



OBSERVATIONS

A MONTHLY PUBLICATION OF THE
CHESTER COUNTY ASTRONOMICAL SOCIETY



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

FEBRUARY 1999

(VOLUME 7, NO. 2)

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

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

CCAS February Meeting

DATE: Tuesday February 9, 1999
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)

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.

Our guest speaker will be Dr. Deborah Haarsma, currently Visiting Assistant Professor of Astronomy at Haverford College. She will speak on the topic of "Gravitational Lensing and the Age & Fate of the Universe." Gravitational lensing was predicted by Einstein in 1915 and was first observed in 1979. It appears that light approaching from great distances is bent by the gravity of massive objects similar to the way a light path is bent by a lens, hence the term gravitational lensing. Dr. Haarsma will show how the data from gravitationally lensed objects is used to estimate Hubble's Constant (*a ratio expressing the rate of apparent expansion of the universe, equal to the velocity of which a typical galaxy is receding from Earth divided by its distance from Earth*)¹ which is part of the equation used to determine the age and fate of the universe. As we heard Dr. Heintz tell us at our last meeting at the Sproul Observatory, he "suggests" that his students use 64 km/sec/megaparsec as Hubble's constant. We will see how Dr. Haarsma's data agrees with Dr. Heintz's position.

Dr. Haarsma received her B.S in Physics from Bethel College in 1991, and her Ph.D. in Radio Astronomy from MIT in 1997. She has done research at MIT and Los Alamos National Laboratory. Her interests include gravitational lenses, star formation in high-redshift galaxies and multi-wavelength study of active galactic nuclei.

¹Excerpted from *The American Heritage® Dictionary of the English Language, Third Edition* © 1996 by Houghton Mifflin Company. Electronic version licensed from INSO Corporation; further reproduction and distribution in accordance with the Copyright Law of the United States. All rights reserved.

Please plan on attending. This is a very interesting talk by a very good presenter. Oh, and by the way, Deborah also got a B.S. in Music in Piano Performance along with the physics degree. Anybody got a baby grand?

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February Observing Session

The next CCAS Observing Session will be on Friday February 19, 1999 starting at about 7:00 p.m. If it's too cloudy on Friday, then the Observing Session will be on Saturday February 20, 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 February!

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Some Future CCAS Events

March 19, 1999: Field Trip, Eastern College Observatory
April 13, 1999: Planetarium Show at West Chester University by Pru Campbell

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First Light for Sylvia by Mike Turco

First light is a term used by astronomers to refer to the moment when a new piece of observing equipment sees starlight for the first time; that "equipment" could even be your own eyes.

One of our newer members, Sylvia Hogate, who is 55 years old, had never looked through a telescope. This was one thing she was hoping to do as a member of our club, but the combination of her work demands and the recent observing sessions that were weathered out kept her from doing so.

Sylvia finally got her chance at the last meeting. Her first view through a telescope was memorable to say the least, despite the intermittent clouds. It was a view of Saturn through the 24" refractor at Sproul Observatory. That's one hell of a way to start. Congratulations Sylvia! We wish you many more wonderful views of the night skies.

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President's Message February, 1999

"The Sky's the Limit"

I was really looking forward to the last observing session. A combination of holiday demands and rotten weather had prevented me from getting any telescope time for almost a month. Yep, January 15th was the day. Mark your calendar I told my wife. Don't schedule anything for that weekend, I said. I'm psyched!

Of course this winter is making up for last year and throwing every known type of precipitation at us. Snow, sleet, 24 hours of freezing rain, mixtures of each. Even though the weather cleared up the day before the scheduled Friday Observing Session, the driving conditions were so bad that we (Steve Limeburner, et al. and I) decided to postpone the observation session until Saturday the 16th. It warmed up on Saturday and road conditions improved greatly.

I had tested out controlling my scope from a computer for the first time using TheSky software a couple of days before, and it worked really well. Point and click. Watch the target circle on the computer screen's star chart trace the path of the scope. Neat! I was anxious to try it in the field this time out. Everything seemed to be shaping up for a great Saturday night session. I disassembled the scope and mount from the computer test in my living room (which made my wife happy), packed up all my stuff, loaded it in the Jeep, and set out for the hills of the BVA. The sky was mostly clear of clouds. Should be enough open sky to do some Messier object hunting I thought.

What's that old saying about the best laid plans? I arrived at the BVA around 6 p.m. The bottom of the hill was a solid sheet of ice with some melted water on top for good measure. It looked like a frozen lake. No chance of getting around it. Curses!!

So back home I went. I telephoned our Observing Chairman on the way back and told him to alert others who were planning to come out to not bother.

I was determined to do some observing anyway. At home I unloaded and unpacked everything, and set up on the driveway by the house. It took forever to polar align as broken clouds were moving by causing stars to go in and out of view. Vega, my usual second alignment star to Polaris, was low behind trees, then it went behind clouds. So after trying one or two others without success, I ended up using Capella as the second star and watched as my scope twisted around from one point to another for each alignment iteration. It took four iterations to align precisely enough. Finally, around 8 p.m. or so, I aimed for the planets as Jupiter was getting low. That's when Mother Nature added insult to injury.

The sky was LOUSY. L-O-U-S-Y. Its naked-eye appearance was deceptive. The stars in Orion's head were (barely) visible so it was a 4th magnitude sky. Not very good, but not as bad as was revealed by the telescope. Even at low powers Jupiter was not sharp. At 50X Saturn looked good, but at 200+X it was a

fuzzy blob. I couldn't even make out Cassini's division. I ended up doing some double-star observing in Orion. There are a lot of interesting multiples in that constellation which kept the night from being a total washout. Actually they were quite interesting. But I made no progress toward the Messier certificate.

This experience drives home one sobering fact about the hobby of astronomy. No matter what equipment we own, regardless of optical quality, aperture, etc., it is the quality of the atmosphere that proves more times than not to be the limiting factor. So I must wait for another night to resume the quest for the Messier list.

Ah, another night... I'm psyched!

Mike Turco



AL Double Stars for February By Jim Anderson

The list of 100 double stars on the observing list for the Astronomical League's Double Star award has 25 doubles that you can easily see in February. That means you can complete 25% of the required observations in one month. I came up with this observing list for February by first consulting the all-sky chart for February in *Sky & Telescope* magazine. It shows the line of Right Ascension for 05 hour as the meridian line for February. You always want to observe objects when they are close to the meridian line because then you are looking through less of the Earth's turbulent atmosphere. If you don't know what the meridian line is, it is the line you get if you stand out under the sky and draw a line from the point due north on your horizon, up through the point that is straight overhead, and back down again to the point that is due south on your horizon. Every object in the sky will cross this line, and at that point that object is as high above your local horizon as it will get, so that is the best time to observe it. You can observe objects when they are as much as two hours of R.A. on either side of the meridian without noticeable deterioration, so this list contains doubles between 03 hours and 07 hours.

One of the nice things about double star observing is that you don't need a big telescope or perfect skies to see them. In fact, I have observed many of these doubles with a 60mm (2.4") refractor. All of the doubles on the AL list can be seen with a 80mm, or 3", telescope. Well, that's what the AL handout says; I'm not sure of that, I'd like us to find out, so give it a try with different sizes of telescopes, even binoculars if you have a tripod for them. Then, over time, we can enhance the monthly double star list(s) with the minimum required aperture for each double. The AL handout will be available at the February meeting. I will also give a brief presentation on this topic at the February meeting, and have handouts with finder charts for these 25 double stars, sample log entries, double star nomenclature, etc. If you want to start sooner, the list of 25 double stars for February is on the next page.

A.L. Double Stars for February

Star	R.A.	Dec.	Constellation	Chart	Magnitudes	Sep.	P.A.	Notes
Struve 331 Σ 331	03h 00.9m	+52° 21'	Perseus	1, 4	5.3, 6.7	12.1"	85°	60mm
32 Eridanus	03h 54.3m	-02° 57'	Eridanus	10, 11	4.8, 6.1	6.8"	347°	60mm
Chi Taurus χ Tauri	04h 22.6m	+25° 38'	Taurus	5	5.5, 7.6	19.4"	24°	60mm
1 Camelopardalis	04h 32.0m	+53° 55'	Camelopardalis	1, 5	5.7, 6.8	10.3"	308°	60mm
55 Eridanus	04h 43.6m	-08° 48'	Eridanus	11	6.7, 6.8	9.2"	317°	60mm
Beta Orion β Orionis (Rigel)	05h 14.5m	-08° 12'	Orion	11	0.1, 6.8	9.5"	202°	80mm??
118 Taurus	05h 29.3m	+25° 09'	Taurus	5	5.8, 6.6	4.8"	204°	60mm
Delta Orion δ Orionis	05h 32.0m	-00° 18'	Orion	11	2.2, 6.3	52.6"	359°	60mm
Struve 747 Σ 747	05h 35.0m	-06° 00'	Orion	11	4.8, 5.7	35.7"	223°	60mm
Lamda Orion λ Orionis	05h 35.1m	+09° 56'	Orion	11	3.6, 5.5	4.4"	43°	60mm
Theta 1 Orion θ^1 Orionis The Trapezium	05h 35.3m	-05° 23'	Orion	11	6.7, 7.9, 5.1, 6.7	8.8", 13.0", 21.5"	31°, 132°, 96°	60mm
Iota Orion ι Orionis	05h 35.4m	-05° 55'	Orion	11	2.8, 6.9	11.3"	141°	60mm
Theta 2 Orion θ^2 Orionis	05h 35.4m	-05° 25'	Orion	11	5.2, 6.5	52"	92°	60mm
Sigma Orion σ Orionis	05h 38.7m	-02° 36'	Orion	11	4.0, 7.5, 6.5	12.9", 43"	84°, 61°	60mm
Zeta Orion ζ Orionis	05h 40.8m	-01° 57'	Orion	11	1.9, 4.0, 9.9	2.4", 58"	162°, 10°	60mm
Gamma Lepus γ Leporis	05h 44.5m	-22° 27'	Lepus	19	3.7, 6.3	96"	350°	50mm
Theta Auriga θ Aurigae	05h 59.7m	+37° 13'	Auriga	5	2.6, 7.1	3.6"	313°	60mm??
Epsilon Monoceros ϵ Monocerotis	06h 23.8m	+04° 36'	Monoceros	11, 12	4.5, 6.5	13.4"	27°	60mm
Beta Monoceros β Monocerotis	06h 28.8m	-07° 02'	Monoceros	11, 12	4.7, 5.2	7.3"	132°	60mm
12 Lynx	06h 46.2m	+59° 27'	Lynx	1	5.4, 7.3	8.7"	308°	60mm
Epsilon Canis Major ϵ Canis Majoris	06h 58.6m	-28° 58'	Canis Major	19	1.5, 7.4	7.5"	161°	60mm??
Delta Gemini δ Geminorum	07h 20.1m	+21° 59'	Gemini	5	3.5, 8.2	6.8"	211°	60mm??
19 Lynx	07h 22.9m	+55° 17'	Lynx	1,5	5.6, 6.5	14.8"	315°	60mm
Alpha Gemini α Geminorum (Castor)	07h 34.6m	+31° 53'	Gemini	5	1.9, 2.9	2.2"	171°	60mm
Kappa Puppis κ Puppis	07h 38.8m	-26° 48'	Puppis	19	4.5, 4.7	9.9"	318°	60mm

Chart Numbers are from *Sky Atlas 2000.0, First Edition*

CCAS At Sproul Observatory by Kathy Buczynski

On our regular meeting date last month, January 12, 1999, a number of members were excited to visit the Sproul Observatory on the grounds of Swarthmore College. Luckily we got there a little early, caught a glimpse of Saturn and a very interesting double in the constellation Pisces, before a cloud bank rolled in. Double stars have been the subject of much study at Sproul. We were excited to see at least one of their study objects through the 24" refractor.

All was not lost, however, because we were delighted to have Dr Wulff Heinz as our host. Dr. Heinz has been running the observatory for some 30 years now. He was very entertaining, interspersing his talk with many of quips, all delivered in a heavy German accent. He showed us many of the antique instruments in the telescope's dome, and gave us a tour of Swarthmore's internet site.

Sproul is now doing much of their work through a CCD camera, which was removed for our visit so that we could look directly through the big telescope. Many of the CCD images are displayed on their web site.

The work that continues at Sproul will prevent the telescope from becoming extinct, but if you saw this scope you would have to agree - it's a dinosaur! And what a magnificent dinosaur it is!

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Astronomical League News Hot off the e-mail wires

"Astronomical League Launches New Observing Programs"

The following new Astronomical League observing manuals are now available: Observe Variable Stars; The Universe Sampler, the Planetary Observing Guide; and the Asteroid Observing Club. Publication of these guides, along with the existing Messier and Herschel guides, the Meteor and Sunspotter clubs, and the binocular observing programs, means that the Astronomical League now offers a complete range of observing programs for amateur astronomers, from the beginner all the way to advanced observers. All AL Observing Manuals can be obtained from Astronomical League Sales at the following address.

Astronomical League Sales

P.O. Box 572

West Burlington, IA 52655

Ordering information can be found on the Web at:

<http://www.astroleague.org/al/alsales/alsales.html>

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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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February's Skies

Moon Phases

Last Quarter	2/08
New Moon	2/16
First Quarter	2/22

Loony Notes: The Full Moon of January 31 was a "Blue Moon" because it was 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 evening sky during the last half of February. Look low in the sky, about 15-30 minutes after sunset. It won't be easy to find; you need a really good low western horizon.

Venus is low in the evening sky as February starts, and then moves higher in the evening sky each night. Venus has a **really** close conjunction with Jupiter the evening of February 23. The two planets will be only 11' (11 minutes of arc) apart (that's visually, of course; as seen from Earth.) The diameter of the Full Moon is about 30', so, as you can see, it will be easy to get both planets in one telescopic field of view! It should be an impressive sight, and a great photograph opportunity.

Mars is rising before midnight now. By month's end we will be getting close enough to Mars for good telescopic viewing.

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

Saturn is high in the south as darkness falls, east of much brighter Jupiter (i.e., Saturn is to the left of Jupiter).

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. On February 11 at 5:08 a.m. (EST) Pluto reaches the spot in its orbit where it will once again be the planet furthest from the Sun. For the past 20 years, Neptune has actually been further from the Sun than Pluto. This odd fact is due to the highly eccentric orbit of Pluto. The next time this "switcheroo" takes place is about 230 years from now.

Asteroid Vesta: Observing Challenge

4 Vesta is well placed for observing in February, moving in a northwesterly direction between Leo and Cancer. At magnitude 6.2 at the beginning of February, and at about magnitude 7 at month's end, Vesta is one of the brightest asteroids. Observing Chair Ed Lurcott estimates that it is moving against the background stars at a rate of about 40 arc-seconds per hour in early February. That means that if you observe it when it is near a star, you could detect it change position against the background stars in as little as 15 minutes. Ed's challenge is to see if you can find it with binoculars. A finder chart is attached below, adapted from *Uranometria 2000.0*.

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Book Review by Mike Turco

365 Starry Nights by Chet Raymo.

A Fireside Book, published by Simon & Schuster, New York, 1982.

About \$15.00.

...[A] companion to the night....

Although by no means a new book, this was the only one I asked Santa for this Christmas. I had perused a copy from the DVAA library a while back and liked it so much that I wanted a copy of my own to read and reread at my leisure. It is a very unimposing work, fit for a beginner. Yet I would heartily recommend it even to the more advanced in this hobby, or to anyone who just wants to read something about astronomy without getting too technical. That it is still in print is no surprise.

In a comfortable style, and in day by day doses (hence the title), Raymo reveals his love of the science that is astronomy in an almost poetic way. As a result, without realizing it, the reader ends up with a surprising wealth of knowledge on the subject. You easily absorb knowledge of star names, magnitudes and positions; the mythology and recognition of constellations; observational techniques; cosmological distances; the Hertzsprung-Russell diagram; red dwarfs and even black holes, as well as many other astronomical topics. Reading a bare list of the subject matter could scare off a lot of people who might feel intimidated by it. But this book gives the reader a treatment of all these topics and more in a most palatable and elegant way. That is the beauty of this volume and the secret of its longevity.

As the author states: *"The clock or the computer is finite, to know it is to exhaust its potential for exciting wonder. The night sky is...inexhaustibly complex and finally beyond reach. Knowledge [of it] only whets our interest and increases our wonder."*

This book is a great way to whet your interest in astronomy. Read it, gain knowledge, and become connected to the heavens. I highly recommend it.

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ASP Meeting in Toronto: July 1-7, 1999

The Astronomical Society of the Pacific is holding their annual meeting this year in Toronto. This will be a joint meeting with the Royal Astronomical Society of Canada (RASC) and the American Association of Variable Star Observers (AAVSO). The meeting will "focus specifically on partnerships in astronomy research and Education." Ed Lurcott from our Society is planning on attending. If you're interested in going, contact Ed or Jim Anderson for more details. We have brochures describing the meeting, the speakers, conference topics, etc., in much more detail than can be provided here.

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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

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/>

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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 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.

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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).



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>



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



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.



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.



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



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

