Observations

A Monthly Publication Of The
CHESTER COUNTY ASTRONOMICAL SOCIETY

Vol. 21, No. 4 *Two-Time Winner of the Astronomical League's Mabel Sterns Award ☼ 2006 & 2009* *April 2013*

In This Issue

Comet PANSTARRS

Comet PANSTARRS by CCAS members Rafael Gonzalez and Leticia Vence. Taken on March 14th. Nikon D5000, Exposure 7seconds, telephoto 300mm, F/5.6 ISO 3200.

Membership Renewals Due

04/2013	Bower Imburgia Richter
05/2013	Cline & Family Long, Vic, Jr. Weiss & Family
06/2013	Hebding Kovacs Siskind

Important April 2013 Dates

3rd • Last Quarter Moon, 12:37 a.m.

10th • New Moon, 5:36 a.m.

18th • First Quarter Moon, 8:32 a.m.

22nd • Lyrid Meteor Shower Peaks

25th• Full Moon, 3:58 p.m.

CCAS Upcoming Nights Out

CCAS has several "nights out" scheduled over the next few months. Members are encouraged to help out during these events any way they can. See below for more information.

☼ **Saturday, April 12, 2013**. CCAS Special Observing Session, Springton Manor Farm. The observing session is scheduled for 8:00 PM to 9:30 PM.

☼ **Saturday, April 20, 2013.** CCAS Special Observing Session, Anson Nixon Park, Kennett Square. The observing session is scheduled for 8:00 PM to 9:30 PM.

Spring 2013 Society Events

April 2013

3rd • PA Outdoor Lighting Council monthly meeting, 1438 Shaner Drive, Pottstown, PA 19465, starting at 7:30 p.m. For more information and directions, visit the PA Outdoor Lighting Council website.

5th • West Chester University Planetarium Show: "Other Earths," in the Schmucker Science Building. The show starts at 7 p.m. For more information and reservations, visit the WCU Public Planetarium Shows webpage.

8th • CCAS Monthly Observing Session, Myrick Conservancy Center, BVA (inclement weather date March 9th). The observing session starts at sunset.

9th • CCAS Monthly Meeting, Room 113, Merion Science Center (former Boucher Building), West Chester University. Meet & Greet over coffee and refreshments from 7:00 to 7:30 p.m. The meeting starts immediately after at 7:30 p.m. Guest Speaker: Paul Halpern, PhD, will discuss his new book "The Edge of the Universe," current state of Cosmology.

11th • The von Kármán Lecture Series: Regenerative Fuel Cells, Energy Storage Systems for Space Applications, Jet Propulsion Laboratory, Pasadena, California. Live stream of free lecture presented by NASA & Caltech.

12th • Reservations start for the May 3rd planetarium show at the WCU Planetarium.

12th • CCAS Special Observing Session, Springton Manor Farm. The observing session is scheduled for 8:00 PM to 9:30 PM.

20th • CCAS Special Observing Session, Anson Nixon Park, Kennett Square. The observing session is scheduled for 8:00 PM to 9:30 PM.

20th • Open call for articles and photographs for the April 2013 edition of Observations.

20th • Spring Astronomy Day.

26th • Deadline for newsletter submissions for the May 2013 edition of Observations.

May 2013

1st • PA Outdoor Lighting Council monthly meeting, 1438 Shaner Drive, Pottstown, PA 19465, starting at 7:30 p.m. For more information and directions, visit the PA Outdoor Lighting Council website.

3rd • West Chester University Planetarium Show: "Spectacular Saturn," in the Schmucker Science Building. The show starts at 7 p.m. For more information and reservations, visit the WCU Public Planetarium Shows webpage.

9th • The von Kármán Lecture Series: Radar Imaging of Near Earth Asteroids, Jet Propulsion Laboratory, Pasadena, California. Live stream of free lecture presented by NASA & Caltech.

14th • CCAS Monthly Meeting, Room 113, Merion Science Center (former Boucher Building), West Chester University. Meet & Greet over coffee and refreshments from 7:00 to 7:30 p.m. The meeting starts immediately after at 7:30 p.m. Meeting Program: Youth Night. TJ Picclo and Hunter Ralls will present their research projects.

17th • CCAS Monthly Observing Session, Myrick Conservancy Center, BVA (inclement weather date May18th). The observing session starts at sunset.

20th • Open call for articles and photographs for the June 2013 edition of Observations.

26th • Deadline for newsletter submissions for the June 2013 edition of Observations.

Minutes from the March 12, 2013 CCAS Monthly Meeting

by Ann Miller, CCAS Secretary

- President Roger Taylor welcomed 19 members and guests to our March meeting. He asked for volunteers to form a Nominating Committee for upcoming club officer elections. He also reminded club members of the upcoming star parties at Hoopes Park, Bucktoe Preserve, Springton Manor and Anson Nixon Park in March and April.
- Don Knabb, observing chair, gave us a sky tour on Sky Safari Pro of Caroline's Rose in honor of our evening's presentation. Comet Panstarrs will be visible from now until March 24 in the western horizon after sunset. He also used the Stellarium software to present the night sky in London 1783 as a prelude to our evening presentation.
- David Hockenberry, program chair, introduced Lynn King who gave the evening presentation, a reenactment of Caroline Herschel. Ms. Herschel was the first salaried female scientist and is credited with discovering 8 comets herself. Caroline reorganized the Flamsted's Catalog of constellations and together with her brother William added 2000 new objects.

Nicholas's Humor Corner

by Nicholas La Para

April 2013 Speaker

by Dave Hockenberry, CCAS Program Chair

Our next meeting will be held on April 9, 2013, starting at 7:30 p.m. The meeting will be held in Room 113, Merion Science Center (former Boucher Building), West Chester University. Our guest speaker is Dr. Paul Halpern from the University of the Sciences in Philadelphia. He will discuss his new book *The Edge of the Universe*.

Dr. Halpern is the author of twelve books on subjects ranging from the history of particle physics to the nature of time. Widely acclaimed popular science books, include *Countdown to Apocalypse*, *The Quest for Alien Planets*, *The Cyclical Serpent*, *The Structure of the Universe*, *Cosmic Wormholes* and *Time Journeys*. He has received accolades and praise from numerous publications, including *Publishers Weekly*, the *San Francisco Chronicle*, *Nature*, *Scientific American*, *Sky & Telescope* and *New Scientist*. *The Cyclical Serpent* was chosen as one of the best Sci-Tech books of 1995 by Library Journal, and *Cosmic Wormholes* was chosen as a main selection of the Astronomy and Natural Science Book Club. He has appeared on many television and radio shows, including the PBS series "Future Quest" and the National Public Radio show "Radio Times."

Paul Halpern, PhD
University of the Sciences

Please note that inclement weather or changes in speakers' schedules may affect the program. In the event there is a change, CCAS members will be notified via e-mail with as much advance notice as possible.

We are looking for presenters for our meetings this coming autumn. If you are interested in presenting, or know someone who would like to participate, please contact me at programs@ccas.us.

CCAS Original Astrophotography

by Dave Hockeberrry

Galaxy NGC 4395, photographed with a QSI 583 wsg camera through AstroTech AT8RC telescope at 1625 mm FL on an AP 1200 mount. Autoguided with an SX Lodestar camera off axis, SX Adaptive Optics Unit and MaxIm DL. Image capture with MaxIm DL. Color frames with AstroDon filters. 675 minutes Luminance (45 X 15 minute subexposures), 90 minutes each Red, Green and Blue frames (9 X 10 minute subexpo-

(Continued on page 7)

The Sky Over Chester County

April 15, 2013 at 9:00 p.m. ET

Note: This screen capture is taken from Stellarium, the free planetarium software available for download at www.stellarium.org.

Date	Civil Twilight Begins	Sunrise	Sunset	Civil Twilight Ends	Length of Day
4/01/2013	6:18 a.m. EST	6:45 a.m. EST	7:25 p.m. EST	7:52 p.m. EST	12h 40m 09s
4/15/2013	5:55 a.m. EDT	6:23 a.m. EDT	7:39 p.m. EDT	8:07 p.m. EDT	13h 16m 06s
4/30/2013	5:33 a.m. EDT	6:02 a.m. EDT	7:54 p.m. EDT	8:24 p.m. EDT	13h 52m 09s

Moon Phases					
Last Quarter	4/03/2013	12:37 a.m. EDT	First Quarter	4/18/2013	8:32 a.m. EDT
New Moon	4/10/2013	5:36 a.m. EDT	Full Moon	4/25/2013	3:58 p.m. EDT

April 2013 Observing Highlights

by Don Knabb, CCAS Treasurer & Observing Chair

3	**Last Quarter Moon**
10	**New Moon**
12	**Springton Manor Farm star party**
13	**Look for a thin crescent Moon between Aldebaran and the Pleiades**
14	**The Moon is near Jupiter**
17	**The Lunar X is visible**
18	**The Lunar Straight Wall is visible**
18	**First-quarter Moon**
20	**Anson Nixon Park star party**
20	**International Astronomy Day**
22	**The Lyrid meteor shower peaks**
25	**Full Moon**
28	**Saturn is at opposition**

The best sights this month: As Jupiter sinks lower into the western sky, Saturn enters at stage left! We can enjoy both the king of the planets and the ringed beauty in April but they inhabit opposite sides of the sky.

Mercury: Mercury is not easily observed during April.

Venus: At month's end Venus just barely begins to be visible in the glow of the sunset.

Mars: The red planet passes through conjunction with the Sun on April 18th and cannot be observed during this month. Although Mars will appear in the early morning hours later this year it will not be an evening object until 2014.

Jupiter: The king of the planets is still a bright object in the evening sky during the first half of April, but by month's end it is sinking toward the horizon. Enjoy the sight of this beautiful planet now before it falls into the glow of the sunset later this spring.

Saturn: Saturn is rising earlier as we go through April and reaches opposition on April 28th, so it rises at sunset and sets at sunrise and is highest in the sky around midnight. The ringed beauty will be with us all summer and I look forward to gazing into the eyepiece at this incredible planet, over and over again. I never tire of sharing the view of Saturn at star parties. Do you remember the first time you saw Saturn in a telescope? I do!

Uranus and Neptune: The opportunity to observe these distant gas giants is behind us until late in 2013.

The Moon: Full moon is on April 25th. Native Americans called this the Full Pink Moon. This name came from the herb moss pink, or wild ground phlox, which is one of the earliest flowers of the spring. Other names for this full Moon are the Full Sprouting Grass Moon and among coastal tribes the Full Fish Moon because this was the time that the shad swam upstream to spawn.

Constellations: Goodbye Orion, hello Hercules! Ah, spring is here and the snow has melted. This is a great time of the year to stare at the bright points of light in the sky and wonder what early Man thought as he gazed into the night. It's not so cold now and the humidity of summer is not affecting our view of the sky. It takes some careful looking with binoculars, but it is worth the effort to find the dim constellation Cancer the Crab with its beautiful Beehive Cluster. Leo the Lion fills our gaze around 9 p.m. and if you stay out a bit you'll see the Northern Crown, the constellation Corona Borealis rising with Hercules the Hunter not far behind.

Messier/deep sky: April is a good month to go galaxy hunting. Look for M64 in Coma Berenices, M51, M81 and M82 in Ursa Major and M104 near bright Spica in Virgo. Of course, you will need to go hunting on a night with no bright Moon since the moonlight will wash away any hope of seeing a faint galaxy.

Comets: Comet PanSTARRS has not quite lived up to expectations, but there will be an opportunity to see this fuzz ball pass very close to M31, the An-

(Continued on page 10)

Your Daily Dose of Astonishment

by Diane K. Fisher

As a person vitally interested in astronomy, you probably have the Astronomy Picture of the Day website at apod.nasa.gov set as favorite link. APOD has been around since practically the beginning of the web. The first APOD appeared unannounced on June 16, 1995. It got 15 hits. The next picture appeared June 20, 1995, and the site has not taken a day off since. Now daily traffic is more like one million hits.

Obviously, someone is responsible for picking, posting, and writing the detailed descriptions for these images. Is it a whole team of people? No. Surprisingly, it is only two men, the same ones who started it and have been doing it ever since.

Robert Nemiroff and Jerry Bonnell shared an office at NASA's Goddard Space Flight Center in the early-90s, when the term "World Wide Web" was unknown, but a software program called Mosaic could connect to and display specially coded content on other computers. The office mates thought "we should do something with this."

Thus was conceived the Astronomy Picture of the Day. Now, in addition to the wildly popular English version, over 25 mirror websites in other languages are maintained independently by volunteers. (See http://apod.nasa.gov/apod/lib/about_apod.html for links). An archive of every APOD ever published is at http://apod.nasa.gov/apod/archivepix.html. Dr. Nemiroff also maintains a discussion website at http://asterisk.apod.com/.

But how does it get done? Do these guys even have day jobs?

Dr. Nemiroff has since moved to Michigan Technological University in Houghton, Michigan, where he is professor of astrophysics, both teaching and doing research. Dr. Bonnell is still with NASA, an astrophysicist with the Compton Gamma Ray Observatory Science Support Center at Goddard. APOD is only a very small part of their responsibilities. They do not collaborate, but rather divide up the calendar, and each picks the image, writes the description, and includes the links for the days on his own list. The files are queued

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The January 20, 2013, Astronomy Picture of the Day is one that might fall into the "quirky" category. The object was found at the bottom of the sea aboard a Greek ship that sank in 80 BCE. It is an Antikythera mechanism, a mechanical computer of an accuracy thought impossible for that era. Its wheels and gears create a portable orrery of the sky that predicts star and planet locations as well as lunar and solar eclipses.

Space Place (cont'd)

(Continued from page 6)

up for posting by a "robot" each day.

They use the same tools they used at the beginning: Raw HTML code written using the vi text editor in Linux. This simple format has now become such a part of the brand that they would upset all the people and websites and mobile apps that link to their feed if they were to change anything at this point.

Where do they find the images? Candidates are volunteered from large and small observatories, space telescopes (like the Hubble and Spitzer), and independent astronomers and astrophotographers. The good doctors receive ten images for every one they publish on APOD. But, as Dr. Nemiroff emphasizes, being picked or not picked is no reflection on the value of the image. Some of the selections are picked for their quirkiness. Some are videos instead of images. Some have nothing to do with astronomy at all, like the astonishing August 21, 2012, video of a replicating DNA molecule.

Among the many mobile apps taking advantage of the APOD feed is Space Place Prime, a NASA magazine that updates daily with the best of NASA. It's available free (in iOS only at this time) at the Apple Store.

This article was provided by the Jet Propulsion Laboratory, California Institute of Technology, under a contract with the National Aeronautics and Space Administration.

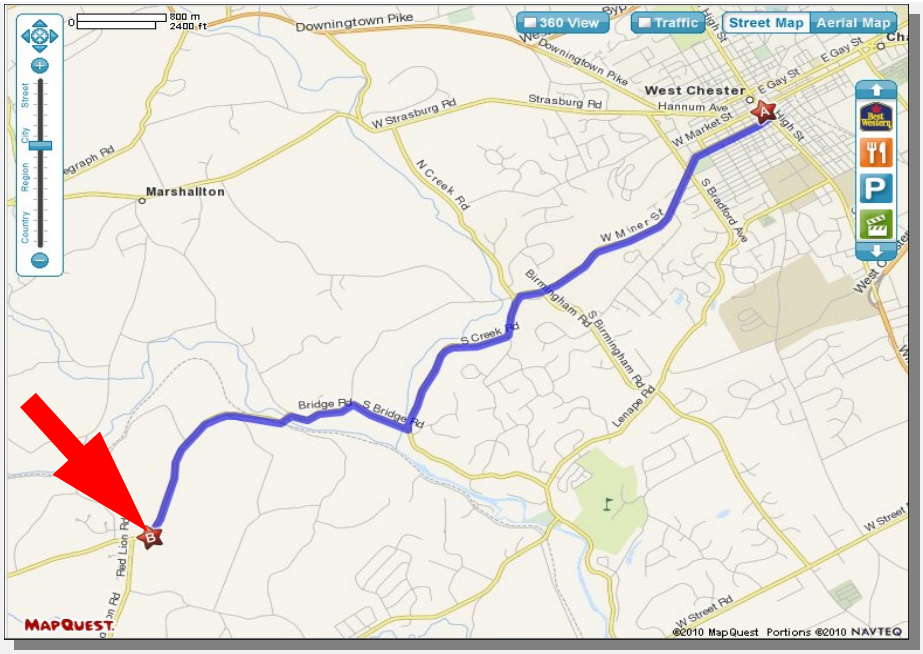
NGC 4395 (Cont'd)

(Continued from page 3)

sures). Images calibrated, stacked, Lum deconvolution and RGB creation in CCD-Stack. Lum-RGB merge and further adjustments in Photoshop CS5. Background noise reduction with Noise Ninja and Gradient Xterminator. FITS Liberator courtesy of ESA.

NGC 4395 is a Seyfert 1 galaxy in the constellation canes Venatici, and lies about 26 million light years from Earth. It is one of the "flattest" spiral galaxies known and has no central bulge. It also sports one of the "smallest" galactic supermassive black holes ever measured at about 3-400,000 solar masses.

CCAS Directions



Brandywine Valley Association
1760 Unionville Wawaset Rd
West Chester, PA 19382
(610) 793-1090
http://brandywinewatershed.org/

BVA was founded in 1945 and is committed to promoting and protecting the natural resources of the Brandywine Valley through educational programs and demonstrations for all ages.

Brandywine Valley Association

The monthly observing sessions (held February through November) are held at the Myrick Conservation Center of the Brandywine Valley Association.

To get to the Myrick Conservation Center from West Chester, go south on High Street in West Chester past the Courthouse. At the next traffic light, turn right on Miner Street, which is also PA Rt. 842. Follow Rt. 842 for about 6 miles. To get to the observing site at the BVA property, turn left off Route 842 into the parking lot by the office: look for the signs to the office along Route 842. From that parking lot, go left through the gate and drive up the farm lane about 800 feet to the top of the hill. The observing area is on the right.

If you arrive after dark, *please turn off your headlights and just use parking lights* as you come up the hill (so you don't ruin other observers' night vision).

Through the Eyepiece: Nu Draconis, the Dragon's eyes, or the Cat's Eyes

by Don Knabb, CCAS Treasurer & Observing Chair

Although I have written about planets, galaxies and clusters of all sorts, I have never written about double stars. So what better one to choose then a beautiful binocular or telescopic double in Draco the Dragon, who is rising in the east during April? This double is often called "the eyes of the dragon" but I like Terence Dickinson's description when he says they look "like cat's eyes in a small scope". I am referring to the star Nu Draconis.

While most folks are familiar with the Big Dipper and Little Dipper, in the same region of the sky is a long, winding group of stars which portrays the mythological creature of a dragon named Draco. Its name is Latin for dragon. Draco is circumpolar (that is, never setting) for many observers in the northern hemisphere. It was one of the 48 constellations listed by the 2nd century astronomer Ptolemy, and remains one of the 88 modern constellations today.

Nu Draconis is named Kuma. It is the faintest star that makes the skewed box of Draco's head and is one of the favorite, and most-easily seen, double stars of the northern sky. Even steadily-held binoculars will split it into two nearly identical white stars. The two stars are practically the same brightness, both appearing just a trifle brighter than fifth magnitude and separated by just over one arc minute (or about 1/30th the apparent diameter of a full moon).

The proper name "Kuma" is of obscure meaning, one source suggesting "at last," but why is anybody's guess. The star is far better known by its Greek letter name Nu Draconis, the western one of the pair Nu-1, the eastern one Nu-2. Individually of the fifth magnitude, they combine to produce a naked-eye star of magnitude four.

My favorite way to view the eyes of the dragon is in summer, lying far back on a reclining

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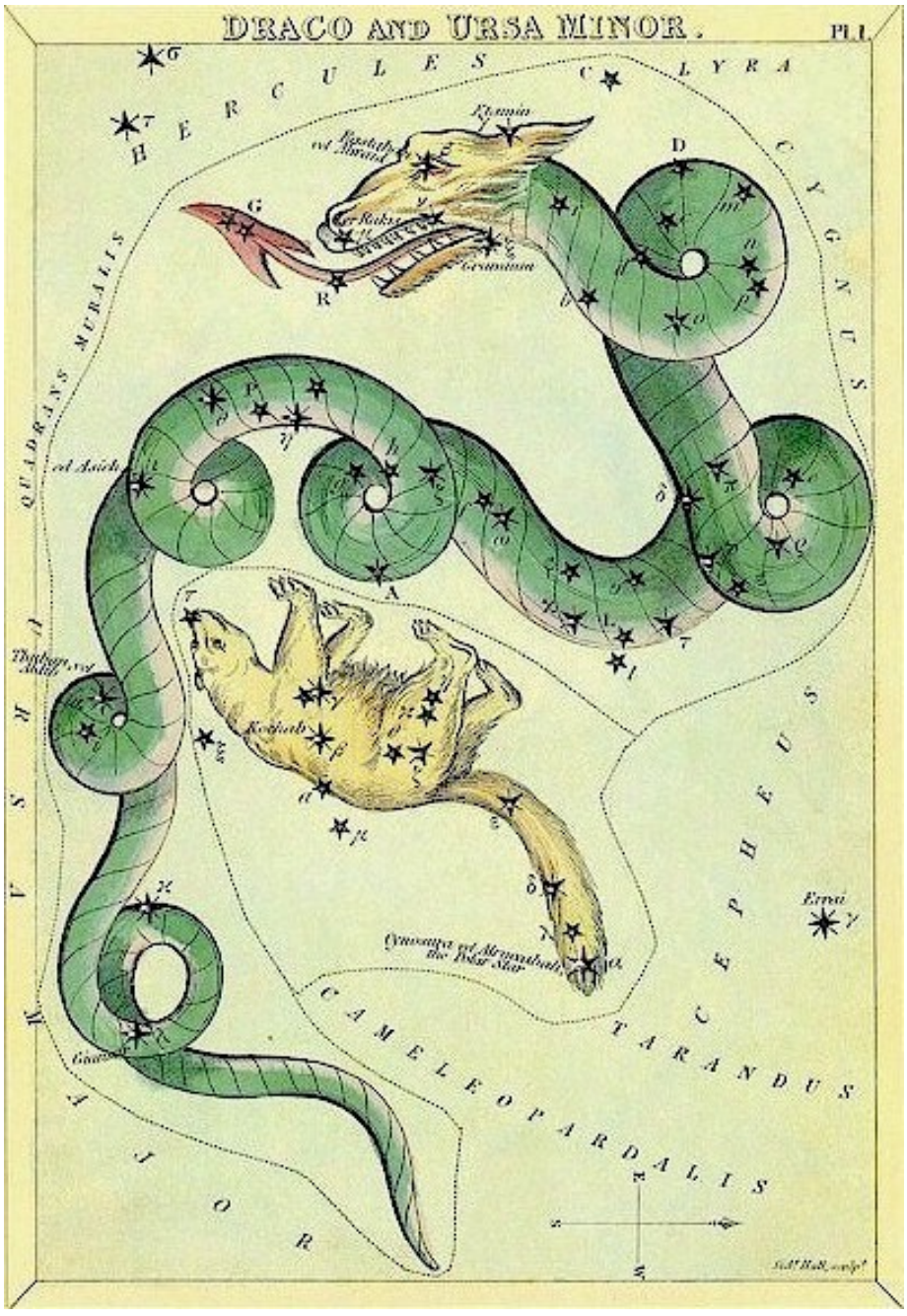
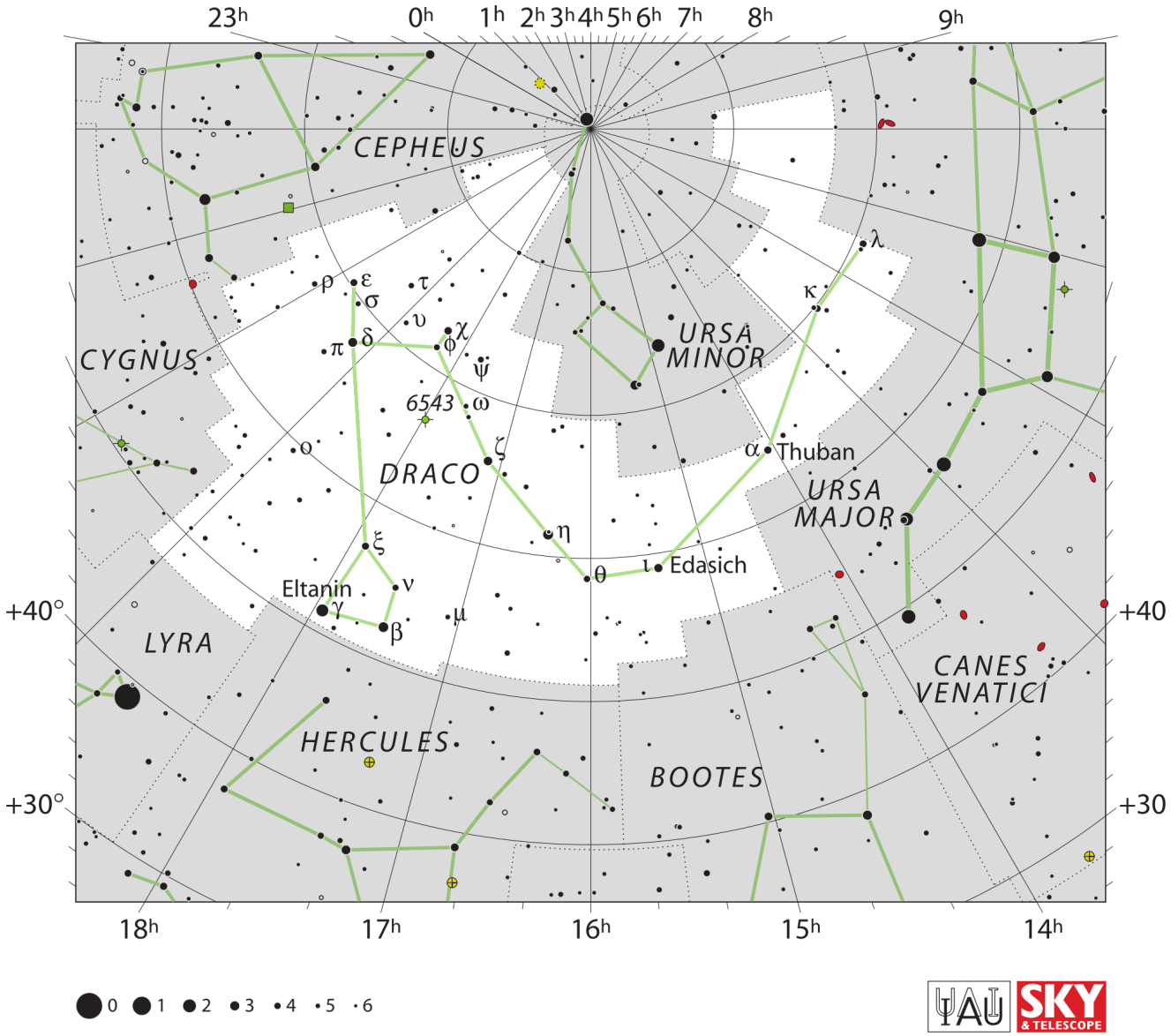


Eyepiece (Cont'd)



(Continued from page 8)

deck chair with a pair of binoculars held straight up. The two stars really do look like a pair of cat's eyes reflecting back at you in a dark room. I did not include an image of the stars with this article since the only way to really enjoy this beautiful double is under the starry sky.

Draco is a very ancient star grouping. The earliest Sumerians considered these stars to represent the dragon Tiamat. Later the constellation became one of the creatures that Hercules killed.

One of Draco's tasks was to guard the garden of Hesperides and its golden apples that Hercules was supposed to retrieve. In the stars, Draco coils around Polaris and we now see Hercules standing on Draco's head.

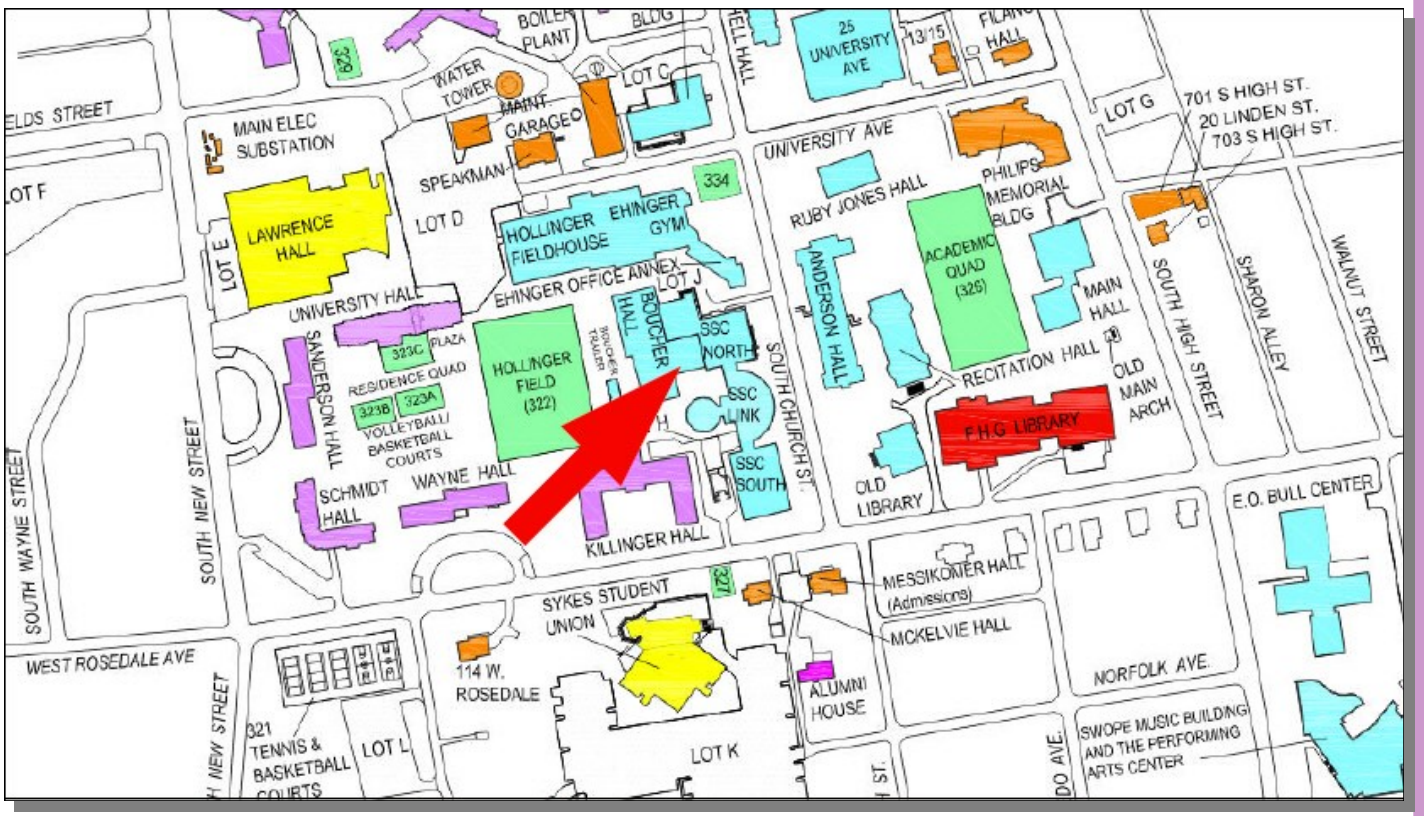
The Dragon's head is the most conspicuous part of the constellation: an irregular quadrangle in the night sky not quite half the size of the Big Dipper's bowl. The brightest star is Eltanin, a second magnitude star, shining with an orange color.

Information sources:
Sky Safari Pro planetarium software
Dickinson, Terence 2006. Nightwatch: a practical guide to viewing the universe. Buffalo, NY. Firefly Books
http://stars.astro.illinois.edu/sow/kuma.html
http://www.space.com/16399-double-stars-july-night-sky.html

CCAS Directions

West Chester University Campus

The monthly meetings (September through May) are held in Room 113 in Merion Science Center (formerly the Boucher Building), attached to the Schmucker Science Center. The Schmucker Science Center is located at the corner of S. Church St & W. Rosedale Ave. Parking is generally available across Rosedale in the Sykes Student Union parking lot (Lot K).



Observing (Cont'd)

(Continued from page 5)

dromeda Galaxy, during the first week of April. There is a sky chart in the April issue of Astronomy magazine that plots the nightly position of the comet among the background stars.

Meteor showers: The Lyrid meteor shower is active from April 16th to the 25th. This is not an especially active shower with a maximum rate of between 15 and 25 meteors per hour. But, meteor showers are unpredictable so take a look during the predicted peak in the pre-dawn hours of April 22.

CCAS Membership Information and Society Financials

Treasurer's Report

by Don Knabb

March 2013 Financial Summary

Beginning Balance	$1,484
Deposits	$1,098
Disbursements	$814
Ending Balance	$1,768

New Member Welcome!

Welcome back CCAS member Charles Armored of West Chester, PA.

We're glad you decided to join us under the stars! Clear skies to you!

Membership Renewals

You can renew your CCAS membership by writing a check payable to "Chester County Astronomical Society" and sending it to our Treasurer:

Don Knabb
988 Meadowview Lane
West Chester PA 19382

The current dues amounts are listed in the *CCAS Information Directory*. Consult the table of contents for the directory's page number in this month's edition of the newsletter.

CCAS Information Directory

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
3225 North First Avenue
Tucson, AZ 85719

Phone: **520-293-3198**
Fax: **520-293-3192**
E-mail: **ida@darksky.org**

For more information, including links to helpful information sheets, visit the IDA web site at:

http://www.darksky.org

Note that our CCAS Webmaster John Hepler has a link to the IDA home page set up on our Society's home page at **http://www.ccas.us**.

Dark-Sky Website for PA

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

http://www.POLCouncil.org

Find out about Lyme Disease!

Anyone who spends much time outdoors, whether you're stargazing, or gardening, or whatever, needs to know about Lyme Disease and how to prevent it. You can learn about it at:

http://www.LymePA.org

Take the time to learn about this health threat and how to protect yourself and your family. It is truly "time well spent"!

CCAS Event Information

We've set up a special phone number you can dial to find out if our monthly observing session and other scheduled events will be held or postponed. Call **610-436-0829** after 5 PM ET to hear a recording to find out the latest news.

Good Outdoor Lighting Websites

One of the biggest problems we face in trying to reduce light pollution from poorly designed light fixtures is easy access to good ones. When you convince someone, a neighbor or even yourself, to replace bad fixtures, where do you go for good lighting fixtures? Check out these sites and pass this information on to others. Help reclaim the stars! And save energy at the same time!

Starry Night Lights

Light pollution from poor quality outdoor lighting wastes billions of dollars and vast quantities of valuable natural resources annually. It also robs us of our heritage of star-filled skies. Starry Night Lights is committed to fighting light pollution. The company offers the widest selection of ordinance compliant, night sky friendly and neighbor friendly outdoor lighting for your home or business. Starry Night Lights is located in Park City, Utah.

Phone: **877-604-7377**
Fax: **877-313-2889**

http://www.starrynightlights.com

★ ★ ★ ★ ★

Green Earth Lighting
Formerly
Outdoor Lighting Associates

Green Earth Lighting is a dedicated lifetime corporate member of the International Dark-Sky Association. GEL's products are designed to reduce or eliminate the negative effects outdoor lighting can have while still providing the light you need at night.

Green Earth Lighting LLC
620 Onion Creek Ranch Rd
Driftwood, Texas 78619

Phone: **512-944-7354**

http://www.greenearthlighting.com

Local Astronomy-Related Stores

Listing retail sites in this newsletter does not imply endorsement of any kind by our organization. This information is provided as a service to our members and the public only.

Skies UNLIMITED

Skies Unlimited is a retailer of telescopes, binoculars, eyepieces and telescope accessories from Meade, Celestron, Televue, Orion, Stellarvue, Takahashi, Vixen, Losmandy and more.

Skies Unlimited
Suburbia Shopping Center
52 Glocker Way
Pottstown, PA 19465

Phone: **610-327-3500** or **888-947-2673**
Fax: **610-327-3553**

http://www.skiesunlimited.net

★ ★ ★ ★ ★

Spectrum Scientifics
Quality Science Products for All Ages

Located in Manayunk, Spectrum Scientifics educates and entertains customers with an array of telescopes, microscopes, binoculars, science toys, magnets, labware, scales, science instruments, chemistry sets, and much more.

4403 Main Street
Philadelphia, PA 19127

Phone: **215-667-8309**
Fax: **215-965-1524**

Hours:
Tuesday thru Saturday: 10AM to 6PM
Sunday and Monday: 11AM to 5PM

http://www.spectrum-scientifics.com

CCAS Information Directory

CCAS Lending Telescopes

Contact Don Knabb to make arrangements to borrow one of the Society's lending telescopes. CCAS members can borrow a lending telescope for a month at a time; longer if no one else wants to borrow it after you. Don's phone number is 610-436-5702.

CCAS Lending Library

Contact our Librarian, Barb Knabb, to make arrangements to borrow one of the books in the CCAS lending library. Copies of the catalog are available at CCAS meetings, and on the CCAS website. Barb's phone number is 610-436-5702.

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 e-mail message and send it to: **newsletter@ccas.us**

Or mail the contribution, typed or handwritten, to:

John Hepler
2115 Lazor St.
Apt. 227
Indiana, PA 15701

CCAS Newsletters via E-mail

You can receive the monthly newsletter (in full color!) via e-mail. All you need is a PC or Mac with an Internet e-mail connection. To get more information about how this works, send an e-mail request to John Hepler, the newsletter editor, at: **newsletter@ccas.us**.

CCAS Website

John Hepler is the Society's Webmaster. You can check out our Website at:

http://www.ccas.us

John 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 copyrighted material! Give your contributions to John Hepler at (724) 801-8789 or e-mail to webmaster@ccas.us

CCAS Purpose

The Chester County Astronomical Society was formed in September 1993, with the cooperation of West Chester University, as a non-profit organization dedicated to the education and enjoyment of astronomy for the general public. The Society holds meetings (with speakers) and observing sessions once a month. Anyone who is interested in astronomy or would like to learn about astronomy is welcome to attend meetings and become a member of the Society. The Society also provides telescopes and expertise for "nights out" for school, scout, and other civic groups.

CCAS Executive Committee

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

President:	Roger Taylor 610-430-7768
Vice President:	Liz Smith 610-842-1719
ALCor, Observing, and Treasurer:	Don Knabb 610-436-5702
Secretary:	Ann Miller 610-558-4248
Librarian:	Barb Knabb 610-436-5702
Program:	Dave Hockenberry 610-558-4248
Education:	Kathy Buczynski 610-436-0821
Webmaster and Newsletter:	John Hepler 724-349-5981
Public Relations:	Deb Goldader 610-304-5303

CCAS Membership Information

The present membership rates are as follows:

REGULAR MEMBER……$25/year
SENIOR MEMBER…….$10/year
STUDENT MEMBER……..$ 5/year
JUNIOR MEMBER……..$ 5/year
FAMILY MEMBER…….$35/year

Membership Renewals

Check the Membership Renewals on the front of each issue of *Observations* to see if it is time to renew. If you need to renew, you can mail your check, made out to "Chester County Astronomical Society," to:

Don Knabb
988 Meadowview Lane
West Chester PA 19382-2178

Phone: **610-436-5702**
e-mail: **treasurer@ccas.us**

*Sky & Tele*scope Magazine Group Rates

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