December meeting, we had the pleasure of hearing Dr. Rex Saffer of Villanova University describe his work on the frontiers of astronomical research. Dr. Saffer has been working with a team of other scientists on the intriguing problem of young "Blue Straggler Stars" in old star clusters. Since there is no gas in these clusters to form new stars, where do the young stars come from? It seems that most of them result from the merging of binary stars! Further research and observations with the Hubble Space Telescope are planned by Dr. Saffer and his team to confirm the theory. We look forward to future reports on this exciting work.

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Welcome New Members!

We'd like to extend a welcome to the members who have joined us in recent months. Hello to Elise and Roy Furman, James Goss, Sylvia Hogate, Douglas Liberati, Bob Ruff and family, and Jesse Schultz.

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President's Message January, 1999

This is the time when everyone looks back and takes stock of the progress and achievements of the past year. For the Chester County Astronomical Society, 1998 was momentous. Our major achievements included:

- Continuance of the meetings at West Chester University with some great presentations capped by Dr. Rex Saffer in December, which was followed by a modest holiday celebration at a local establishment, *Café Chicane*. We should make this a December tradition.
- Establishment of our affiliation with the Flower & Cook Observatory of the University of Pennsylvania, due in no small part to the efforts of Deborah Goldader, who was blessed with a child in December. (That's pretty momentous!) We assisted with some of the observing sessions and open houses at the observatory, thereby helping to reestablish its viability with the university so that it may be better maintained and improved for the benefit of all who are interested in astronomy. We look to continue this relationship in the future.
- The first steps toward construction of a 20-inch-diameter, f/4.5, Dobsonian-type, open-truss Newtonian reflector as our primary club telescope. With the donation of the primary mirror from the F&C observatory and the generous contributions of some of the members, we initiated the order for the kit materials. If all goes as planned, the scope could see first light by mid-year 1999. Building a scope of this size in a considerable accomplishment and "raises the bar" of sophistication of the Club. With it, and the member's telescopes, the CCAS observation sessions should be quite impressive.

In addition to the above, we enjoyed:

- Continued association with the Brandywine Valley Association which allows use of BVA property for observing sessions.
- Seeing both the Flower & Cook Observatory and the CCAS featured in the West Chester Daily Local News on Sunday, September 6. The 20"

mirror and the telescope construction project received good publicity in that issue.

- Seeing the establishment and continued improvement of the CCAS web site, with links to the Flower & Cook Observatory web site and the Astronomical League.
- Seeing two members receive their Astronomical League Double-Star Club certificates and one achieve his Lunar Club certificate.
- Confirmation of the Club's non-profit status.
- Providing continued support to local schools and youth groups.
- Staging another successful Astronomy Day exhibition at the Exton Mall.

We can also note a few new toys that members added to the Club's arsenal this year, including a 10" Meade LX-200, a 10" Meade Dob, an Astro-Physics 155mm APO refractor and 900 GoTo mount, and a Sony digital camera.

I must also extend sincere thanks to all the officers and the Executive Committee for their continuing work to improve the Club.

1999 promises to be another good year. In keeping with our Club's emphasis on observation, in addition to work on the 20-inch scope, we will try to improve our monthly newsletter with the inclusion of photos, and design a CCAS monthly observer's chart for inclusion in the newsletter as well. The new Version 5 of TheSky software should help (as soon as it arrives). I'd also like to see more A.L. observing certificates received by members. Let's see if we can equal or exceed the three our Club members achieved in 1998. Otherwise, please continue your support by attending meetings and observing sessions, and being as active as you can. This is a great hobby and the more we all interact, the more we learn and benefit.

Best wishes to all for a healthy and prosperous New Year.

Mike Turco



President's Corner

A New Addition

Congratulations to Jeff and Deborah Goldader on the birth of their first child on December 11th, Charles Neil, 6 lbs 15 oz, 19-in long. He may make his first CCAS public appearance at our January meeting at the Sproul Observatory. If so, he will do in three weeks what took me 50 years, i.e., to look through the 24" refractor.

Telescope Project Update

Special thanks to Roy and Elise Furman for their generous \$500 contribution to the Club's telescope fund. They doubled the initial fund amount of \$500, and thus allowed the down payment to be made. We need about \$700 more over the next two to three months to complete the purchase of the telescope's mechanical components, and another \$500 or so for the secondary mirror and accessories. The scope components will be furnished in kit form by AstroSystems of LaSalle, CO. Their Web site is at: <http://www.frii.com/~astrosys/>. They are to begin fabrication later this month. I've seen a completed 14" TeleKit and it was a superbly finished scope. The components furnished with the kit materials include a 2" Crayford-type focuser, Telrad finder and light shroud. The members can provide eyepieces. Any members wishing to contribute to the telescope fund, now is the time. It could be a tax deduction for 1998. Checks should be made payable to the Chester County Astronomical Society. Send contribution to Pete LaFrance, Club Treasurer, noting that it is for the Telescope Fund.

Astronomy Club Listing

Astronomy magazine maintains a web site listing of space places, museums, planetariums and observatories in the U.S. and Canada. Also at this site is a listing of astronomy clubs worldwide. Our club should be listed within the next month or so under the state of Pennsylvania. Check it out at <http://www.kalmbach.com/astro/SpacePlaces/SpacePlaces.html>

If anyone is interested in corresponding with a club in a faraway place (say Australia, for example, to learn about southern skies, or in Brazil if you want

to party down in Rio some day), bring it up at our next meeting. It could be both fun and educational.

TheSky Version 5 Upgrade Now Available

Would you like to be able to see a picture on your computer of any NGC or IC object to confirm that deep-sky object you are looking at? Display the positions of the major moons of Jupiter and Saturn at any time to see what the view through your telescope will be? Simulate the transition from daytime through sunset to nighttime on your computer screen in full color? Print custom-designed, wide-field star charts using all different types of map projections, i.e., Mercator, orthographic, stereographic, etc? Display positions of the Mir space station, Space Shuttle, or artificial satellites on your computer? Visualize a flight through the solar system along the path of a comet in 3-D? Be able to display the spectral colors of over one million stars contrasted in subtle color shadings?

These and many more new features have been added to the already impressive capabilities of TheSky software in their Version 5 upgrade, which is \$59 for those who already own it. I highly recommend it for anyone considering astronomy software for your computer. Over 19 million objects are catalogued in the Level IV version (it can be purchased in Levels II, III, or IV, the latter having the highest capabilities.) Check it out at <http://www.bisque.com> or you can work with it yourself on my laptop PC at one of our monthly meetings.

New Astronomical League Observing Club

The A.L. has a new observing club that may be well suited to our sky conditions. It is the Urban Club. It is designed to bring observing back to areas with heavy light pollution. To qualify for the certificate, you need to be a member of the A.L. (if you are a member of the CCAS, you already are), and observe the 100 objects of the Urban Club list in light-polluted skies. The latter is defined as an area where the Milky Way is not visible to the naked eye, which is about 99% of the time around here. The 100 objects include 12 double stars, one variable star, and 87 deep-sky objects chosen for their visibility in adverse sky conditions. While you are allowed to observe the objects with the naked eye, binoculars or

any size telescope, a scope of 6 to 10 inches in aperture is recommended to help pull out the fainter objects in non-contrasty skies. Any previous observations of the 100 objects (e.g., from Double Star or Messier Club observations) may be used toward this club as long as they were made in light-polluted skies. (All of the double stars are part of the Double Star Club list, and 41 objects on the deep sky list are Messier objects). To record your observations, you should use a log sheet similar to those found in the back of the A.L.'s manual, *Observe: A Guide to the Messier Objects*, copies of which you can obtain at our monthly meeting. If you make up your own log sheets, they must include: object, date, time, power, seeing conditions, type of instrument, and observing notes (a description of what the object looked like). Copies of the above details and the list of objects can be obtained from me or our Club's A.L. Coordinator, Ed Lurcott, at the monthly meeting.

For Double Star Aficionados

There is a great article in the February issue of *Sky & Telescope* called "Observing Double Stars for Fun and Science" by Ronald Tanguay. Ironically, before I read his article I had found the web site at <http://www.cshore.com/royce/dso/>. Mr. Tanguay set up which announced the revival of the *Double Star Observer*, an amateur/professional journal dedicated to double star observing. It is published quarterly and is quite reasonable (\$8 per year).

Double star observing is one endeavor that can be performed by amateurs in support of professional astronomers. Mr. Tanguay reports that there are very few remaining professionals active in this field. In his web site he mentions that the Sproul Observatory has ended its 30-year program of micrometric measurement of visual double stars, which was conducted largely by Dr. Wulff Heintz. The measurement of double stars is important to theorists working on stellar evolution, and with over 78,100 doubles in the *Washington Double Star Catalog* changing relative positions over time, there is much work that can be done keeping tabs on their separation and position angles.

I've sent a letter to Mr. Tanguay under the letterhead of the CCAS and have subscribed to the *Double Star Observer*. I will fill you in at one of the upcoming meetings on any information I receive on this subject. In the meantime check out the web site and read the *S&T* article if you can. I will also bring copies of both the article and the web site information to the monthly meeting. We can also ask Dr. Heintz about his work during our (timely) visit to the Sproul Observatory.

On-Line Field Guide for Internet Users

Someone whose name I do not have is setting up what amounts to a field manual for amateur astronomers on the Internet. It is particularly good for those just starting out. Some of the sections from the outline of topics are: Binoculars and Spotting Scopes, Stellar Distances and How They Are Determined, The Hertzsprung-Russell Diagram, Stellar Names: Arabic, Bayer and Flamsteed Systems, Magnitudes, Observing Double Stars, Deep-Sky Objects, The Messier List, Celestial Coordinates, and An Observing Program for Beginners. This is a worthy effort and much useful information is there for both beginners and more experienced amateurs. This site is also linked to many other useful sites. Check it out at: http://www.cyburban.com/~mrf/a_tableofconintro.html.

I will bring a copy of some of the sections to the monthly meetings for anyone who is interested or who doesn't have access to the Internet.

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Astronomical League News from the ALCor
All three proposed changes to the Astronomical League Bylaws were approved by the membership of the CCAS; the vote was unanimously yes. The Society's official ballot was marked accordingly and mailed to the Executive Secretary on December 16. The results of the vote nationwide will be published in the AL's quarterly newsletter *The Reflector*.

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The Sproul Observatory by Kathy Buczynski

On the campus of Swarthmore College, Sproul Observatory was established in 1911 by donations from William Cameron Sproul, an alumnus and former student of Dr. Susan J. Cunningham, the first professor of mathematics and astronomy. Mr. Sproul was from Chester, Pennsylvania and later became Governor of the Commonwealth of Pennsylvania. (I wish our current administration and ones that follow were also interested in astronomy so that we could do something about this sky-glow!)

The telescope at the Sproul Observatory is the largest refractor between Yale and Washington, D.C. (at the U.S. Naval Observatory, also home to the Vice-President of the U.S.). The refractor at Sproul is a mere 61 cm (24") in aperture and 11 m (36 feet) in focal length. Built by the Brashear Company, the objective lens was made from a crown glass disk furnished by the Parra-Mantois firm of Paris, France, and a flint glass disk furnished by Schott and Genossen of Jena, Germany. These lenses were ground by James B. McDowell, known at that time for his excellent skills in grinding glass lenses. The equatorial mount was also made by Brashear and weighs approximately 50,000 pounds. It is balanced so well that one hand can move it (remember what Newton said about a lever and a place to stand...). This type of telescope was preferred 100 years ago for astrometric purposes.

Research has been taking place at Sproul since 1912. Many researchers have measured the distances of nearby stars. Using about 90,000 photographic plates, the program produced parallaxes of 1,400 stars. This program ended in 1994. To the best of my knowledge, many of the plates are displayed in the Observatory.

Work continues at Sproul, however. With binary stars as the focus, research continues to determine the mass of many star systems. In the process, the researchers at Sproul have discovered some unseen companions of stars formerly thought to be single stars; they have 900 such discoveries to their credit. Even in the late 1940's researchers at Sproul theorized companion stars or even planets were

around stars as they watched them wiggle through space.

Since 1970, the staff has been making visual observations of double stars by micrometer. They have discovered brown dwarf candidates, and hold a world record of studying the orbits of 450 double stars.

Currently leading the research team at Sproul Observatory is Dr. Wulff D. Heintz. He will be our host for the tour. Dr. Heintz has published a list of obtained orbits of binaries discovered by himself and his co-workers. I'm sure he will have plenty to add to this when we meet with him on the 12th.

Another distinguished researcher at Swarthmore is Professor John Gaustad, currently the Edward Hicks Magill Professor of Astronomy. He is now working on wide-angle imaging with CCDs of the Ha (Hydrogen alpha) emissions from interstellar hydrogen gas. Prof. Gaustad is also interested in infrared astronomy, interstellar matter, star formation, and the history of astronomy. He is well-published, having written many articles and one book. An article he published for the American Astronomical Society was "The Distribution of Interstellar Dust in the Solar Neighborhood", and his book is titled *Astronomy: the Cosmic Perspective*.

This unique observatory is practically in our back yards. Don't miss this opportunity to see it. I hope you all can make it to the tour. Wish for clear skies, because the Moon that night will be nearing the New phase, so there won't be any moonglow to wash out faint objects. We would be able to get a good look at Saturn, Jupiter, the Orion nebula and who knows what else.

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Some Future CCAS Meetings

March 19, 1999: Field Trip, Eastern College Observatory

April 13, 1999: Planetarium Show at West Chester University by Pru Campbell

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CCAS February Meeting

We expect to have Dr. Deborah Haarsma, currently visiting assistant professor at Haverford College, speak on the topic of "Gravitational Lensing and the Fate of the Universe". Gravitational lensing was predicted by Einstein in 1915, and first observed in 1979. Dr. Haarsma will show how gravitational lensing is observed, and how these observations are tied into the determination of the Hubble constant, which is a key determinant of the age and the fate of the universe. The February meeting is on Tuesday February 9, 1999 at 7:30 p.m. EST in Room 113 in the Boucher Building at West Chester University. Mark your calendars now so you don't miss it!

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January's Skies

Moon Phases

Full Moon	1/01
Last Quarter	1/09
New Moon	1/17
First Quarter	1/24
Full Moon	1/31

Loony Notes: The Full Moon of January 31 will be a "Blue Moon" because it is the second Full Moon in one calendar month. That's what a "Blue Moon" is. Then in February there will be no Full Moon at all; the next one after January 31 is on March 2. And then there will be another "Blue Moon" on March 31!

The Planets

Mercury is visible in the morning sky during the first part of January. Look low in the sky, about 60 minutes before sunrise. It won't be easy to find; you need a really good low eastern horizon.

Venus is low in the evening sky for an hour or so in January, but it won't be terribly impressive in a telescope.

Mars is rising about an hour after midnight now. It's still too far away (and thus too small) for good telescopic viewing. Wait until March for Mars; then you'll get some good views.

Jupiter is the brightest "star" in the southwest in the early evening. Jupiter is a fine sight in any size telescope (and in binoculars too!).

Saturn is in the southeast as darkness falls, east of much brighter Jupiter (to the left from Jupiter). By mid-month Saturn reaches a point in its orbit where the shadow of

the planet can be clearly seen on the rings, which creates an almost 3-D impression.

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

Pluto is low in the morning sky in January, and is very difficult to find.

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CCAS Education Committee Forming

Deborah Goldader has volunteered to serve as the temporary chairperson for the Education Committee. If you're interested in helping out, please contact her at 215-898-9597, at the University of Pennsylvania.

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Nebraska Star Party

The Sixth Annual Nebraska Star Party will be held on August 7 through 14, 1999 at the Merritt Reservoir near Valentine, Nebraska. If you would like more information, call me (Jim Anderson) at 610-380-4512 and I will send you one of the brochures they sent me. Or you can check out their Website :

<http://www.4w.com/nsp>

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New Book by an Old Friend of the CCAS

You may recognize the name Jim Mullaney as an author of observing articles and booklets, such as *The Finest Deep-Sky Objects*, a Sky Publishing reprint of a series in *Sky & Telescope* magazine. Most of our members, however, do not know that Jim lives in Exton and is an old friend of the CCAS. Jim has a new book out. I've included the ad copy here as Jim sent it to me.

Celestial Harvest: 300-Plus Showpieces of the Heavens for Telescopic Viewing and Contemplation

The long-awaited sequel to the *Sky & Telescope* series reprint *The Finest Deep-Sky Objects*, which has been in use by both amateur and professional astronomers around the world since 1966. This new 100-page, spiral-bound observing manual covers both solar system and deep-sky wonders (highly-tinted first-magnitude, single and variable stars; double and multiple stars; asterisms and associations; open and globular clusters; diffuse and

planetary nebulae; galaxies and the Milky Way) visible in typical "backyard" telescopes ranging from 2-inches to 14-inches in aperture.

Celestial Harvest contains basic observational data, observing techniques, and thousands of vivid, fascinating and little-known descriptions by classic observers from the past three centuries, in addition to those culled from the author's own visual observations of an original survey working list of over 3,000 objects spanning more than 40 years! Besides its personal use by stargazers, (both for planning a night's observations and at the eyepiece itself), it also provides an ideal guide to the very best celestial wonders for showing at observatory and planetarium public nights, astronomy club star parties, and astronomy course observing sessions.

That's the end of the ad copy that will appear in *Sky & Telescope* and *Astronomy* magazines in the spring. The book is available now; the price is \$33.00 + \$5.00 shipping and handling. If you want to buy a copy, send a letter with a check or money order to:

James Mullaney
P.O. Box 1146
Exton, PA 19341-0931



AL Observing Programs

One of the benefits of joining the CCAS is that you also become a member of the Astronomical League, a national federation of astronomy clubs. The AL has a series of Observing Awards, and 4 observing clubs based on these awards have been started in the CCAS. These are the Messier Club, the Binocular Messier Club, the Lunar Club, and the Double Star Club. Working on these awards also gives you a plan of observing: "What will I look at tonight?" becomes "Which Messier objects are visible tonight that I haven't seen yet?" Each club has a volunteer coordinator:

Messier Clubs (both): Frank Angelini (610-873-7929)
Lunar Club: Ed Lurcott (610-436-0387)
Double Star Club: Jim Anderson (610-380-4512)



News from Neighboring Societies

[Editor's Note: All that is required to have notices published here is to include Jim Anderson on the mailing list of your society's newsletter. See below for Jim's address.]

From *Focus*, the newsletter of the Delaware Astronomical Society:

Upcoming Meeting Topics

Jan.	Starlight - Photographic and Telescopic Filters	
Feb.	White Dwarfs	Judy Provancal, Bartol
Mar.	CCD Astronomy	Dave Groski
Apr.	Spectrometry at Mount Cuba Astronomical Observatory	Jack Fisher
May	Dinner Meeting Black Holes	Dr. Harry Shipman
June	Sundials	Dr. Emil Volcheck

All DAS meetings are held at the Mount Cuba Observatory in Greenville, Delaware (just north and west of Wilmington). For more information contact CCAS members Emil Volcheck (610-388-1581) or Pete LaFrance (610-268-2616), both of whom are also members of DAS. DAS President Warren Jacobs could also help (610-566-0510). Or check the DAS Website at:

<http://www.physics.udel.edu/>



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
3545 N. Stewart
Tucson, AZ 85716

Dark-Sky Website for PA

The Pennsylvania Outdoor Lighting Council has lots of good information on safe, efficient outdoor security lights at their Website:

<http://home.epix.net/~ghonis/index.htm>



CCAS Lending Telescope

You can make arrangements to borrow the telescope for a month by contacting Steve Leiden (296-3793). The 6" f/8 reflector can be borrowed by club members for a month at a time; longer if no one else is waiting to borrow it.



CCAS Website

Pete LaFrance has set up a Web page for the Society on the World Wide Web (Internet). He has included some pictures taken by CCAS members. Check it out 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).

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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 the editor at SNY114@aol.com Or mail the contribution, typed or handwritten, to:

Jim Anderson
19 Bluff Road
Thorndale, PA 19372-1104

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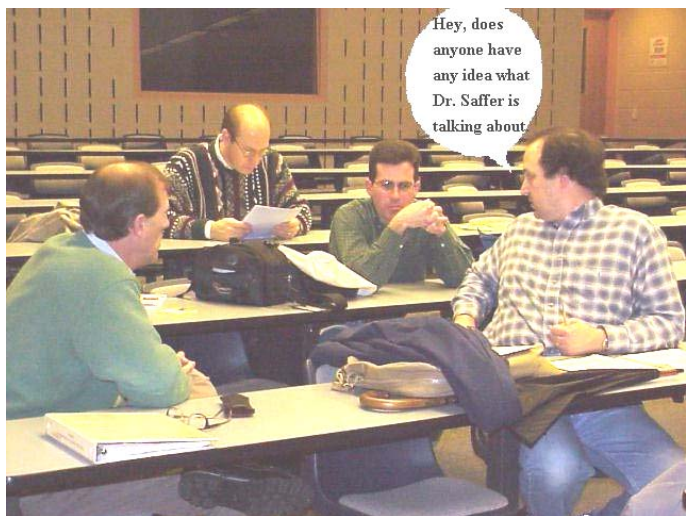


Photo and quotation by Frank Angelini, *Observations* Staff Photographer

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CCAS Lending Library

Our Librarian, Bill O'Hara, has the books in our library all ready for members to borrow. You can drop by Bill's place (call first, of course) to borrow a book. Or you can call Bill

before a meeting and ask him to bring a book to the meeting for you. Copies of the catalog are available at CCAS meetings. Bill's phone number is 610-696-1422.

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Sky & Telescope Magazine Group Rates

Subscriptions to this excellent periodical are available through the CCAS at a reduced price of \$27.00, which is much less the newsstand price of \$48.00, and also cheaper than individual subscriptions (\$37.95)! 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.

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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

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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

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CCAS Officers

For further information on membership or society activities you may call:

- President:** Mike Turco (610) 399-3423
- Vice Pres:** Kathy Buczynski (610) 436-0821
- Treasurer:** Pete LaFrance (610) 268-2616
- Secretary:** Frank Angelini (610) 873-7929
- ALCor and Newsletter:** Jim Anderson (610) 380-4512
- Librarian:** William O'Hara (610) 696-1422
- Observing:** Ed Lurcott (610) 436-0387

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