



OBSERVATIONS

A MONTHLY PUBLICATION OF THE
CHESTER COUNTY ASTRONOMICAL SOCIETY



★President: Edwin Lurcott
★Treasurer: Pete LaFrance

MARCH 1998
(VOLUME 6, NO. 3)

★Vice President: Kathy Buczynski
★Secretary: William O'Hara

CCAS March Meeting

DATE: **Tuesday March 10, 1998**
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.

At our March meeting Mike Turco will talk with us about his solar eclipse experiences on February 26, 1998. It should be very interesting. Refreshments and socializing will follow the meeting.

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CCAS March Observing Session

The next Observing Session will be on Friday March 20, 1998, with a cloud date of Saturday March 21. If the weather is bad both days, there will not be an observing session in March. The session will be held at the Brandywine Valley Association (a map is included). 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 they are accompanied by an adult. Remember to dress warmly! It gets cold real fast standing around in the middle of an old pasture in March.

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CCAS TO HOLD FIRST ANNUAL MESSIER MARATHON by Frank Angelini

Subject to BVA approval CCAS plans to hold their 1st Annual Messier Marathon. Messier Marathon you say? What's that? Well, if you've been attending monthly meetings and reading *Observations*, you've heard of Charles Messier. That's right. He was the 18th century comet hunter who compiled a famous catalog of non-stellar objects including popular items such as The Orion Nebula, **M42**, The Crab Nebula, **M1**, The Ring Nebula, **M57**, etc.

Each year, between mid March and early April, all 110 Messier objects are visible during the time between dusk and dawn. Messier Marathons began in earnest back in the late 1960's when a few Southern California astronomy clubs began the practice. Their popularity has grown, with most major US and foreign clubs participating in force.

Generally, you begin by observing "M" objects soon after sunset in the western horizon and work your way east in a right ascension sweep, eventually concluding just before dawn. Of course success is dependent on weather, seeing conditions, local horizon obstruction, and so on. Also, keep in mind that that you will need pull an "all-niter", so remember to bring warm clothing and something to eat and drink. Only a modest telescope is necessary. Our club Dobsonian would be just fine. Or if you wish bring binoculars and scan the brighter objects to meet the requirements the Astronomical League's Binocular Messier List.

If you are interested, join us after the regular March meeting, when Frank Angelini will speak briefly about the marathon. Search sequence lists and computer generated star charts will be available. Finally, if Friday the 27th is cloudy, we will try again Saturday night the 28th.

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CCAS Election News

It's that time of year again. The CCAS Constitution says in Article IV, Section 2, that "an election committee consisting of three (3) members, one acting as chairperson, shall be appointed by the president on or before the March meeting for the purpose of selecting candidates" for the elected offices. "Names of the candidates shall be presented in writing to the Society at the April meeting. All candidates must agree to serve if elected. Nominations may be accepted from the floor at the April meeting."

Section 3 continues the election committee duties: "The election committee shall conduct the election and announce the results to the Society during the May meeting. If only one person is nominated for any office the secretary shall cast one vote for the election of that person."

Section 4 states simply that "the newly elected officers shall be installed at the June meeting."

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Saturday May 2: National Astronomy Day

Start thinking now about what we can do on National Astronomy Day. We have not confirmed any plans with the Exton Square Mall yet, so we are open to suggestions of what to do that day to promote astronomy, and where. Call Ed Lurcott with any ideas.

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Upcoming Events

Mark your calendars now for these CCAS Observing Sessions in the coming months:

April 24 (25)

May 29 (30)

June 26 (27)

July 24 (25)

August 28 (29)

Texas Star Party: April 19-26

DelMarVa Stargaze IV: April 24-26, 1998, held at Tuckahoe State Park near Queen Anne Maryland.

Northeast Astronomy Forum and Telescope Show: Sunday May 3, 8:30 a.m. - 6:00 p.m. Suffern, NY

BVA Summer Solstice Party: Friday June 19

Astronomical Society of the Pacific Annual Meeting: June 25-July 1 Albuquerque, NM

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June 19-21: Mason-Dixon Star Party

This fine star party takes place south of York, PA, near the state border. It features speakers on a variety of topics, swap tables of astronomical gear, vendor displays, camaraderie, and great observing all night long if you can stay awake. The keynote speaker this year will be Dr. David Dunham, best known for his work in lunar and asteroid occultations: he writes the annual articles on these events in *Sky & Telescope*.

Practically an unlimited number of camping sites is available. No hookups, though. There are also three motels within "telescope distance" of the park, and many others within a 30-minute drive. Ed Lurcott has a brochure with more details. We would like to get together a group of people to attend this event together; camp together in a group, if camping, etc. The idea is to get the CCAS a bit more recognition outside our own area. Chuck Shorten, Shiv Gupta, Rafael Gonzalez, Pete LaFrance, and Ed Lurcott have all attended this event in the past. You can talk to any of them about their experiences.

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July 21-25: ALCON 98

The National Convention of the Astronomical League will be held this year in French Lick, Indiana. There will be at least 8 professional speakers, competitions in astrophotography and CCD imaging, displays by vendors, a banquet, workshops, tours, door prizes, a midnight bowling tournament, and dark-site observing in the Hoosier National Forest. The French Lick Resort is a recently renovated 1920's style hotel. It features indoor and outdoor pools, a world-famous spa, three restaurants, a pizza parlor, a game room, an ice-cream parlor, a bowling alley, two golf courses, numerous tennis courts, and a brand new convention center. Rooms are \$79 per night for one or two people. Ed Lurcott is planning to attend. Anyone else interested??

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Monthly Quiz Question

What are the coordinates (in Right Ascension and Declination) of the Sun on the Vernal Equinox? First person to call Ed Lurcott (436-0387) with the correct answer wins a prize.

The winner of the January/February question "In what year did the stellar explosion occur that formed the Crab Nebula in Taurus?" was Roy Beatty. Roy called at 1:40 p.m. EST on February with an answer of 5,446 B.C. Our source, *Hyper-Sky for Windows*, says the explosion was observed in 1054 A.D., and is 6300 light years away, meaning the explosion actually occurred in 5,246 B.C. The precise distance to the Crab Nebula is not settled; some sources list different distances, accounting for the 200 year difference in Roy's answer. Nobody called with an answer closer to our source, so Roy is the winner.

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March's Skies

Moon Phases

First Quarter	03/05
Full Moon	03/12
Last Quarter	03/21
New Moon	03/27

The Planets

Mercury makes its best appearance of the year in our evening sky this month. The best evenings will be March 10 through March 24. The best night of all will be March 19, when it will be at its highest above the horizon after sunset. In a telescope it will look like a half-moon.

Venus is the bright "morning star" in March, and a great sight if you're up before the Sun.

Mars is in the evening sky, an orange or red "star" in the west-southwest at dusk, but very tough to find.

Jupiter passed behind the Sun in late February, and will emerge into the morning sky in late March.

Saturn is in the west-southwest at dusk in March. It is now getting too low in the sky for good telescopic viewing.

Uranus and Neptune are lost in the Sun's glare in March, not far from Venus, but too low for good seeing.

Pluto rises late at night this month, but it would be extremely difficult to find. Best wait a few more months before trying to find it.

Vernal Equinox: March 20 at 2:55 p.m. EST

The first day of spring in the Northern Hemisphere is on Friday March 20, 1998. This is the day the Sun crosses the Earth's equator back into the Northern Hemisphere. The name Equinox means "equal night", meaning that the night is as long as the day on March 20. According to the *Observer's Handbook 1998*, though, sunrise for 40° north latitude (our latitude in the Philly area) is at 6:04 UT and sunset is at 18:12 UT on March 20. The day will be 8 minutes longer than the night. So it's not entirely true that we have equal night and day on the 20th, but it is definitely true that the Sun crosses the equator at 2:55 p.m. EST on the 20th, and Spring is officially here. And that is an event we are always glad to welcome, even after such a mild winter as that of 1997-1998.

See the Zodiacal Light

The *Observer's Handbook 1998* says on its March calendar page that the evenings of Monday March 16 through Monday March 30 will be a good time to look for the zodiacal light in the west after evening twilight ends. On March 16 that will be around 7:35; on March 30 it will be around 7:55 (both times are EST). The zodiacal light is caused by "dust" in the plane of the ecliptic in our Solar System reflecting sunlight. In case you don't know, the plane of the ecliptic is the plane in which all the planets orbit our Sun, more or less (in the case of Pluto, much less). There's also all kinds of "dust", small particles of matter, orbiting the Sun between the planets. When the conditions are right, you can see this space dust ("stardust"??) by reflected sunlight. Such a time occurs this month in the evening on the dates noted above, when the Moon will be out of the way. The zodiacal light appears as a "huge, softly radiant pyramid of white light with its base near the horizon and its axis centered on the zodiac. In its brightest parts it exceeds the luminance of the central Milky Way. Despite its brightness, most people have not seen the zodiacal light..." (*Observer's Handbook 1998*, page 195) So give it a try; does the light pollution in your locale drown it out? Or were you able to see it? Send or call reports to the editor, and we'll publish results next month. A "report" would be your name, the date and time, your location when you made the observation, and whether or not you could see it. Gathered together, a good set of reports by observers from all around the county could give us a rough idea of the light pollution situation in different parts of the county.

An Observing Challenge by Ed Lurcott

It is ironic that only 10 degrees separates one of the most massive binary stars known from one of the least massive binary stars known. Both are in the constellation of Monoceros just east of Orion, and are now conveniently placed for observation. Those of you who have *Burnham's Celestial Handbook* can read about them both in volume 2. The more massive binary, known as Plaskett's Star, consists of a pair of O-type stars orbiting each other with a period of 14.4 days. The primary is reported to have a mass 51 times that of our Sun ($51M_{\odot}$) and the secondary has a mass of 43 times that of our Sun ($43M_{\odot}$). Together they appear as a 6th magnitude star at R.A. 6 h 37.4', dec. $+06^{\circ} 08.1'$. Some astronomers believe this binary to be at the same distance as the star cluster NGC 2244 and the Rosette Nebula, at 2700 light-years. If this is true, the stars shine with a brilliance 3,000 times that of our Sun ($3000L_{\odot}$) and a surface temperature over 25,000 degrees K. Can you imagine what it would be like to live on a planet orbiting this binary? In order to have a life-sustaining temperature, that allows for liquid water, the planet would have to be in an orbit about 55 astronomical units from the star(s), and would therefore have an orbital period of some 500 years!

A binary star known as Ross 614 consists of a pair of red M-type dwarfs with an apparent magnitude of 11. You would need at least a 4- or 6-inch scope to see this one. These stars are among the least massive stars known. The primary is reported to have a mass of only 0.14 times that of our Sun ($0.14M_{\odot}$), and the secondary has only 0.08 times the mass of our Sun ($0.08M_{\odot}$). The 15th magnitude secondary contributes very little to the brightness of the pair. It was not even seen visually until the 200-inch telescope at Mt. Palomar was used to view it in 1955. The secondary orbits the primary once every 16.5 years. Ross 614 shows a parallax of 0.244 seconds of arc, and therefore is placed at a distance of only 13.4 ly. You can see that these must be very dim stars indeed. Astronomers tell us that it would take 63,000 of these stars to shine as brightly as our Sun. The diameter of the secondary is estimated to be only a little larger than Jupiter, but 80 times more massive: just barely enough to sustain nuclear fusion. The location of this binary star is R.A. 6 h 09', Dec $-02^{\circ} 47'$

See if you can observe these stars with the help of the finder charts included with this issue of *Observations*.



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. These "clubs" will arrange times for the members working on those awards to get together to share experiences and advice in finding interesting sights in the night sky, and possibly also to observe together. Working on these awards also gives you a plan of observing, so to speak. "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): Bob Hartje (610-325-7285)

Lunar Club: Ed Lurcott (610-436-0387)

Double Star Club: Jim Anderson (610-380-4512)



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. The complete list of books is too big to include in the newsletter; there will be copies available at CCAS meetings. We will be publishing sections of the list each month, though; part 5 is below. Bill's phone number is 696-1422.

Books in Category 7, "Instruction Guides":

- 701 - *Teacher's Guide and Test Bank for Contemporary Astronomy, 4th Ed.*, Pasachoff, 1989
- 702 - *Basic Astronomical Data, Vol. 3 of Stars and Stellar Systems*, K. Aa Strand, 1963
- 703 - *Astronomical Techniques, vol. 2 of Stars and Stellar Systems*, Hiltner, 1962
- 704 - *Instructor's Manual for the Dynamic Universe*, Shawl, 1991
- 705 - *Dynamic Astronomy, 5th Edition, Instructor's Edition*, Dixon, 1989
- 706 - *Introductory Astronomy Exercises*, Ferguson, 1990
- 707 - *Student Study Guide to Contemporary Astronomy*, Pasachoff, Kutner, & Pasachoff, 1977
- 708 - *Astronomy: The Beginner's Guide to the Universe, Instructor's Edition*, Chaisson & McMillan, 1990
- 709 - *1993 Membership Directory of the American Astronomical Association*, 1992
- 710 - *Information on Space Education and Satellite Communication*, Goodall Associates, 1993

711 - Test Bank, Protheroe



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.



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



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



Sky & Telescope Magazine Group Rates

Subscriptions to this excellent periodical are available through the CCAS at a reduced price, which is about half the newsstand price, and also cheaper than individual subscriptions! 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

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

- President:** Edwin Lurcott (610) 436-0387
- Vice Pres:** Kathy Buczynski (610) 436-0821
- Treasurer:** Pete LaFrance (610) 268-2616
- Secretary:** William O'Hara (610) 696-1422
- Program:** Kathy Buczynski (610) 436-0821
- ALCor and**
- Newsletter:** Jim Anderson (610) 380-4512
- Librarian:** William O'Hara (610) 696-1422

