

OBSERVATIONS

A MONTHLY PUBLICATION OF THE
Chester County Astronomical Society



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

OCTOBER 1999
(VOLUME 7, NO. 10)

★ *Vice President:* Steve Limeburner
★ *Secretary:* Frank Angelini

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

CCAS October Meeting

DATE: Tuesday October 12, 1999
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)

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.

The first presentation of the evening will be one by Jim Anderson entitled "How to Become a Certified Lunatic." This will be a brief presentation on lunar observing, with and without instruments, centered on the Astronomical League Lunar Club observing award.

The feature presentation will be delivered by James Mullaney, entitled "Observing Double and Multiple Stars." Based on the speaker's feature article about this subject in the March, 1993, issue of *Sky & Telescope*, this program will review five different observing projects involving these tinted jewels of the heavens suitable for beginning to advanced stargazers. Also to be covered is the completion of his 40-year visual sky survey and *S&T* series/reprint "The Finest Deep-Sky Objects" (which he spoke about to the CCAS six years ago), resulting in the recent publication of *Celestial Harvest: 300-Plus Showpieces of the Heavens for Telescope Viewing and Contemplation*. (Copies of both the reprint and new observing manual will be available at the meeting for those members interested in purchasing personally autographed copies of them following the program.)

James Mullaney is an astronomy writer, lecturer and consultant who has published more than 500 articles and three books on observing the wonders of the heavens. Jim has logged over 20,000 hours of stargazing time with the unaided eye, binoculars and telescopes. Formerly Curator of the Buhl Planetarium & Institute of Popular Science in Pittsburgh, and more recently Director of the DuPont Planetarium USCA, he has served as staff astronomer at both the University of Pittsburgh's Allegheny Observatory and Spitz Space Systems, and as an editor for *Sky & Telescope*, *Astronomy* and *Star & Sky* magazines. One of the contributors to Carl Sagan's award-winning *Cosmos* PBS-television series, his work has received

recognition by such notables as Johnny Carson, Sir Arthur Clarke, Ray Bradbury, Dr. Wernher von Braun and former student - NASA scientist/astronaut Dr. Jay Apt. His 40-year mission as a "celestial evangelist" has been to "Celebrate the Universe!"

Don't miss this excellent program! Bring your friends!



CCAS October Observing Session

The next CCAS Observing Session will be on Friday October 8, 1999 starting at about 8:00 p.m. If it's too cloudy on Friday, then the Observing Session will be on Saturday October 9, 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.

To get to the observing site at the BVA, from the main parking lot by the office, go up the farm lane to the left, 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.



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 October 29, 1999. The program that night will be a Halloween Bash: come in costume! The program starts at 8:00 p.m. EDT with a talk by Jeff Goldader entitled "Mars!" Then they will replay the famous *War of the Worlds* radio show read by Orson Wells (and others) that caused mass hysteria in the 1930s on Halloween weekend. If the skies are clear, there will be observing with the Observatory's telescopes. Children are of course welcome as long as they are accompanied by an adult. The Observatory is located on Providence Road, just west of the intersection with Warren Avenue. A map is included below.





ASTRONOMICAL LEAGUE

A FEDERATION OF ASTRONOMICAL SOCIETIES
A NON-PROFIT ORGANIZATION

- * To promote the science of astronomy.
- * To encourage and coordinate activities of amateur astronomical societies.
- * To foster observational and computational work, and craftsmanship opportunities in the various fields of astronomy.
- * To provide a medium for correlating amateur activities with professional research.

*Astronomical League
Science Service Building
1719 N Street, N.W.
Washington, DC 20036*

Gary Tomlinson
Astronomy Day Coordinator
Public Museum of Grand Rapids
272 Pearl NW
Grand Rapids, MI 49504
(616) 456-3532 (Office)
(616) 456-3873 (Fax)

June 30, 1999

Michael A Turco, President
Chester County Astronomical Society
7 Westover Dr
Thornton PA 19373


Dear Mr. Turco:

I am pleased to inform you that you made it into the final round of selections for the Sky & Telescope Astronomy Day Award, but I am sorry to say that you did not win. However, we were impressed with your efforts none-the-less and have decided to award you an Honorable Mention. Honorable Mention certificates will be presented at the League's annual convention (July 13-17, 1999) in Cheney, Washington during the Saturday (July 17) evening banquet. Information about this exciting convention is enclosed in case you already haven't registered. You can check out the convention's web site at <http://www.SpokaneAstronomical.org/astrocan99> or contact Dan Bakken at Dan@runway.net. Since time is short, please e-mail Chcuk Allen, President of the League by July 8, 1999 <cea@sompuserve.com> and let him know if you will have a representative at the convention to accept the Honorable Mention certificate or if you wish to have it mailed to you.

I hope you will continue both to host Astronomy Day events and enter the award. Please check our web site <<http://astroleague.org>> prior to entering next year for any new rules and/or forms. We are considering making several changes in the award. Our collective efforts of "bringing astronomy to the people" makes us all winners. Please join me in congratulating our first place winner, Puerto Rico Astronomy Society.

If you would like a copy of the report I prepare (probably in the fall or later), send a legal size, self addressed envelope with one ounce of appropriate US postage to ASTRONOMY DAY AWARD REPORT care of the address on this letter.

Sincerely,


Gary E. Tomlinson
Astronomy Day Coordinator

Enclosures: Convention information

cc: Chuck Allen
Richard Fienberg

Daniel S. Goldin, NASA Administrator visits the Franklin Institute

“NASA doesn’t exist to transfer technology or support commercial ventures. It exists to enlighten...”

Dan Goldin, September 29, 1999

A report by Kathy Buczynski & Mike Turco

As part of the Franklin Institute’s 175th Anniversary lecture series called “Explorations”, Daniel S. Goldin, NASA Administrator, spoke to a gathering of about 200 people. Mr. Goldin was appointed top administrator in 1992 and has been dubbed by the *National Journal* as a “brilliant visionary who brought NASA back from the brink of the black hole.”

Goldin began his lecture by comparing Ben Franklin’s and the Institute’s original vision of the future to NASA’s, in that both their intentions were and are to excite and incite young people to learn and involve themselves in the sciences. He then related a story of how nature can cure even his complacency. He told of how reluctant he was to interrupt his August vacation and accept the invitation of the President of Romania to watch the total eclipse from the Romanian National Observatory in Budapest. “What’s the big deal about seeing the moon blocking out the sun?” he mused. “Besides, I’d rather see it from Paris. At least then I could get a great meal and enjoy those fabulous French wines.” But he went to Romania nonetheless, wore the black suit and tie through the 104-degree temperature with no air conditioning, and planned on suffering through the eclipse. Then, at the moment of totality, indifference turned to awe. He was overwhelmed when darkness swept the landscape and he realized he was seeing Venus and the brighter stars in the middle of the afternoon. Witnessing the majesty of the universe and the insignificance of man fueled his emotion during the 2 1/2 minutes of totality. We all then rode that emotion as he told us what NASA had planned for the next 25 years.

One of NASA’s most famous successes was his first topic, the Hubble Space Telescope. He went on to describe the Next Generation Space Telescopes which will dwarf the Hubble, and interferometers, widely spaced telescopes that will be powerful enough to image planets around other stars. He also mentioned the inauguration of a brand new department in NASA, the Astrobiology Institute and the impressive scientific staff that have been named to it. This Institute will study the possibility of the formation of life on other worlds and bring a host of scientific disciplines into that study.

Next Mr. Goldin talked about exploration in our own solar system, about possibilities of robotic spacecraft with intelligence that can travel to the Oort Cloud, Kuiper Belt and beyond. Spacecraft are being planned that will be self-diagnostic, self-repairing and adaptable to the conditions they would face in deep space. He described how herds of these robotic spacecraft will be deployed and from them, a leader will be selected *by them* to control the destiny of the rest!

He talked about Mars and Europa, primarily because of the presence of water, the source of life as we know it, on both worlds. He spoke of plans to send humans there, but not without science that is just on the brink of development. If we are going to send people on long trips to these far out reaches, even when they are healthy leaving this planet, contingencies need to be made should something go wrong. He talked about the development of a scanner for soft tissue that will detect imperfections, monitor temperature, recognize changes in blood chemistry, and diagnose what these changes mean. In order for humans to be in space for extended periods of time, new surgical methods will need to be developed, and learned and applied on the spot by those on the space voyage themselves. To develop this technology, the International Space Station will be instrumental, and with it, the extended stay of humans in space is within reach.

NASA is working with other agencies, such as the National Cancer Institute, to determine the effects of space radiation and define surgical techniques at the cellular level. There is even work on developing the science of nanobiology, working at the molecular level. These developments will not only help astronauts on their extended space voyages, but will mean revolutionary advances in medicine for the rest of mankind.

NASA’s other projects include a new propulsion system, to make it cheaper and more efficient to hoist humans and cargo into space. Goldin related how aircraft, especially general aviation aircraft, are still using 40-year-old technology. To make a quantum advancement in that area, NASA is exploring technologies to make airplanes much safer and, at the same time, much faster, like increasing the speed of an airliner from about 600 mph to about Mach 6 to 10. In the navigation field, NASA is refining the Global Positioning System to locate points on earth to within a billionth of a meter as opposed to a few feet. They are also involved in developing weather prediction models that can help predict hurricanes and other weather-related disasters. Interestingly, Goldin stated the latter is the most complex problem of all that NASA is working on.

Mr. Goldin wrapped up by taking questions from the audience. Many of the questions were in regard to budget and the cuts that recently were ordered by Congress. His responses involved both acceptance of playing the hand you dealt and the frustration that the cuts came despite the fact that NASA has been finding cheaper and better ways to do things. He was quite satisfied with our democracy, however. He truly believes it is the will of the American people that controls the funding and that they will make the right decisions. He also expressed with pride (paraphrasing): “We can accomplish our 25-year strategic plan with the money we are given”.

His talk left a feeling of excitement with all who were present. The subject matter was almost that of a writer from Star Trek: a herd of robot space explorers (a kindlier, gentler Borg?), biological detectors for the human body (Dr. McCoy's medical scanner?), and nanobiology (the Deltan clone in the first Star Trek movie?). There was one curious moment, however, when Mr. Goldin mentioned how, as we were probing deeper and deeper into space and closer to the time of the Big Bang, we were maybe 25 years from seeing the cross of cosmology and theology. He didn't expand on that, even when questioned about it afterward. And he made another reference to God when he spoke of the total eclipse in Romania. Does religion have a place at NASA? He recommended we speak to our priests or rabbis.

You can't help but be enthusiastic about the work that NASA is doing. Their work with other agencies, like the NCI, reveals how the majority of the money NASA spends remains right here on Earth to benefit humans that will never see their planet from space.

Dan Goldin is a man who speaks in relatively sober, measured tones, the product of years of experience in cutting-edge technology in both the private and governmental sectors. Yet his eyes light up when he is questioned on the true purpose of NASA. No, it is not meant to support itself by generating its own capital, nor should it exist to transfer technology to the private sector, even though it does so. His vision for the organization he leads is the right one, and that is *to enlighten*. If a fraction of the work on NASA's drawing boards comes to fruition, his vision will be fulfilled and the world will be enlightened by it in ways we can now only dream of.



A Report on the First Black Forest Star Party

by Ed Lurcott

When I was at the Mason-Dixon Star Party in early June, there was a gentleman handing out a flier announcing the first "Black Forest Star Party" to be held at the Cherry Springs State Park in Potter County. The flier stated the Park's skies were the darkest in Pennsylvania, and that the park is at an elevation of 2300 feet with no neighboring light sources. That sounded pretty good to me, and I figured I should go check it out. So on September 10 I, along with my son Stan and his daughter Alyssa, started out at about 1:00 p.m. After fighting construction delays in the Harrisburg area, we arrived at Cherry Springs at about 5:30 p.m. The field was already 2/3 full of all sorts of campers and telescopes. We hurried over to the food service and had home-made chicken soup, coffee, crackers. The first speaker was just about finished and it was starting to get dark. We unloaded the tent and telescope. Hurricane Dennis had passed by 24 hours earlier and a clear cold front had passed by, leaving nothing but cool clear skies.

First Vega and Arcturus, Mars and Antares, then hundreds more stars appeared even before it got totally dark! I was busy orienting my scope on Polaris and looked up. There was the Milky Way also, visible before twilight had ended and it got fully dark!! When it finally got dark it was **dark!** We just sat there in awe and got the feeling we were on some kind of space ship out in space somewhere. M13, M31, the Perseus Double Cluster: these were all visible with the naked eye. Binoculars provided enough light gathering power to see just about anything that we can see from the BVA with telescopes. Switching to my 6" telescope, I found that even in a wide-field eyepiece the Andromeda galaxy extended beyond the edges of the field of view. I had to move the telescope back and forth to see it all. Dave from Pocono Mountain Optics had his 24" Dob there and invited us to take a look. He happened to be trained on the globular cluster M2 in Aquarius. What a sight! Not that fuzzy blob we see at the BVA but hundreds of stars could be picked out of the countless number of stars in the cluster.

Stan and I returned to our site and scanned the Milky Way with binoculars, just picking out many plainly visible clusters. Every so often someone would shout "Oh did you see that one?", referring of course to meteors. I was always looking with binoculars or with the scope and missed them. But of course the other attendees always let you know that "you missed a good one". Stan, Alyssa and I sacked out about midnight, but many people stayed up all night. Nature called on me about 4:30 a.m., and when I emerged from the tent there was brilliant Jupiter and Saturn among the thousands of other lights filling the sky. The Milky Way had moved to the west and Gemini, Taurus, and Orion now dominated the eastern sky.

As you can tell we were all impressed by the clear dark sky at this location. It was indeed the finest skies I have seen on the east coast.

The next day vendors, talks, and food were available for those who did not need to catch up on their sleep. Saturday night was a repeat of the same clear dark skies, and the steadiness of the atmosphere was even better than on Friday night.

Word of the ideal conditions which prevailed over this star party is bound to get around, and I am sure the next one will see more than the 250 attendees at this one. Of course there is no guarantee that the weather will cooperate as nicely as it did this year. But I can tell you that is it does, the 4.5 to 5 hour drive is well worth it!

End of Daylight Savings Time: October 31

On Sunday October 31, 1999 Daylight Savings Time ends at 2:00 a.m. When you go to bed on Saturday October 30, remember to set your alarm clock **back** by one hour!

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Calendar Notes

- November 5/6, 1999: CCAS Observing Session
(Friday) Brandywine Valley Association
- November 9, 1999: CCAS Monthly Meeting,
(Tuesday) West Chester University
7:30 p.m. EST
- November 19, 1999: Free Public Open House at Flower &
(Friday) Cook Observatory in Malvern, PA
Topic: "Brown Dwarfs" by Neill Reid
8:00 p.m. EST
- December 14, 1999: CCAS Monthly Meeting
(Tuesday) Location: TBA
7:30 p.m. EST
- December 17, 1999: Free Public Open House at Flower &
(Friday) Cook Observatory in Malvern, PA
Topic: "Photo of the Millenium"
by Jeff Goldader 7:00 p.m. EST
- December 17, 1999: CCAS Observing Session
(Friday) Brandywine Valley Association
Also: BVA Winter Solstice Celebration
- June 23-25, 2000 Mason-Dixon Star Party
York, PA

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Jersey Astro-Conference & Showcase

e-mail from: Barry Malpas <njastro@erols.com>

Amateur Astronomers, Inc. will be holding its annual "Jersey Astro-Conference & Showcase" on Saturday, Nov. 6 at Union County College, Cranford, NJ. This is a growing event at which there are speakers, vendors, raffels, and a variety of other activities. Last year we had over 400 in attendance and we expect more this year. For more details on the event go to: <http://www.asterism.org/events/events05.htm>

We are again offering free tables to other astronomy clubs to present displays about their organization's activities, photography, special events, etc. To reserve a table (5' long) for your organization just RSVP this email by October 15, 1999. This is a good and inexpensive way to promote your club's activities, meet other amateurs, and to just have a good time. And, mention it to your members too. Hope to see you there.

Barry Malpas
JACS clubs coordinator

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October Skies

Moon Phases

Last Quarter	10/02
New Moon	10/09
First Quarter	10/17
Full Moon	10/24

The Planets

Mercury is in our evening sky in October. The best chance of seeing it is around October 24, when it is as far from the Sun as it ever gets (from our vantage point, that is). Even then it will be a tough target, low in the western twilight skies.

Venus is in the morning sky in October, rising as much as 3 hours before the Sun by month's end.

Mars is low in the southwest after sunset, in Scorpius and Sagittarius this month. It's pretty much impossible to see any details on the planet now; it's too far away.

Jupiter reaches opposition on October 23, and will be the "star feature" in our evening skies. Very bright in the east and easy to find, Jupiter is always a grand sight in a telescope of any size!

Saturn is about 40 minutes behind (east of) Jupiter in October, and will be a great sight in a telescope as the rings are now well-tipped toward us and thus "wide open".

Uranus and Neptune are in the constellation Capricornus. These two planets are near the meridian at sunset, and are well placed for observing. There are finder charts for these two planets in the October 1999 issue of *Sky & Telescope* magazine. Can you see any of their moons?

Pluto is in the constellation Ophiuchus, and thus in the evening sky during October, but it will be so low that you can forget about trying to see it until next year.

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CCAS 20" Telescope News

AstroSystems has shipped, and we have received, the first box of parts for our TeleKit. If you're interested in helping to construct the `scope, make sure you attend the October meeting because we will probably be discussing the arrangements for "work parties".

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Request for Telescopes

We have received a request to provide telescopes for a star party on Friday October 29, 1999 at the Chester County Library at Exton Mall. The group is composed of high school students participating in a program at the Library; this will be one of their educational activities. Plan to arrive before dark if at all possible. Contact Ed Lurcott (610-436-0387) if you can help out with this event.

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October 1999 National Geographic

from the Bookworm

Whilst waiting in my doctor's office the other day, I picked up a copy of *National Geographic* and was quite pleased to find that it was a recent issue! An even more pleasant surprise was the separate fold-up map that fell out of it. It is a large (roughly 2 feet by 3 feet) "map" of the Milky Way galaxy (our home galaxy, of course) with a distance-scale grid, and with many of the major deep-sky objects (like Messier objects) marked and drawn in at the right places. Our location is also marked, and the "viewpoint" of the "map" is from above the galactic plane; all of which means you can get a pretty good idea of where things are in relation to Earth, and to each other. On the back are some really nice "3-D" renderings: one of where the Sun is located in relation to the nearest stars; one of where the Milky Way is in relation to the rest of the "Local Group" of galaxies; and one of where the Local Group is in relation to nearby galaxy clusters, like the Virgo Supercluster. I think it is an excellent educational tool, and I recommend it to all members. Get yourself a copy! Or two, so you can display both sides!

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For Sale:

Joe Vallee has a 14 inch Celestron telescope for sale. It comes with a custom mount manufactured by Jim Riffle who used to own Astro Works a few years ago. JMI encoders are installed. Also included are the original factory mount, an oversized finderscope (made by Celestron), wedge, and tripod. There is also a Celestron 5 guidescope with tangent arm attached. In addition, two eyepieces and a large number of filters are included with the equipment, and Joe has lowered the price to \$3,000 for the whole works. The original cost of the Astro Works mount alone was over \$5000.00! If anyone is interested you can contact Joe at JosephV985@aol.com or call 856-853-7944. Joe lives in Woodbury, NJ.

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News from Neighboring Societies

From *The Delaware Valley Amateur Astronomer*, the newsletter of the Delaware Valley Amateur Astronomers :

Upcoming Meeting & star party dates

October 8, 1999 (Friday) 8:00 p.m. EDT	Meeting. Topic: "Pulsars: Timekeepers of the Universe", by Maura McLaughlin, Ph.D. candidate at Cornell University.
October 16, 1999 (Saturday) 7:00 p.m. EDT	Free Public Star Party, in Valley Forge Park at the model airplane field off Route 252
November 12, 1999 (Friday) 8:00 p.m. EST	Meeting. Topic: TBA
December 10, 1999 (Friday) 8:00 p.m. EST	Meeting. Topic: TBA

All DVAA meetings are held at the Schuylkill Center for Environmental Education on Hagys Mill Road in Philadelphia, PA. For more information contact CCAS members Mike Turco (610-399-3423) who is also a member of DVAA. DVAA President Mike Tucker could also help (610-584-8236). Or check the DVAA Website at:

<http://www.libertynet.org/~dvaa/>

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

Upcoming Meeting Topics and speakers:

October 19, 1999 (Tuesday) 8:00 p.m. EDT	Topic: "A Beginner's Guide to Meteors", by Bill Sharp
November 16, 1999 (Tuesday) 8:00 p.m. EST	Topic: "Computer Programs for Astronomy", by Dr. Emil Volcheck
December 14, 1999 (Tuesday) 8:00 p.m. EST	Topic: member presentation night, with a swap table of astronomical objects, and "a galaxy of refreshments" at the end of the meeting

DAS meetings are held at the Mount Cuba Observatory in Greenville, Delaware. For more info contact President Warren Jacobs (610-566-0510). Or check their Website at:

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

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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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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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Sky & Telescope Magazine Group Rates

Subscriptions to this excellent periodical are available through the CCAS at a reduced price of **\$30.00 (note that this has just increased, as of October 1999)**, which is much less 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.

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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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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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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)

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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:	Steve Limeburner	(610) 353-3986
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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