bservations

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

A Monthly Publication Of The
CHESTER COUNTY ASTRONOMICAL SOCIETY

JULY 2007
(VOLUME 15, NO. 7)
Visit our website at www.ccas.us

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4 **Independence Day**

7 Last Quarter Moon, 12:54 p.m. EDT.

12 Venus is at greatest brilliancy.

13/14 **CCAS Observing Session**
Location: Brandywine Valley Association
Time: sunset, or earlier (see page 4).

14 New Moon, 8:04 a.m. EDT.

20 Mercury is at greatest elongation west of the Sun in the dawn sky.

21 CCAS Lunar X Party (see page 4 for details).

22 First Quarter Moon, 2:29 a.m. EDT.

29 Full Moon, 8:48 p.m. EDT—the Full Buck Moon or Full Thunder Moon.

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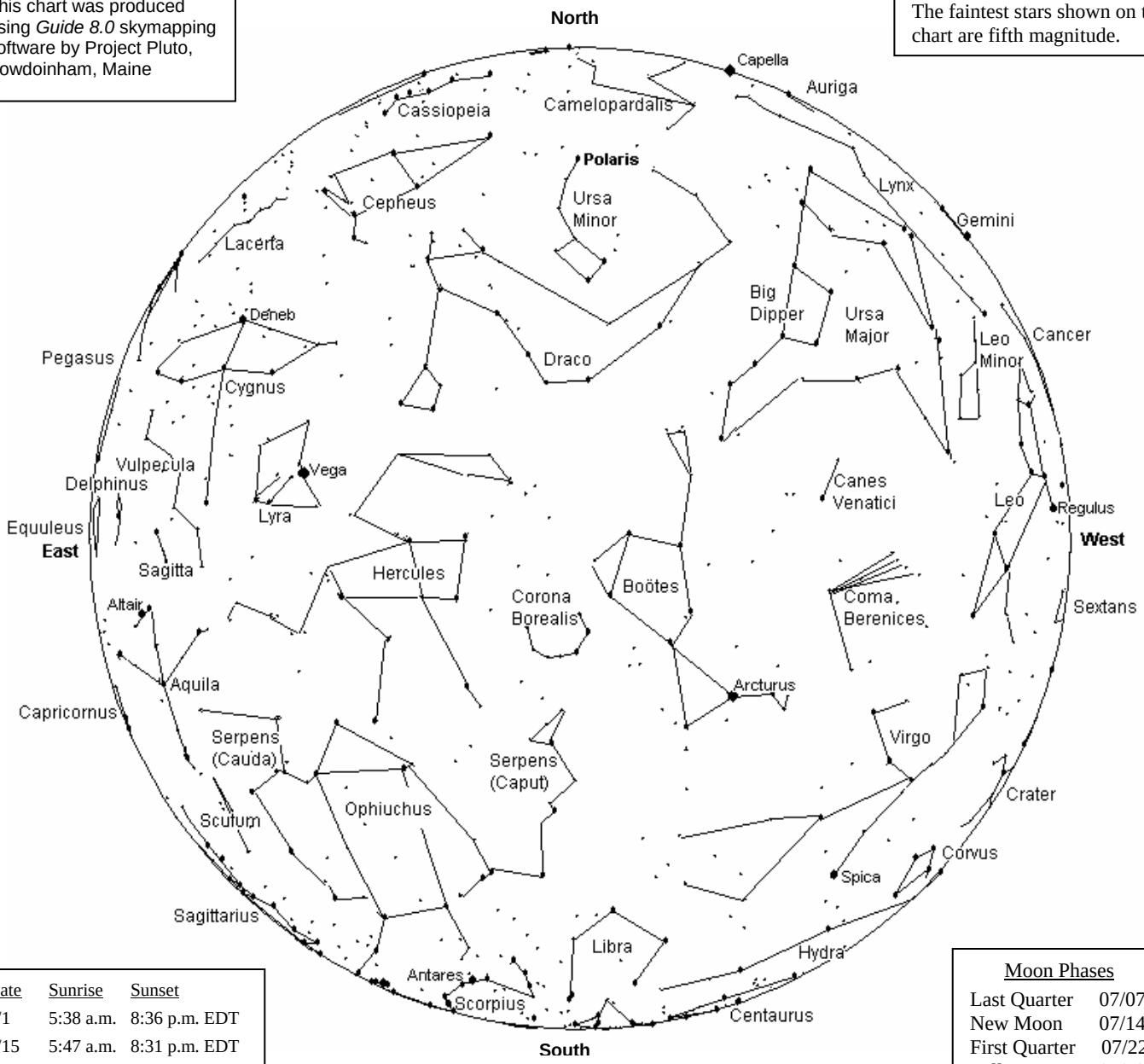
This chart was produced using *Guide 8.0* skymapping software by Project Pluto, Bowdoinham, Maine

The faintest stars shown on this chart are fifth magnitude.



Date	Sunrise	Sunset
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	
Last Quarter	07/07
New Moon	07/14
First Quarter	07/22
Full Moon	07/29

The sky over Chester County

July 15, 2007 at 9:00 p.m. EDT

The Planets, by Don Knabb

Mercury: Mercury can be seen in the morning twilight during the later half of the month.

Venus: Venus is that bright "star" in the western sky at sunset and for many hours after the sky is completely dark. Look at Venus now, since it will soon be diving down into the sunset as it travels around the Sun faster than the Earth due to its closer orbit to the Sun. Venus is also becoming a more interesting telescopic object since it is now larger in the eyepiece and is showing a distinct crescent.

Mars: Mars is slowly climbing higher in the morning sky and is well above the horizon when the sky begins to brighten.

Jupiter: Jupiter is very bright in the south at nightfall and is not far from bright orange Antares in Scorpius, the big bug of the summer sky. Take a look and see the bands of color on Jupiter.

Saturn: The ringed beauty continues its stay in Leo and will soon be setting just as it gets dark. Saturn and Venus start the month together but separate rapidly as the month progresses. Although Saturn is much larger than Venus, it is only 1 /100th the brightness because it is so much further from the Earth.

Uranus & Neptune: The outer gas giants are well placed for observing late at night. Uranus can be found relatively easily with binoculars. Finder charts are in the July issue of *Sky and Telescope.*

Pluto: Pluto, the ex-planet, is left of Jupiter at nightfall. You will need a fairly large telescope and dark skies to find this 14th magnitude speck.

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.

July Observing Highlights

by Don Knabb, CCAS Observing Chair

Planets: July is an excellent month for planetary observing. Venus and Saturn are visible in the evening sky, Jupiter is shining bright in the south at nightfall and Mars is in the morning sky. Mercury will be visible in the morning sky late in the month. And for fans of the outer planets this is as good a time as any to stay up until 11:00 or midnight and find Uranus and Neptune in Aquarius and Capricornus. Finder charts for the outer gas giants are in the July issue of *Sky and Telescope*.

Constellations: The July nights have many bright stars to guide our constellation hunting. Arcturus in Bootes is in the western sky and bright Vega in Lyra is high in the east at nightfall, with the other two stars of the Summer Triangle, Deneb in Cygnus and Altair in Aquila, not far behind.

Deep sky: While the southern constellations of summer, Sagittarius and Scorpius, are visible don't miss the chance to gaze into the heart of the Milky Way. M4, a globular cluster near red Antares in Scorpius is a nice sight in binoculars or a telescope. Then look high overhead with binoculars and find the Coat Hanger cluster between Vega and Altair. This is a great object to share with friends.

Comets: A new comet, LINEAR (C/2006 VZ_{13}) will pass near two Messier objects during July. On July 13th the comet passes 1º from M102 and on the 22nd it passes about one Moon width from M3, a bright globular cluster. The July issue of *Sky and Telescope* has a finder chart for the comet

Meteor shower: The weak Southern Delta Aquarid meteor is most active late in July.

July 7	Last quarter Moon, 12:54 p.m. EDT
July 12	Venus is at greatest brilliancy.
July 14	New Moon, 8:04 a.m. EDT
July 20	Mercury is at greatest elongation west of the Sun in the dawn sky.
July 21	CCAS Lunar X Picnic.
July 22	First quarter Moon, 2:29 a.m. EDT
July 29	Full Moon, 8:48 p.m. EDT, The Full Buck Moon or Full Thunder Moon.

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Through the Eyepiece: The Summer Triangle

by Don Knabb, CCAS Observing Chair

Ah, summer nights. There is nothing like lying on your back on some warm surface and looking up at the Summer Triangle. The Summer Triangle is Vega, Deneb and Altair, the brightest stars of three separate constellations. They are quite a bit brighter than nearby stars so that the triangle is very easy to find high overhead in July, August and September.

The most prominent of the constellations of the summer triangle is Cygnus the swan. This constellation is also known as the Northern Cross. Deneb is the tail star of the swan. The constellation Lyra the harp is a small constellation, but bright Vega, the fifth brightest star in the sky, makes it easy to find. The third point of the triangle is Altair in Aquila the eagle.

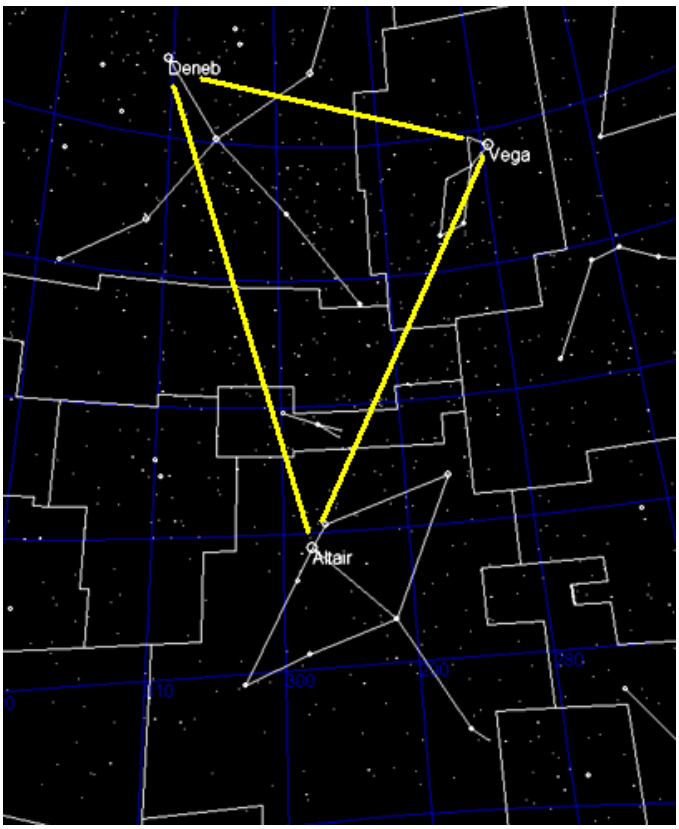

Image source: http://en.wikipedia.org/wiki/Image:Summer_triangle_map.png

Two other constellations are in the neighborhood of the Summer Triangle. Within the triangle is Sagitta, the arrow, which actually looks like an arrow. Then outside of the line between Deneb and Altair is Delphinus the dolphin, another constellation that has a close resemblance to its name. I enjoy seeing both these small constellations in binoculars.

The area in and around the Summer Triangle is a wonderful hunting ground for a telescope. They include binary stars and deep sky objects.

Alberio, the star at the beak of Cygnus the swan is a beautiful orange and blue pair. Another neat binary star is Epsilon Lyrae, just to the upper left of Vega. It shows as a wide pair of equally bright stars in binoculars. A telescope reveals, upon close inspection, that each is again a binary. Epsilon Lyrae is the famous double-double star, And splitting them is a good test of telescope and atmospheric seeing.

Just about centered between the two stars at the south end of the parallelogram of Lyra can be found one of the really special faint wonders of the sky. It is M57, 57th object of Charles Messier's list of objects that look like comets but aren't. It is better known as the Ring Nebula.

Another nebula is M27, also known as the Dumbbell Nebula is located just north of the tip star of Sagitta the

arrow. This is a tough one to find since it is quite faint. The Dumbbell is large, but with a low surface brightness. The two glowing lobes of gas first visible give the object its name.

While you are gazing in this part of the sky, do not miss M13 the Great Hercules Globular Star Cluster which is located along the western edge of the 'Keystone' part of Hercules. The fuzzy blob that is visible in binoculars and small telescopes begins to resolve itself into stars in telescopes of 6 inch diameter and larger. M13 contains upwards of a million stars packed in a diameter of 160 light years and is located some 21,000 light years away. And M92, another globular cluster, is not far away.

Galactic or open clusters here are M11, off the tail of Aquila the eagle, and M29 in Cygnus. M11, which is actually in Scutum the shield is among the finest of its type. It takes a telescope of 6 inches diameter to completely resolve it.

So whether you just lay on your back and gaze at the large shape of the Summer Triangle, or set up your telescope and dive into the deep sky treasures, this is a wonderful area of the sky to look at on warm summer nights.

Information sources for M22:

http://www.clarkfoundation.org/astro-utah/vondel/summertriangle.html

http://www.idialstars.com/stri.htm

http://ourworld.compuserve.com/homepages/bmoler/summtri.htm

Pasachoff, Jay M. 2000. *A Field Guide to the Stars and Planets.* New York, NY. Houghton Mifflin.

Dickinson, Terence 2006. *Nightwatch: a practical guide to viewing the universe*. Buffalo, NY. Firefly Books

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CCAS Observing Session July 13/14, 2007

Note: in June, July and August the CCAS does not hold a regular meeting. The monthly Observing Sessions are the only Society activities in the summer months, although we have special summer events from time to time.

CCAS Observing Sessions are held at the Brandywine Valley Association's Myrick Conservancy Center (see map on page 12) 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.

Next CCAS Observing Session:

August 17/18, 2007	CCAS Observing Session
(Friday/Saturday)	Location: Brandywine Valley Assoc.
	sunset

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The Search for the Elusive Lunar X Continues!

All CCAS members and families are invited to set up telescopes or just come to stare at the night sky at the Knabb observing circle for a summer observing party on Saturday evening, July 21 at 7:00. We'll be observing the first quarter Moon and other objects such as Venus, Saturn and Jupiter. If we are lucky, we might see the Lunar X!

As we did last year, everyone is invited to bring a snack, appetizer or dessert upon which we can graze between viewing the night sky. If you have a busy weekend, just bring a bag of chips and salsa. We'll have soft drinks and beer, but if you like something special feel free to bring it along. Directions will be sent via a "members" email or included with your mailed July newsletter. The Knabb observing circle is only 5 minutes from West Chester University.

Let's get together whether it is clear or cloudy. We can at least share each other's company for a few hours and perhaps view an astronomy related movie if we run out of observing stories.

So what is this Lunar X? 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 short period every month near First Quarter.

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CCAS Bus Trip to NYC: October 20, 2007

We have reserved a 54 passenger bus for Saturday, October 20, 2007 to go to New York City. Our morning event will be visiting the Museum of Natural History, afternoon will be "on our own." The new Hayden Planetarium is part of the Museum of Natural History complex. We will meet back at the Museum for the ride home. More details are being worked out as the July newsletter goes to press; these will be published in the August newsletter. But you can reserve the date now on your calendars!

Cost of the trip will be approximately $50.00 per person, including bus fare and Museum entrance ticket. All interested members can contact Linda Lurcott-Fragale to make reservations. Payments must be received by September 17.

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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. $150.00

Contact Maureen at:

E-mail: sturgesm-cha@comcast.net
Daytime phone: 610-696-5140
Evening phone: 610-436-6718

★ ★ ★ ★ ★

Treasurer's Report by Bob Popovich

May 2007 Financial Summary

Beginning Balance	$1,663
Deposits	124
Disbursements	105
Ending Balance	$1,682

Membership Renewals Due

07/2007	Scarfo
	Sleeper
	Tobey
08/2007	Fragale
	Knabb
09/2007:	Bogucki
	Holenstein
	Lurcott
10/2007:	Anderson
	End
	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 11 in this newsletter.

Important Notice Regarding *Sky & Telescope* Subscriptions

For members who have current subscriptions through the Society at the special club discount:

You may now renew directly with the publisher—there is no longer a need to send anything to our Treasurer! You can **renew via mail or telephone** (1-800-253-0245). Sky Publishing will confirm your CCAS membership with Bob.

If you wish to **start** a subscription through the Society, you must still send the check to Bob first. This is only for new subscriptions at the special club rate of $32.95 per year. As in the past, this initial check should be made out to Chester County Astronomical Society. Bob will then forward the needed information and payment on to Sky Publishing. But once you are started, you too can renew directly with Sky Publishing in subsequent years.

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

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Copernicus Crater on the Moon

by Vic Long

Although seeing was not good, this close-up photo of Copernicus captures its terraced walls and group of central peaks. An 8 inch Newtonian, 3X Barlow, webcam and Registax software were used.

Copernicus crater.

★ ★ ★ ★ ★

Jupiter on June 8, 2007

by Vic Long

Last night I had no intention of photographing Jupiter—it was not all that high in the sky, but occasionally I was seeing nice detail in the eyepiece. So I hooked up a Neximage webcam and 3X Barlow to my 8 inch reflector. This is the second shot I processed from last night and a bit better than the first. The Great Red Spot is evident as well as more belt detail than I expected. There was some atmospheric refraction that was minimized by slightly moving the blue channel. There are about 200 frames stacked in Registax in this image.

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Review: *From the Earth to the Moon*

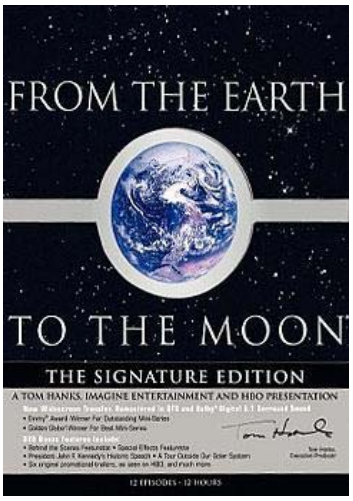
by Don Knabb

A few weeks ago the Science Channel began showing one episode each week of the HBO miniseries *From the Earth to the Moon*. I had never seen this series since we have never

subscribed to HBO, and we really do not watch much television.

But, I thought I'd give the first one or two a try since I have always been a fan of the Apollo program. I taped the first show and enjoyed it, so I taped the second one and was watching it when part way through the cable channel changed for some reason and I lost the rest of the episode.

So, rather then miss an episode, since they follow the Mercury, Gemini and Apollo program chronologically, we rented the tapes from the Chester County Library.



I have to say that I really enjoyed this series, and the best way to watch them is to rent the tapes from the library. You get to see the full 60 minute episode as it was produced, not the Science Channel version that has been cut down to fit in commercials. And, if you get the library tapes there are no commercials that you need to skip. The series is also available on DVD, but not from the Chester County Library.

The series is a cross between a factual account of the space program and some dramatic interpretation of real and a few fictional characters. It's not just about the science or the astronauts, but it covers the astronaut's spouses, the newscasters and historical ideas about traveling to the moon.

Here are some parts of Jeff Shannon's review on Amazon.com:

"Originally broadcast in April and May of 1998, the epic miniseries *From the Earth to the Moon* was HBO's most expensive production to date, with a budget of $68 million. Hosted by executive producer Tom Hanks, the miniseries tackles the daunting challenge of chronicling the entire history of NASA's Apollo space program from 1961 to 1972. For the most part, it's a rousing success. Some passages are flatly chronological, awkwardly wedging an abundance of factual detail into a routine dramatic structure. But each episode is devoted to a crucial aspect of the Apollo program. The cumulative effect is a deep and thorough appreciation of NASA's monumental achievement. With the help of a superlative cast, consistent writing, and a stable of talented directors, Hanks has shared his infectious enthusiasm for space exploration and the inspiring power of conquering the final frontier.

"NASA's complete participation in the production lends to its total authenticity, right down to the use of NASA equipment, launch locations, and even spacecraft. The re-creation of the lunar landscape is almost as impressive as the real thing and is further enhanced by the use of helium balloons to lighten the actors playing moon-walking astronauts. With a fictional, Walter Cronkite-like TV reporter (Lane Smith) serving as the dramatic link for all 12 episodes, this ambitious production may not be a great work of art. But as a generous and definitive example of nonfiction drama, it's full of the same kind of awe, inspiration, and humanity that led to 'one giant leap' in the all-too-short history of 20th-century space exploration."

So if you are a fan of the Mercury, Gemini and Apollo programs I highly recommend this series. It is entertaining and it is well done. Watching the 12 episodes over the last 3 weeks is probably more television then I normally see in 3 months, but it was time well spent. And yes, the episode about the first landing on the moon gave me goose bumps!

★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★

Astronomus

"In the 'Burbs"

By Bob Popovich

As a lad standing on the shore of Noordwijk, Holland, Jan Hendrik Oort gazed at the magnificent 1910 appearance of Halley's comet. Seventy-six years later Oort was fortunate enough to view Sir Edmund's namesake once again—surely one of relatively few people to have witnessed it twice. Interestingly enough, Oort's second viewing was from a jet airplane rather than a beach. How much changed during those intervening years…

And speaking of those intervening years, Oort kept himself busy with sundry questions of astrophysics. In 1927, he determined the rotational speed of the Milky Way galaxy that, out here in the galactic suburbs, is about 170 MPS. Bear in mind that this calculation was made on the heels of Hubble's pronouncement that the Milky Way wasn't the only galaxy in the universe. Consider, if you will, the astounding acceleration of knowledge and understanding that unfolded during that portion of the century in which Oort lived. The cosmos was in expansion—and our intellect strained to keep up.

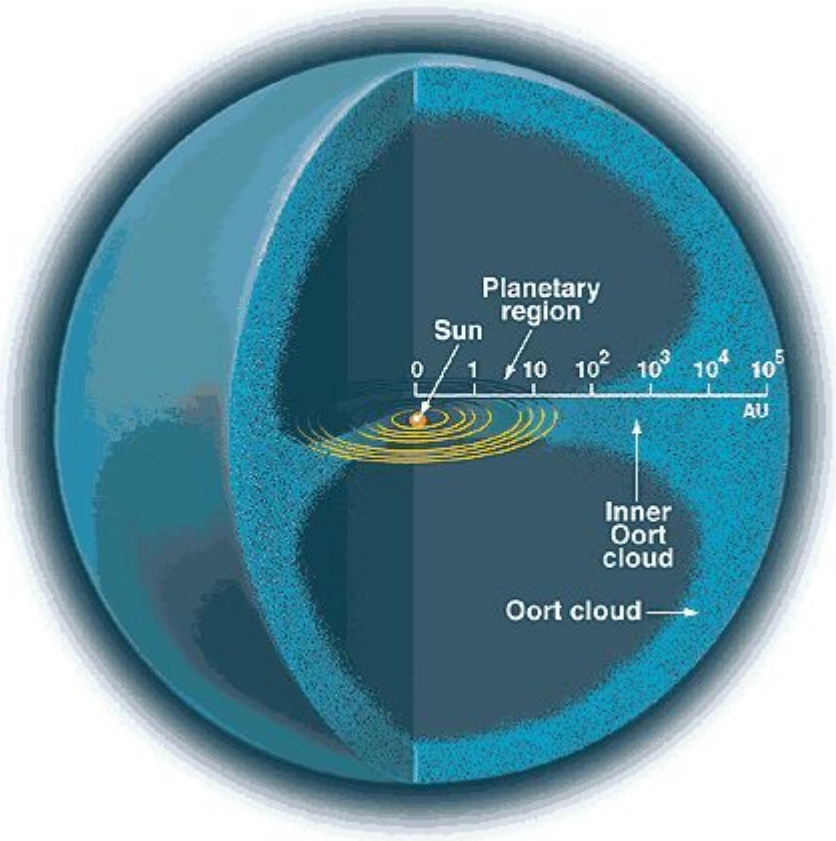
But returning to our suburban theme, Oort considered, around 1950, possible sources of the long-period comets that on rare occasion scorch our evening sky. Where did they come from? Were they eternally on the move or could they be relatively inert objects that are somehow catapulted onto a path that takes them through our neighborhood? There was no doubt that they came from beyond what

was then considered the edge of the solar system. The distant fringe of our 'hood. Beyond even the band of Trans-Neptunian dwarf planets[1]. We might even say that Oort had concluded these long period comets were visitors from the sun's suburbs (sunburbs?). What was apparent to Oort was as that they entered the heart of the solar system unannounced, put on a brief, fancy show and then exited—seemingly never to return.

Oort took the approach of studying data on 19 long period comets. These comets were documented as coming into the Solar System from all directions, which, he reasoned, meant that they did not come from a belt of objects (like the Kuiper Belt, for instance) but rather from a sphere or cloud of objects. Though not the first person to postulate such an idea, his detailed study earned him naming rights.

As the theory evolved Oort and other physicists began adding details to what was dubbed the Oort Cloud:

- Immense spherical cloud of trillions of small icy, planetary objects—all potentially active but currently dormant comets
- The cloud extends 2 or more light years (LYs) from the sun. It represents the limit of the sun's physical and gravitational influence. This is some 100-times further from the sun than the Kuiper Belt.
- The total mass of this Oort Cloud ranges from about 40 times that of Earth to greater than that of Jupiter.
- Occasionally, passing stars disturb the orbit of one of these bodies, causing it to come streaking into the inner solar system as a long-period comet. Being weakly held by the sun, these bodies can also be influenced by macro forces (galactic tidal forces) and micro forces (molecular clouds). These forces can provide just the nudge these Oort bodies need to either send them into the inner solar system or out to interstellar space.
- Within the cloud, the objects are typically millions of miles apart.
- These comets have very large orbits and are observed in the inner solar system only once.
- The cloud is believed to consist of a relatively dense core that lies near the ecliptic plane and gradually replenishes the outer boundaries, creating a steady state. One sixth of an estimated six trillion icy objects or comets are in the outer region with the remainder in the relatively dense core. This densest area is believed to be about 44,000 AU from the Earth.
- Two recent Oort cloud comets were Hyakutake and Hale-Bopp. Hyakutake was average in size, but came to 0.10 AU from Earth, which made it quite spectacular. Hale-Bopp, on the other hand, was unusually large (10x the size of Halley), making it appear quite bright, even though it did not approach closer than 1.32 AU to the Earth.



- Some have speculated that a star passing near enough to the Oort Cloud might significantly increase the rate of comet passages near the Earth. So much so, in fact, that the risk of a catastrophic impact would be greatly increased. Measurements of the accumulation in ocean sediments of purported interplanetary dust, most of which is thought to come from comets, suggests a sharp rise in the incidence of comets at the end of the Eocene, about 36,000,000 years ago. There are, in fact, several impact craters on our home dating from this time. There was also a moderate biological extinction at about the same time. Coincidence? Perhaps. But could multiple comet strikes have been to blame? Where is Irwin Allen when you have a great idea for a script?
- There is general agreement that Oort objects could not have formed in their present locations because the material at those distances would have been too sparse to condense. The most logical conclusion is that these icy bodies coalesced in the vicinity of the four gas giants (Jupiter, Saturn, Uranus, and Neptune) and were subsequently hurled outward by gravity-assists from these giant planets.

Obviously we cannot detect any of these objects with our equipment, but they are out there—in the 'burbs. Waiting for a push. Hopefully, NOT directly at us…

Next Time: Dark Sky Note.

(1) At about the same time that Oort was working on the source of long-period comets, Gerard Kuiper and Kenneth Edgeworth proposed a belt of what today are called dwarf planets lying at the edge of the solar system. In their day Pluto was the edge of town. By a shift in the city limits, Pluto now finds itself in the suburbs with countless other dwarf planets. This belt of ice and rock yields short-period comets, i.e., those requiring less than 200 years to orbit the Sun. Further, they travel along the plane of the solar system, hence the use of the word "belt."

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NASA Space Place

Chew on This

By Diane K. Fisher

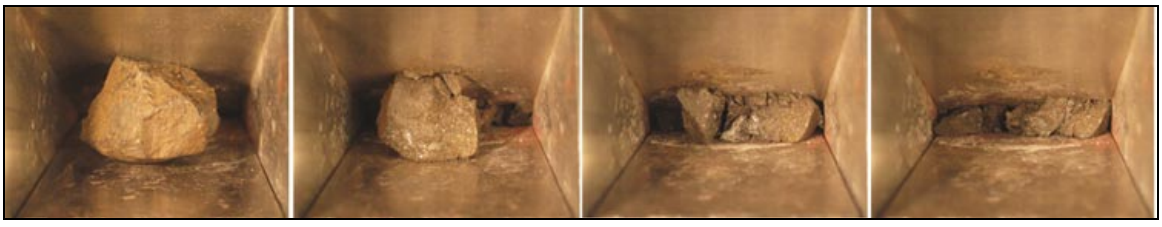
The Mars robotic rovers, *Spirit* and *Opportunity*, are equipped with RATs, or Rock Abrasion Tools. Their purpose is to abrade the surface patina off the Mars rocks so that the alpha x-ray spectrometer can analyze the minerals inside the rocks, rather than just on the surface.

But future robotic missions to Mars will be asked to go even further below the surface. Scrapers and corers will gather rock samples of substantial size, that, in order to be analyzed by a spectrometer, will need to be crushed into a fine powder.

Crushing rocks on Mars? Now there's a problem that brings to mind a multitude of possible approaches: Whack them with a large hammer? Squeeze them until they explode? How about just chewing them up? It was with this latter metaphor that the planetary instrument engineers struck pay dirt—so to speak.

Thanks to NASA's Planetary Instrument Definition and Development Program, a small group of NASA engineers came up with the Mars Rock Crusher. Only six inches tall, it can chew the hardest rocks into a powder.

The Mars Rock Crusher has two metal plates that work sort of like our jaws. One plate stays still, while the other plate moves. Rocks are dropped into the jaw between the two plates. As one plate moves in and out (like a lower jaw), rocks are crushed between the two plates. The jaw opening is larger toward the top and smaller towards the bottom. So when larger rocks are crushed near the top, the pieces fall down into the narrower part of the jaw, where they are crushed again. This process repeats until the rock particles are small enough to fall through a slit where the two plates are closest.



Looking down on the jaws of the Mars Rock Crusher, we see a magnetite rock get crushed into smaller and smaller particles.

Engineers have tested the Mars Rock Crusher with Earth rocks similar to those expected to be found on Mars. One kind of rock is hematite. The rusted iron in hematite and other rocks help give Mars its nickname "The Red Planet." Another kind of rock is magnetite, so-called because it is magnetic. Rocks made by volcanoes are called basalts. Some of the volcanoes on Mars may have produced basalts with a lot of a mineral called olivine. We call those olivine basalts, and the Rock Crusher chews them up nicely too.

Visit **www.jpl.nasa.gov/technology** to read the latest about other NASA technologies for exploring other planets and improving life on this one.

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

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ASTRONOMY IN ALASKA

Cartoon by Nicholas La Para

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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:

www.POLCouncil.org

★ ★ ★ ★ ★ ★ ★ ★

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/

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/

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Find out about Lyme Disease!

Anyone who spends much time outdoors, whether you're stargazing, or gardening, or whatever, needs to know about Lyme Disease and how to prevent it. 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!"

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CCAS Information Directory

CCAS Lending Telescopes

Contact Kathy Buczynski to make arrangements to borrow one of the Society's lending telescopes. CCAS members can borrow a lending telescope for a month at a time; longer if no one else wants to borrow it after you. Kathy's phone number is 610-436-0821.

CCAS Lending Library

Contact our Librarian, Linda Lurcott Fragale, to make arrangements to borrow one of the books in the CCAS lending library. Copies of the catalog are available at CCAS meetings, and on the CCAS website. Linda's phone number is 610-269-1737.

Contributing to *Observations*

Contributions of articles relating to astronomy and space exploration are always welcome. If you have a computer, and an Internet connection, you can attach the file to an e-mail message and send it to

stargazer1956@comcast.net

Or mail the contribution, typed or handwritten, to:

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

Get CCAS Newsletters via E-mail

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

stargazer1956@comcast.net

CCAS 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

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:	Don Knabb 610-436-5702
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

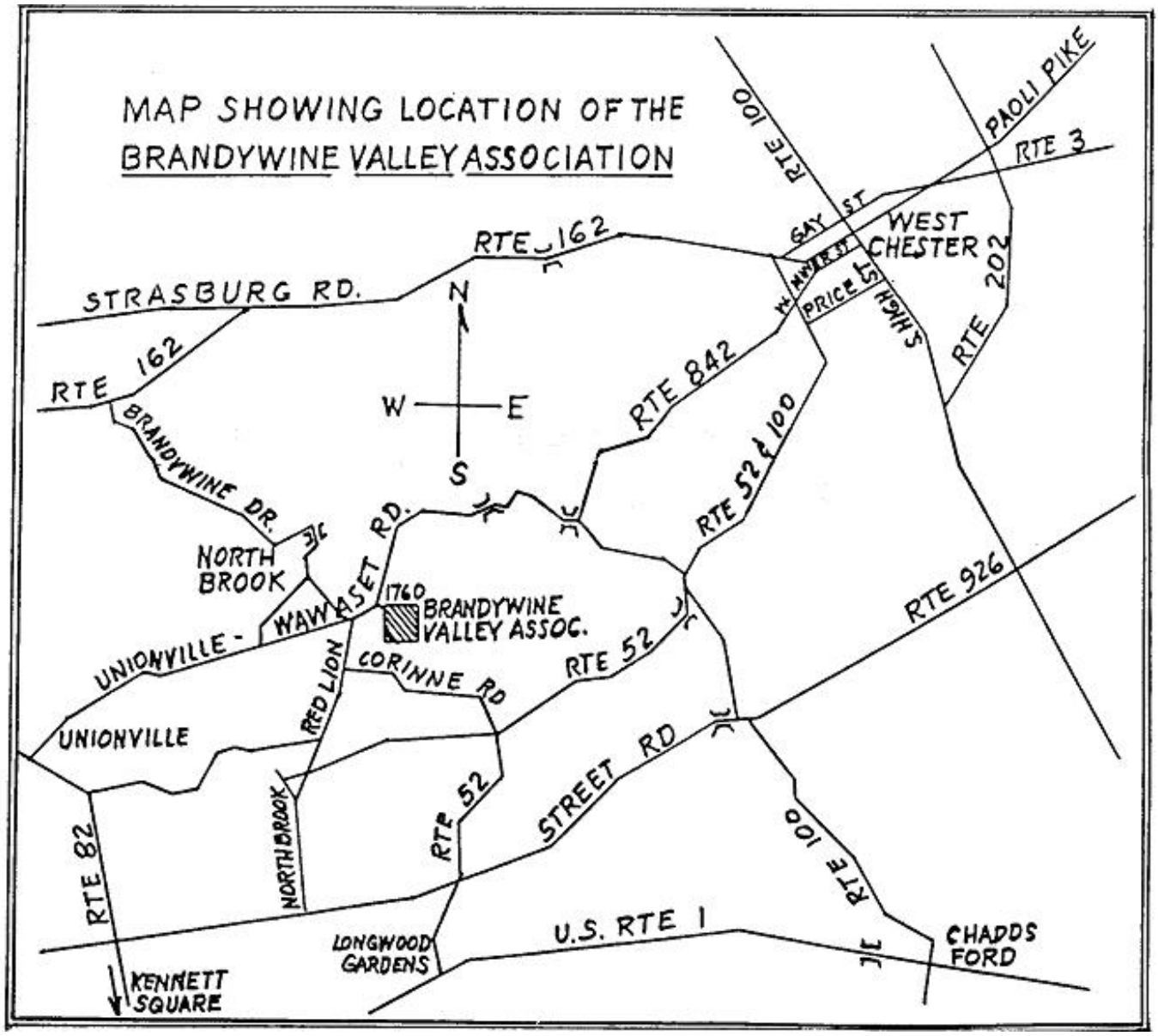
Subscriptions to this excellent periodical are available through the CCAS at a reduced price of **$32.95** which is much less than the newsstand price of $66.00, and also cheaper than individual subscriptions ($42.95)! To start a subscription, make **sure** you make out the check to the **Chester County Astronomical Society** (do **not** make the check out to Sky Publishing, this messes things 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.

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.**

Phone: 610-363-8242

e-mail: B2N2@verizon.net



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).