



Observations

A Monthly Publication Of The
CHESTER COUNTY ASTRONOMICAL SOCIETY

JUNE 2006

(VOLUME 14, NO. 6)

Visit our website at www.ccas.us

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Important June 2006 Dates

- 3** First Quarter Moon.
- 6** Hercules Observing Cluster meets.
Call Kathy Buczynski at 610-436-0821 for details.
- 11** Full Moon—the Hay Moon, the Rose Moon, the Strawberry Moon, or the Honey Moon. Take your pick.
- 13** Hercules Observing Cluster meets.
Call Kathy Buczynski at 610-436-0821 for details.
- 15-19** Mars, Saturn, and the Beehive Cluster are all very close together in Cancer in our evening sky.
- 18** Last Quarter Moon.
- 20** Hercules Observing Cluster meets.
Call Kathy Buczynski at 610-436-0821 for details.
- 21** **Solstice occurs at 8:26 a.m. EDT.** First day of summer in Chester County.
- 23/** **CCAS Observing Session**
- 24** Location: Brandywine Valley Association
Time: sunset, or earlier (see page 4)
- 25** New Moon.
- 27** Hercules Observing Cluster meets.
Call Kathy Buczynski at 610-436-0821 for details.

July 3, 2006

Don't miss the special CCAS members-only

Lunar X Party!

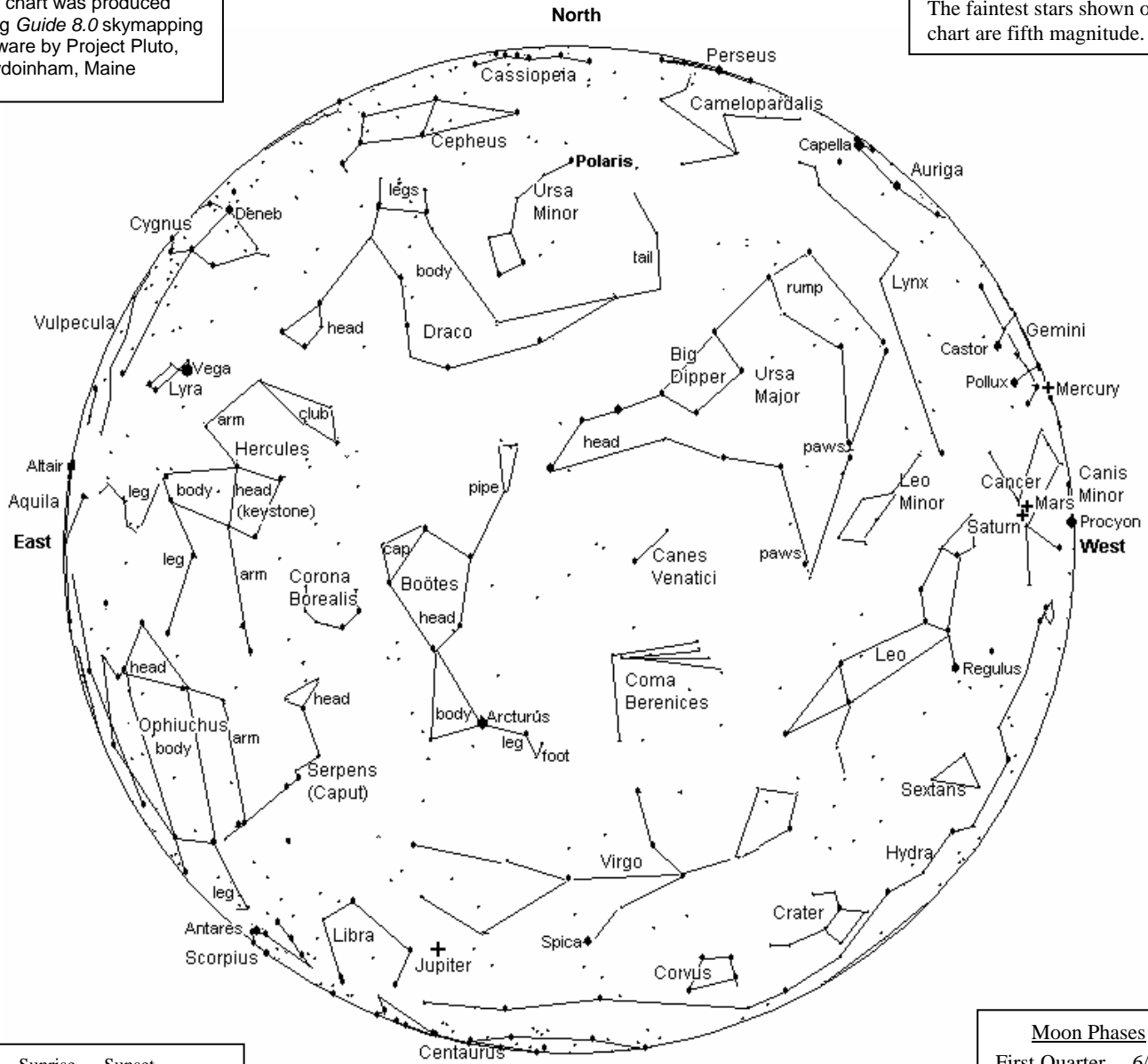


Details on page 5.



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
6/1	5:37 a.m.	8:26 p.m. EDT
6/15	5:34 a.m.	8:34 p.m. EDT
6/30	5:38 a.m.	8:36 p.m. EDT

Moon Phases	
First Quarter	6/03
Full Moon	6/11
Last Quarter	6/18
New Moon	6/25

The sky over Chester County
June 15, 2006 at 9:00 p.m. EDT

The Planets, by Don Knabb

Mercury: Mercury can be seen around June 20th low in the west-northwest and will be lost in the Sun's glare by month's end.

Venus: During June Venus rises less than 2 hours before the Sun and is only visible during the morning twilight low in the east. Look for the bright "morning star" if you go out for the paper early in the morning!

Mars: On June 17 Mars is very close to Saturn and both are close to the Beehive. This will be a wonderful sight in binoculars and in a telescope with an eyepiece that gives a wide field of view.

Jupiter: Jupiter was at opposition on May 4 and will provide excellent viewing during June. The king of the planets is a sight not to be missed. Even with small binoculars you can see the four

Galilean satellites that dance around the planet. With a 4-inch or larger telescope you should be able to see dark bands on the planet.

Saturn: Along with Mars, Saturn is in Cancer and sets less than 3 hours after the Sun in June.

Uranus & Neptune: Both gas giants are low in the southeast before dawn in June. *Sky and Telescope* magazine has charts to help you find the blue and green planets.

Pluto: Pluto is at magnitude 14 in Serpens Cauda. You'll need at least a 10-inch telescope and good charts to find it in the south after midnight.

Note: the constellation stick figures used on the chart above were adapted from the book *The Stars: A New Way to See Them*, by H. A. Rey. This excellent guide to learning the constellations can be found at many area book stores, or online.

June Observing Highlights

by Don Knabb, CCAS Observing Chair

Planets: In June you can see four planets at evening twilight if you time it right to catch Mercury. Only Venus is missing and it can be seen in the morning sky.

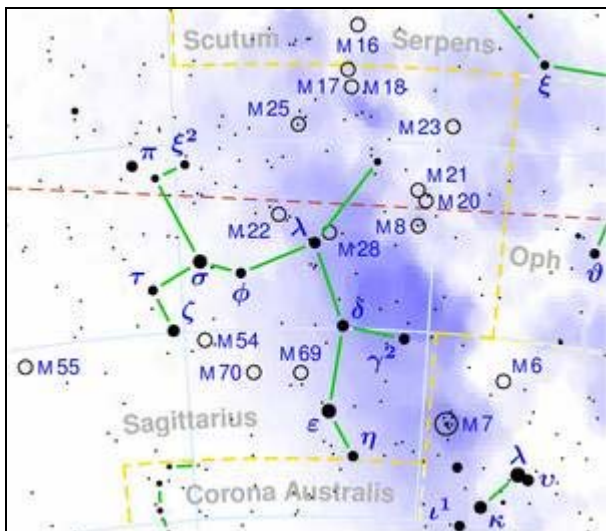
Constellations: If you are out late enough in June the summer constellations will be rising. Boötes and Hercules are well placed for viewing by the time it is really dark, and an hour later the summer triangle is rising in the east. If we have a good dark sky the Milky Way can be seen in Cygnus. All these sights and more can be seen shortly after twilight, but it stays light so late that you will not get to bed early if you do any serious star gazing.

- June 3** First Quarter Moon.
- June 4** Saturn is 0.8° south of the Beehive Cluster (M44) in Cancer.
- June 7** Spica is to the Moon's upper right, and Jupiter is at its upper left.
- June 10** Antares is 0.1° north of the Moon.
- June 11** Full Moon—called the Hay Moon, the Rose Moon, the Strawberry Moon, or the Honey Moon.
- June 15** Mars is 0.2° south of the Beehive Cluster.
- June 17** Mars is 0.6° north of Saturn, with the Beehive Cluster close by. Mercury is far to their lower right at twilight.
- June 18** Last Quarter Moon.
- June 20** Mercury is at greatest elongation east of the Sun.
- June 21** **Solstice occurs at 8:26 a.m. EDT** and summer begins in Chester County (and in the rest of the Northern Hemisphere; in the Southern Hemisphere winter begins today.)
- June 25** New Moon.

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Through the Eyepiece: Sagittarius, Feast of the Summer Sky

by Don Knabb, CCAS Observing Chair



Map source: <http://en.wikipedia.org/wiki/Sagittarius>

As the days get longer I begin looking forward to some of my favorite parts of the sky becoming visible again. Near the top of my list is the sky near Sagittarius, or the Teapot asterism. Just take a look at the sky chart! Have you ever seen so many Messier objects in one section of the sky?

Of course, that is because when you look at this part of the sky you are looking toward the center of the Milky Way Galaxy. We don't have many nights around West Chester when that becomes obvious, but on those rare clear summer nights you can see that, the Teapot is in the glow of the Milky Way.

Last summer Barb and I were fortunate to vacation in Bermuda. I don't know if I was more excited about the pink sand and blue water or the bright night skies. The skies are very clear if you get beyond the city lights and when we looked at Sagittarius it looked like a cloud was rising to block our view of the southern sky. But it was actually the Milky Way! That was the first time I saw "the steam rising out of the spout of the Teapot."

My favorite object in this area is M8, the Lagoon Nebula. For me, this is the summer equivalent of the Orion Nebula. This object is vastly larger than our solar system, but is more than 5,000 light years away. It is an emission nebula, which is a vast cloud of gas that is glowing like a neon tube due to ultraviolet radiation from hot, young stars within.



Photo: <http://antwrp.gsfc.nasa.gov/apod/ap021006.html>

The name Lagoon Nebula is derived from the dark channel, the "lagoon", that seems to divide the object in two.

In this photo you can see tiny roughly circular specks called *Bok globules*, after Dutch-American astronomer Bart J. Bok, who studied them in the mid-20th century. Each of them is larger than our solar system, so that gives you some idea of the size of this nebula.

There are many other deep sky objects to see in this region of the sky, but the Lagoon Nebula is my favorite. At BVA we have a fairly good view to the south, so come out to one of the summer observing sessions and take a nice long sip of stars from the Teapot!

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CCAS Summer Schedule

In the summer months, we don't have a formal monthly meeting. In June, July, and August we have the regular monthly Observing Sessions, along with the regular sessions of the Hercules Observing Cluster. This summer we are adding at least one extra special observing party on July 3. In case you didn't get the idea, we put extra emphasis on getting out there and observing in the good old summertime!

Observing Sessions

June 23/24, 2006

July 28/29, 2006

August 25/26, 2006

CCAS Observing Sessions will be at the Brandywine Valley Association's Myrick Conservancy Center (see map on page 15) on Fridays 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 the next day, Saturday. 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.

Hercules Observing Cluster

by Kathy Buczynski

It's been a busy spring so far. Tuesdays have been packed with Society meetings and Introductory Astronomy Classes. On the odd Tuesday without those commitments, it has been either frigid or cloudy.

Now that the warm weather is upon us, indoor Society meetings are suspended for the summer and the Introductory Classes are behind us. I'd like to remind you about the Hercules Observing Cluster.

The Hercules Cluster meets in West Goshen every clear Tuesday night. The purpose of the Observing Clusters is to get out there on clear nights to observe. For the past year or so, at regular meetings of the Society, we have been highlighting a "Constellation a Month" with the purpose of giving you targets for your next observing opportunity. The "Constellation of the Month" handouts have log sheets for many of the Astronomical League Observing Awards including Constellation Hunter, Messier, Binocular Messier, Urban (a requirement of which is the Milky Way cannot be visible from your location—which is almost every night on this area), and Double Star. And for those deep sky, faint fuzzy hunters the handout includes a log sheet for the Herschel 400 Observing Award. It's easy to fill in the blank on the log sheets and collect them for each constellation to submit for the awards. But the important thing is to get out there to observe them and join others.

If you'd like to attend a Hercules Cluster meeting, please contact me at 610-436-0821 to get directions and times.

If Tuesdays aren't good for you, consider starting a Cluster in your area on a different night. You only need an open space for viewing and permission to use it.



Ed Lurcott, on left, and Nicholas La Para at an August 2005 Hercules Cluster



Morgan Spackman, Marty Malloy and Becka Spackman at Hercules Cluster.



CCAS Lunar X Party: July 3, 2006

by Don Knabb

All club members and their families are invited to Barb and Don Knabb's house near West Chester on Monday July 3 to join the search for the elusive Lunar X. It's also a great excuse to get together and have a summer party for the astronomy club. It's the night before the July 4th holiday so most people will have off work the next day.

Let's gather around 7:30 p.m. to set up telescopes and share a bit of food and drink. We'll have sodas, wine and beer, but if you like something special feel free to bring it along. For food we're asking everyone to bring an appetizer or snack and we can "graze" for a few hours as we watch the sky. If you are having a busy holiday weekend just bring a bag of chips and some salsa!

So what is this Lunar X thing? As you know, the terminator is one of the most interesting regions on the Moon to observe, watching the constantly changing play of shadow and light. One of the most interesting features one can observe at the terminator is an X-shaped structure that appears near the crater Werner. It is only visible during a six hour period every month, and Jim Anderson has calculated that the X should be visible on July 3 from approximately 6:30 p.m. to 10:30 p.m.

I'll send out detailed directions via a "members" e-mail as the date approaches, but we live only five minutes from West Chester University. We'll ask you to RSVP so we have some idea of how many people expect to attend the party.

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Moon Madness Party at Ridley Creek Park

Email from Robert Fellwock

Ridley Creek State Park in Delaware County has invited our club (in addition to other local astronomy clubs like the DVAA) to supply telescopes for a public star party on **Saturday, June 10th, 2006**. The hours would be from 7:30 p.m. to midnight. A covered pavilion and lavatory facilities are available. Ample parking too. No electrical hookups are available.

The site within the park is a large open area with horizons about 20-35 degrees above the "true" horizon. With moonrise at 9:03 p.m. that night, some time will be available to observe other objects until the Moon clears the tree line.

Since this date is a Full Moon, the emphasis will be for that object (in the event stars are not too visible).

Please contact me if you think you could help out and for further information. Thank you,

Robert Fellwock
610-356-1697 (evenings)
roalfe@comcast.net

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CCAS Polo Shirts Available

You can purchase a classy polo shirt with the CCAS logo embroidered on the left breast. Price is \$30.00 per shirt. Adult sizes S, M, L, XL only. Contact our Treasurer Bob Popovich to purchase yours!

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Welcome!

We welcome our newest members to the Society: Monika Mayer-Kielmann, David Kutta, and Charlotte Moore, all from West Chester; Art & Lori Driedyen of Spring City; Sonia Churchman of Malvern, and Daniel Hedding of Chesterbrook. We also welcome back long-time member and master observer Steve Limeburner. We're glad you decided to join us under the stars! Clear skies to all!

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Treasurer's Report by Bob Popovich

April 2006 Financial Summary

Beginning Balance	\$1,546
Deposits	35
Disbursements	<u>0</u>
Ending Balance	\$1,581

Membership Renewals Due

05/2006	Brownback Grillo Long
06/2006	Taylor
07/2006	O'Hara

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 15 in this newsletter.

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CCAS Trip to U.S. Naval Observatory

The CCAS is again making plans for a trip to Washington D.C. to visit the U.S. Naval Observatory and the National Air and Space Museum.

We are requesting a tour appointment for **August 7, 2006**, with an alternate date of **August 21, 2006**.

If you are interested in going, please contact Linda Lurcott Fragale at 610 269-1737 **by June 25, 2006**. When you call, have your full name and birthdates (exactly as they appear on your photo ID, such as a driver's license) ready so you can give that information to Linda. This is needed for the security checks. The security is required because the home of the Vice President is also located on the USNO grounds.

Linda will submit the request on June 26 to the USNO, so don't miss the cutoff date!

The Naval Observatory is open for tours on Monday evenings (except national holidays) 8:30 to 10:00 p.m. We will tour the Observatory and be able to observe (weather permitting). We can reserve a date for up to twenty people. We must reserve in advance and they will confirm via e-mail or phone, no later than the Friday prior to requested date.

We will have to send them a list of the names and birthdates of those attending. Upon arrival (gates open at 8 p.m.) we must

each show a valid photo ID and go through a security procedure.

We will travel to Washington on Monday evening, arriving in time for the tour at the USNO. After that, we will stay overnight and visit the new National Air and Space Museum Annex out by Dulles Airport on Tuesday, before traveling home on Tuesday evening. The price depends on how many of us go (you will not have to commit to the trip until we can give you a final cost). We plan to carpool (or vanpool if we get enough people).



CCAS E-mail service

by John Hepler

As you are aware, our website has an e-mail feature which allows us to build a list of all member e-mail addresses. We use this to communicate with each other on a daily basis. To receive e-mails, your address must be subscribed on the list. What you may not realize is that to send e-mails to the other members using this special service, your **sending** address must be subscribed on the list. That means that if you gave us your home e-mail address for the list, you can't send e-mail to the list from your work e-mail address. This is to protect us from "spam" and other unsolicited e-mails. Since the "spammers" are not on our list, they cannot use it to send spam to our members. Please make sure your e-mail address has been subscribed to the list, and make sure to use that e-mail address to send messages to the other members.

The Executive Committee has requested that each member subscribe only **one** e-mail address (i.e. home versus work). We are setting this limit so the time required to maintain the list does not become a burden. In the future, make sure you're sending CCAS members a message from the correct e-mail address!

Thanks again to everyone for their patience and good humor after our recent problems with Comcast and our website hosting company. Both companies maintain that their communication problems have been resolved. If you feel that you are still not receiving messages from other members via the group distribution list (i.e. "members@ccas.us"), please contact me at "webmaster@ccas.us".

Once again, if you wish to send an e-mail message to all CCAS members, just type members@ccas.us in the "To" space on your e-mail window.



Report on May CCAS Observing Session

by Don Knabb

On Friday May 19 we gathered at Brandywine Valley Association for our monthly observing session. Several members attended and we met a new friend who found us from our Astronomy Day exhibit at Exton Mall.

The day did not look promising and it even rained in the early afternoon, but by sunset the sky was cloudless and calm. We set up just after sunset with an 8-inch Cat, a nice set of binoculars and a bit later we were joined by an 8-inch Dobsonian. As the sky darkened stars quickly jumped out and we set out to find planets and deep sky objects.

Jupiter was truly amazing. It was bright and clear, flying through the sky in formation with two moons on either side. Bands of color were clearly visible at 150x in either 8-inch scope. And the view only got better as the night progressed and Jupiter got higher in the sky. Saturn and Mars also found their way into our eyepieces, but they paled in comparison to the king of the planets.

When it became truly dark we went Messier hunting. We saw a long list of M objects, several of which I had not seen before. The list included M3, M5, M51, M44, M81 and M82 in one field of view, M104 and my, oh my, M13.

The June observing date is Friday June 23, only two days after the solstice, so it will not become dark until approximately 9:30. But hey, the next day is Saturday so stop out and join the fun!



CCAS Astronomy Day Display

On Saturday May 6, the CCAS celebrated International Astronomy Day with a display at the Exton Square Mall. We set up in the North Court area, between Sears and the Food Court. Just outside, we had two telescopes set up with safe solar filters on them for solar observing. Nicholas La Para brought his Coronado "Personal Solar Telescope" which has a hydrogen-alpha filter on it. With it we could clearly see huge prominences arcing above the solar limb: really cool! We also had Ed Lurcott's trusty 6-inch telescope with a "standard" yellow-orange solar filter. With this one, sunspots are more easily seen; alas, there was but one small one spot visible that day.



We also had our new display banners that day. We used the "horizontal" one outside at the solar observing site, as you can see above. Our "vertical" one was displayed inside:



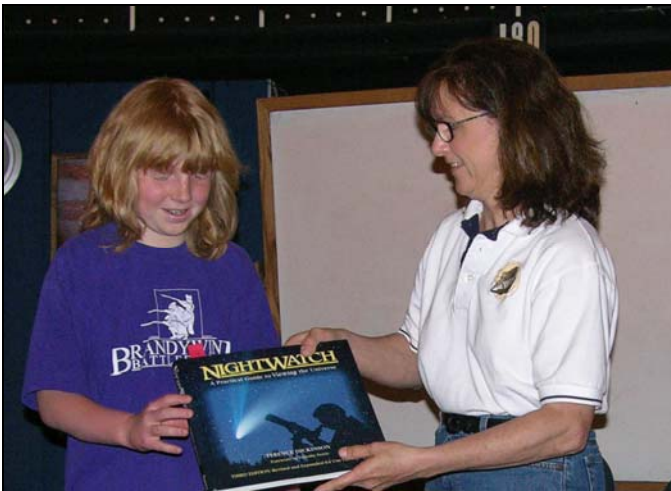


Another view of the display area in the North Court, taken as Bob Popovich's wife Betsy was leaving for lunch.

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CCAS Introductory Astronomy Book Winner

The winner of the drawing for the book *Nightwatch*, by Terence Dickinson, was Jay Kerschner. Congratulations Jay!



CCAS President Kathy Buczynski presents the book to Jay Kerschner at the last meeting of the CCAS Introductory Astronomy class on May 16.

★ ★ ★ ★ ★

Calendar Notes

- | | |
|---|--|
| June 23/24, 2006
(Friday/Saturday) | CCAS Observing Session
Location: BVA
sunset |
| July 3, 2006
(Saturday) | CCAS Lunar X Party
Location: the Knabb's house |
| July 28/29, 2006
(Friday/Saturday) | CCAS Observing Session
Location: BVA
sunset |
| August 25/26, 2006
(Friday/Saturday) | CCAS Observing Session
Location: BVA
sunset |
| September 12, 2006
(Tuesday) | CCAS Meeting
Location: West Chester University
7:30 p.m. EDT |

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Astronomy from a Wheelchair

by Don Knabb

A friend of mine who lives in the middle of Orange County, California (10 miles or so from Disneyland!) has really gotten into astrophotography. He's been in a wheelchair for over 25 years, and using a camera and PC to observe saves a lot of bending over.



Pretty inspiring, huh? Almost anywhere you live and whatever condition you are in you can enjoy astronomy!

★ ★ ★ ★ ★

Sometimes Persistence Pays Off

by Vic Long

I was trying to observe on the night of May 29, and I was about ready to pack it in when the clouds parted. The air was steady and I could clearly make out the Great Red Spot on Jupiter—so I put a webcam on my 4-inch refractor and took this photo about midnight.



It was a little before the GRS Transit, and Io was about to cross the planet's disk. You can see Io in the upper left. I'm still trying to figure *Registax* out...

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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.



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 world's 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.

Astronomus

“Seeing Red”

By Bob Popovich

How chilly is a January night in Milano, Italy? Of this I am not sure, but I can be quite sure that on a particular January night—January 23, 1888 to be exact—Giovanni Schiaparelli felt anything but chilled. More likely he was flushed with excitement for it was on that winter night, straining the limits of his beautifully polished refractor, that he first detected surface details on Mars. Faint they were. But unmistakable. The surface of Mars was crisscrossed with markings that Schiaparelli dutifully recorded in his journal as channels.

The findings were quickly disseminated to the astronomical world. To those using the King's English, the translation of the Italian word *canali* emerged not as channels, but rather as canals. This mistranslation morphed a word denoting a naturally occurring feature to one that clearly implied the work of intelligent creatures. The world saw red for the first time. A century and a quarter later we're still seeing red...as often as possible.

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!



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.



September 16-18, 2006: ASP Annual Meeting

The Astronomical Society of the Pacific is an organization dedicated to astronomical education. This year they are holding their annual meeting in **Baltimore Maryland**. The **Space Telescope Science Institute**, from which the Hubble Space Telescope is controlled, is co-sponsoring the meeting. This is a great opportunity to learn from the best about astronomy and space science education and outreach. More information about the ASP, their educational resources, and their annual meeting, can be found at their web site:

<http://www.astrosociety.org/>



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



Now let's fast forward to Chester County to August of 2003. Many of us recall the incredible excitement of our observations at the Mars Opposition Party. It was the closest approach of the red planet in human history. With an array of equipment that would surely have caused Schiaparelli to gasp, a reporter from the *Daily Local*, and a veritable globular cluster of food & drink, we were all seeing red that summer night.

Though I detected no *canali*, the green and red surface markings and the north polar cap were visible in all their glory. I had an inkling as to how Schiaparelli must have felt. And—now let's admit it—didn't we all fleetingly entertain questions like "Was there ever life up there?" "Is there life up there?" "Will we ever go there?" For those of us who enjoy reading red, evidence says that Mars is barren. Yet, we—professionals & amateurs alike—continue to direct our attention and energies towards Ares. Cases in point:

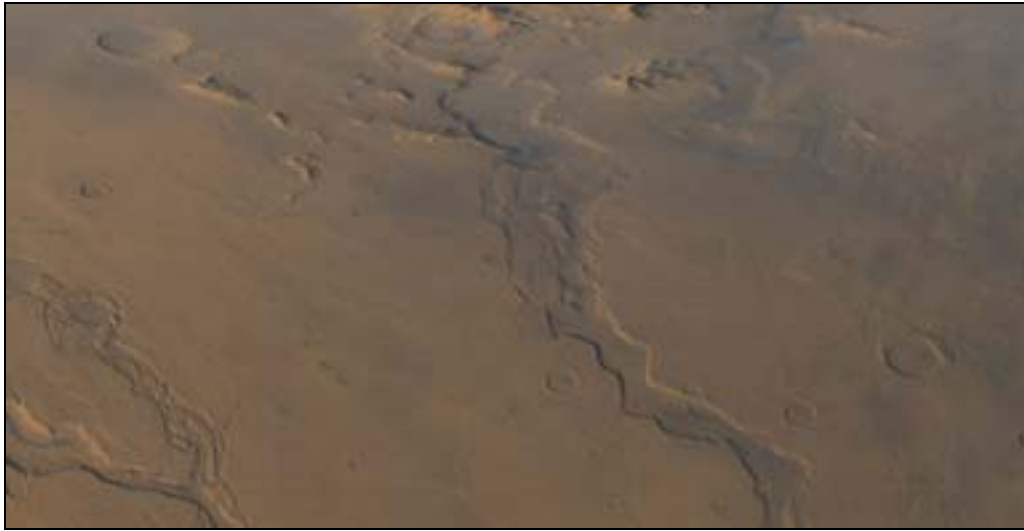
To everyone's delight *Spirit* and *Opportunity*—the rovers designed to cruise Mars for some 90 days—are still active one full Martian year later. The allure of a world that's both alien and Earth-like is very strong. This is a b&w photo from *Opportunity* of an outcropping of rock in Victoria Crater on day 817:



Or perhaps you prefer this color image of rocks that are oriented in such a way for geologists to conclude that they were deposited in their locations as the result of either a meteor impact or a volcanic eruption:



If these two rovers—NASA’s “Energizer Bunnies”—fascinate you, then look for the Disney IMAX release of *Roving Mars*. Having entered Mars orbit in 1997, *Mars Global Surveyor* has been returning fascinating data on our red neighbor, including documented actual changes to the Martian surface that would otherwise have been undetectable. For example, a 2002 image of the Hellas Basin simply presented sand dunes. Three years later the same location revealed a shift in the dunes exposing yet another *canal* some 1,000 feet in length. Here is a portion of that image:



The red planet has wind—it has weather. It teases us with its elusive Earth-like characteristics. We keep seeing red—and we like it! Parenthetically, Percival Lowell was quite sure that he saw canals while E.E. Barnard said he saw none. They disagreed, but they both looked, didn’t they?

Though incoming data is measured in terabytes, our fascination with Mars seems unquenchable. With an estimated price tag of \$450M, *THOR* (Tracing Habitability Organic & Resources) is slated for a 2012 launch date. Upon entering Martian orbit, it will release a probe whose job it is to replicate the Deep Impact mission, i.e.; strike Mars at high velocity, hammering the surface and in doing so raising a cloud of debris for analysis by the orbiting *THOR*. (The moniker certainly fits, but is there actually someone at NASA whose job it is to think up these names?)

Now what about seeing Mars up close and personal? We have yet to talk about a manned mission to Mars. At this point, the technical obstacles are significant and the financial obstacles are enormous. And while we all like to see red, let’s keep NASA’s accounting department from doing so.

To help you see more red, our award-winning website includes links to NASA and JPL for access to an enormous library of information on Mars—go and see red for yourself.

Next Time: A Law is a Law—Except When It’s Not!



Not a Moment Wasted

By Dr. Tony Phillips

The Ring Nebula—check. M13—check. Next up: The Whirlpool galaxy.

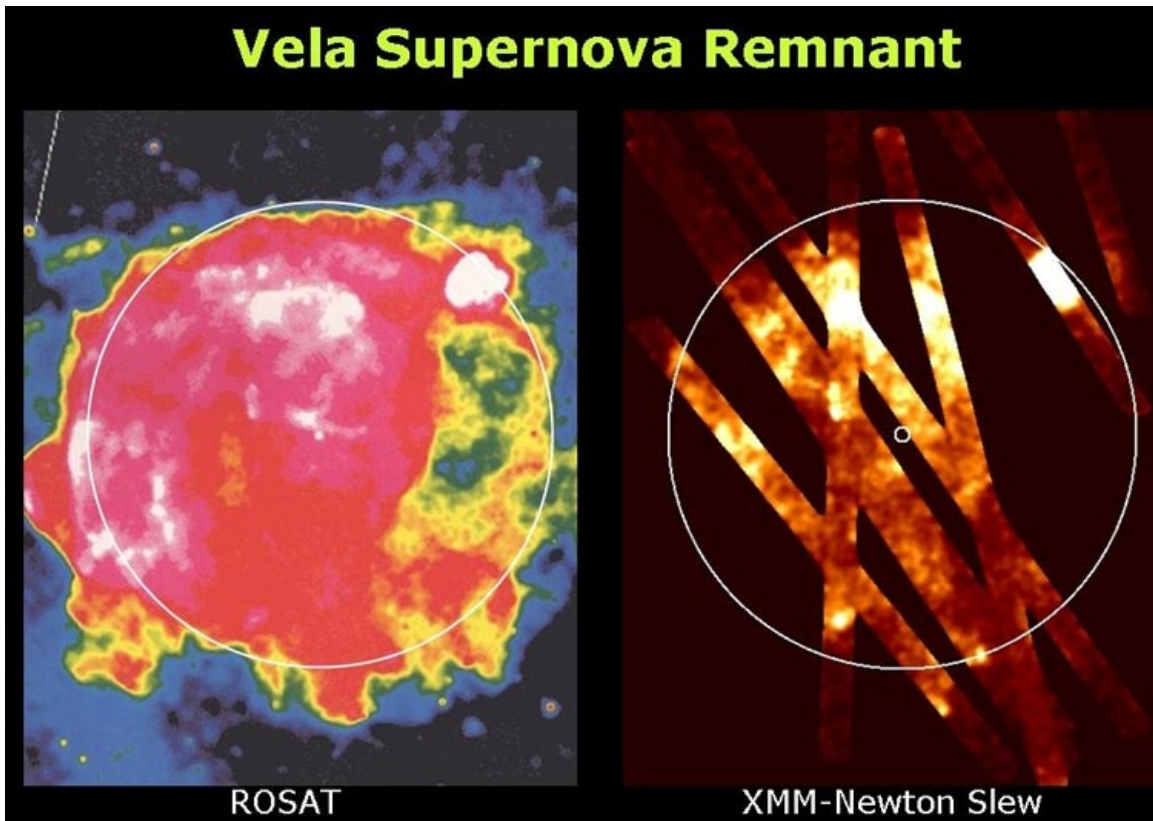
You punch in the coordinates and your telescope takes off, slewing across the sky. You tap your feet and stare at the stars. These Messier marathons would go much faster if the telescope didn’t take so long to slew. What a waste of time!

Don’t tell that to the x-ray astronomers.

“We’re putting our slew time to good use,” explains Norbert Schartel, project scientist for the European Space Agency’s *XMM-Newton* x-ray telescope. The telescope, named for Sir Isaac Newton, was launched into Earth orbit in 1999. It’s now midway through an 11-year mission to study black holes, neutron stars, active galaxies and other violent denizens of the Universe that show up particularly well at x-ray wavelengths.

For the past four years, whenever *XMM-Newton* slewed from one object to another, astronomers kept the telescope's cameras running, recording whatever might drift through the field of view. The result is a stunning survey of the heavens covering 15% of the entire sky.

Sifting through the data, ESA astronomers have found entire clusters of galaxies unknown before anyone started paying attention to "slew time." Some already-known galaxies have been caught in the act of flaring—a sign, researchers believe, of a central black hole gobbling matter from nearby stars and interstellar clouds. Here in our own galaxy, the 20,000 year old Vela supernova remnant has been expanding. *XMM-Newton* has slewed across it many times, tracing its changing contours in exquisite detail.



The image on the left is the Vela Supernova Remnant as imaged in X-rays by *ROSAT*. On the right are some of the slew images obtained by *XMM-Newton* in its "slew" time.

The slew technique works because of *XMM-Newton*'s great sensitivity. It has more collecting area than any other x-ray telescope in the history of astronomy. Sources flit through the field of view in only 10 seconds, but that's plenty of time in most cases to gather valuable data.

The work is just beginning. Astronomers plan to continue the slew survey, eventually mapping as much as 80% of the entire sky. No one knows how many new clusters will be found or how many black holes might be caught gobbling their neighbors. One thing's for sure: "There will be new discoveries," says Schartel.

Tap, tap, tap. The next time you're in the backyard with your telescope, and it takes off for the Whirlpool galaxy, don't just stand there. Try to keep up with the moving eyepiece. Look, you never know what might drift by.

See some of the other *XMM-Newton* images at <http://sci.esa.int> .

For more about *XMM-Newton*'s Education and Public Outreach program, including downloadable classroom materials, go to <http://xmm.sonoma.edu>. Kids can learn about black holes and play "Black Hole Rescue" at The Space Place, <http://spaceplace.nasa.gov/>, under "Games."

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



WEIRD ASTRO EQUIPMENT



Cartoon by Nicholas La Para



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

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.

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>



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! And save energy at the same time!

<http://www.starrynightlights.com/>



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/>



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!"



www.ccas.us

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
484-266-0699

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

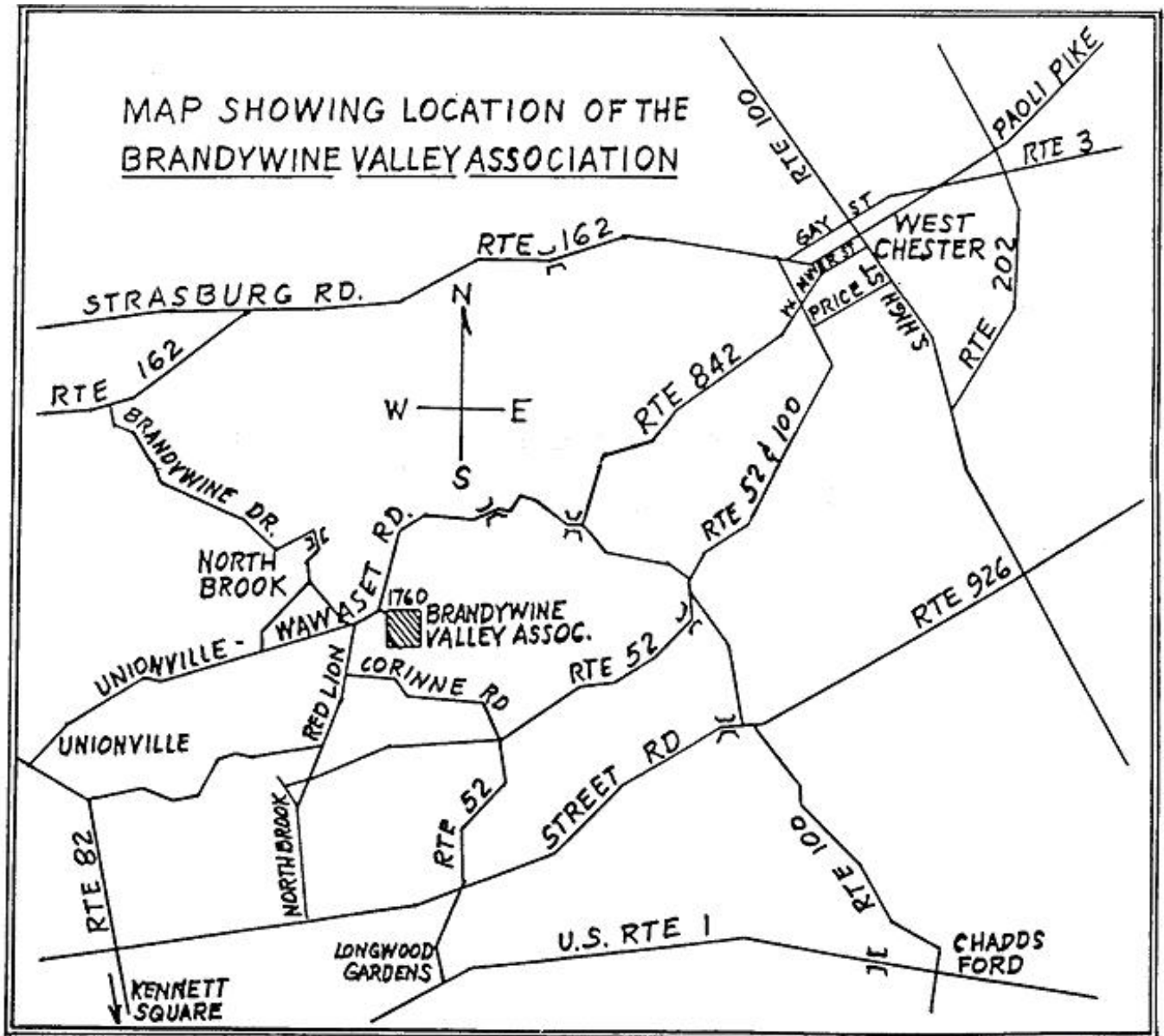
Subscriptions to this excellent periodical are available through the CCAS at a reduced price of **\$32.95** which is much less than the newsstand price of \$66.00, and also cheaper than individual subscriptions (\$42.95)! Make **sure** you make out the check to the **Chester County Astronomical Society** (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 (484-266-0699) 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).