Observations

A Monthly Publication Of The
CHESTER COUNTY ASTRONOMICAL SOCIETY

JULY 2006
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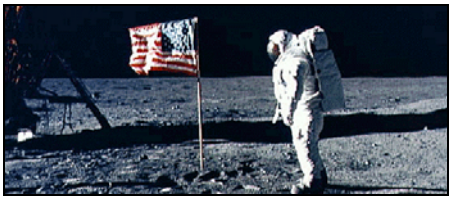
Visit our website at www.ccas.us

In This Issue



Important July 2006 Dates

3 **CCAS Lunar X Party!**

Also: First Quarter Moon

4

Independence Day

No Hercules Observing Cluster meeting.

10 Full Moon—the Grain Moon or the Thunder Moon.

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

17 Last Quarter Moon.

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

20 Moon occults several of the Pleiades.

25 New Moon.

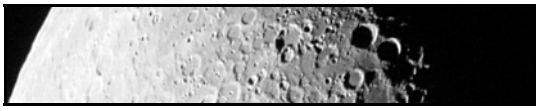
25 Hercules Observing Cluster meets.
Call Kathy Buczynski at 610-436-0821 for details.

28/29 **CCAS Observing Session**
Location: Brandywine Valley Association
Time: sunset, or earlier (see page 4)

July 3, 2006

Don't miss the special CCAS members-only

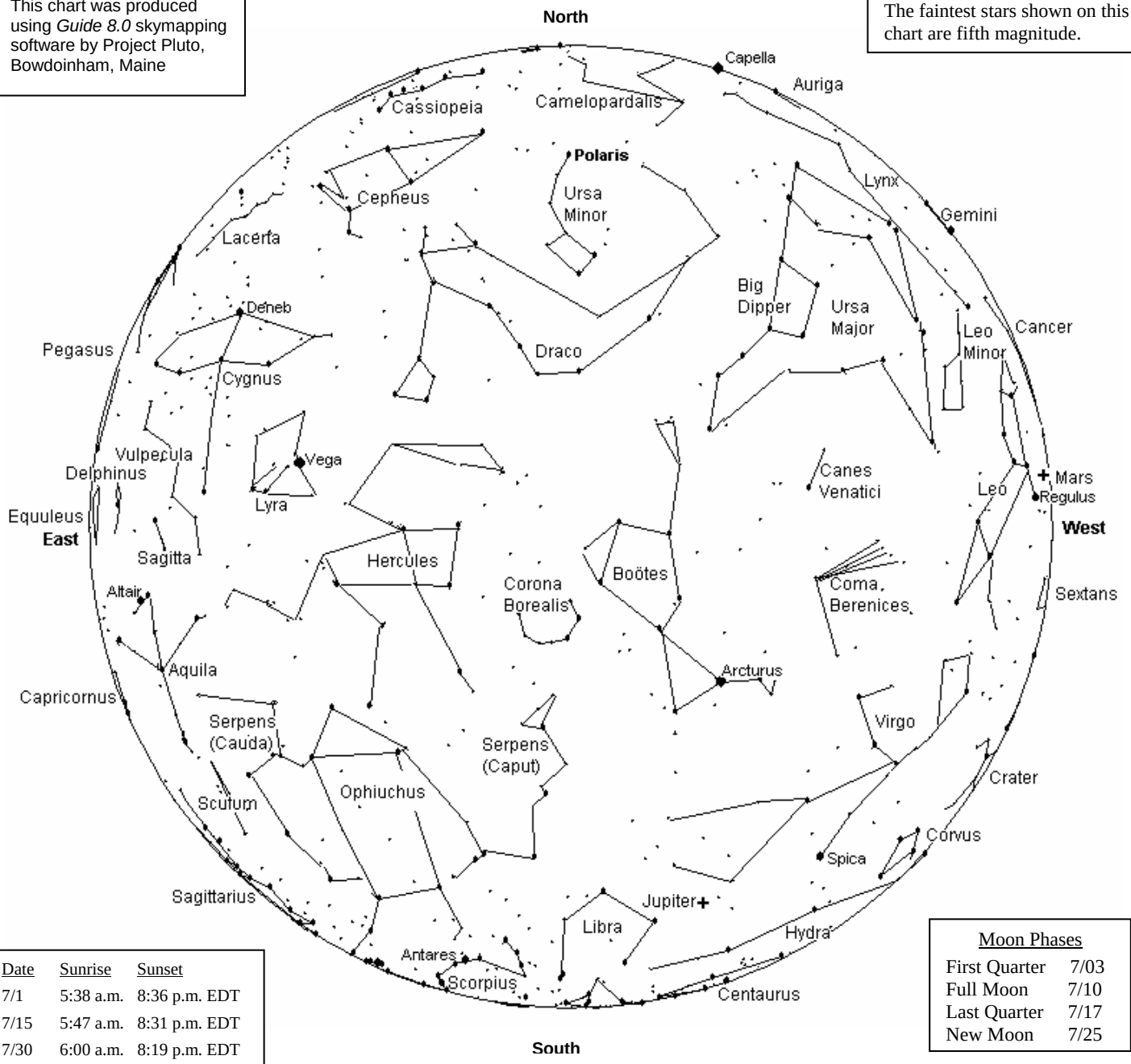
Lunar X Party!



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
7/1	5:38 a.m.	8:36 p.m. EDT
7/15	5:47 a.m.	8:31 p.m. EDT
7/30	6:00 a.m.	8:19 p.m. EDT

Moon Phases	
First Quarter	7/03
Full Moon	7/10
Last Quarter	7/17
New Moon	7/25

The sky over Chester County

July 15, 2006 at 9:00 p.m. EDT

The Planets, by Don Knabb

Mercury: During July Mercury can be seen early in the month, faint and low in the fading sunset. Binoculars will be a big help to find this small planet.

Venus: During July Venus rises shortly before the sun and is only 20° high at sunrise.

Mars: Mars is fading from our evening view, but it continues its dance through the sky with Saturn. On July 21 Mars has a close encounter with Regulus in Leo. You'll need binoculars to see the contrasting bluish white of Regulus compared to the "Red Planet."

Jupiter: Excellent viewing of Jupiter continues through July. It is the brightest point of light in the sky. Watch the dance of Jupiter's moons as the month progresses.

Saturn: Along with Mars, Saturn is getting tougher to spot at sunset. By mid month the ringed planet is setting only one hour after the sun and we'll lose sight of it during the third week of July.

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

Pluto: Pluto is fairly high in the sky at nightfall, but to find this 14th magnitude speck you'll need at least a 10 inch telescope and good charts, not to mention clear skies!

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

July Observing Highlights

by Don Knabb, CCAS Observing Chair

Planets: In July you can see 4 planets in the glow of the late sunsets, although Mercury may be a challenge to find. To see Venus you need to get up early and look for it in the morning sky.

Constellations: Ah, the warm summer nights of July! If only it didn't get dark so late, but then that's part of the fun of summer. After it finally gets dark you'll find the summer triangle well up in the sky and if you are up late enough the Great Square of Pegasus will be seen rising in the east. Aim your telescope or binoculars anywhere in Cygnus and take a deep sip of stars from our galaxy.

Deep sky: Although we were rained out for our June "Attack of the Globular Clusters" observing session at BVA, the sky is full of globular clusters in July. Here's a list of what we you expect to see when it becomes dark: M3 in Canes Venatici, M5 in Serpens Caput, M10 and M12 in Ophiuchus and M13 and M92 in Hercules. As it gets a little later there will be more: M15 in Pegasus, M22 and M62 in Sagittarius and M4 in Scorpius.

July 3	First Quarter Moon—**Lunar X Party!**
July 4	Jupiter shines to the upper left of the Moon and on July 5 it is to the upper right of the Moon.
July 7	Orange-red Antares is just left of the Moon.
July 8	Need an excuse to visit New Zealand? Fly down under to see the Moon occult Antares.
July 10	Full Moon, 7:02 p.m., called the Grain Moon or Thunder Moon.
July 17	Last Quarter Moon.
July 20	The waning crescent Moon occults several of the Pleiades stars. This is similar to the April 1st event, except that in July the event occurs in the early morning hours and it's the bright side of the Moon that will cover up the stars. That makes it more difficult to see the "blink out" point but it will still be a wonderful sight.
July 21	Mars has a close encounter with Regulus.
July 25	New Moon, 12:31 a.m.

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CCAS Summer Schedule

Observing Sessions

July 28/29, 2006

August 25/26, 2006

Hercules Observing Cluster Sessions

July 11, 18, 25.

August 1, 8, 15, 22, 29

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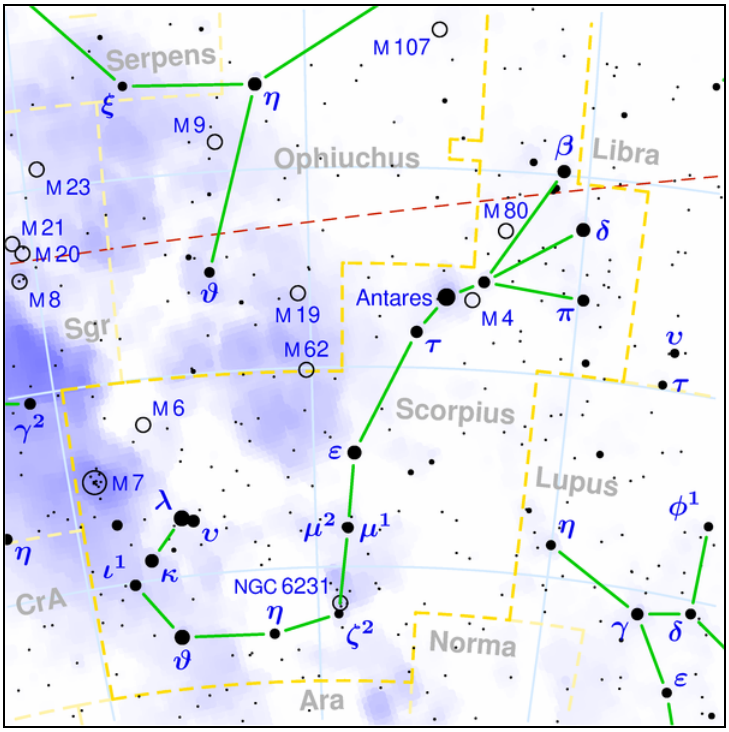
Through the Eyepiece: The Big Bug of the Summer—Scorpius

by Don Knabb, CCAS Observing Chair



Map credit: http://en.wikipedia.org/wiki/Image:Scorpius_constellation_map.png

As I mentioned last month, Sagittarius is one of my favorite places to find treasures in the summer sky. Next on my list is Sagittarius' neighbor, Scorpius.

Isn't it nice when a constellation actually looks like what it is named after? In Chester County it isn't easy to see the entire constellation Scorpius. If you find a clear view to the southern horizon around 10:00 p.m. in mid July you will see all of the upper part of the big bug, and you should be able to catch most of the tail. That view only lasts a few weeks, and then the tail slips below the tree line. When you see the entire constellation it's easy to see the scorpion shape. The Chinese called this grouping of stars a dragon, while the native cultures of the South Pacific saw a fishhook. The myths surrounding Scorpius explain why Scorpius rises in the east as Orion sets in the west. The Scorpion is the slayer of Orion, so they were put on opposite sides of the sky to prevent any further fighting

It's impossible to miss wonderful Antares, the heart of the Scorpion. This red star is the fifteenth-brightest star in the sky. It is a supergiant star that has a diameter 700 times that of our Sun. If our Sun was replaced by Antares, we'd be really complaining about the summer heat since we'd be in the interior of the star. Its surface would extend all the way to the orbit of Jupiter.

There are several excellent deep sky objects in this area of the sky. As you can see on the star chart, just to the right of Antares is M4. This is one of the largest and closest globular clusters in our sky and it is easy to find in any pair of

binoculars. M4 is a swarm of several hundred thousand stars and is "only" 7,200 light-years away, which puts it far behind most of the stars you see around it.

M4 image credit:
http://www.seds.org/messier/more/m004_more.html

More challenging is M80, up and to the right of M4. It is fainter and smaller than M4. Off to the left (east) of Antares is M19, a compact globular cluster. If you are using a telescope and are patient, just point to Antares and wait 33 minutes for M19 to enter your field of view! Then turn your attention 5 degrees south to find another nice globular, M62.

So the big bug of the summer sky is surrounded by its own set of globular lightening bugs! If the sky cooperates let's take a look for these objects at the next CCAS observing session at BVA on Friday, July 28!

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CCAS Observing Sessions

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 14) 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.

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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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Welcome!

We welcome our newest members to the Society: Roy Scarfo and Stephen Siskind, both of Downingtown. 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

May 2006 Financial Summary

Beginning Balance	$1,581
Deposits	248
Disbursements	248
Ending Balance	$1,581

(Bob says: "**Yes** that's correct! I did **not** make that up!")

Membership Renewals Due

06/2006	Taylor
07/2006	O'Hara
08/2006	Fragale
	Knabb & Family

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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JIM ANDERSON WINS ASTRONOMICAL LEAGUE'S MABEL STERNS AWARD FOR BEST NEWSLETTER EDITOR

by Kathy Buczynski

I am thrilled to announce that Jim Anderson has won the Mabel Sterns Award for excellence in newsletter editing from the Astronomical League.

Every month Jim's hard work is appreciated by the Society for his communication to the membership. Jim coordinates what the members give him, what he receives from NASA and his own creations into a concise, well-written and edited newletter we all enjoy. At this time, Jim also contributes to the club as Program Chair and Vice President. I'm so glad his hard work has been recognized and rewarded by the AL.

Please join me in congratulating Jim. He can be reached at newsletter@ccas.us

If you'd like to learn more about the Mabel Sterns Award please visit http://www.astroleague.org/al/awards/sterns/sternss.html

Watch for the announcement and picture in the next *Reflector*, from the Astronomical League.

The communication from the AL was as follows:

Dear Kathy,

On behalf of the Astronomical League and its nearly 280 member societies, I would like to congratulate James Anderson for winning first place in the Mabel Sterns competition. Earning first place for the best newsletter of the year is no small feat, and the competition is always intense. Please pass our congratulations to James for his truly outstanding achievements.

Clear skies and best wishes,

Bob

Robert L. Gent

President, Astronomical League

www.astroleague.org

A nonprofit, educational federation of astronomical societies

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For Sale

From: "Tom Considine" considinetk@comcast.net

Subject: For Sale—Meade ETX-90EC (with Electronic Controller)

A few years ago, I purchased all of the equipment below at the WHYY Store of Knowledge in Cherry Hill, NJ thinking that I might undertake a new hobby of astronomy. It has not happened and none of the equipment has ever been used! It is all in the original boxes unopened.

MEADE ETX-90EC TELESCOPE (NEVER USED)

a. Meade ETX-90EC (with Electronic Controller). Astronomical and Terrestrial Telescope.

b. Meade ETX Deluxe Field Tripod, adjusts 34" to 54" high. Equatorial Head (tilts to 90 degrees). Micrometric Controls.

c. Meade #497 Autostar. Computer Controller for ETX.

d. Meade AC Adapter #541. 120VAC/12VDC.

e. Meade Barlow Lens #126.

f. Original packaging (unopened)

g. **Price - $500.00**

Contact: Tom Considine (phone 610-246-1451)

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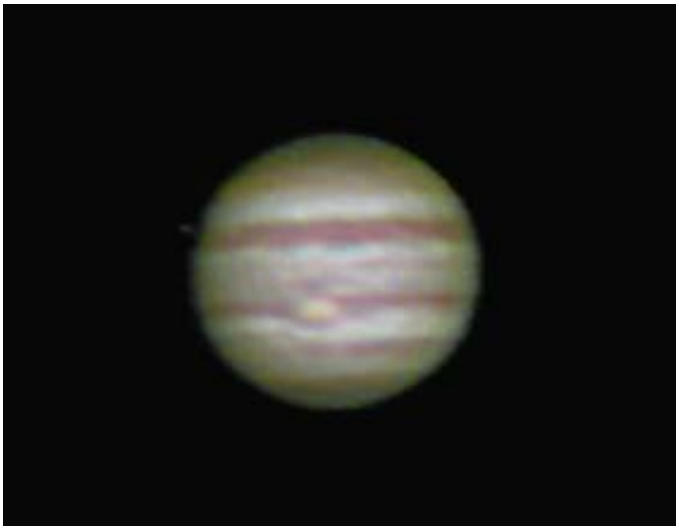
Jupiter via Webcam

by Vic Long

Telescope is 4 inch refractor; webcam was Celestron; Io is on left edge of planet. Still have a few more pictures to process.



The picture marked “better Jupiter” (above) was taken a few minutes before “Jupiter 052906” (below). You can see Io more distinctly in the above picture, and the area around the Great Red Spot is not as overexposed as in the other picture. Still trying to figure out *Registax*…

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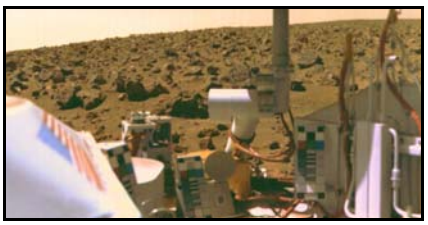

Viking 2 on Mars (NASA photo)

Astronomy from a Wheelchair: M82

by Don Knabb

A friend of mine, Brent Crabb, 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!

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Atmospheric Photography

by Don Knabb

I took this picture a couple of nights ago as the sun was setting. It's not astronomical, but it certainly is atmospheric. The sunlight must have been hitting low clouds beyond our line of sight. It was casting shadows and gave this interesting sight in the sky.

★ ★ ★ ★ ★

Willistown Country Day School Event

by Kathy Buczynski

On June 1, four and a half CCAS members were pleased to present the planets to the Willistown Country Day School on Paoli Pike in West Chester. Deb Goldader's 2-month old son Lyle was the "and a half" member.

Kathy Buczynski and John Hepler walked the children through a scale model of the solar system.

Ed Lurcott demonstrated his coffee table orrery.

Deb Goldader showed the children a solar projection.

The children were well prepared and had drawn the planets and discussed them before we got there.

Miss Francie and the children were very happy to have us visit them to talk about the planets. They send their thanks to Deb, Lyle, Kathy, John, and Ed for making their day so interesting and fun!

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Moon Madness Party at Ridley Creek Park

by Kathy Buczynski

On June 10, 2006, CCAS members participated in the Moon Madness Event at Ridley Creek State Park in Media, PA. The night was chilly for June, and this event was re-scheduled from May, so attendence was not very high. It was, however, a great night for bright planets. CCAS Members in attendance were Ed Lurcott, Steve Limeburner, Kathy Buczynski and Robert Fellwock.

As the full moon began to rise, Jupiter was high in the southeast. Saturn and Mars were in the southwest and through the trees we got a peek at them before they set. Also, Leo the Lion was nosing into the southwestern horizon and the Summer Triangle was risng over the trees in the southeast. All the early summer constellations were in between.

About 6 or 7 telescopes were set up, with members of the Delaware Valley Amateur Astronomers present as well. We all shared our scopes with each other and the small crowd that did attend. About 11:00PM the group began to disperse. Maybe next time we meet at Ridley Creek State Park, we can do it when the moon is not so bright—the area was pretty dark and the horizons managable.

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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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Oct. 20-22, 2006: Stella Della Valley Starfest

This 20th annual star party will be held at Camp Onas, Ottsville, PA, and is sponsored by the Buck-Mont Astronomical Association. Vendors, swap meet, pizza party, door prizes, raffles, and even some stargazing. For more information, visit the website:

http://www.bma2.org

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/

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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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Astronomus

"A Law is a Law—Except When It's Not!"

By Bob Popovich

Johann Elert Bode was a German astronomer of the 18th century who is remembered for two things: a magnificent celestial atlas (*Uranographia*, published in 1801) and a law. Or, maybe it's not a law. I'm not sure—can you help me with this one?

Just how do we define "law?" Before we can deduce whether Bode's Law (also known as the Titius-Bode Law) is just that, a definition is in order. From the vantage point of astronomy, which of these would you choose?

A. A supposition derived from anecdotal evidence.

B. A rule based on a single, complex experiment.

C. An hypothesis, proven valid in all applicable circumstances, by repeated testing.

D. An absolute statement of physical reality.

Which one(s)? Well, suppositions might give rise to scientific investigation, but a supposition supported by anecdotes is more likely to be amusing than scientific. Bye-bye "A."

Next, "B." Basing any rule on one experiment is never going to happen since scientists (like most other normal folks) love to come up with proof that someone else's idea is wrong. So long, "B."

As every English schoolboy knows, absolutely nothing is absolute. Even Einstein's relativity fails to hold true at the quantum level (interestingly enough, you'll note that both of Einstein's works on relativity are still referred to as "theories", not laws). So "D" won't work, either.

That leaves "C." It may not be an ideal definition, but it should serve our purposes for looking at whether Bode's Law fits the bill. "But how can we decide if we don't know what Bode's Law is about?" Good question. Let's dust off our history of astronomy neurons a bit.

In 1772 the known solar system consisted of the sun and the classical planets: Mercury, Venus, Earth, Mars, Jupiter and Saturn. With this backdrop, Bode began with this array of numbers:

0	3	6	12	24	48	96	192	384

Notice that from the number 3 forward that each successive number is twice the previous number. I know what you're thinking—I thought the same thing. There is no logic to starting with 0, moving to 3 and then doubling—other than the fact that creating a law based on doubling 0 isn't much of a law. [See footnote 1] But let's follow the logic of the "law" through to its conclusion before passing judgment.

Then Bode added 4 to each number:

4	7	10	16	28	52	100	196	388

Lastly, he divided by 10:

0.4	0.7	1.0	1.6	2.8	5.2	10.0	19.6	38.8

This, Herr Bode concluded, was a "law" that gives the average distance of each of the planets from the Sun (in Astronomical Units) with the Earth defined as 1.0 [see footnote 1 again]. Comparing Bode's results to current actual measurements:

Bode	0.4	0.7	1.0	1.6	2.8	5.2	10.0	19.6	38.8
Planet	Mercury	Venus	Earth	Mars	UNK 1	Jupiter	Saturn	UNK 2	UNK 3
Actual	0.39	0.72	1.0	1.52	2.8	5.2	9.54	19.2	39.5

The astronomical community responded to Bode's stunning announcement by letting out a collective yawn as they dismissed the "Law" as nothing more than a coincidence of numerology.

And so thing stood for nine years until Sir William Herschel discovered the planet next in line beyond Saturn. Replacing "UNK2," above, was Uranus at a distance of 19.2 AU. Oh, my. Only 0.4 off of Bode's prediction. This discovery caused a few astronomers to sit up in their observing chairs. But only a few.

However, when in 1801 Piazzi discovered the first of the asteroids in the belt between Mars and Jupiter, everyone's attention turned to Bode's Law because the asteroid belt was found to lie at an average distance of 2.8AU from the sun—just as Bode had predicted. It **is** a Law! I **knew** it!

But Bode's supporters had their hopes dashed twice in the next 100 years. First came the 1846 discovery of the next planet in our solar system—Neptune. Replacing "UNK3," above, Neptune was at a distance of 30.0 AU, well off the predicted value of 38.8. And then came Pluto at a distance of 39.5AU. While closer to the predicted value, it was not the next planet in line beyond Uranus. "Aha! It's not a law after all," cried the naysayers. And so it appeared that Bode's Law was meant to slide into the ash-heap of astro-history. OR maybe not.

Could it be that the wacky orbit of Pluto is a hint of some prior cataclysm that disturbed both its orbit and Neptune's as well? And what if Pluto isn't a planet at all but merely an interloper who distorted the fringe of our tidy solar system? Just look how well the law predicted the asteroid belt and Uranus. Bode's Law shows us an elegant and orderly solar system. It's a law we'd like to believe. And even though the law could be called contrived, it's simple and yields intriguingly accurate results. Remember Einstein's famous quote "God does not play dice?" Science looks for order, and order appears to be the nature of our universe.

Though modern astronomers state categorically that Bode's Law does not rise to the definition of a scientific law (and using definition "C" we must agree, I suppose), haunting questions linger (in my mind at least). What if a yet-to-be discovered extra-solar system displays Bode's Law as well? You can't say that it's *not* possible!

So, for all of you who are members of the Flat Earth Society, I have a new club for you to join…

Next Time: Z for…

(1) It is believed that Bode used this sequence so that the Earth would end up being 1.0 AU. And that 93,000,000-mile distance is still how we define one Astronomical Unit today.

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NASA Space Place

From Thunderstorms to Solar Storms

By Patrick L. Barry

When severe weather occurs, there's a world of difference for people on the ground between a storm that's overhead and one that's several kilometers away. Yet current geostationary weather satellites can be as much as 3 km off in pinpointing the true locations of storms.

A new generation of weather satellites will boost this accuracy by 2 to 4 times. The first in this new installment of NOAA's Geostationary Operational Environmental Satellites series, called GOES-N, was launched May 24 by NASA and Boeing for NOAA (National Oceanic and Atmospheric Administration). (A new polar-orbiting weather satellite, NOAA-18, was launched May 2005.)

New GOES-N satellite launches, carrying an imaging radiometer, an atmospheric sounder, and a collection of other space environment monitoring instruments.

Along with better accuracy at pinpointing storms, GOES-N sports a raft of improvements that will enhance our ability to monitor the weather—both normal, atmospheric weather and “space weather.”

”Satellites eventually wear out or get low on fuel, so we've got to launch new weather satellites every few years if we want to keep up the continuous eye on weather that NOAA has maintained for more than 30 years now,” says Thomas Wrublewski, liaison officer for NOAA at NASA's Goddard Space Flight Center.

Currently, GOES-N is in a “parking” orbit at 90° west longitude over the equator. For the next 6 months it will remain there while NASA thoroughly tests all its systems. If all goes well, it will someday replace one of the two active GOES satellites—either the eastern satellite (75°W) or the western one (135°W), depending on the condition of those satellites at the time.

Unlike all previous GOES satellites, GOES-N carries star trackers aboard to precisely determine its orientation in space. Also for the first time, the storm-tracking instruments have been mounted to an “optical bench,” which is a very stable platform that resists thermal warping. These two improvements will let scientists say with 2 to 4 times greater accuracy exactly where storms are located.

Also, X-ray images of the Sun taken by GOES-N will be about twice as sharp as before. The new Solar X-ray Imager (SXI) will also automatically identify solar flares as they happen, instead of waiting for a scientist on the ground to analyze the images. Flares affect space weather, triggering geomagnetic storms that can damage communications satellites and even knock out city power grids. The improved imaging and detection of solar flares by GOES-N will allow for earlier warnings.

So for thunderstorms and solar storms alike, GOES-N will be an even sharper eye in the sky.

Find out more about GOES-N at **goespoes.gsfc.nasa.gov/goes** .

Also, for young people, the SciJinks Weather Laboratory at **scijinks.nasa.gov** now includes a printable booklet titled "How Do You Make a Weather Satellite?" Just click on Technology.

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

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

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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! 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 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

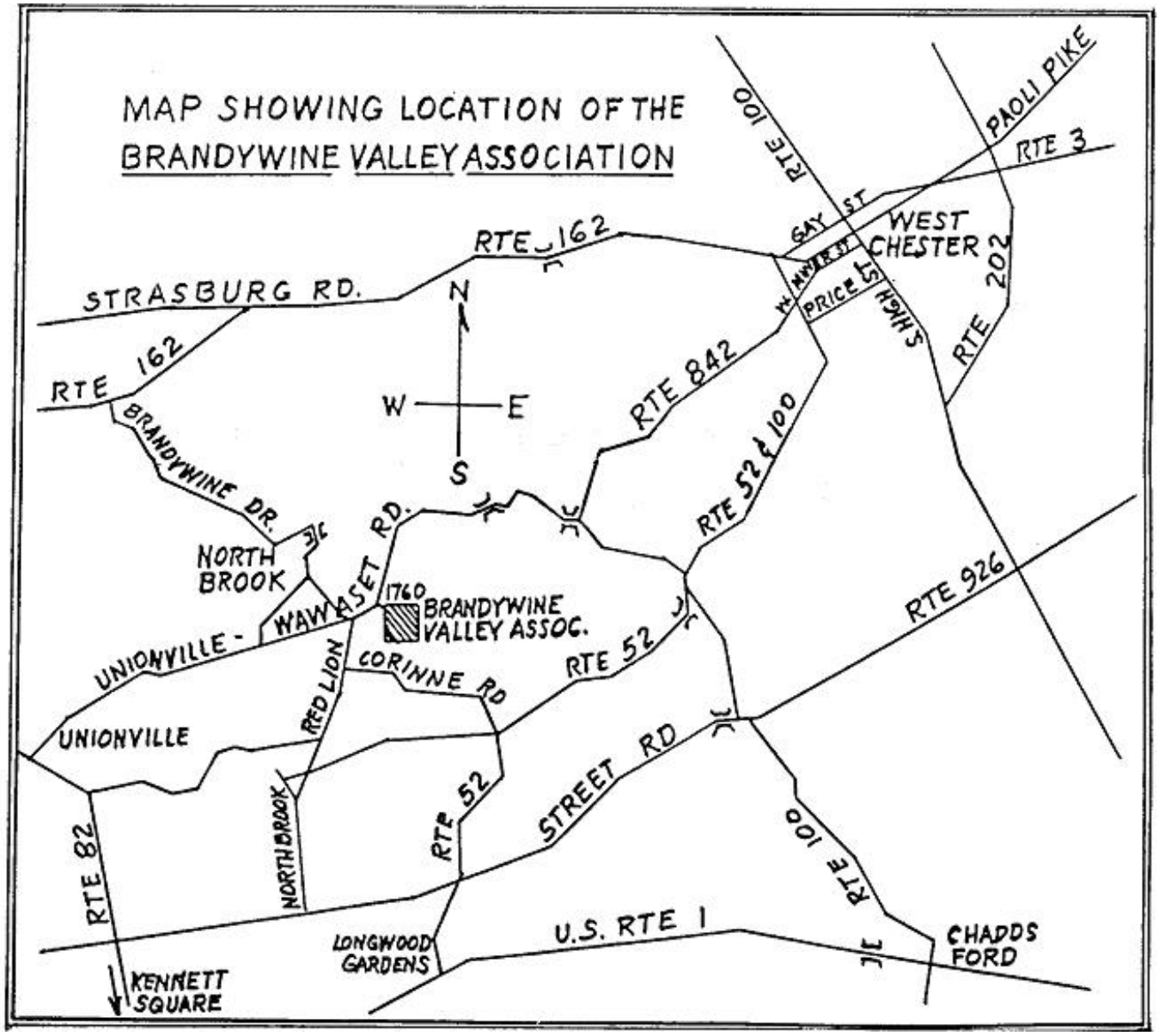
Subscriptions to this excellent periodical are available through the CCAS at a reduced price of **$32.95** which is much less than the newsstand price of $66.00, and also cheaper than individual subscriptions ($42.95)! Make **sure** you make out the check to the **Chester County Astronomical Society**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