Observations

A Monthly Publication Of The
CHESTER COUNTY ASTRONOMICAL SOCIETY

Vol. 17, No. 8 *August 2009*

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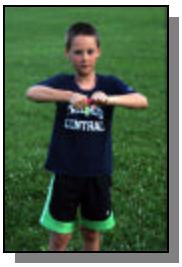
Membership Renewals Due

08/2009	Fellwock
	Fragale
	Given
	Knabb & Family
09/2009	Bogucki
	Cooperman & Family
	De Lucia & Family
	Lurcott
	Renshaw
10/2009	Anderson
	End
	Jay
	Linskens

CCAS Upcoming Nights Out

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

- Saturday, August 22nd, We are participating in a night out at Ridley Creek State Park. Presentations start at 7:00 p.m., observations as dusk.
- Saturday, September 19th, we are hosting a night out at Anson Nixon Park in Kennett Square.
- Saturday, October 19th, we are co-hosting (with the West Chester Recreation Dept.) a night out at Hoopes Park, West Chester.



Our night out on June 27th at Ridley Greek State Park, in conjunction with the National Wildlife Federation's 'Great American Backyard Campout', was a success! See page 12 for more about the event.

Important August 2009 Dates

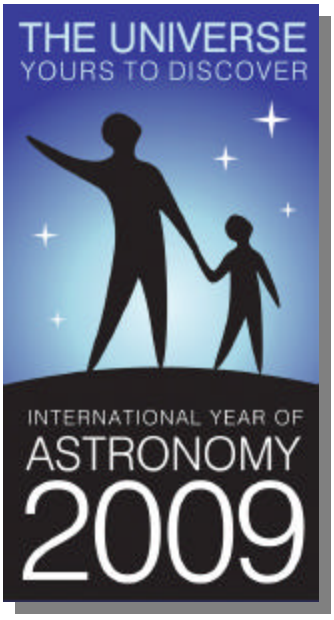
6th • Full Moon at 12:55 a.m.

12th • Perseid meteor shower peaks in the early morning hours.

13th • Last Quarter Moon at 18:55 p.m.

20th • New Moon at 10:02 a.m.

27th • First quarter Moon, 11:42 a.m.



Summer 2009 Society Events

August 2009

4th • Hercules Cluster meets at dusk in West Goshen Township, weather permitting. Contact Kathy Buczynski for directions and details.

5th • PA Outdoor Lighting Council monthly meeting, Bucktown Branch of National Penn Bank, 1111 Ridge Rd, (Rt. 23 just west of Rt. 100) in South Coventry Township, PA, starting at 7:30 p.m.

11th • Hercules Cluster meets at dusk in West Goshen Township, weather permitting. Contact Kathy Buczynski for directions and details.

18th • Hercules Cluster meets at dusk in West Goshen Township, weather permitting. Contact Kathy Buczynski for directions and details.

21st • Reservations start for the September 11th planetarium show at the WCU Planetarium. For more information, please contact Dr. Karen Vanlandingham, Planetarium Director, via e-mail or visit the planetarium's webpage.

22nd• CCAS Monthly Observing Session, Ridley Creek State Park. Presentations start at 7:00 p.m. The observing session starts at sunset.

25th • Hercules Cluster meets at dusk in West Goshen Township, weather permitting. Contact Kathy Buczynski for directions and details.

26th • Deadline for newsletter submissions for the September 2009 edition of Observations.

September 2009

1st • Hercules Cluster meets at dusk in West Goshen Township, weather permitting. Contact Kathy Buczynski for directions and details.

2nd • PA Outdoor Lighting Council monthly meeting.

8th • DVD Lecture Series: Warping of Space & Time, half-hour video presentation of a lecture by Professor Alex Filippenko, UC Berkeley.

8th • CCAS Monthly Meeting, Room 113, Merion Science Center (former Boucher Building), West Chester University. Speaker: Roger Taylor, CCAS President, "Future Direction for CCAS"; The meeting starts at 7:30 p.m.

11th • West Chester University Planetarium Show, Schmucker Science Building, Show starts at 7 p.m. and run approximately one hour in length.

15th • Hercules Cluster meets at dusk in West Goshen Township, weather permitting. Contact Kathy Buczynski for directions and details.

18th • Reservations start for the October 10th planetarium show at the WCU Planetarium. For more information, please contact Dr. Karen Vanlandingham, Planetarium Director, via e-mail or visit the planetarium's webpage.

19th • CCAS Monthly Observing Session at Anson Nixon Park in Kennett Square. The observing session starts at sunset.

22nd • Hercules Cluster meets at dusk in West Goshen Township, weather permitting. Contact Kathy Buczynski for directions and details.

26th • Deadline for newsletter submissions for the October 2009 edition of Observations.

29th • Hercules Cluster meets at dusk in West Goshen Township, weather permitting. Contact Kathy Buczynski for directions and details.

As We Move Forward—Our Future Direction

by Roger Taylor, CCAS President

As we start another season with our CCAS, I am excited by the prospects of the new year. Continuing our tradition of outreach, learning and science, we hope to fine-tune that which we are about. At our first meeting in September, we will be discussing how to do that.

You have by now received, or soon will be receiving, the CCAS Fall 2009 Survey. By completing and returning this survey, you will help us to identify the goals we will establish for ourselves. It is not clear whether there is a consensus in what direction we will be going, or whether consensus is even important. We can guess, but we don't really know.

Most importantly, we want this process to be as open and transparent as possible. Every one who chooses to participate will have a voice.

To that end, please fill out and return the survey before our September meeting so that we can get started right away. We strive to be a society that provides a supportive environment for all of our passions about astronomy. Our challenge will be to make those passionate feelings contagious among other members and the public in general.

CCAS & NSAS Meet in Chadds Ford

by John Hepler, CCAS Webmaster & Newsletter Editor

I hope everyone enjoyed reading about IYA2009 in Australia in last month's newsletter. What I didn't include (for space reasons) was the backstory behind the article. As part of my goal to contact other societies around the world, I searched for organizations that were about the same

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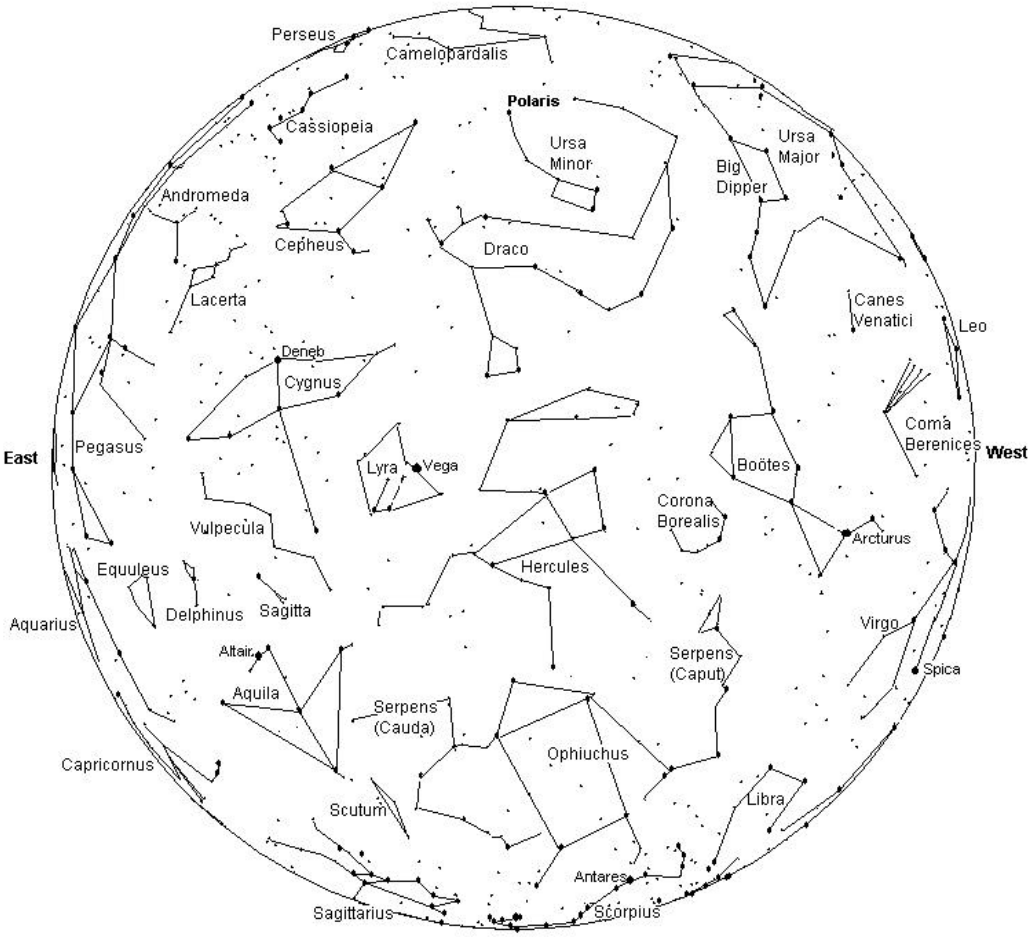
(l. to r.) Linda Lurcott Fragale, NSAS President Bob Fuller, Don Knabb, Kathy Buczynski, Roger Taylor, & John Hepler

The Sky Over Chester County

August 15, 2009 at 9:00 p.m. EDT

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 from online booksellers.



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	Moon Phases		
08/01/2009	5:59 a.m. EDT	8:14 p.m. EDT	First Quarter	08/27/2009	11:42 a.m. EDT
08/15/2009	6:12 a.m. EDT	7:57 p.m. EDT	Full Moon	08/06/2009	12:55 a.m. EDT
08/31/2009	6:28 a.m. EDT	7:33 p.m. EDT	Last Quarter	08/13/2009	18:55 p.m. EDT
			New Moon	08/20/2009	10:02 a.m. EDT

August 2009 Observing Highlights

by Don Knabb, CCAS Observing Chair

August 2	Mercury and Regulus are 0.6º apart in the evening sky
August 5	Full Moon, 8:55 p.m.
August 11/12	The Perseid meteor shower peaks in the early morning hours
August 13	Last quarter Moon, 2:55 p.m.
August 14	Jupiter is at opposition
August 17	Neptune is at opposition
August 20	New Moon, 6:02 a.m.
August 27	First quarter Moon, 7:42 a.m.

The Planets: Jupiter is the highlight of August with the big guy of the solar system rising around sunset and setting at dawn. Saturn is essentially lost in the glow of the setting Sun, but Mercury should be an easy target in the evenings of early August. Early risers can see bright Venus in the morning sky shining like a beacon.

Mercury: August provides a nice opportunity to see Mercury, but as always it will take a definite effort to see this small planet in the sunset glow. On August 2nd there is a nice pairing of Mercury and Regulus, the brightest star in Leo the Lion. Look very low toward the fading glow of the Sun in the western sky about a half hour after sunset and you will see these two objects about 0.6º apart.

Venus: Venus is brilliant in the early morning sky, shining at -4 magnitude. Our sister planet rises 3 hours before the Sun and stands about 30º high at sunrise.

Mars: The red planet rises after midnight and is best viewed just before dawn when it is fairly high in the sky.

Jupiter: August is an excellent month to see the king of the planets. On August 14th Jupiter is at opposition so it rises at sunset and crosses the meridian at 1 a.m. daylight savings time. The best time to view Jupiter is late at night, around midnight, when it will shine at magnitude -2.9, its brightest since 1999.

Saturn: You might catch a glimpse of Saturn, but it is very low in the glow of the setting sun. The rings are nearly edge-on to us so the view is not as spectacular as we normally expect from this beautiful inhabitant of the night sky.

Uranus and Neptune: August presents a fine opportunity to see distant Neptune because, like Jupiter, it reaches opposition this month. And Uranus, which is much brighter, also rises during evening twilight so it is high in the sky around midnight. Use the finder charts on the Sky and Telescope website to find Uranus and Neptune: http://www.skyandtelescope.com/observing/highlights/41561382.html .

Pluto: Tiny, dim Pluto is high in the sky around midnight. The June issue of Sky and Telescope has a finder chart if you would like to seek out this distant ex-planet.

The Moon: Full Moon occurs on August 5th. This Full Moon is called the Full Sturgeon Moon by Native Americans. The fishing tribes are given credit for the naming of this Moon, since sturgeon, a large fish of the Great Lakes were most readily caught during this month. A few tribes knew it as the Full Red Moon because as the Moon rises it appears reddish through the sultry haze of summer.

Constellations: The warm nights and bright stars of August make for some great observing opportunities. The summer triangle and all its treasures are shining overhead and if we get a good clear night the Milky Way arches overhead like the backbone of the sky. The Dipper is holding water and Cassiopeia is climbing up the other side of the sky. As the night gets late the Great Square of Pegasus is easily visible so grab your binoculars and look for our neighbor galaxy Andromeda.

Messier/Deep Sky: Aim your binoculars or telescope straight up during August and you will cut through most of the haze that often fills the sky at this time of year. That part of the sky has some beautiful deep sky objects such as M13 and M92, the two bright globular clusters in Hercules. Not far away is M57, the Ring Nebula in Lyra. This is a fairly faint object that is best viewed with averted

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Through the Eyepiece: M27, the Dumbbell Nebula

by Don Knabb, CCAS Observing Chair

I recently received the beautiful picture of M27 (at right), the Dumbbell Nebula, from my friend Brent Crabb in Southern California.

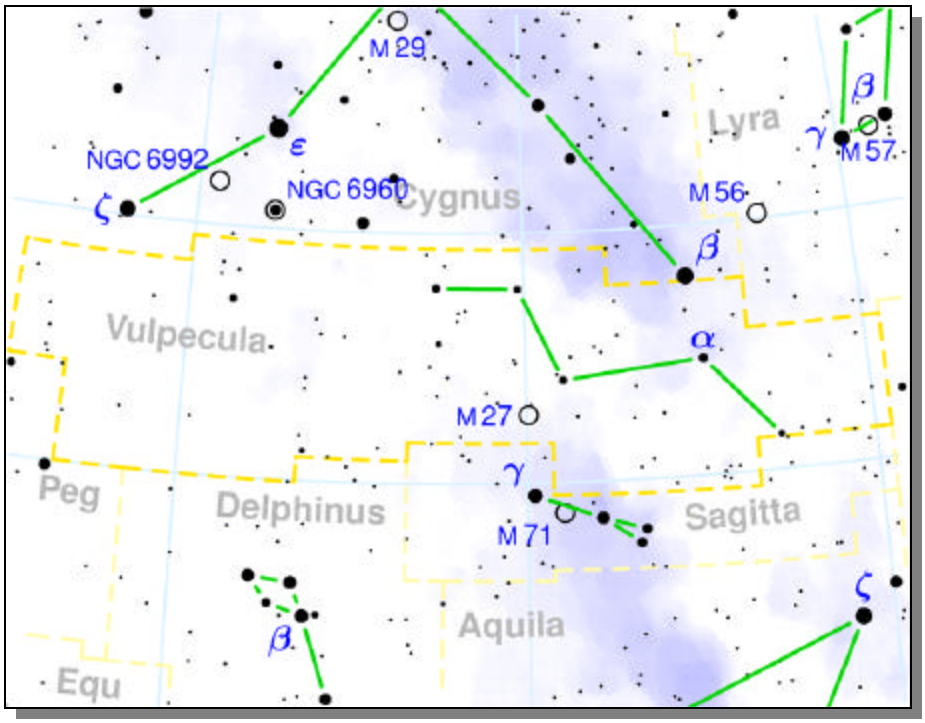
For several years Brent has been developing his skills as an astro-photographer and his photos get better and better with each one he shares with us. Of course, he has gotten a few nice toys to support his habit!

The Dumbbell Nebula is a planetary nebula in the constellation Vulpecula. It is well placed for viewing during August, being nearly overhead during prime viewing time.

The first hint of what will become of our Sun was discovered inadvertently in 1764. At that time, Charles Messier was compiling a list of diffuse objects not to be confused with comets. The 27th object on Messier's list, now known as M27 or the Dumbbell Nebula, is a planetary nebula, the type of nebula our Sun will produce when nuclear fusion stops in its core. M27 is one of the brightest planetary nebulae in the sky, and can be seen with binoculars.

Despite their name, planetary nebulae have nothing to do with planets. They were given this name because their discoverers observed them visually and they did not appear as stellar point sources, but rather as small diffuse objects that resembled the outer planets in our solar system such as Uranus and Neptune when seen in a telescope.

Brent Crabb, astrophotographer, Fountain Valley, CA, used with permission.



Sky map credit: http://en.wikipedia.org/wiki/File:Vulpecula_constellation_map.png

Planetary nebula are shells of gas shed by stars late in their life

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M27, the Dumbbell Nebula

(Continued from page 5)

cycles after using up all of their nuclear fuel. The star then ejects a significant portion of its mass in a gaseous shell, which is illuminated by its extremely hot central star, which is just the core left from the original star. The Sun is expected to undergo the same process in a couple of billion years. Planetary nebulae do not last long in cosmic terms, the shell of gas expands and diffuses becoming invisible and the star turns into a white dwarf.

Information credits

Dickinson, Terence 2006. Nightwatch: a practical guide to viewing the universe. Buffalo, NY. Firefly Books
http://en.wikipedia.org/wiki/Messier_27
http://www.astropix.com/HTML/E_SUM_N/M27.HTM
http://antwrp.gsfc.nasa.gov/apod/ap050603.html

CCAS Astrophotography: M100, by Dave Hockenberry

This view of M100 was taken with a Starlight Xpress SXVF-H9C, on loan from Skies Unlimited, stack of 10 3-minute images, autostacked and color merged in Starlight's control software. Taken 05/20/2009 with a Meade LX200 10", focal reducer f/6. In the picture NGC4328 is also visible near the left hand border about 2/3 the way up.

August Observing Highlights

(Continued from page 4)

vision in binoculars or a small telescope. Or, set your hardware aside, lay down a blanket and lie on your back and just enjoy the incredible glow of the Milky Way!

Comets: If you would like to see a comet during August your best bet is Comet 22P/Kopff. This 9th magnitude fuzzy spot is in the constellation Aquarius. You can find a chart in the August issue of Astronomy to guide you in this quest, should you chose to accept it.

Meteor Showers: Yeah! It is again time for the most popular meteor shower of the year, the Perseid meteor shower! This year is a reasonably good viewing opportunity but the Moon will be a distraction during the peak of the shower in the predawn hours.

But my favorite part of this shower is earlier in the evening when you will see fewer shooting stars but you have a good chance of seeing an "Earth grazer" that travels nearly all the way across the sky. Don't miss this shower! When you see a fireball cross the sky you will never forget it.

CCAS & NSAS

(Continued from page 2)

size (in terms of membership), and had the same programs (education, technology, and observation) as CCAS.

As luck would have it, I found the Northern Sydney Astronomical Society (NSAS) via the IYA2009.org website. It seemed to me that NSAS had roughly the same number of members as CCAS, and was involved in the same activities. I sent a blind email to the NSAS society e-mail address (nsas@nsas.org.au). Less than 12 hours later, I had a response from Bob Fuller.

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NEAF Show Update

by Dr. Bruce Holenstein, Ph.D., President and CEO, Gravic, Inc.

The NorthEast Astronomy Forum & Telescope show was held on April 19 & 20, 2009, at Rockland Community College, in Suffern, NY. My wife and I attended the show on Sunday, April 20th. The NorthEast Astronomy Forum talks that I attended were excellent.

The presentation "Journey on Mars 3-D", by David Shuman and Paul Simard was about 40 minutes long and rendered many scenes from the Voyager missions in 3-D.

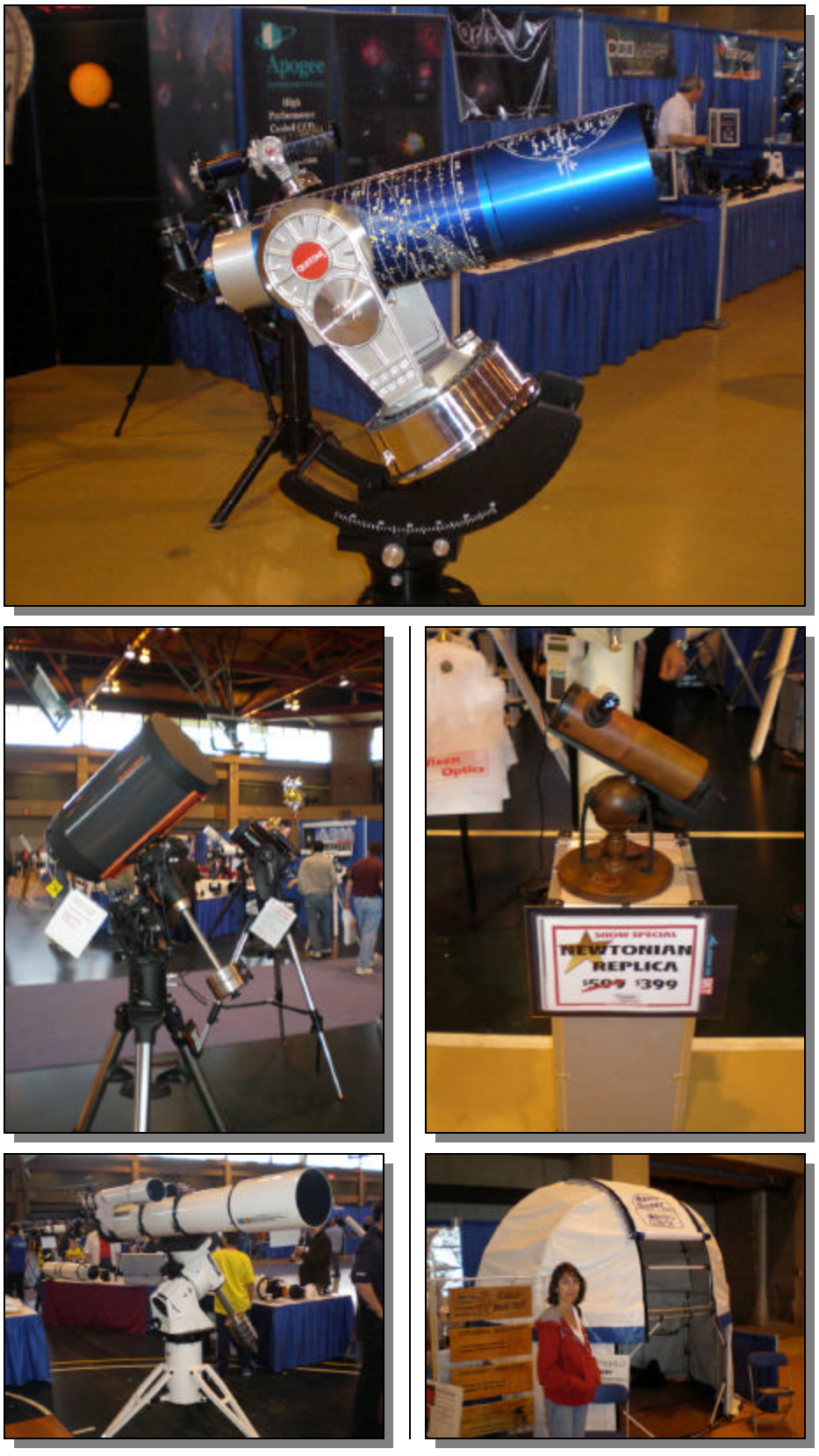
Robert Naeye from Sky & Telescope® spoke on exoplanets. Exoplanet discoveries and confirmations are within the grasp of amateur equipment. Astronomy is one of the few fields where non-professionals can make important scientific contributions (as was recently demonstrated by the observations of another astronomical body hitting Jupiter).

Dr. Derrick Pitts from The Franklin Institute spoke on the International Year of Astronomy 2009 and the exhibit of the Galileo telescope and other Medici equipment on display as part of the exhibit.

Additional presentations were made by:

Dr. Alan Marscher from Boston University presented "Jets from Black Holes in Quasars".

Richard Talcott, Astronomy Magazine Senior Editor, presented "What We've Learned from Hubble."



(top to bottom) NEAF Questar Booth; Celestron 14" OTA for USD300; Vixen Newtonian replica; NEAF 2009C APM 10" apo; and my wife, Denise by a portable dome.

SARSAT to the Rescue
by Jet Propulsion Laboratory

If a plane crashes in the woods and nobody hears it, does it make a sound?

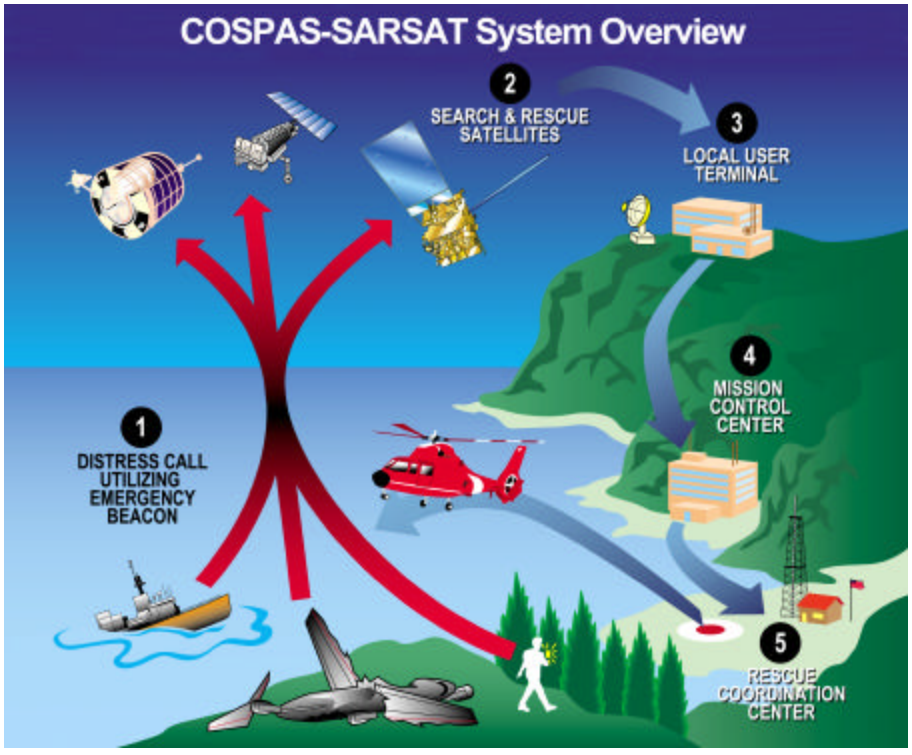
Never mind contemplating this scenario as a philosophical riddle. This can be a real life or death question. And the answer most of the time is that, even if no people are nearby, *something* is indeed listening high above.

That something is a network of satellites orbiting about 450 miles overhead. The "sound" they hear isn't the crash itself, but a distress signal from a radio beacon carried by many modern ships, aircraft, and even individual people venturing into remote wildernesses.

In the last 25 years, more than 25,000 lives have been saved using the satellite response system called Search and Rescue Satellite-aided Tracking (SARSAT). So what *are* these life-saving superhero satellites?

Why they are mild-mannered weather satellites.

"These satellites do double duty," says Mickey Fitzmaurice, a National Oceanic and Atmospheric Administration (NOAA) systems engineer for SARSAT. "Their primary purpose is to gather continuous weather data, of course. But while they're up there, they might as well be listening for distress signals too.



NOAA's polar-orbiting and geostationary satellites, along with Russia's Cospas spacecraft, are part of the sophisticated, international Search and Rescue Satellite-Aided Tracking System.

"In February, NASA launched the newest of these Polar-orbiting Operational Environmental Satellites (or POES) into orbit. This new satellite, called N-Prime at launch and now dubbed NOAA-19, prevents a gap in this satellite network as another, aging NOAA satellite reached the end of its operational life.

"The launch of N-Prime was a big deal for us," Fitzmaurice says. With N-Prime/NOAA-19 in place, there are now six satellites in this network. Amongst them, they pass over every place on Earth, on average, about once an hour.

To pinpoint the location of an injured explorer, a sinking ship, or a downed plane, POES use the same Doppler effect that causes a car horn to sound higher-pitched when the car is moving toward you than it sounds after it passes by.

In a similar way, POES "hear" a higher frequency when they're moving toward the source of the distress signal, and a lower frequency when they've already passed overhead. It takes only three distress-signal bursts — each about 50 seconds apart — to determine the source's location. Complementing the POES are the Geostationary Operational Environmental Satellites

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Sarsat (cont'd)

(Continued from page 8)

(GOES), which, besides providing weather data, continuously monitor the Western Hemisphere for distress signals. Since their geostationary orbit leaves them motionless with respect to Earth below, there is no Doppler effect to pinpoint location. However, they do provide near instantaneous notification of distress signals.

In the future, the network will be expanded by putting receivers on new Global Positioning System (GPS) satellites, Fitzmaurice says. "We want to be able to locate you after just one burst." With GPS, GOES will also be able to provide the location of the transmitter.

Philosophers beware: SARSAT is making "silent crashes" a thing of the past.

Download a two-page summary of NOAA-19 at www.osd.noaa.gov/POES/NOAA-NP_Fact_Sheet.pdf. The Space Place gives kids a chance to rescue stranded skiers using their emergency rescue beacons. The Wild Weather Adventure game awaits them at spaceplace.nasa.gov/en/kids/goes/wwa.

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

CCAS & NSAS

(Continued from page 6)

Call it serendipity, intuition, incredibly good luck, or maybe the stars were just in the correct alignment. Bob's response to my first e-mail started as follows: "This is really strange. I'm an Aussie now (last 30 years), but I grew up in Kennett Square in Chester County, and my mother still lives in Wilmington."

As further luck would have it, Bob had already planned to be in the West Chester area during the week of June 22nd, on his way back from a business trip to Sweden.

We arranged to meet for dinner with members of the executive committee on Wednesday, June

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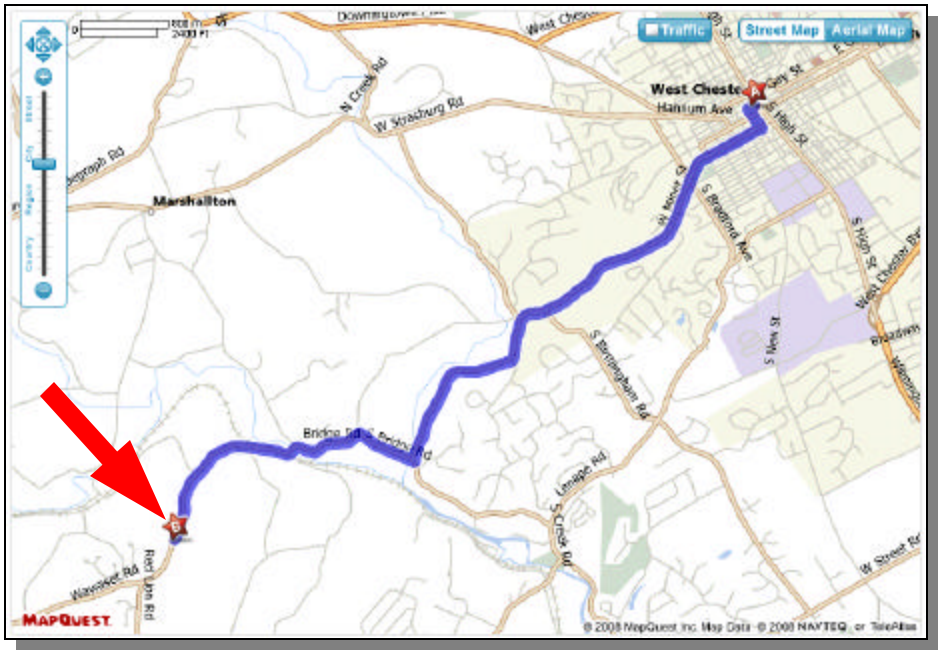
CCAS Directions



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

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

Brandywine Valley Association

The monthly observing sessions (held year-round) are held at the Myrick Conservation Center of the Brandywine Valley Association.

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

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

Report on the Recent Solar Eclipse over India

by Ekam Noor Singh, 9th Grade, Doon International School, Mohali, Punjab, India

[Note: Ekam Noor Singh is a 9th grade student at Doon International School, in Mohali, Punjab, India. He contacted Don Knabb via e-mail several weeks ago, asking to become a member of CCAS. Through several correspondences, he has shared with us his interest in astronomy and his observations of the recent solar eclipse. — *Ed.*]

I have an interest in astronomy and under the guidance of my father, I have made two telescopes: a 60 mm dia refractor and a 100 mm dia reflector type in last two years. I use to see Planets and distant stars and galaxies and have photographed the Moon through the 60 mm telescope.

The photo at right includes Hari-Tamanna (my sister), Gurleen & Princi (my cousins), Mrs Mandeep Kaur (my mother) and myself. The photograph was taken in Ropar during our Solar Eclipse observations before going to our schools.

I want to be student member of your society of Astronomers. I hope that your-good-self shall accept me as little member of your society in this year of Astronomy. I shall be very thankful to you.

Thanks for your guidances and appreciations! I shall feel pleasure to receive your monthly news letter via e-mail as all this shall be helpful to me.

With Regards,
Sincerely Yours,

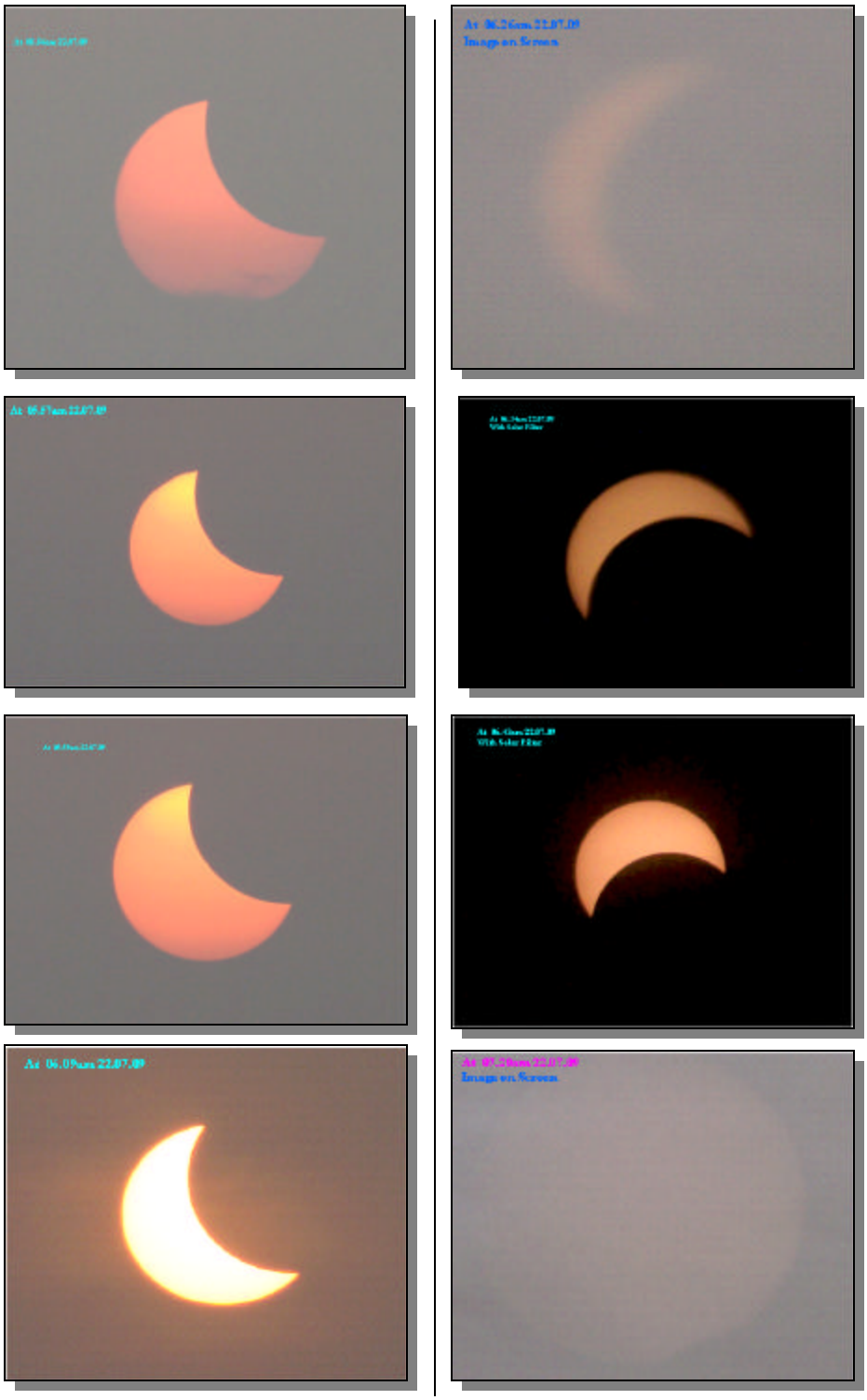
Ekam Noor Singh

Ekam Noor Singh and one of the two telescopes he has built, a 100 mm diameter Newtonian reflector.

Above left, Ekam Noor Singh and his family on the morning of the solar eclipse on July 22nd, 2009. Below left, he stands behind the 60 mm refractor that he built with the help of his father. Above right, Ekam Noor Singh and his sister Hari-Tamanna observing at night with his 100 mm Newtonian reflector at their home in Ropar, Punjab, India.

First-Hand Photographs of the Solar Eclipse over India

by Ekam Noor Singh



On the 22nd of this month, on the occasion of the rare Solar Eclipse, we could not arrange to go to view the total eclipse, which was very far from us. This was a cloudy day and the Sun was playing hide and seek. I have tried to get photographs of the Sun during this from our location which is near the city Ropar at 30° 57' N 76° 32' E .

40th Anniversary of the 1st Lunar Landing

by John Hepler

July 20th, 1969. Where were you that night at 10:56 pm when Neil Armstrong stepped onto the moon's surface? Some CCAS members weren't born yet, some missed it for other reasons. Me, I was 5 years old, and asleep in bed (my parents and my older brothers watched the landing on TV).

I do remember a later moon landing. It was a daytime landing, and I was in 1st or 2nd grade. All students were gathered in the elementary school cafeteria for a special event. A large, square, brown television, with a very small picture, sat on the edge of the stage (the cafeteria served double duty). I wasn't impressed. We watched blurry video of men in big funny suits clambering around a bleak landscape in black & white (even back then my parents had a color TV). I know it didn't signify for me, or I'd remember it differently.

On this special anniversary of the historic first landing, I looked for a way that both those who were present, and those who were not, could share the

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The Official Mission Logo

Ridley Creek State Park 2nd Night Out—August 22nd, 2009

By Bruce Holenstein, Ph.D., President and CEO, Gravic, Inc.

CCAS hosted a night out at Ridley Creek State Park on June 27th, 2009. The event took place during the National Wildlife Federation's 'Great Backyard Campout' event.

Ranger Stacey started the evening with a review of the campout weekend and the departure times for those participating in the night out but not camping out.

CCAS president Roger Taylor, CCAS Public Relations Coordinator Deb Goldader, and I gave short presentations on IYA2009, our society, and basic astronomical principles.

CCAS members were on hand with 12 telescopes and binoculars. Approximately 85 people participated in the observing event. No telescope was left unviewed the entire evening.

The event was such a success that CCAS has been asked back by Ranger Stacey for another night out on August 22nd. Once again we'll start the evening with several short 10-minute presentations, followed by open observing through member telescopes.

The event is open to the public and starts at 7 P.M. The park closes at 10 P.M. promptly; make sure you are out of the park before the closing hour. This was a great night last time; let's do it again!

Nicholas's Cartoon Corner

by Nicholas La Para

"YEP, THE SHROUD KEEPS DEW, STRAY LIGHT, AND GRANOLA BAR CRUMBS OFF THE MIRROR!"

Apollo 11 Anniversary (cont'd)

(Continued from page 11)

event in a tangible way.

As I surfed the Internet, I came across press kits and mission reports from the Apollo missions (and from other programs, too). Some documents were available on the official NASA site, others I found on sites maintained by interested parties.

No one seemed to have all of them (and I still don't). I thought sharing these documents (an interesting read), would be an opportunity for our members to learn together about the immense feat mankind accomplished four decades ago.

On our website, go to *Resources*, then *NASA Press Kits* to view & download Apollo & Gemini mission documents. Enjoy!

CCAS Video Online!

Prior to the public observing event at Ridley Creek State Park on June 22nd, CCAS members and friends gathered together to film a short video welcoming the public to IYA2009.

As you can see from the rather dim light and glow sticks, we were racing sunset to capture the video. Many thanks to Denise Holenstein for acting as our videographer.

You can see the video on the CCAS website and on our Facebook Group Page. Log into Facebook and search for "Chester County Astronomical Society".

Visit to the Lowell Observatory & Meteor Crater

by Linda Lurcott Fragale, CCAS Librarian

In May 2009, my parents and I traveled to one the most beautiful states in our country, Arizona. The five day trip was full events that I will forever cherish. The first event I proudly attended was my daughter's college graduation, which contained multiple events in itself, bringing about hugs of congratulations and tears of joy. The days following, the ceremonies, including Mother's Day, also held cherished memories as my family and I traveled through the various landscapes of northern

The San Francisco Peaks outside of Flagstaff.

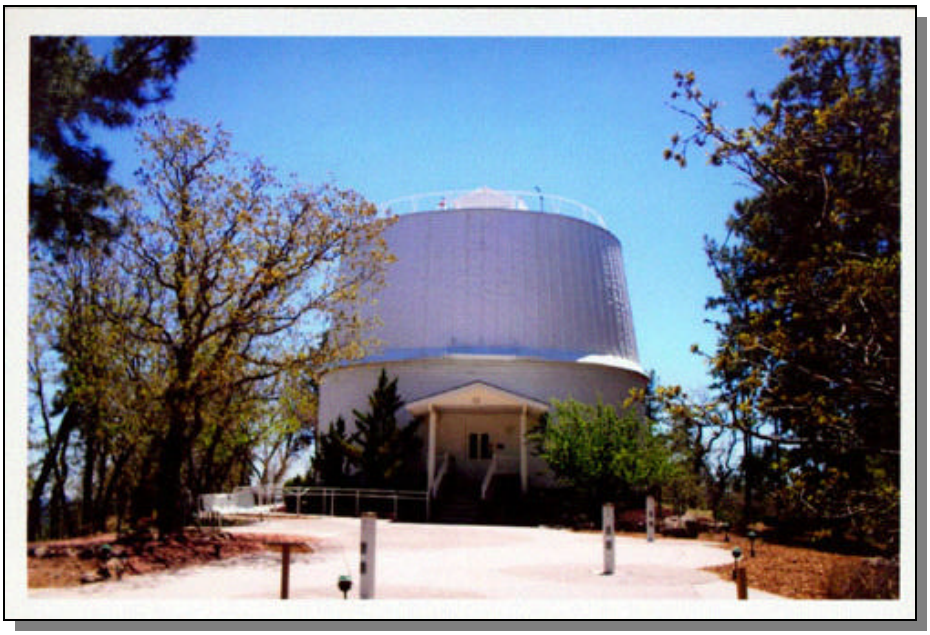
Arizona. Two of our destinations were the Lowell Observatory and Meteor Crater.

Lowell Observatory, approximately 90 miles northeast from Prescott, the college town, was our first stop. We steadily traveled up steep inclines surrounded by clear blue skies. Once we reached not so hilly roads we caught sight of Mt. Humphrey, one of Flagstaff's San Francisco Peaks. We headed into town and followed signs to Lowell, located at a much higher elevation. The steep and winding climb led to Lowell's stone pillar entrance. The stone pillars, held a vertically mounted plaque listing our solar system's planetary symbols, with Pluto's symbol on top, revealing Pluto's importance to the Lowell Observatory. Further up the hill was ample parking, the visitors' center, observatory, library, a science and research center, and Percival, himself in his very own mausoleum forever near his treasured observatory.

Percival Lowell sent scouts throughout Arizona to determine the best observing location for his planned observatory. At the time, Arizona was a vast and untamed territory which held several challenges for those brave and armed astronomer and scientists sent as scouts. From all the locations, Flagstaff became the top choice. Lowell's fascination at the time was with Mars, the Red Planet, closest to Earth. Flagstaff offered the best observing local and the Lowell Observatory was built in the 1890's. Lowell's fascination and the elevation of the location upon which the observatory which was built inspired it's name of Mars Hill.

The 24" Clark-built Refractor Telescope.

(Continued on page 15)

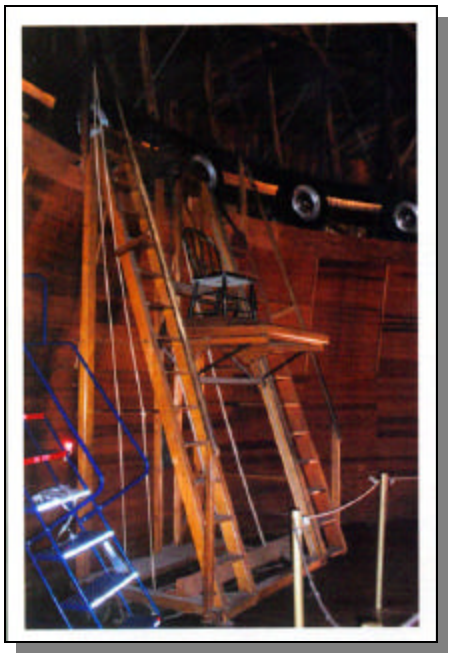


The Lowell Observatory is housed in a 40' building on the outskirts of Flagstaff.

Lowell Observatory (cont'd)

(Continued from page 14)

The Clark built 24" telescope is housed in a 40' domed building. The dome rotates around on top of 1960's truck tires, still custom made especially for the observatory. A library style ladder stretches up to a platform with an old wooden chair, on which Percival perched while viewing into the telescopes eyepiece. Clyde Tombaugh's discovery of Pluto at Lowell Observatory brought about nationwide attention.



Percival's perch: the library ladder and wooden chair.

Following our exit from the observatory, we passed by Percival's mausoleum on our way to the Sliphe Building which houses the library. The library is full of fascinating astronomical history, architecture and art. Two of the actual plates used in the Pluto discovery are on display, as well as several instruments and the telescope used by the scouts who recommended Flagstaff to Lowell for a permanent observatory location. The rich mission style architecture held true to the Southwestern culture of the area. And everyone could appreciate the beautiful chandelier, custom made for the building in a golden rendition of Saturn. Outside the library visitors can stroll along a path scaled to represent the distance between the planets of our solar system.

The truck tires used to rotate the observatory's wooden dome.

Percival Lowell's Mausoleum

We then headed back downhill through well manicured garden, full of spring foliage to the Visitors' Center, which contains a few exhibits, along with a gift shop. Leaving the grounds we headed back into town, which had a renovated old west type hotel for lunch. We enjoyed our Bison Burgers western style, before our next leg of the trip, Meteor Crater.

Again we traveled east and the blue skies steadily remained cloudless. This vast region is mostly uninhabited. We were treated with the sight of antelope skipping across the road to Meteor Crater. At the crater's rim, a multi-level structure houses such amenities as a small restaurant

The scouts' telescope used to decide on the observatory's location.

(Continued on page 16)

Lowell Observatory (cont'd)

(Continued from page 15)

and a gift shop, plus a video exhibit along the way to the viewing platform, 150 feet above the ground level. The winds were strong and the sun extremely bright. Yet, what a sight to see!

We gazed in awe at the crater through the viewing telescopes scattered about platform. The crater is 4000 feet across and 700 feet deep. In the past several theories of origin were debated, including the crater being an ancient volcano. A brochure stated, however, that scientific technology proved that 50,000 years

Manometer on display in the museum

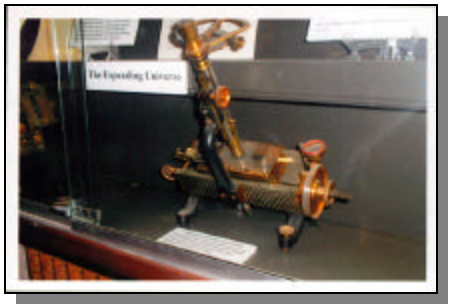
ago an iron-nickel meteorite hurled through the earth's atmosphere in a blinding flash, landing in this isolated location. Later as more people came upon the crater had their own theories, including one geologist from Philadelphia, Daniel Barringer, who staked a claim for mining the crater for iron.

Barringer spent 26 years mining the area to no avail. He was correct about a meteor causing the crater. Yet, his theory that the meteorite lie beneath the crater was false. Today, the Barringer family, in collaboration with Meteor Crater Incorporated, holds the site in a public trust. A brochure mentioned that current scientific research revealed that a meteor of this impact can occur approximately once every 50,000 years.

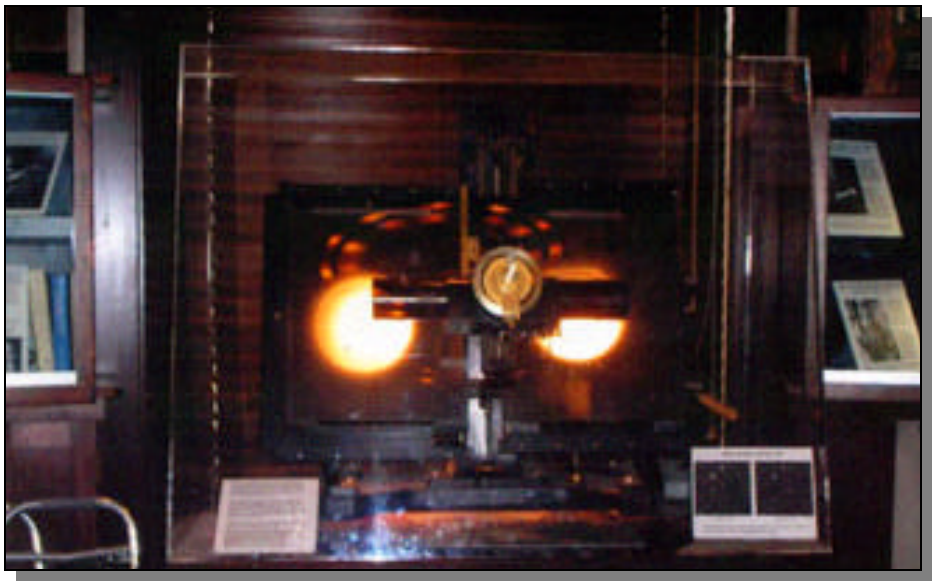
So, heads up, everyone!

(Continued on page 17)

Lowell's observations notebook on display in the Rotunda Library Museum



Equipment used in the study of recessional velocities of galaxies by Slipher 1912-1914



The blink-comparator used to identify Pluto on display in the Rotunda Library Museum

Lowell Observatory (cont'd)

(Continued from page 16)

We had a restful ride back to Prescott, the college town, to share the remainder of Mother's Day with two of my daughters and my grandson. We headed in the direction of the bright setting sun in Arizona's cloud free blue skies. It is no wonder astronomers prefer observing in Arizona. Clear skies occur on a daily basis!

To learn more about the Lowell Observatory, and the life of Percival Lowell, visit the observatory's official website at www.lowell.edu. You can also keep up with the observatory at the official blog site: www.lowell.edu/blog.

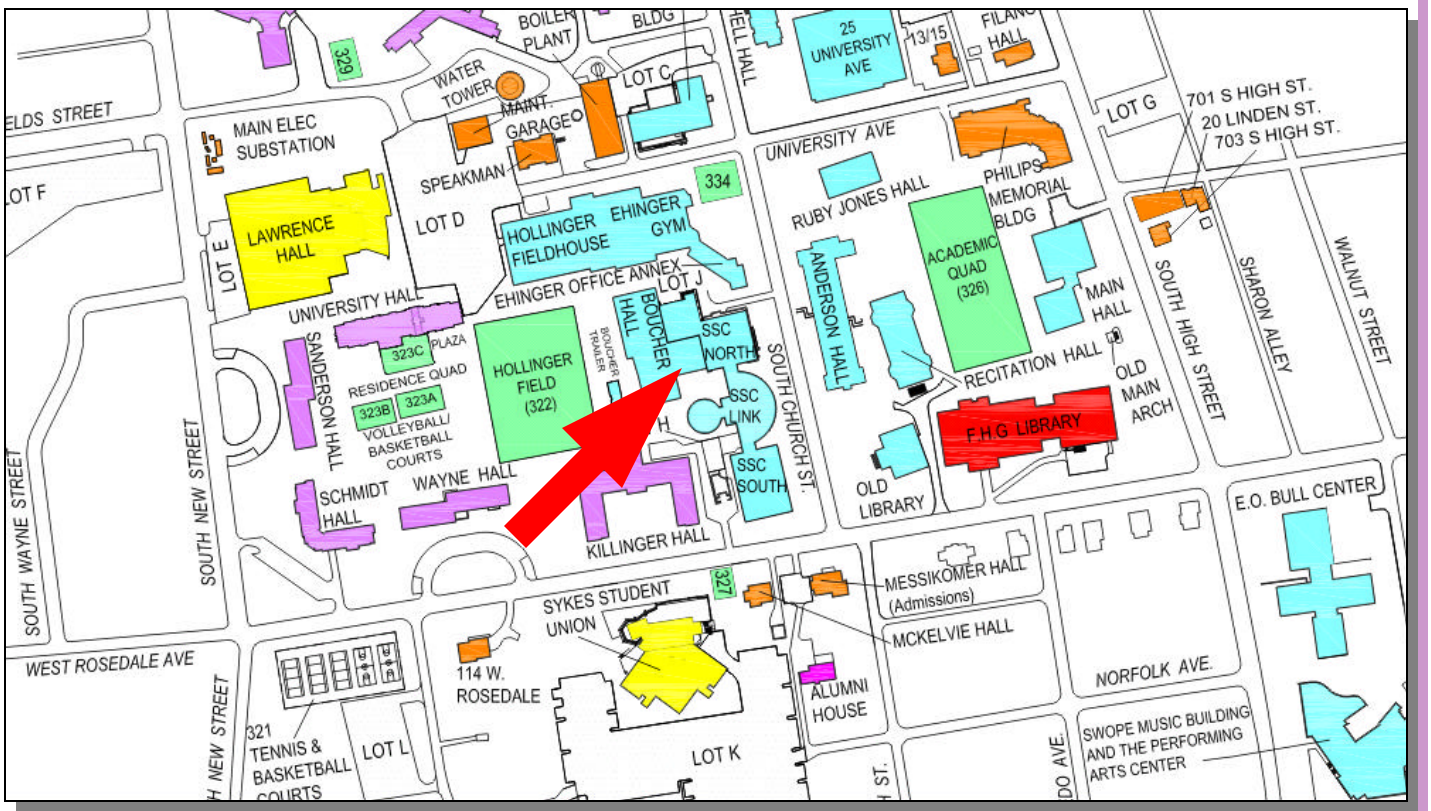
To learn more about Meteor Crater, visit the official website at www.meteorcrater.com.

CCAS Librarian Linda Lurcott Fragale and her father, CCAS Founder Ed Lurcott visit the Meteor Crater on Mother's Day, 2009.

CCAS Directions

West Chester University Campus

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



CCAS & NSAS

(Continued from page 9)

24th. Over a good meal at Carrabba's Italian Grill® in Chadds Ford, we compared notes on light pollution, membership development, and even the local economy (and its depressing effect on outreach programs).

Bob and his wife plan to be back in our area in September. We hope their schedule will match either our meeting or observing session that month. Based on feedback from society members, we hope to start sharing information between both societies. We believe that everyone will benefit from this relationship.

CCAS Membership Information and Society Financials

Treasurer's Report

by Bob Popovich

June 2009 Financial Summary

Beginning Balance	$1,314
Deposits	$80
Disbursements	$0
Ending Balance	$1,394

Welcome New Members!

This month we welcome new members to the Society: Abhishek Nak, West Chester; Nancy Labroli, West Chester; Alan Smith, Kimberton; Bob Fuller, Sydney, NSW, Australia; and Ekam Noor Singh, from Ropar, Punjab, India.

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

Membership Renewals

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

Bob Popovich
416 Fairfax Drive
Exton, PA 19341-1814

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

CCAS Information Directory

Join the Fight for Dark Skies!

You can help fight light pollution, conserve energy, and save the night sky for everyone to use and enjoy. Join the nonprofit International Dark-Sky Association (IDA) today. Individual memberships start at $30.00 for one year. Send to:

International Dark-Sky Association
3225 North First Avenue
Tucson, AZ 85719

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

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

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:

www.POLCouncil.org

Find out about Lyme Disease!

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

www.LymePA.org

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

CCAS Event Information

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

Good Outdoor Lighting Websites

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

Starry Night Lights

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

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

www.starrynightlights.com

★ ★ ★ ★ ★

Green Earth Lighting
Formerly
Outdoor Lighting Associates

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

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

Phone: **512-944-7354**

www.greenearthlighting.com

Local Astronomy-Related Stores

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

Skies UNLIMITED

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

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

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

www.skiesunlimited.net

★ ★ ★ ★ ★

Spectrum Scientifics
Quality Science Products for All Ages

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

4403 Main Street
Philadelphia, PA 19127

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

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

www.spectrum-scientifics.com

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: **newsletter@ccas.us**

Or mail the contribution, typed or handwritten, to:

John Hepler
500 W. Rosedale Ave.
Apt. A-3 Trinity Bldg.
West Chester, PA 19382

CCAS Newsletters via E-mail

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

CCAS Website

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

www.ccas.us

John welcomes any additions to the site by Society members. The contributions can be of any astronomy subject or object, or can be related to space exploration. The only requirement is that it is your own work; no copyrighted material! Give your contributions to John Hepler (484-266-0699) or e-mail to webmaster@ccas.us.

CCAS Purpose

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

CCAS Executive Committee

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

President:	Roger Taylor 610-430-7768
Vice Pres:	Kathy Buczynski 610-436-0821
ALCor and Treasurer:	Bob Popovich 484-467-5562
Secretary:	Don Knabb 610-436-5702
Librarian:	Linda Lurcott Fragale 610-269-1737
Observing:	Don Knabb 610-436-5702
Education:	Kathy Buczynski 610-436-0821
Webmaster and Newsletter:	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. If you need to renew, you can mail your check, made out to "Chester County Astronomical Society," to:

Bob Popovich
416 Fairfax Drive
Exton, PA 19341-1814

Phone: 484-467-5562
e-mail: B2N2@verizon.net

*Sky & Tele*scope Magazine Group Rates

Subscriptions to this excellent periodical are available through the CCAS at a reduced price of **$32.95,** much less than the newsstand price of $66.00, and also cheaper than individual subscriptions ($42.95)! Buying a subscription this way also gets you a 10% discount on other Sky Publishing merchandise.

To **start** a **new** subscription, make **sure** you make out the check to the **Chester County Astronomical Society**, note that it's for *Sky & Telescope*, and mail it to Bob Popovich.

To **renew** your "club subscription" contact Sky Publishing directly. Their phone number and address are in the magazine and on their renewal reminders.

If you have **any** questions call Bob first at **610-363-8242.**

Astronomy Magazine Group Rates

Subscriptions to this excellent periodical are available through the CCAS at a reduced price of **$34.00** which is much less than the individual subscription price of $42.95 (or $60.00 for two years). If you want to participate in this special Society discount offer, **contact our Treasurer Bob Popovich.**