bservations

A Monthly Publication Of The
CHESTER COUNTY ASTRONOMICAL SOCIETY

APRIL 2006
(VOLUME 14, NO. 4)
Visit our website at www.ccas.us

In This Issue

Important April 2006 Dates

1 Crescent Moon occults the Pleiades.

2 **Daylight Savings Time begins**. Turn clocks **ahead** one hour.

4 **Introductory Astronomy class** meets at West Goshen Township Building. Class starts at 7:00 p.m. EDT. Topic: *The Secret Life of Stars*

Also: Hercules Observing Cluster meets **at the West Goshen Township building**.

5 First Quarter Moon.

11 **CCAS Meeting** 7:30 p.m. EDT

Location: Room 113, Boucher Building, WCU
COM: Cancer
Presentation: Members' Night

11 Hercules Observing Cluster meets.
Call Kathy Buczynski at 610-436-0821 for details.

13 Full Moon.

18 **Introductory Astronomy class** meets in **Room 113, Boucher Building, WCU**. Class starts at 7:00 p.m. EDT. Topic: *Stars by Design: Constellations*

Hercules Observing Cluster cancelled.

21/22 **CCAS Observing Session**
Location: Brandywine Valley Association
Time: sunset, or earlier (see page 3)

21 Last Quarter Moon.

22 Lyrid Meteor Shower peaks.

25 Hercules Observing Cluster meets.
Call Kathy Buczynski at 610-436-0821 for details.

27 New Moon

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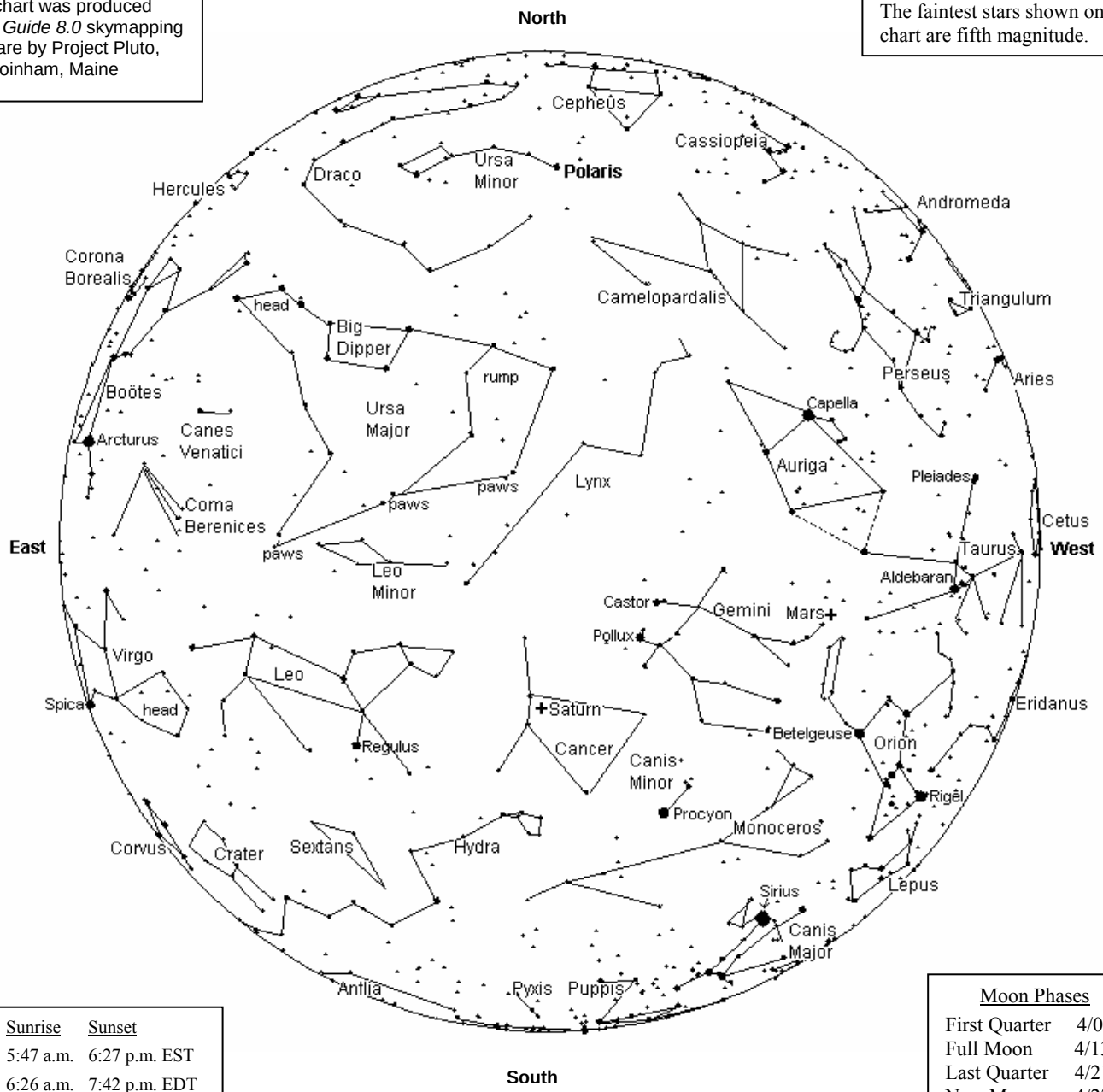
This chart was produced using *Guide 8.0* skymapping software by Project Pluto, Bowdoinham, Maine

The faintest stars shown on this chart are fifth magnitude.



Date	Sunrise	Sunset
4/1	5:47 a.m.	6:27 p.m. EST
4/15	6:26 a.m.	7:42 p.m. EDT
4/30	6:05 a.m.	7:57 p.m. EDT

Moon Phases	
First Quarter	4/05
Full Moon	4/13
Last Quarter	4/21
New Moon	4/27

The sky over Chester County

April 15, 2006 at 8:00 p.m. EDT

The Planets, by Don Knabb

Mercury: Mercury does not make a good showing during April (unless you fly to the Southern Hemisphere).

Venus: During April Venus rises less than 2 hours before the Sun. Try to find Venus during the broad daylight of mid-morning for a fun challenge!

Mars: During April Mars moves from Taurus to Gemini and on April 12 passes only 3/4° from the center of the open star cluster M35.

Jupiter: During April Jupiter rises near the end of evening twilight in the east-southeast, transits about 30° high near 1:30 a.m. and stands about 25° high at the beginning of morning twilight. One look to the east and the king of the planets will grab your attention!

Saturn: The excellent show of Saturn and the Beehive star cluster (M44) is a must see for binoculars. On April 5 Saturn is stationary and returns to eastward motion after that date, heading back toward the Beehive Cluster. It stands nearly 60° high at the end of evening twilight.

Uranus: If you're looking for a challenge try to find Uranus, a tiny 6th magnitude pale blue-green dot, on April 18 when it is only 0.3° south of Venus!

Neptune: The distant blue planet is not well placed for viewing during April.

Pluto: Pluto is in Serpens high in the south before dawn but is not well placed for a few more months.

April Observing Highlights

by Don Knabb, CCAS Observing Chair

Constellations: We begin to say goodbye to wonderful Orion as April progresses, but handsome Hercules is rising not too far into the night. Brilliant Arcturus in the constellation Bootes, the Herdsman, is shining higher into the sky, and to its right in the southeast is the springtime star Spica.

Apr. 1 The crescent Moon occults the Pleiades! Use binoculars or a low power eyepiece in a telescope to watch the stars wink out as the Moon covers them.

Apr. 2 Daylight Saving Time begins, the Moon is 0.3° north of the Pleiades

Apr. 5 First Quarter Moon.

Apr. 13 Full Moon.

Apr, 21 Last Quarter Moon.

Apr. 22 Lyrid meteors peak before dawn. Expect about 20 meteors per hour at the peak.

Apr. 27 New Moon.

Apr. 29 Moon 0.2° North of Pleiades.

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Through the Eyepiece: The Return of the King

by Don Knabb, CCAS Observing Chair

No, this article is not about the third installment of the J. R. R. Tolkien Lord of the Rings trilogy. It's about the king of the planets, Jupiter, as it returns to our evening skies as we progress through spring into summer. Jupiter will be at opposition (when it is on the extension of the line of sight from the Sun through Earth) and high in the sky on May 4 in 2006, shining at magnitude -2.5.

Jupiter is the fifth planet from the Sun and is the largest one in the solar system. It is a huge ball of hydrogen and helium without any solid continents like we have here on Earth. If Jupiter were hollow, more than one thousand Earths could fit inside. It also contains more matter than all of the other planets combined. It is believed that beneath all that gas lays a small rocky core covered by metallic hydrogen (what a weird idea—metallic hydrogen…).

What we see when we look at Jupiter through a telescope is a quilt of multicolored clouds with ever changing dark and light bands. The most prominent area of interest on the surface of Jupiter is the Great Red Spot, a salmon-colored oval vortex that has been observed for centuries. The Great Red Spot is larger than our entire planet.

Jupiter is the fourth brightest object in the sky (after the Sun, the Moon and Venus). It has been known since prehistoric times as a bright "wandering star." In 1610 when Galileo first pointed a telescope at the sky he discovered Jupiter's four large moons Io, Europa, Ganymede and Callisto (now known as the Galilean moons) and recorded their motions back and forth around Jupiter. This was the first discovery of a center of motion not apparently centered on the Earth. It was a major point in favor of Copernicus's heliocentric theory of the motions of the planets. Galileo's outspoken support of the Copernican theory got him in trouble with the Inquisition.

Today anyone can repeat Galileo's observations (without fear of retribution). Even the smallest telescope will reveal Jupiter's four largest satellites, three of which are larger than our own Moon. The motion of these satellites is fascinating to watch and under good conditions (with at least a 60mm telescope) you can sometimes see the shadow of a moon on Jupiter's surface. And at latest count, there are 63 known satellites in orbit around Jupiter!

Jupiter radiates more energy into space than it receives from the Sun. The interior of Jupiter is hot, around 20,000 degrees C. The heat is generated by the slow gravitational compression of the planet. Jupiter does NOT produce energy by nuclear fusion as does the Sun; it is much too small and hence its interior is too cool to ignite nuclear reactions. Jupiter is just about as large in diameter as a gas planet can be. If more material were to be added, it would be compressed by gravity such that the overall radius would increase only slightly. A star can be larger only because of its internal (nuclear) heat source. But Jupiter would have to be at least 80 times more massive to become a star.

Jupiter has rings like Saturn's, but much fainter and smaller. They were totally unexpected and were only discovered when two of the Voyager 1 scientists insisted that after traveling 1 billion kilometers it was at least worth a quick look to see if any rings might be present. Everyone else thought that the chance of finding anything was nil, but there they were.

Jupiter and science fiction: Yes, Jupiter has been a movie star! In the movie *2010: The Year We Make Contact*, the follow up to *2001: A Space Odyssey*, we follow a group of American and Russian astronauts as they travel to Jupiter to investigate the mysterious monolith. As the movie closes, the aliens who built the monolith replicate millions of monoliths on Jupiter to increase its mass to the point that it collapses under its own gravity and bursts into nuclear fusion and becomes a second star in our sky. The new star was created to supply energy to a newly-formed intelligent life form on Jupiter's moon Europa.

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CCAS April Meeting

DATE: **Tuesday March 11, 2006**
TIME: 7:30 p.m. EDT
PLACE: Room 113 – Boucher Building
West Chester University
LOCATION: South Church Street
West Chester, PA

A map of the campus showing the location is on page 15.

This month's Constellation of the Month (COM) will be Cancer, presented by Don Knabb.

After that we will have a Members' Night. CCAS members (and visitors) are welcome to give brief talks on an astronomical interest of their choice, like the surprise "short" that Vic Long gave us at the February meeting, on the crater Clavius on the Moon. Which brings up an interesting point. Perhaps you have a topic, something astronomical you looked into and found interesting. You could do a mini-talk like the one Vic did. Just show up at the meeting when you have it ready, and let the officer in charge (usually our Prez, Kathy Buczynski) know that you have a brief talk for the group. It could be about your favorite double star or planet, favorite galaxy, favorite spot on the Moon, anything astronomical. It doesn't have to be a long presentation with slides and all that. The important thing is the information sharing.

You can also ask any question you may have on astronomical topics, and those present will attempt to answer. If no one knows, we'll make a note of it and look the answer up later. Answers requiring such research will be in next month's *Observations*. We can also discuss plans for the CCAS Astronomy Day activities on May 6, 2006.

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CCAS April Observing Session

The next CCAS Observing Session will be at the Brandywine Valley Association's Myrick Conservancy Center (see map on page 14) on Friday April 21, 2006 starting at sunset; or earlier, if you can get there earlier. If it's too cloudy on Friday, then the Observing Session will be on Saturday April 22, 2006. At the observing sessions, there will be help available to set up and use your telescopes. If you're having trouble using your telescope, or finding your way around the sky, come on out and get some assistance. All members are invited whether they have a telescope or not. Telescope owners are always glad to share the view through their telescope. CCAS Observing Sessions are free of charge and open to the public.

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CCAS Introductory Astronomy Class

The Education Committee of the CCAS is running a class intended to introduce people to basic astronomy. This series of eight classes, held on the first and third Tuesdays of each month, has just four sessions left. **Note that the order of classes for the April sessions has been switched:**

April 4	The Secret Life of Stars
April 18	Stars by Design: Constellations
May 2	Planetarium Field Trip (WCU)
May 16	Beyond Naked Eye

The April 4 class is at the **West Goshen Township Building** at the intersection of Paoli Pike and Five Points Road. This is just a short distance from the Paoli Pike exit off U.S Route 202 outside West Chester.

The April 18 class will be held in **Room 113, Boucher Building, at West Chester University.** This is the same room where our regular monthly meetings are held. The rooms at the West Goshen Township Building are not available that night.

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Request for a Daytime Presentation
from Kathy Buczynski

I received a call from a school that would like a presentation during the day. The Willistown Country Day School on Paoli Pike in West Chester requested a planet presentation on a Tuesday or Friday morning in late May or early June. I'm glad she requested this early because it is a daytime event.

I am looking for volunteers to attend this event. They are looking for a 45-minute presentation on the planets, and have a stage available for use. They also have a long driveway if we want to go outside.

Please let me know of your availablity.

Additional information:
Willistown Country Day School
365 Paoli Pike
West Chester

10:30 AM on a Tuesday or Friday

Late May or Early June

If you can help, call Kathy at 610-436-0821. Thanks.

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Treasurer's Report by Bob Popovich

February 2006 Financial Summary

Beginning Balance	$1,767
Deposits	533
Disbursements	904
Ending Balance	$1,396

Membership Renewals Due

04/2006:	Goldader
	Kerson
	Popovich
05/2006	Brownback
	Grillo
	Long

Membership Renewals

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

Bob Popovich
416 Fairfax Drive
Exton, PA 19341-1814

The current dues amounts are listed in the *CCAS Information Directory* on page 13 in this newsletter.

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Report on February CCAS Meeting: Errata

The March newsletter had an article reporting on the February meeting and the presentation on Lyme Disease. There were two errors in the information on Lyme Disease that require correction.

The first error was in the statement "A survey sponsored by the Lyme Disease Association of Southeastern Pennsylvania (LDASP), conducted in Pocopson Township in Chester County, found that 47% of the households in the township had one or more members suffering from the disease."

Actually it's 47% ***including now and/or in the past.***

The second error was in the statement "You can spray it on your clothing, socks and shoes (or boots) included, rather than on your skin."

That statement could be misunderstood: ***never spray permethrin directly on your skin!*** Permethrin is perfectly safe if you spray it on clothing and allow it to dry completely before donning the clothing. But never apply it directly on your skin. Use a DEET-based insect repellant like Deep Woods Off on your skin.

Our thanks to Harvey L. Kliman, Ph.D., President of the LDASEPA, for contacting us with these important corrections.

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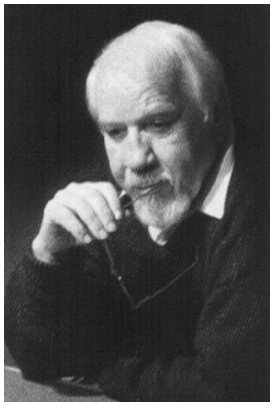
Local Astronomical Artist News

[based on a press release from Scarfo Studio]

Roy Scarfo, Sr., of Downingtown PA, has been accepted into the International Association of Astronomical Artists (IAAA). His juried membership acceptance was based upon his space art being of the highest standards, both astronomically and artistically. Scarfo is considered one of the pioneers of space art. He was named the top international designer of space colonies by Reuters *International Design Magazine*. He was Art Director of General Electric's Space Technology Center at Valley Forge PA for over fifteen years. He was also a consultant and space art illustrator for the *New York Times* for over ten years. His space illustrations have been reproduced by many major newspapers and magazines throughout the world. Scarfo's exhibit of 35 paintings opened the International Space Hall of Fame in Alamogordo, NM. His work can be viewed at **www.royscarfo.com.**



Roy Scarfo, Sr., space artist

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Photos from the March Lunar Eclipse Party

Photos by Kathy Buczynski
Text by Jim Anderson

It was a dark and windy night… Windy it was indeed, and cold as well, on Tuesday March 14 when about 10-12 hardy souls braved the conditions to view the penumbral lunar eclipse from the South Campus of West Chester University. The Society's 20-inch telescope made a pretty good windvane! Keith Padgett found us a spot near the tennis courts where the wind was not so bad. We set up telescopes and binoculars, and watched the eclipse. When the Moon was clouded over, we looked at other objects in other parts of the sky that were, well, *relatively* cloud-free.

This photo gives you a general perspective of the view from our observing location as the Moon was first rising, and the sky was still fairly bright. You may be able to detect that the Moon does not appear fully circular in this photo. The Earth's shadow is darkening the right side of the Moon's disk, so it appeared a bit gibbous.

In this picture you can see the shading due to the Earth's shadow (at about the "four o'clock position"). Penumbral eclipses are not as dark as umbral eclipses, because the the Moon does not go through the darkest part of the Earth's shadow. We found that the eclipse was most obvious in binoculars. The view in a telescope was so bright that the subtle shading was lost in the glare.

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Images from Pete LaFrance

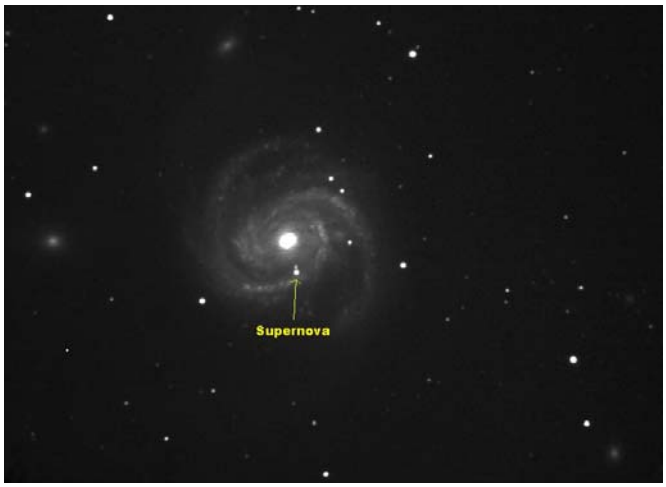

Image of spiral galaxy M100, showing the supernova, on 3/5/2006. A 40 minute total exposure with a Celestron C11 telescope operating at F/5, using a SBIG ST8-XME CCD camera. M100 is located in the constellation of Coma Berenices.

Image of spiral galaxy M81 in Ursa Major. Celestron C-11 operating at F/6, using an ST8-XME CCD camera.

All exposures binned at 1x1. RGB exposures at 2 x 15 minutes. Luminosity exposures at 3 x 20minutes. Images combined and processed with Maxim/DL software.

Image of Comet Neat taken on 3/5/2006 at about 5:00 a.m. Celestron C-11 operating at F/6, using an ST8-XME CCD camera. 2 x 2 minute exposures. Images combined and processed with Maxim/DL software.

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Calendar Notes

April 4, 2006 (Tuesday)	Introductory Astronomy class Location: West Goshen Twp. Building 7:00 p.m. EDT
	Also: Hercules Cluster meets at same place.
April 11, 2006 (Tuesday)	CCAS Meeting Location: West Chester University 7:30 p.m. EDT
	Hercules Observing Cluster meets Call Kathy Buczynski for details
April 18, 2006 (Tuesday)	Introductory Astronomy class Location: West Goshen Twp. Building 7:00 p.m. EDT
	Also: Hercules Cluster **canceled**.
April 21/22, 2006 (Friday/Saturday)	CCAS Observing Session Location: BVA sunset
April 25, 2006 (Tuesday)	Hercules Observing Cluster meets Call Kathy Buczynski for details
May 2, 2006 (Tuesday)	Introductory Astronomy class Location: West Chester University 7:00 p.m. EDT
May 6, 2006 (Saturday)	**International Astronomy Day**
May 9, 2006 (Tuesday)	CCAS Meeting Location: West Chester University 7:30 p.m. EDT
March 16, 2006 (Tuesday)	Introductory Astronomy class Location: West Goshen Twp. Building 7:00 p.m. EDT
May 19/20, 2006 (Friday/Saturday)	CCAS Observing Session Location: BVA sunset

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Homebuilt Observing Chair

by Don Knabb

I don't know about you, but I find bending over the eyepiece of my telescope to get tiring after a while. So I sometimes carry a folding chair out for observing, but the height of the chair never seems quite right and I still am not comfortable. So I decided to check out the commercially available observing chairs. There are several on the market but they are mostly of two types. One is a simple round cushion chair that can be adjusted for sitting height that looks like something a drummer would use. The others are aluminum chairs where the cushioned chair slides to various heights.

But none of these chairs are cheap, and with some basic woodworking equipment sitting in our basement I decided to investigate what I could make out of wood. The most common chair design on the internet is the "Denver Chair," a design that was first developed by an astronomy club in—you guessed it—Denver. There are several versions posted on the internet. There is also a really nice looking "Catsperch" chair that is sold in

various forms, from just paper plans to a kit to a fully completed chair. These look really nice, but they are also fairly costly.

So after a bit of internet browsing, I decided to build the chair that Warren Peters designed and built. The design is well detailed at:

http://home.hiwaay.net/~peters/Astronomy/Projects/CHAIR/CHAIR.HTML .

I won't go into any construction notes here since its all detailed at the web site. The thing I like about Warren's chair is that there is no trip hazard, which I think the Denver Chair presents. And with four legs the chair is very stable. Also, Warren provides excellent plans and construction directions that anyone with basic woodworking skills can follow. And of course, the price is right! The only real change I made from Warren's plans is that I used straps rather than a hinge to secure the legs in the open position. It was easier than finding a hinge that would work for this application.

The chair provides a sitting platform than is stable and adjusts from 12 to 29 inches. I plan to add a cushion (as soon as Barb finds the time to make us one) to improve the comfort for long observing sessions. The chair folds for easy carrying. I used oak for the legs of the chair and ¾ inch plywood for the chair itself.

If you have any questions on construction of the chair feel free to write to me at dknabb00@comcast.net.

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April 28-May 2, 2006: Delmarva Star Gaze

Twelfth Annual Delmarva Star Gaze at Tuckahoe State Park, near Queen Anne, MD. Camping, observing, meals, free coffee. See the website for more info:

www.delmarvastargazers.org/archive/sg2006/sg2006.html

or call Jerry Tritt at 410-885-3327.

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October 18-22, 2006: Mason-Dixon Star Party

This annual star party in York County PA has been moved to October (it was previously held in late May or early June). See the website for more info:

www.ycas.org

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June 22-26, 2006: Cherry Springs Star Party

The annual Cherry Springs Star Party, at Cherry Springs State Park, in Potter County, PA, will be held on June 22-26, 2006. Cherry Springs State Park is Pennsylvania's premier dark site for astronomical viewing, and is the state's first official Dark-Sky State Park (meaning that strict controls are enforced on light pollution). Several members of the CCAS (Ed and Linda Lurcott, Steve Limeburner, and Pete LaFrance are four) have been to star parties at Cherry Springs and can attest to the superior observing conditions there.

If you would like to go, you can get more information at the website, and even register online:

http://www.cherrysprings.org/

You can also contact Robert Werkman, a member of the organizing committee, who lives in Hershey:

Robert F. Werkman, MD
telephone: 717-533-2224
email: rwerkman@giacp.com

The Cherry Springs Star Party is organized through the Astronomical Society of Harrisburg via a long term agreement with the Department for Conservation of Natural Resources (DCNR) of the Commonwealth of Pennsylvania.

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August 25-27, 2006: Black Forest Star Party

This annual star party is also held at Cherry Springs State Park in Potter County PA. You can read about Cherry Springs State Park in the note above. You can find out more about the details, as well as register online, for the Black Forest Star Party at the website:

http://www.bfsp.org/starparty/index.cfm

The Black Forest Star Party is organized through the Central Pennsylvania Observers, Inc. (a group of amateur astronomy clubs) via a long term agreement with the DCNR of the Commonwealth of Pennsylvania.

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June 21 - 24: Green Bank Star Quest III

Combining Optical and Radio Astronomy at One Event!

This event is held June 21st-24th, 2006 under the dark skies of West Virginia for the 3rd annual Green Bank Star Quest at the National Radio Astronomy Observatory in Green Bank, WV. By day, check out all the NRAO has to offer, like the new multi-million dollar Visitors Center, and free tours of the facilities, including the 100 meter GBT which is the worlds largest fully steerable radio telescope. Star Quest will have 4 days of lectures, imaging classes, vendors, raffles, kids activities, keynote talk by Seth Shostak of the SETI Institute, and nighttime optical observing on over six acres of camp sites at the low price of $ 75.00 for a party of two or $ 100.00 for a family.

For more information contact Joe Gonzalez at (304) 626-5012 or visit our web site at:

http://www.greenbankstarquest.org

Register before 5/31/2006 to receive a 10% discount off your total registration fees: just write Web Deal on the registration form!

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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. Hopefully you will not also need to know how to recognize its symptoms, but you can learn all about it at:

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!"

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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

Telephone: 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:

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 www.ccas.us.

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Our Local Astronomy Store: *Skies Unlimited*

In case you didn't know it, there is an astronomy equipment store called ***Skies Unlimited*** in our area, in Glenmoore to be specific. Their phone number is (610) 321-9881, and their Website URL is www.skiesunlimited.net.

Directions: Go north on PA-100, four miles past the Downingtown interchange of the PA Turnpike; then turn left onto PA-401, then immediately turn left again into Ludwig's Village. The new store is next to Ludwig's Village Market.

http://www.skiesunlimited.net/

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Good Outdoor Lighting Website

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? Now there is a web site and business intended to address that very problem. At this site you can find information on all kinds of well-designed (that is, star-friendly) outdoor lighting fixtures. This company, Starry Night Lights, intends to make available all star-friendly fixtures they can find, and information on them, in one place. Check it out, and pass this information on to others. Help reclaim the stars!

http://www.starrynightlights.com/

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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://home.epix.net/~ghonis/index.htm

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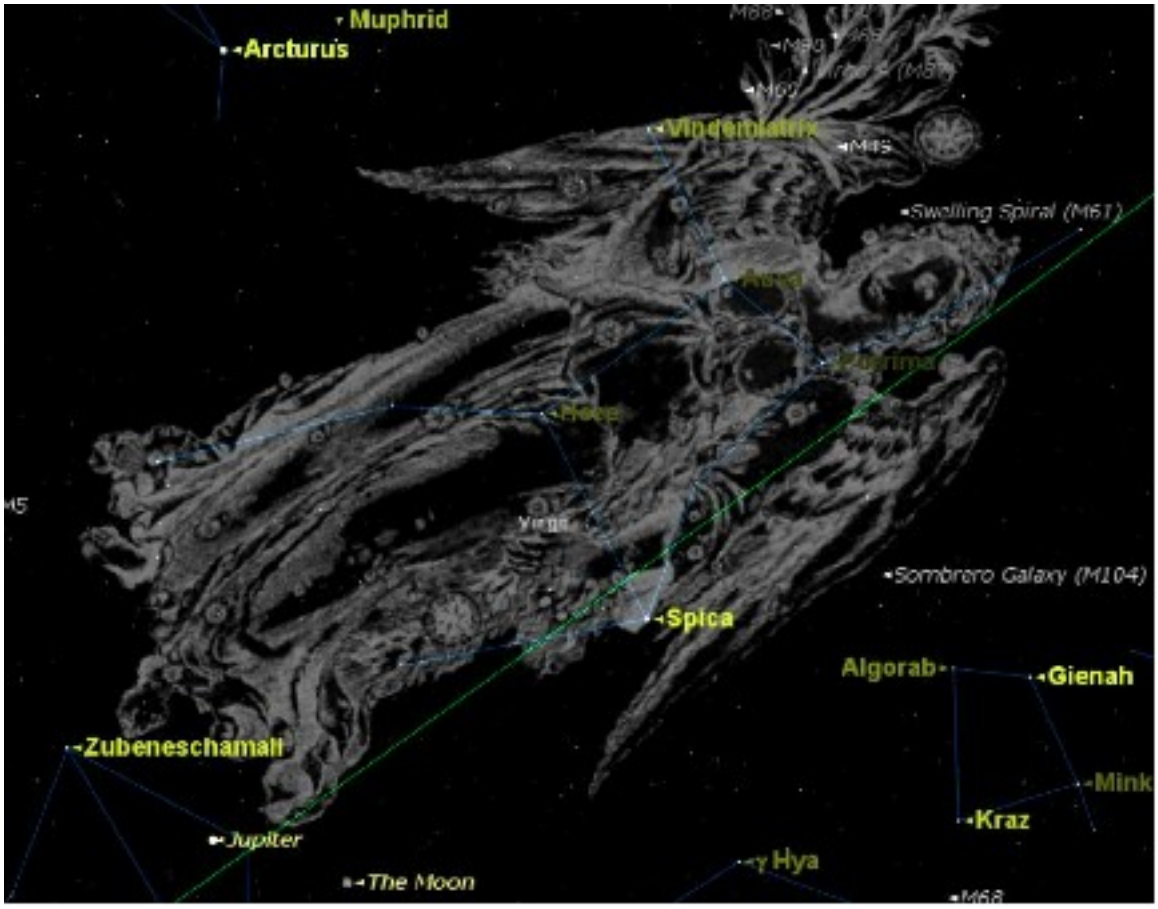
Astronomus

"Reclining Nude"

By Bob Popovich

All right, all right, so she's not nude. But as she rises towards her zenith this time of year, the constellation Virgo does appear to be comfortably reclining on the zodiacal plane. The only (human) female member of the zodiac, Virgo is a constellation of contradictions—a symbol of fertility that's called a virgin, a less than stellar assemblage of 3rd & 4th magnitude stars (except for Spica), that also possesses a staggering number of stunning deep-sky objects and, though a demure female, occupies a larger portion of the night sky than either Hercules, Orion or Perseus.



With both the moon and Jupiter at her feet come mid-April, Virgo is an observing target that contains as bountiful a harvest of stellar delights as any constellation. Be sure to find yourself an observing site with a good view of the southern horizon to gather all the wonders of our reclining lady. The easy way to locate Virgo is to follow the curved handle of Ursa Major to Arcturus, then continue that arcing path to the next bright star, which is Spica. And as every English school boy knows—"Arc to Arcturus and then speed on to Spica." You can also "Scoot on to Spica," if you prefer.

Consistent with symbolism surrounding fertility, Spica (α Virginis, just below the ecliptic) means "ear of wheat" in Arabic. This name is very sensible when we recognize two facts: (1) Virgo's spring rising is a harbinger of the planting season and (2) the sun passes through Virgo in September/October, thus inspiring numerous ancient civilizations to associate Spica with the harvesting of that most elemental grain crop. Combining this theme with Eastern depictions of Virgo as a maiden presented no contradiction to the ancients who would have felt it altogether fitting and proper to show deference to the goddess of plenty with the additional title "virgin" signifying purity, honor and steadfastness. Could we call this *the Good & Plenty combo*?

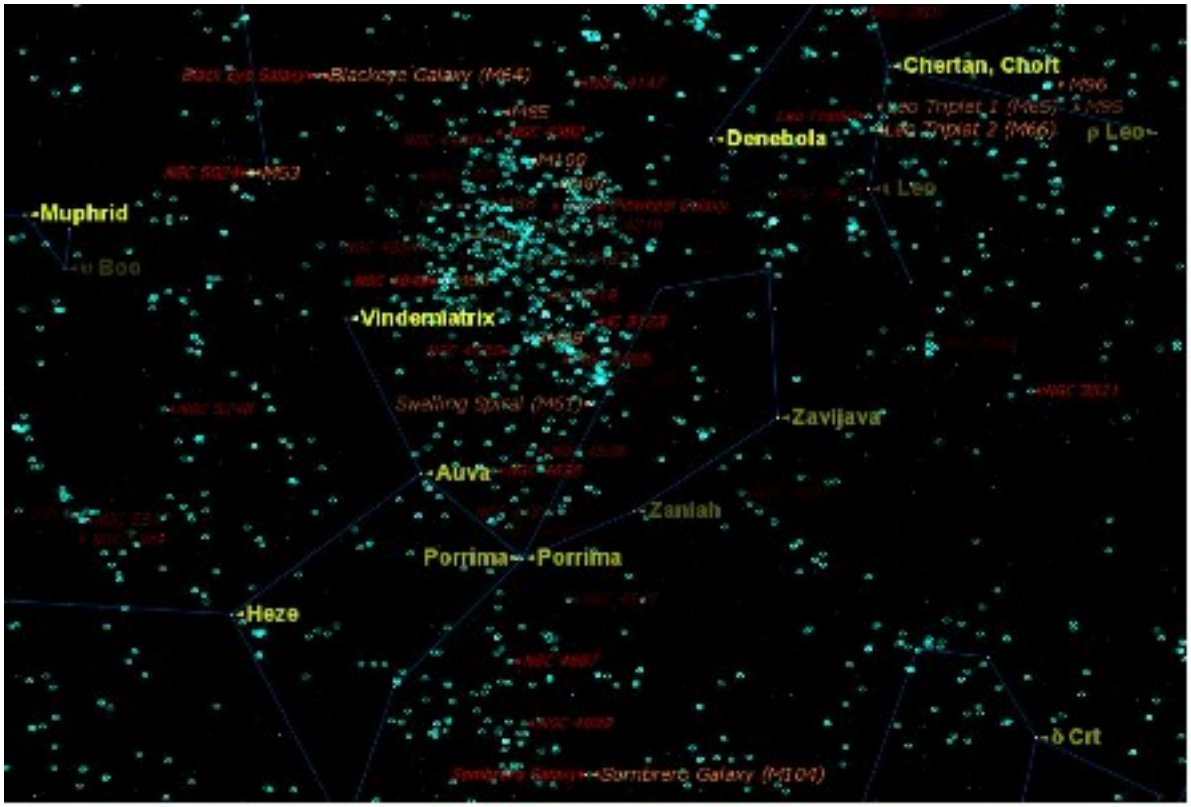
Spica, a blue dwarf that ranks as only the 14th brightest star in apparent magnitude, is in fact significantly more luminous than our sun. It is also engaged in an elliptical dance with its eclipsing mate, separated by a scant 0.12 AU. But being 260 light years from Earth, these two celestial kernels cannot be resolved with amateur equipment. And wrapping up our fertility theme, the star Porrima (γ Virginis) is named for the Roman goddess of childbirth while Vindemiatrix (ε Virginis) means "vine-harvestress."

Let's turn now to that portion of the heavens in Virgo that has kept the Hubble space telescope very busy over the years. Stand and face Spica, then note Denbola in Leo to the northwest. Focusing on a spot in between these two stars, you now find yourself staring at the heart of the realm of galaxies, an area of about 100 square degrees encompassing both part of Virgo and neighboring Coma Berenices. In the confines of this small swatch of heavens float more bright galaxies than any other part of the sky. In fact, current estimates put some 2,500 galaxies in this realm, spanning some 16,000,000 LY at an average distance of 78 LY. And believe it or not,

dark skies, 10x binoculars, steady hands and patience can yield up to 17 of the island universes. Point a telescope at this realm and you've inaugurated a life-long galaxy-chase.

This illustration introduces the realm of galaxies limited to 10th magnitude. I believe you'll find M87 and M104 to be especially splendid.

And for those of you with access to the Hubble (please give me a call!), we'd all be interested in learning about how you're doing with your study of those objects limited to 15th magnitude:



Talk about your plentiful harvest! If there is any part of the celestial sky that's actually too crowded, this has to be it. Working through the objects of this realm that are within the grasp of your telescope is sure to hone your observing skills to a razor's edge. In fact, the level of dedication that an in-depth study of Virgo would require is worthy of an observing certificate. Imagine being the first amateur on your block to be a certified Virgoid. Virginian? Oh well, we can work on the name later…

I confess that I'm still working on the *junior* 10th magnitude version. But it doesn't matter—let's just get out there to view and enjoy.

Next Time: On Assignment.

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NASA Space Place

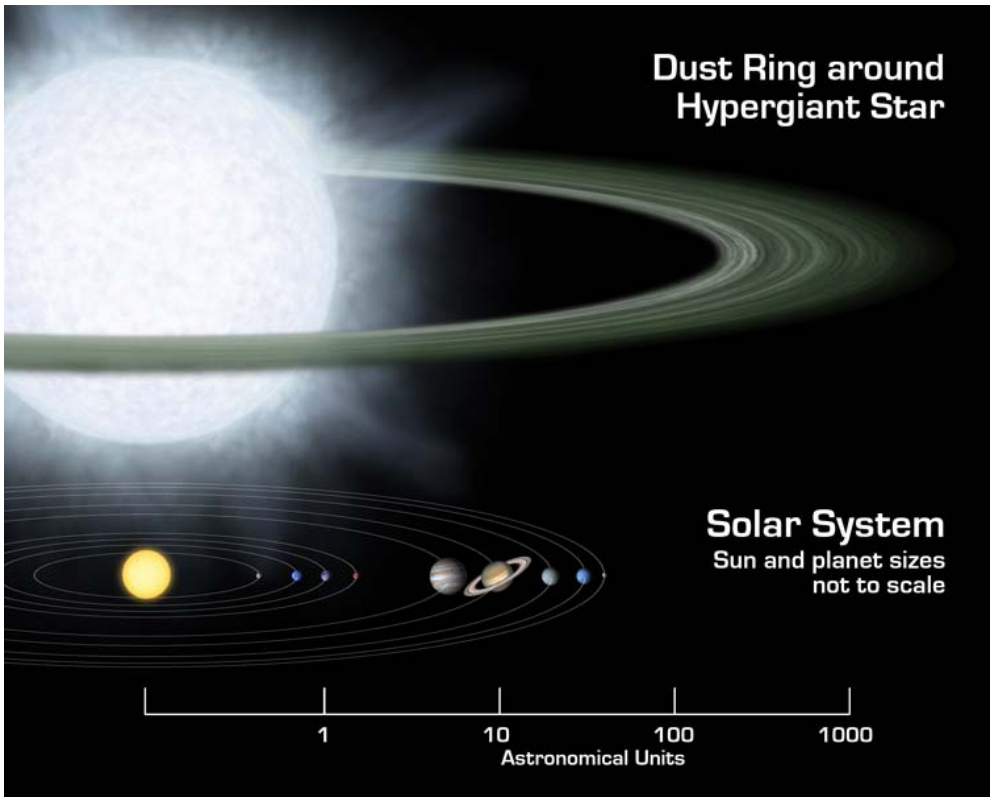
Planets in Strange Places

By Trudy E. Bell

Red star, blue star, big star, small star—planets may form around virtually any type or size of star throughout the universe, not just around mid-sized middle-aged yellow stars like the Sun. That's the surprising implication of two recent discoveries from the 0.85-meter-diameter Spitzer Space Telescope, which is exploring the universe from orbit at infrared (heat) wavelengths blocked by the Earth's atmosphere.

At one extreme are two blazing, blue "hypergiant" stars 180,000 light-years away in the Large Magellanic Cloud, one of the two companion galaxies to our Milky Way. The stars, called R 66 and R 126, are respectively 30 and 70 times the mass of the Sun, "about as massive as stars can get," said Joel Kastner, professor of imaging science at the Rochester Institute of Technology in New York. R 126 is so luminous that if it were placed 10 parsecs (32.6 light-years) away—a distance at which the Sun would be one of the dimmest stars visible in the sky—the hypergiant would be as bright as the full moon, "definitely a daytime object," Kastner remarked.

Such hot stars have fierce solar winds, so Kastner and his team are mystified about why any dust in the neighborhood hasn't long since been blown away. But there it is: an unmistakable spectral signature that both hypergiants are surrounded by mammoth disks of what might be planet-forming dust and even sand.



Artist's rendering compares size of a hypothetical hypergiant star and its surrounding dusty disk to that of our solar system.

At the other extreme is a tiny brown dwarf star called Cha 110913-773444, relatively nearby (500 light-years) in the Milky Way. One of the smallest brown dwarfs known, it has less than 1 percent the mass of the Sun. It's not even massive enough to kindle thermonuclear reactions for fusing hydrogen into helium. Yet this miniature "failed star," as brown dwarfs are often called, is also surrounded by a flat disk of dust that may eventually clump into planets. (Note: This brown dwarf discovery was made by a group led by Kevin Luhman of Pennsylvania State University.)

Although actual planets have not been detected (in part because of the stars' great distances), the spectra of the hypergiants show that their dust is composed of forsterite, olivine, aromatic hydrocarbons, and other geological substances found on Earth.

These newfound disks represent "extremes of the environments in which planets might form," Kastner said. "Not what you'd expect if you think our solar system is the rule."

Hypergiants and dwarfs? The Milky Way could be crowded with worlds circling every kind of star imaginable—very strange, indeed.

Keep up with the latest findings from the Spitzer at **www.spitzer.caltech.edu/** .

For kids, the Infrared Photo Album at The Space Place (**spaceplace.nasa.gov/en/kids/sirtf1/sirtf_action.shtml**) introduces the electromagnetic spectrum and compares the appearance of common scenes in visible versus infrared light.

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

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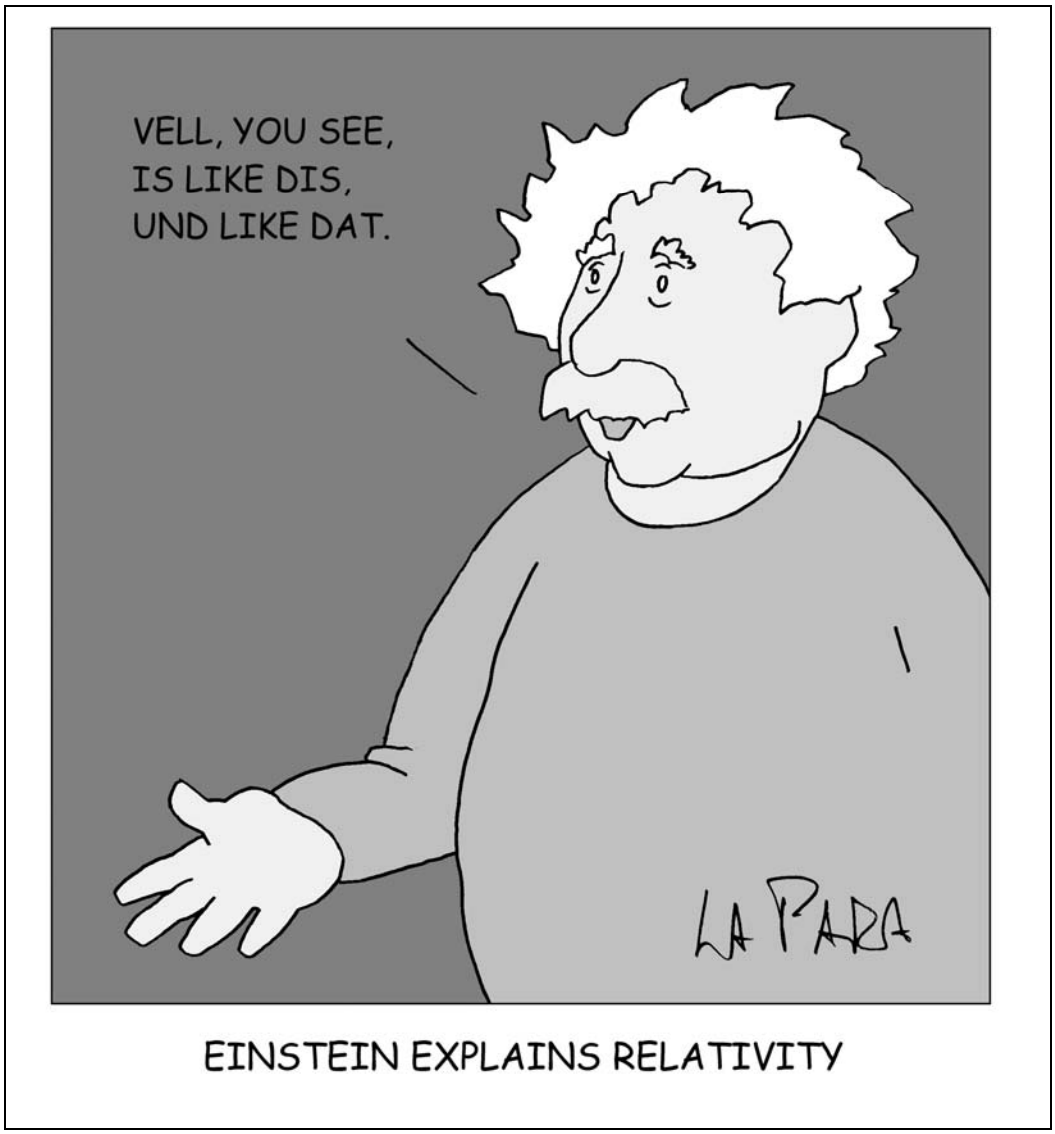

Cartoon by Nicholas La Para

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CCAS Information Directory

CCAS Lending Telescopes

Contact Kathy Buczynski 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. Kathy's phone number is 610-436-0821.

CCAS Lending Library

Contact our Librarian, Linda Lurcott Fragale, 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. Linda's phone number is 610-269-1737.

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

stargazer1956@comcast.net

Or mail the contribution, typed or handwritten, to:

Jim Anderson
1249 West Kings Highway
Coatesville, PA 19320-1133

Get 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 Jim Anderson, the newsletter editor, at:

stargazer1956@comcast.net

CCAS A.L. Award Coordinators

These are the members to contact when you have completed your observing log for the Messier, Binocular Messier, Lunar, or Double Star Awards:

Messier (both): Jim Anderson (610-857-4751)

Lunar: Ed Lurcott (610-436-0387)

Double Star: Jim Anderson (610-857-4751)

Constellation Hunters: Jim Anderson (610-857-4751)

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 "star nights" for school, scout, and other civic groups.

CCAS Executive Committee

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

President:	Kathy Buczynski 610-436-0821
Vice Pres:	Jim Anderson 610-857-4751
ALCor and Treasurer:	Bob Popovich 610-363-8242
Secretary:	Vic Long 610-399-0149
Newsletter:	Jim Anderson 610-857-4751
Librarian:	Linda Lurcott Fragale
Observing:	Don Knabb 610-436-5702
Education:	Kathy Buczynski 610-436-0821
Webmaster:	John Hepler 610-363-0811
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 Treasurer's Report in each issue of *Observations* to see if it is time to renew your membership. If you are due to renew, you can mail in your renewal check made out to "Chester County Astronomical Society." Mail to:

Bob Popovich
416 Fairfax Drive
Exton, PA 19341-1814

Sky & Telescope Magazine Group Rates

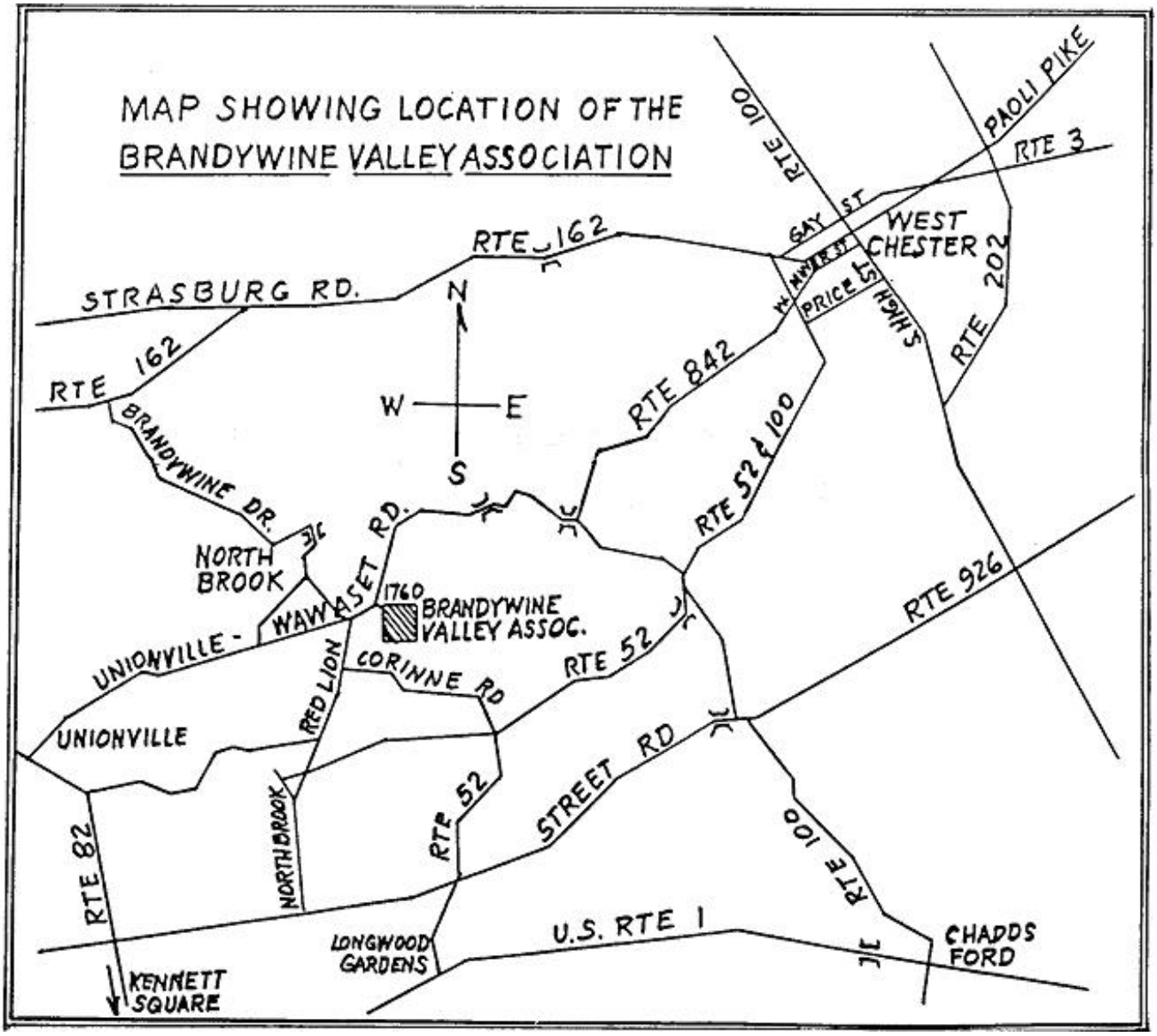
Subscriptions to this excellent periodical are available through the CCAS at a reduced price of **$32.95** which is much less than the newsstand price of $66.00, and also cheaper than individual subscriptions ($42.95)! Make **sure** you make out the check to the **Chester County Astronomical Society** (do **not** make the check out to Sky Publishing, this messes things all up big time), note that it's for *Sky & Telescope*, and mail to Bob Popovich. Or you can bring it to the next Society meeting and give it to Bob there. **If you have any questions by all means call Bob first (610-363-8242).** Buying a subscription this way also gets you a 10% discount on other Sky Publishing merchandise.

CCAS Website

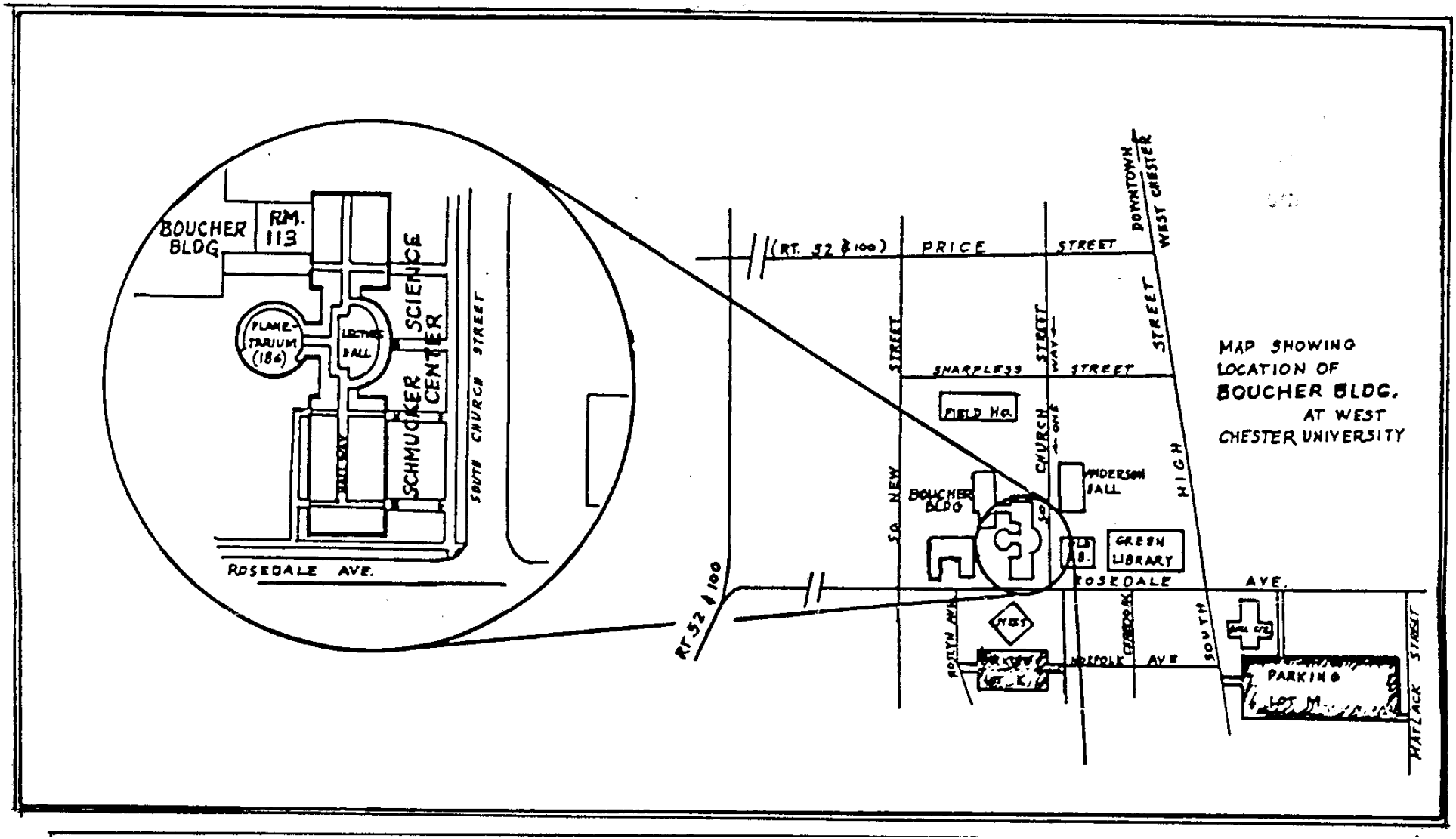
John Hepler is the Society's Webmaster. You can check our Website at:

http://www.ccas.us/

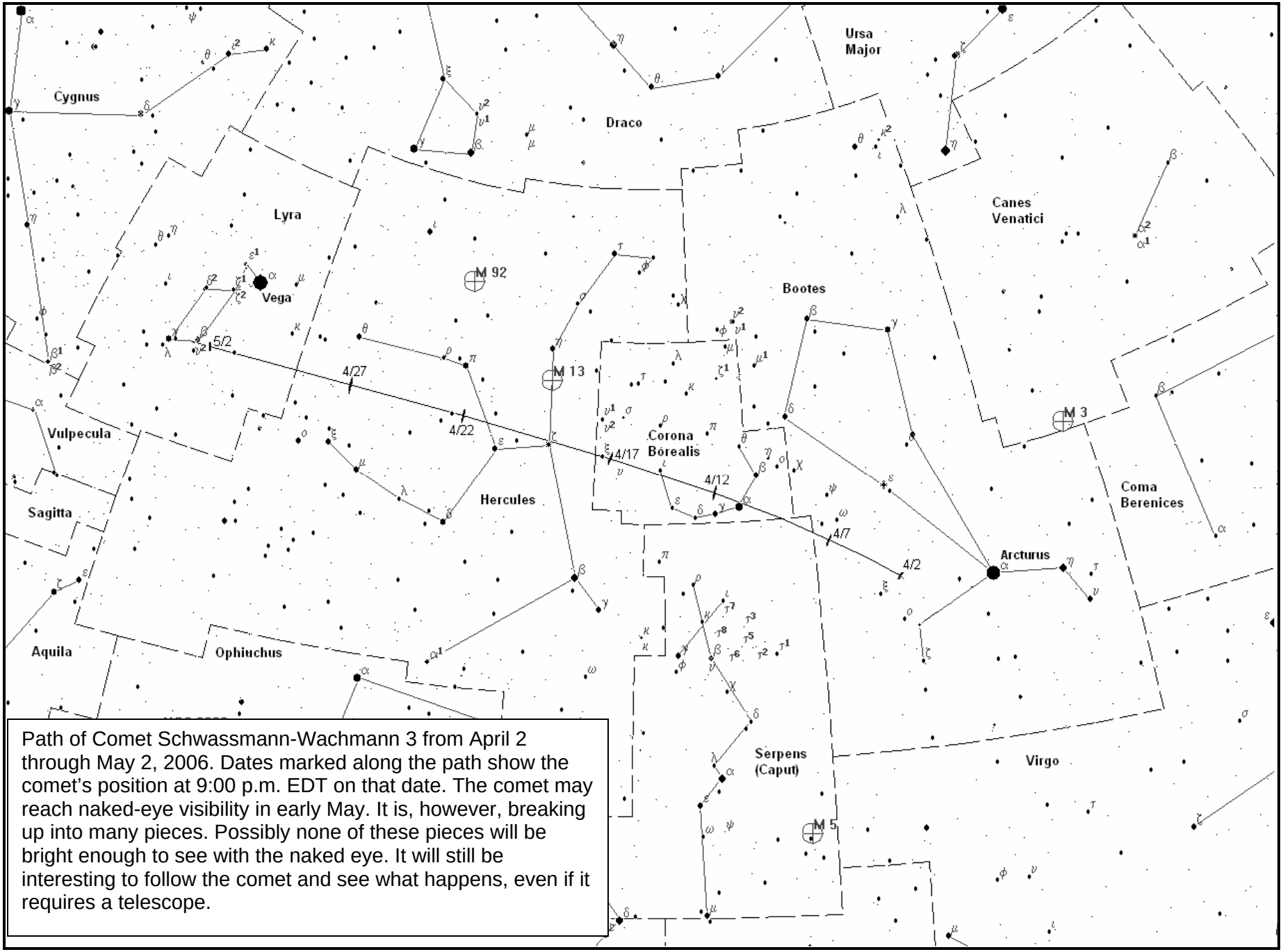
John welcomes any additions to the site by Society members. The contributions can be of any astronomy subject or object, or can be related to space exploration. The only requirement is that it is your own work; no copying copyrighted material! Give your contributions to John Hepler (610-363-0811) or e-mail to **webmaster@ccas.us**



To get to the Myrick Conservation Center of the Brandywine Valley Association 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 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 up the farm lane to the left; it's 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 (so you don't ruin other observers' night vision).



Parking is available behind Sykes Student Center on the south side of Rosedale Avenue (Parking Lot K), and behind the Bull Center at the corner of Rosedale Avenue and South High Street (Parking Lot M). If you arrive early enough, you may be able to get an on-street parking space along South Church Street, or along Rosedale Avenue. You can take the Matlack Street exit from Rt. 202 South; Matlack Street is shown on the map at the lower right corner with Rt. 202 off the map. If approaching West Chester from the south, using Rt. 202 North, you would continue straight on South High Street where Rt. 202 branches off to the right. This would bring you onto the map on South High Street near Parking Lot M, also in the lower right corner.



Path of Comet Schwassmann-Wachmann 3 from April 2 through May 2, 2006. Dates marked along the path show the comet's position at 9:00 p.m. EDT on that date. The comet may reach naked-eye visibility in early May. It is, however, breaking up into many pieces. Possibly none of these pieces will be bright enough to see with the naked eye. It will still be interesting to follow the comet and see what happens, even if it requires a telescope.