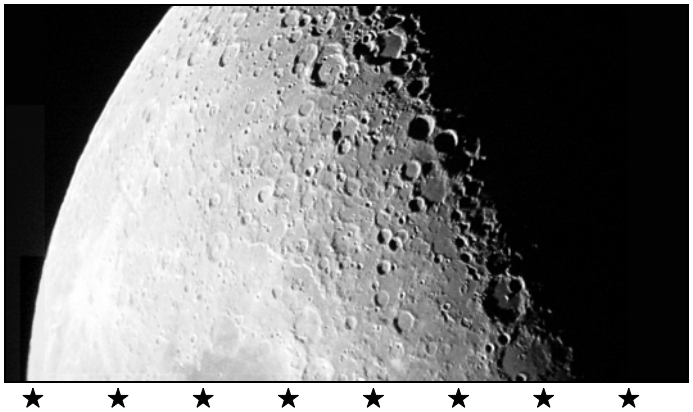
bservations

2006 Winner of the Astronomical League's
Mabel Sterns Best Newsletter Award

A Monthly Publication Of The
CHESTER COUNTY ASTRONOMICAL SOCIETY

JANUARY 2007
(VOLUME 15, NO. 1)
Visit our website at www.ccas.us

In This Issue



Important January 2007 Dates

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

3 Full Moon—the Wolf Moon.

4 **Quadrantid meteor shower** peaks.

6 Saturn is less than 1° from the Moon.

9 **CCAS Meeting 7:30 p.m.** EST (see page 4)
Location: West Chester University
Constellation of the Month: Taurus
Presentation: "The Objects We Look At—A 3-D Galactic View"

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

11 Last Quarter Moon.

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

18 New Moon.

19/20 **CCAS Observing Session**
Location: Brandywine Valley Association
Time: sunset, or earlier (see page 4)

20 Venus is less than 1° from the Moon.

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

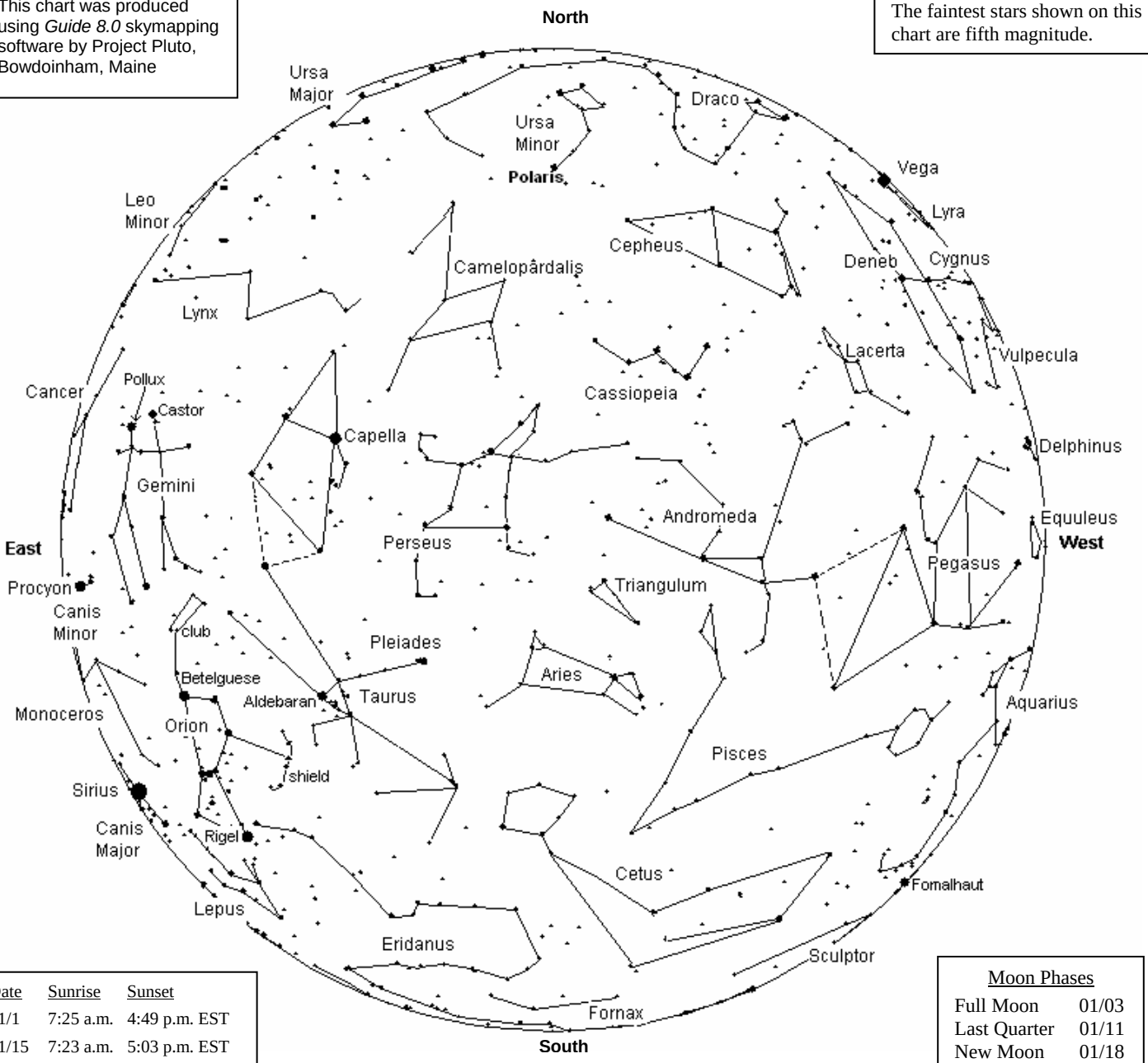
25 First Quarter Moon is at 6:01 p.m. EST. Possible Lunar X opportunity.

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

★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★

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
01/1	7:25 a.m.	4:49 p.m. EST
01/15	7:23 a.m.	5:03 p.m. EST
01/30	7:14 a.m.	5:20 p.m. EST

Moon Phases	
Full Moon	01/03
Last Quarter	01/11
New Moon	01/18
First Quarter	01/25

The sky over Chester County

January 15, 2007 at 7:00 p.m. EST

The Planets, by Don Knabb

Mercury: After Mercury's morning in the spotlight with Mars and Jupiter, we need to wait until late in January to see Mercury in the evening skies below the evening star, Venus, just after sunset.

Venus: I have seen Venus low in the glow of the setting sun during the last week of December and it will be climbing higher and getting brighter as January progresses. By the end of January Venus will be visible in a fully dark sky and will show us why it has the nickname "the Evening Star."

Mars: Mars rises about an hour and a half before the sun and will remain a "morning star" for much of 2007.

Jupiter: Similar to Mars, Jupiter is visible low in the morning sky but is substantially brighter than Mars.

Saturn: The ringed beauty is rising late in the evening and should be easily visible if you go out and look in the east around 11:00. Look for Leo the Lion and you will see bright Saturn leading Leo across the sky.

Uranus & Neptune: Both gas giants are difficult to see during January, but if you really make an effort you can catch Uranus just after it gets dark early in the month. It will get harder and harder to find the green jewel of the sky as January progresses and Uranus sets sooner and sooner after the Sun.

Pluto: Pluto was in conjunction with the Sun on December 18th and thus is essentially out of sight all of January.

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 purchased at many area book stores, or online.

January Observing Highlights

by Don Knabb, CCAS Observing Chair

Planets: Venus is the new headliner of the evening sky, shining as a bright beacon in the southwest just after sunset. Then Saturn takes the lead in the nightly show that is the night sky, with Leo the Lion chasing it across the sky. If you have a good eastern horizon you can see the King of the Planets, Jupiter, in the glow of the rising sun.

Constellations: Just after it gets dark you can still catch the Summer Triangle as it dives below the horizon for its yearly vacation. On the main stage is Cassiopeia high in the sky with the Pleiades and Taurus the Bull taking the center position in the southern sky. Just a bit later Orion the Hunter, followed by his dog Canis Major becomes the highlights of the clear winter sky. A bit later yet and Leo the Lion chases Saturn up from the east.

Deep sky: Although there are many wonderful sights in the sky, if I could see only one I would pick M42, the Great Orion Nebula. Set up your telescope and just stare at this, the brightest nebula in the sky. If you don't have a telescope M42 is still a nice sight in binoculars, but instead find the Beehive Cluster, M44, in the constellation Cancer. The stars of the Beehive will fill your eyepieces!.

Meteor shower: The Quadrantid meteors peak on January 4th, but will be overpowered by the nearly full Moon.

Jan. 3	Full Moon, the Wolf Moon.
Jan. 4	Quadrantid meteors peak.
Jan. 6	Saturn is less than 1º from the Moon.
Jan. 11	Last quarter Moon.
Jan. 18	New Moon
Jan. 20	Venus less than 1º from the Moon.
Jan. 25	First quarter Moon is at 6:01 pm. Possible Lunar X opportunity?

★ ★ ★ ★ ★

Through the Eyepiece: M44, the Beehive Cluster

by Don Knabb, CCAS Observing Chair

M44 (NGC 2632) is better known by the name the Beehive Cluster, or the Latin equivalent: Praesepe, which not only means a hive but also a crib, or manger.

This is a bright open cluster clearly visible to the naked eye on a dark night under excellent conditions, but in our area it is best appreciated with binoculars or a small telescope. One of the largest clusters, its 1.5 degree size is equivalent to three full moons end-to-end.

According to a new determination by ESA's astrometric satellite *Hipparcos*, the cluster is 577 light years distant and its age was estimated at about 730 million years.

This grouping is so large it was well-known in antiquity, when it was thought to be a nebula, or gaseous region of the sky. The visibility of the cluster often served to predict the weather: if not crystal clear, inclement weather might be on the way.

Galileo was the first to study its stars with a telescope. He counted over forty members, putting to rest the idea of its nebulosity and introducing the idea of star clusters.

M44 is found at the center of the constellation Cancer the Crab.

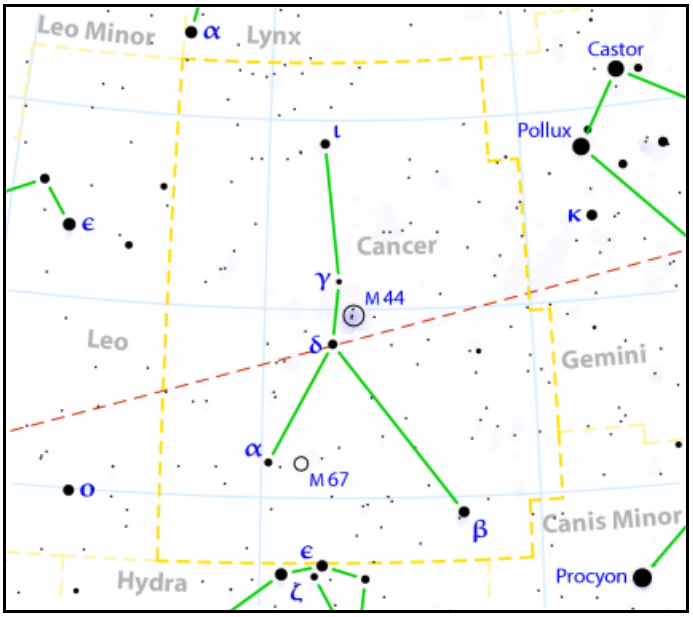


Image credit:
http://en.wikipedia.org/wiki/Image:Cancer_constellation_map.png

There are approximately 350 stars in the Beehive. With larger telescopes more than 200 of the 350 stars in the cluster area have been confirmed as members (by their common motion). Some others are foreground or background stars, and others may not yet have been determined. It has been estimated that over a hundred of its stars are brighter than our Sun.

Greeks and Romans saw this "nebula" as the manger associated with two donkeys that eat from it, the gamma and delta stars of Cancer. The myth states that these were the donkeys on which the gods Dionysos and Silenus rode into the battle against the Titans, who were frightened by the animals' braying so that the gods won. As a reward, the donkeys were put in the sky.

Image credit:
http://www.noao.edu/outreach/aop/observers/m44bashs.jpg
(Kitt Peak Observatory)

CCAS January Meeting

DATE: **Tuesday January 9, 2007**
TIME: **7:30 p.m. EST**
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 14.

This month's Constellation of the Month (COM) will be Taurus, presented by Kathy Buczynski.

The title for the main presentation is "The Objects We Look At—A 3-D Galactic View," presented by CCAS member Nicholas La Para. Many thanks to Nicholas for putting this presentation together for us!

★ ★ ★ ★ ★

CCAS Observing Session January 19/20, 2006

CCAS Observing Sessions will be at the Brandywine Valley Association's Myrick Conservancy Center (see map on page 13) 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.

★ ★ ★ ★ ★

CCAS Introductory Astronomy Class

The Education Committee of the CCAS is offering a class intended to introduce people to basic astronomy. This series of eight classes will be held on the first and third Tuesdays of each month, starting at 6:30 p.m. and ending at 8:30 p.m. These are the dates on which classes will be held:

February 6	Spaceship Earth
February 20	The Moon
March 6	The Other Kids on the Block
March 20	Planispheres/Star Charts
April 3	Stars by Design: Constellations
April 17	The Secret Life of Stars
May 1	Planetarium show (WCU planetarium)
May 15	Beyond Naked Eye

The classes will be held in Room 113 in the Boucher Building at West Chester University. This is the room where we hold our monthly meetings.

The cost for non-members is $20.00 per person, and $30.00 per family (with the same address). **For current CCAS members, the classes are free!** Space is limited to just 40 people, however, so call Kathy Buczynski to reserve your space **now** (610-436-0821). Also, please call Kathy if you'd like to help at the classes.

★ ★ ★ ★ ★

Welcome!

We welcome our newest members to the Society: Tim & Michelle Porreca of West Chester, and Walter Rowan of Exton. We're glad you decided to join us! Clear skies to all!

★ ★ ★ ★ ★

Treasurer's Report by Bob Popovich

November 2006 Financial Summary

Beginning Balance	$1,363
Deposits	365
Disbursements	66
Ending Balance	$1,662

Membership Renewals Due

01/2007	Furman
	Kovacs
	Whitman
02/2007	Farrelly
	Fellwock
	La Para
	Leiden
	Reimer
03/2007	Dascaloff
	LaFrance
	Morgan

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.

★ ★ ★ ★ ★

Report on Griffith Observatory

by Robert Fellwock

On December 8, I had the pleasure of visiting the recently re-opened Griffith Park Observatory in Los Angeles. The facility was closed for about four years for renovations and expansion. Having visited it a few years earlier, I can testify that great improvements were made. The planetarium is terrific. There are numerous first-rate educational interactive and other displays.

The main telescope is a Zeiss 12 inch refractor on a very large equatorial mount. The 70-year-old refractor is piggybacked with a 9-1/2 inch Zeiss refractor used primarily as a guide scope, an 8 inch and a 9-1/4 inch Celestron Schmidt-Cassegrain, and at least one other small refractor. The scopes were not being used when I was there because of cloudy skies. But a telescope demonstrator who has worked there for many years was describing the refractor and answering questions. He said the Zeiss company had manufactured similar refractors prior to World War II, and all (but one other) were destroyed in bombings. He said the 11 inch refractor at the Franklin Institute is also a Zeiss of the same design, and that those two

refractors are the only pre-WWII Zeiss refractors of that type remaining in the world.

For information, see: http://www.griffithobs.org

For a truly unique and inspiring set-up, see the picture of the 9-1/2 inch refractor mounted on the roof of a car at: http://www.griffithobservatory.org/exhibits/bzeiss.html

I could find no information on the Franklin Institute web site about its refractor. I called and was told that the web site was recently changed, and perhaps the information was not restored.

★ ★ ★ ★ ★

For Sale

Orion SpaceProbe Telescope

4.5" EQ Equatorial Reflecting Telescope #9036

Includes: K9mm Lens, a K25 mm Lens, a Shorty Barlow 1.25 Lens and a Moon Filter.

Telescope is fully assembled on the tripod. All manuals and original information are included plus a basic Orion Primer book. It has been stored in a clean, dry, 60 degree environment with a protective plastic cover.

Never used, “Show Room" condition.

$600.00 or best offer.

Contact Maureen at:

E-mail: sturgesm-cha@comcast.net

Daytime phone: 610-696-5140

Evening phone: 610-436-6718

★ ★ ★ ★ ★

Calendar Notes

February 6, 2007 (Tuesday)	Introductory Astronomy class Location: West Chester University 7:00 p.m. EST Also: Hercules Observing Cluster Call Kathy Buczynski for details.
February 13, 2007 (Tuesday)	CCAS Meeting Location: West Chester University 7:30 p.m. EST
February 16/17, 2007 (Friday/Saturday)	CCAS Observing Session Location: BVA sunset
February 20, 2007 (Tuesday)	Introductory Astronomy class Location: West Chester University 7:00 p.m. EST Also: Hercules Observing Cluster Call Kathy Buczynski for details.
February 27, 2007 (Tuesday)	Hercules Observing Cluster meets Call Kathy Buczynski for details.
March 6, 2007 (Tuesday)	Introductory Astronomy class Location: West Chester University 7:00 p.m. EST Also: Hercules Observing Cluster Call Kathy Buczynski for details.
March 11, 2007 (Sunday)	**Daylight Savings Time begins!**
March 13, 2007 (Tuesday)	CCAS Meeting Location: West Chester University 7:30 p.m. EDT
March 16/17, 2007 (Friday/Saturday)	CCAS Observing Session Location: BVA sunset
March 20, 2007 (Tuesday)	Introductory Astronomy class Location: West Chester University 7:00 p.m. EDT Also: Hercules Observing Cluster Call Kathy Buczynski for details.
March 27, 2007 (Tuesday)	Hercules Observing Cluster meets Call Kathy Buczynski for details.
April 3, 2007 (Tuesday)	Introductory Astronomy class Location: West Chester University 7:00 p.m. EDT Also: Hercules Observing Cluster Call Kathy Buczynski for details.
April 10, 2007 (Tuesday)	CCAS Meeting Location: West Chester University 7:30 p.m. EDT
April 17, 2007 (Tuesday)	Introductory Astronomy class Location: West Chester University 7:00 p.m. EDT Also: Hercules Observing Cluster Call Kathy Buczynski for details.
April 20/21, 2007 (Friday/Saturday)	CCAS Observing Session Location: BVA sunset
April 21, 2007 Saturday	**International Astronomy Day**
April 24, 2007 (Tuesday)	Hercules Observing Cluster meets Call Kathy Buczynski for details.

★ ★ ★ ★ ★

“Whereas other animals hang their heads
and look at the ground,
he made man stand erect,
bidding him look up to heaven,
and lift his head to the stars.”

Metamorphosis
Ovid (43 B.C. – A.D. 17?), Roman poet

★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★

Astronomus

"1957"

By Bob Popovich

Our vantage point in the galaxy gives us a magnificent perspective on the universe. But every so often I like to use my astronomy software to venture out into the cosmos and gather another perspective. It's a distinctly odd perception. The familiar constellations that identify the seasons are gone—yet the stars of which they are composed stand unaltered. Points of familiarity in the midst of a different reality. I like making these pretend trips because it helps place my perspective *into perspective*. And so it is with looking back on years past. Like, for instance, AD 1957.

Too often conventional wisdom says that the weight of current events overwhelms that of past events. Interesting…But is it true? Let's think a bit…

A January night 50 years ago. It's cold, to be sure. But the sky is too beautiful to be ignored. On the 20th of the month Dwight Eisenhower will inaugurate his second term. The winter circle is ablaze. Tiny cotton balls marking several open clusters sprinkle the sky. The Pleiades are nothing short of breathtaking. Sirius is living up to its name as translated into English—scorching. And, as most businesses have closed by nightfall and turned out their lights, the Milky Way is visible even in urban areas (Yes, this was before sodium vapor streetlights).

Scanning the heavens in 1957, astronomers using the largest telescope in the world, the 200-inch Hale reflector on Mt. Palomar, could have told you some then-current *facts* about the solar system:

- The solar system has nine (count 'em) planets.
- Saturn is the only planet with rings.
- The solar system has a total of 32 moons. (In case you're wondering, the current count is 165.)
- We have reached an upper limit in our ability to see surface detail of the other planets in our solar system from Earth-based equipment.

And, from a wider perspective:

- Astronomer Fred Hoyle and several of his colleagues have recently outlined how every element could be formed by fusion within stars.
- Physicists understand that the universe is large but aren't sure how far out the "end" actually is.

How much has changed in 50 years.

By April of that year, comet Arend-Roland would grace the spring sky. But it was on a hyperbolic orbit and once past the sun, would never be seen again. That same spring Patrick Moore, an amateur astronomer, began hosting a BBC program that did much to popularize astronomy—not unlike Carl Sagan would do a generation later. Just so we remember that astronomy truly has broad appeal even among non-geeks, we note that Sir Patrick's program is the BBC's longest running show. How many of you remember reading Patrick Moore's books? He wrote with a contagious passion.

Lastly in that astronomical spring of 1957, ground was broken near Green Bank, WV for the National Radio Astronomy Observatory. If you enjoy camping in the verdant mountains of West Virginia, I highly recommend a visit to the NRAO.

Now these things are interesting enough, but what made 1957 an exceptional year was how two nations answered the call of the International Geophysicial Year. The International Council of Scientific Unions proposed a worldwide, year-long (mid 1957—mid 1958) collaborative effort of scientists on any number of various geo-physical topics. The Union of Soviet Socialist Republics and the United States of America would respond in a way that altered our very perception of what we are and where we are.

Now picture yourself all bundled up for some observing on this frigid winter night. Allowing the commensurate 20 minutes for night vision to kick-in we survey the sky. How many man-made satellites will give us a fleeting glint of reflected light? None. None? No satellites, no International Space Station, no nighttime shuttle launch. In January 1957 humankind's perspective of the universe was firmly and exclusively grounded on our home planet. But that was to change beginning in the year 1957.

On October 4 the Soviet Union launched Sputnik (*fellow traveler* in Russian). The space race had begun and the bad guys were out of the gate while we were caught flat-footed. For the next 12 years our planet's first two space-traveling nations traded firsts. To name a few: first man in space (Yuri Gagarin), first monkey in space (Gordo), first pictures of the moon's far side (Luna 3), first man to walk on the moon (*I can't recall his name, can you?*), the first space station (*Salyut I*) and the first reusable winged spacecraft, the space shuttle. And what was the long-term goal of all this furious activity? You might say to land a man on the moon. And you'd be correct. But the advances in various disciplines were staggering:

- Electronics—micro-circuitry
- Engineering—new lightweight and strong materials (including Velcro)

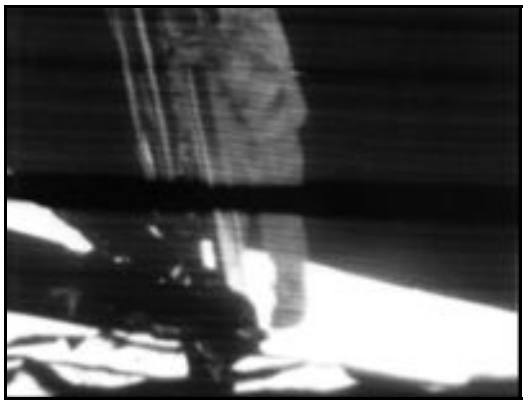
- Astronomy—unmanned exploration of the solar system and the *Hubble Space Telescope* have exponentially increased our appreciation and understanding of the cosmos
- Physiology—a better grasp of the wondrous resilience of terrestrial life by studying the effects of space travel.

Though perceived with grim determination at the time, the space race was just the sort of competition that brought out the best in people. Consider what it means to have advanced from this in 1957[1]:

Holding the *Explorer I* satellite (yes, that's the entire thing!) overhead are, from left to right: William Pickering (JPL), James Van Allen (U of Iowa) and Werner Von Braun (Army Ballistic Missile Agency).

In front of Von Braun is a scale model of the modified Jupiter-C rocket known as Juno that launched the satellite; the model includes *Explorer I* at its tip (just below Von Braun's ear).

To this in 1969:



Here's Neil Armstrong about to step off the Lunar Module (LM) onto the moon (the black band is an imperfection in the photo).

Astounding.

The year AD 1957 propelled the human race into an acceleration of our technical and scientific capabilities the likes of which has not been seen before or since. What a genuine adventure.

Now if we could propel our compassion and desire for peace in a similar manner, we'd really be on to something…

Next Time: A Tale *Swiftly* Told.

(1) You may recall America's panicked response led to a failed attempt to launch Vanguard I. The rocket wasn't ready and it exploded on the launch pad. The next attempt was to have the Jet Propulsion Laboratory (JPL) assemble *Explorer I* in just 84 days, and then to appoint Dr. James Van Allen to direct the project. In preparation for the launch from a small military installation on Cape Canaveral, FL, Van Allen insisted that the satellite carry a Geiger counter to measure radiation. Subsequent research on this topic lead to the understanding that the Earth is surrounded by radiation belts, named the Van Allen belts in his honor.

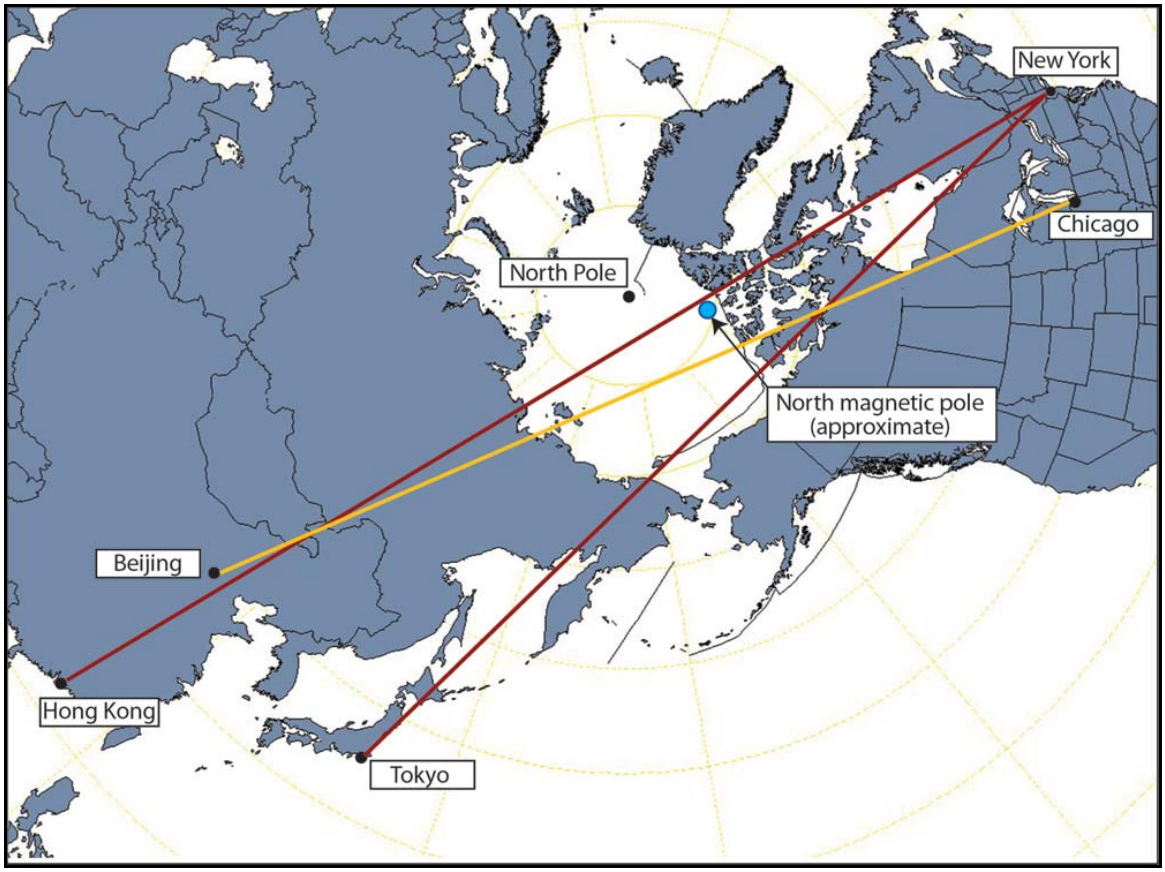
★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★

Space Weather for Air Travelers

By Dr. Tony Phillips

At a time when much of the airline industry is struggling, one type of air travel is doing remarkably well: polar flights. In 1999, United Airlines made just twelve trips over the Arctic. By 2005, the number of flights had grown to 1,402. Other airlines report similar growth.

The reason for the increase is commerce. Business is booming along Asia's Pacific Rim, and business travel is booming with it. On our spherical Earth, the shortest distance from Chicago to Beijing or New York to Tokyo is over the North Pole. Suddenly, business travelers are spending a lot of time in the Arctic.



The shortest airline routes from the Eastern U.S. to popular destinations in Asia go very near the magnetic North Pole, where space weather is of greatest concern.

With these new routes, however, comes a new concern: space weather.

"Solar storms have a big effect on polar regions of our planet," explains Steve Hill of NOAA's Space Weather Prediction Center in Boulder, Colorado. Everyone knows about the Northern Lights, but there's more to it than that: "When airplanes fly over the poles during solar storms, they can experience radio blackouts, navigation errors and computer reboots—all caused by space radiation."

In 2005, United Airlines reported dozens of flights diverted from polar routes by nasty space weather. Delays ranged from 8 minutes to nearly 4 hours, and each unplanned detour burned expensive fuel. Money isn't the only concern: Pilots and flight attendants who fly too often over the poles could absorb more radiation than is healthy. "This is an area of active research—figuring out how much exposure is safe for flight crews," says Hill. "Clearly, less is better."

To help airlines avoid bad space weather, NOAA has begun equipping its GOES weather satellites with improved instruments to monitor the Sun. Recent additions to the fleet, GOES 12 and 13, carry X-ray telescopes that take spectacular pictures of sunspots, solar flares, and coronal holes spewing streams of solar wind in our direction. Other GOES sensors detect solar protons swarming around our planet, raising alarms when radiation levels become dangerous.

"Our next-generation satellite will be even better," says Hill. Slated for launch in 2014, GOES-R will be able to photograph the Sun through several different X-ray and ultra-violet filters. Each filter reveals a somewhat different layer of the Sun's explosive

atmosphere—a boon to forecasters. Also, advanced sensors will alert ground controllers to a variety of dangerous particles near Earth, including solar protons, heavy ions and galactic cosmic rays.

"GOES-R should substantially improve our space weather forecasts," says Hill. That means friendlier skies on your future trips to Tokyo.

For the latest space weather report, visit the website of the Space Weather Prediction Center at:

http://www.sec.noaa.gov/

For more about the GOES-R series spacecraft, see

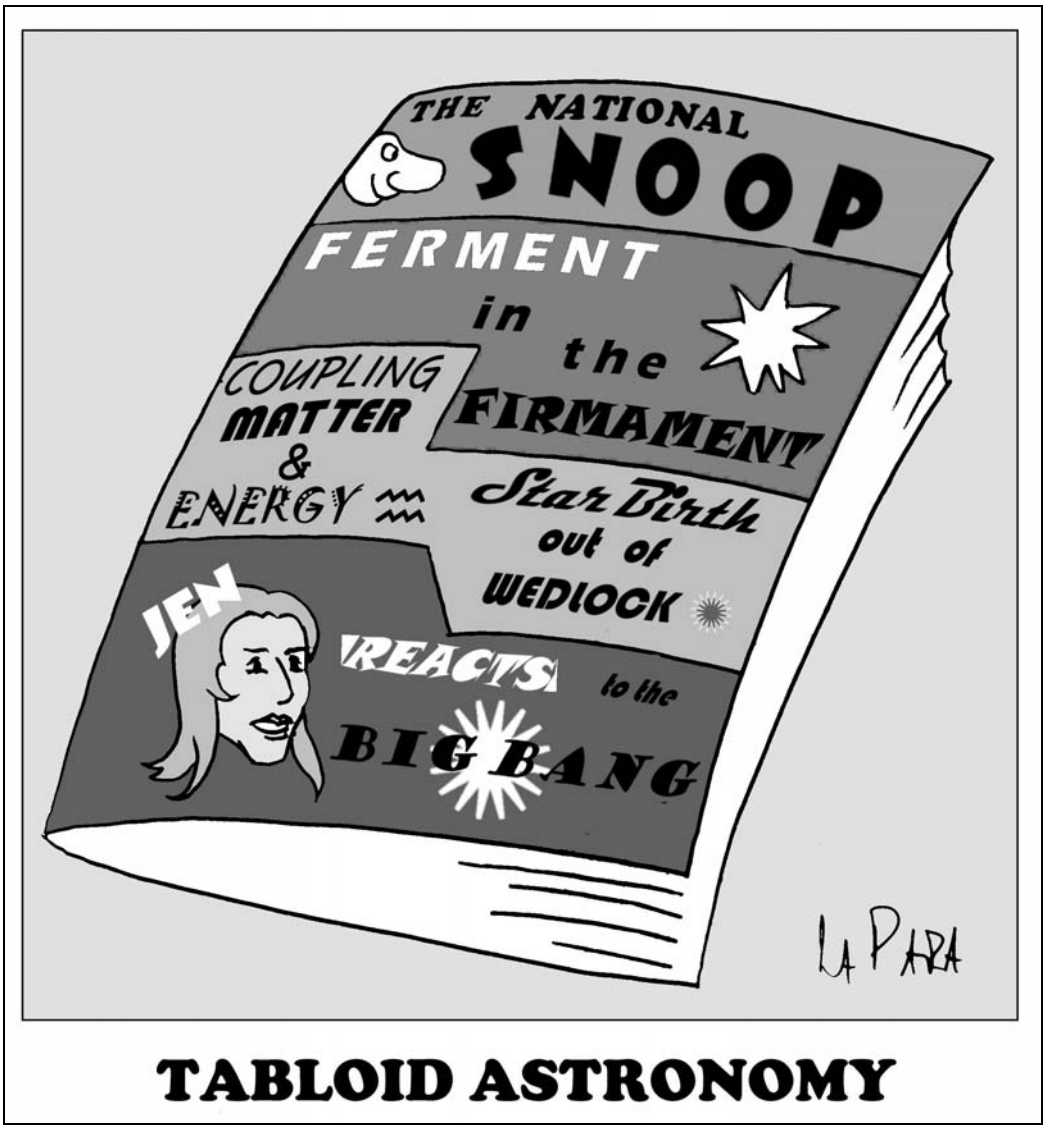
http://goespoes.gsfc.nasa.gov/goes/spacecraft/r_spacecraft.html

For help in explaining geostationary orbits to kids—or anyone else—visit The Space Place at:

http://spaceplace.nasa.gov/en/kids/goes/goes_poes_orbits.shtml

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

★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★

Introductory Astronomy Class

February 6
through
May 15, 2007

8 one-hour classes
First & Third Tuesdays
7:00 p.m. to 8:00 p.m.

Sponsored by the
Chester County
Astronomical Society

All classes are taught by
members of the CCAS,
a club of amateur astronomers

Cost

$20.00 per person
or
$30.00 per family
(with same address)

For ages 9 - 90

Price Includes

- Parking
- Handouts
- 4-month CCAS membership
- CCAS Monthly newsletter
- Observing sessions
- Star locator (planisphere)
- Drawing for excellent beginners' guide book *Nightwatch*

Location:

West Chester University

Rm. 113 Boucher Building

South Church Street

West Chester, PA

Learn:

- What's in the sky this month
- How to find stars and constellations in the sky
- How to find planets
- How to observe eclipses
- How to use binoculars
- How to use telescopes
- How to use star charts
- What's on the Moon
- The differences between stars
- The life cycle of stars
- About types of telescopes
- Why we have seasons
- How the Earth moves in space
- About the Solar System
- About light pollution
- Astronomy on the Web

Enrollment limited to 40.
Call and reserve
your space now!

Kathy Buczynski
610-436-0821

Note: Content of class sessions subject to change without notice

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/

CCAS Members Benefit from High Point Scientific

The owners of High Point Scientific, an astronomy equipment store in Montague, NJ, have extended a special free benefit to members of the CCAS. All members get a *High Point Advantage Card*, which entitles the member to special discounts on almost all purchases. It also includes access to exclusive deals only available to *High Point Advantage Card* holders. Other benefits of the program are detailed in the letter and booklet given to each CCAS member.

High Point Scientific
442 Route 206
Montague, NJ 07827
Phone: 1-800-266-9590

www.highpointscientific.com

★ ★ ★ ★ ★ ★ ★ ★

Local Astronomy Store: *Skies Unlimited*

There is an astronomy equipment store called ***Skies Unlimited*** in our area, in Pottstown to be specific, at:

Suburbia Shopping Center
52 Glocker Way
Pottstown, PA 19465
Telephone: 610-327-3500 **or** 888-947-2673

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. You can learn 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!"

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

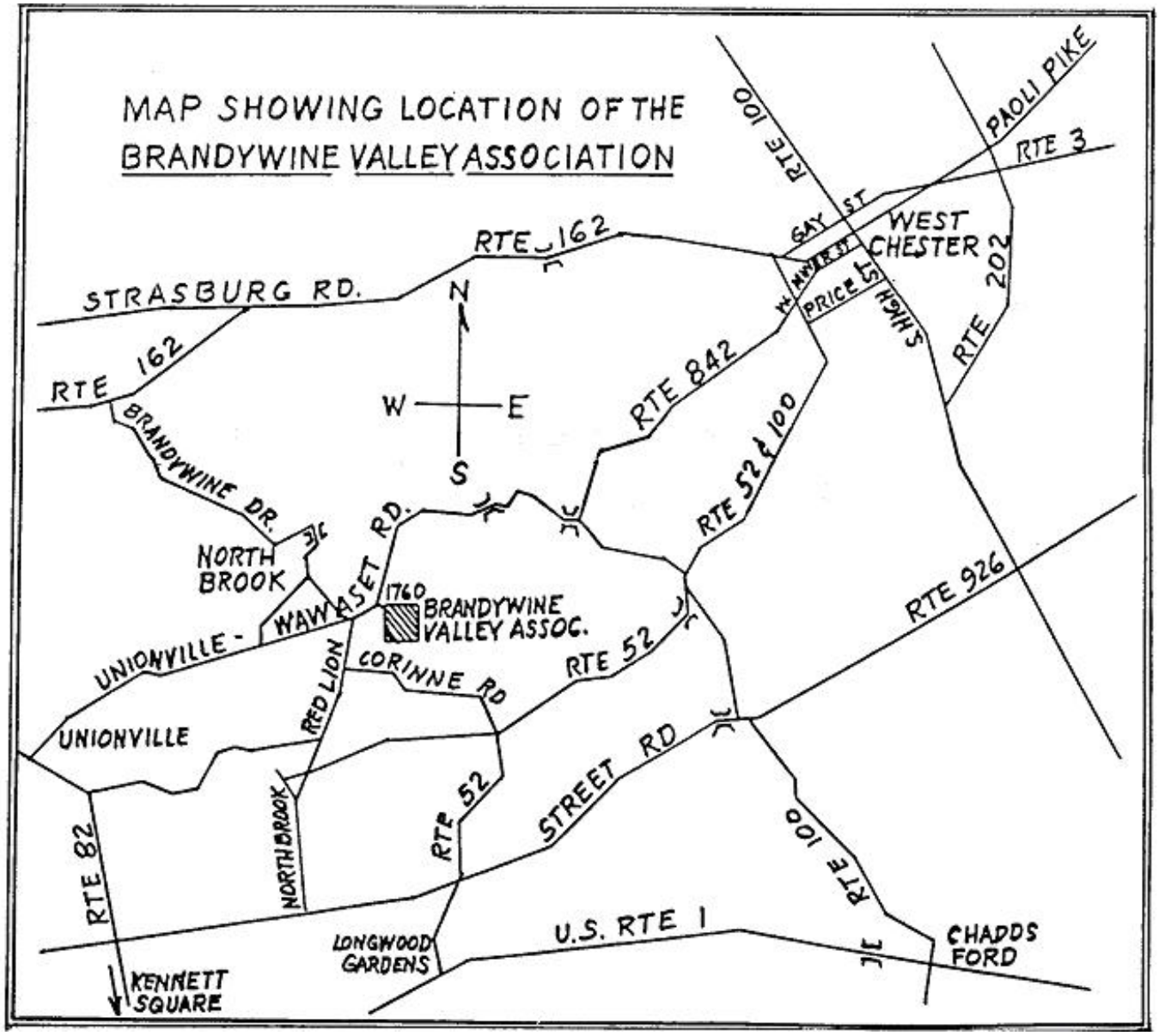
Subscriptions to this excellent periodical are available through the CCAS at a reduced price of **$32.95** which is much less than the newsstand price of $66.00, and also cheaper than individual subscriptions ($42.95)! Make **sure** you make out the check to the **Chester County Astronomical Society**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

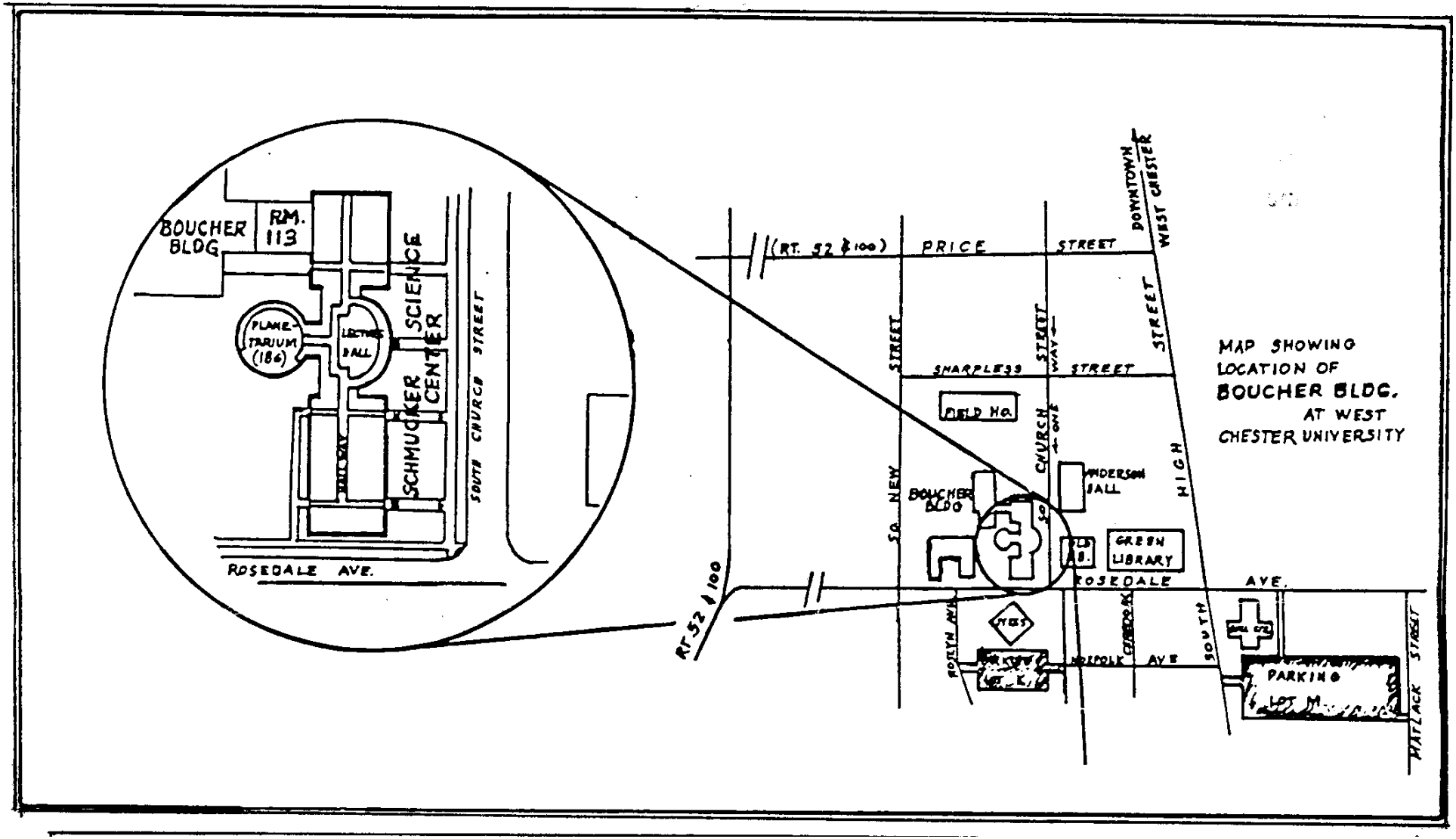
John Hepler is the Society's Webmaster. You can check our Website at:

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).



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.