bservations

A Monthly Publication Of The
CHESTER COUNTY ASTRONOMICAL SOCIETY

JANUARY 2008
(VOLUME 16, NO. 1)
Visit our website at www.ccas.us

In This Issue

Important January 2008 Dates

1 **Happy New Year!**

4 Quadrantid Meteor Shower peaks.

8 New Moon, 6:37 a.m. EST.

8 **CCAS Meeting**
Location: West Chester University
Room 113, Boucher Building
7:00 – "The Evolution of Galaxies" (DVD).
7:30 – Regular Meeting Starts
Constellation of the Month: Andromeda
Main Presentation: "STS-125: Final Shuttle Mission to Hubble Space Telescope."

See page 4 for more details.

11/12 **CCAS Observing Session**
Location: **Brandywine Valley Association**
Time: sunset, or earlier (see page 4 for more details.)

15 First Quarter Moon, 2:46 p.m. EST.

17 Moon close to the Pleiades (M45).

21 Mercury at greatest eastern elongation (today is a good time to see Mercury in our evening sky).

22 Full Moon, 8:35 a.m.EST.

30 Last Quarter Moon, 6:37 a.m. EDT.

31 Venus and Jupiter are very close together in our morning sky. Tomorrow, February 1, they will be about 0.6° apart: close enough to see both in a telescope at the same time, using a low to medium power eyepiece!

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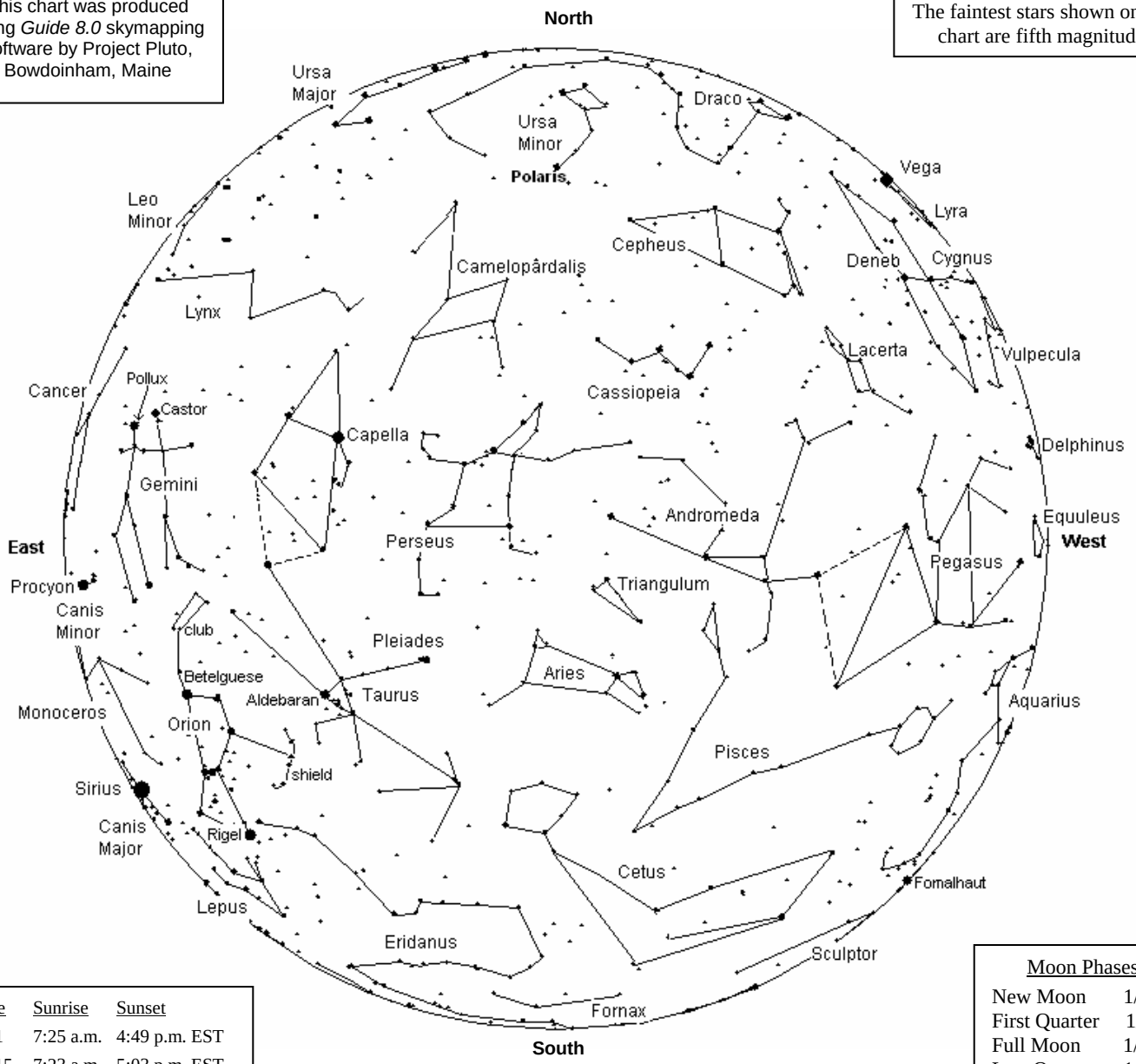
This chart was produced using *Guide 8.0* skymapping software by Project Pluto, Bowdoinham, Maine

The faintest stars shown on this chart are fifth magnitude.



Date	Sunrise	Sunset
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

The sky over Chester County
January 15, 2008 at 7:00 p.m. EST

Moon Phases	
New Moon	1/08
First Quarter	1/15
Full Moon	1/22
Last Quarter	1/30

The Planets, by Don Knabb

Mercury: January provides an excellent opportunity to observe the planet closest to the Sun. Between January 19th and 26th look toward the southwest about a half hour after sunset. Mercury will be reasonably bright and at least 10 degrees above the horizon. You get extra points if you find Mercury on January 9th when it is only 4 degrees above the horizon and is joined by a 36 hour old thin crescent Moon!

Venus: The "Morning Star" continues to shine brilliantly in the hours before the Sun rises. On January 31st it is joined in the early dawn sky by Jupiter.

Mars: Even if it is cold, take your new telescope or eyepiece outside to see Mars as early as possible in January. Mars was at opposition on Christmas Eve so it will still be an incredible sight through January. This is the best view of Mars we will have for a long time, so enjoy it while you can!

Jupiter: The king of the planets is hiding in the glare of the Sun as 2008 opens. Wait until the end of the month and Jupiter is rising in the southeast more than an hour before sunrise. And don't miss the show on January 31st when Jupiter and Venus are only 1.2 degrees apart in the dawn sky.

Saturn: You will need to stay up late to see the ringed beauty for the next month or two. Saturn is rising around 9 p.m. in early January and around 7 p.m. at the end of the month. Wait until around midnight for the best view in a telescope when you can view Saturn through the least amount of atmosphere.

Uranus & Neptune: Uranus can be seen just after nightfall in the southwest, but Neptune is all but impossible to see during January.

Pluto: Distant Pluto is lost in the Sun's glare during 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 from online booksellers.

January Observing Highlights

by Don Knabb, CCAS Observing Chair

Planets: Mars continues to shine brightly all night. It is just past the time when it is most bright, so be sure to catch Mars in your telescope before it fades as winter progresses. You will need to get out of bed early to see the other planetary highlight of the month when Jupiter and Venus appear very close in the dawn sky on January 31.

Constellations: Auriga, Taurus, Orion and Gemini are the highlights of the January skies. But the nights are so long that you can see many "summer" constellations setting early in the evening and many "spring" constellations rising if you stay up late. Dress warmly and sit in your lounge chair and see how many constellations you can record toward the Constellation Hunter club.

Deep sky: During the winter months we are looking away from the center of the Milky Way, so the sky is not as full of deep sky wonders as during the summer. But, the sky is clear and there are still many beautiful objects for us to enjoy. Don't miss the trio of clusters in Auriga, and not far away is another nice cluster, M35, at the feet of the twins of Gemini. And below and behind Orion is Canis Major with the cluster M41, the Little Beehive, not far from the brightest star in the night sky, Sirius.

Comets: As I wrote this on Christmas night I had just came in from finding Comet 8P/Tuttle with my binoculars. It is high overhead and was not hard to find (see finder chart on page 14). During January this comet will be even brighter and might be a naked eye object from a dark observing sight.

Meteor shower: The Quadrantid meteor shower peaks on January 4 at 2:30 a.m. This is a great opportunity to see some shooting stars since the Moon will not interfere with the show.

Jan. 4	Quadrantid meteor shower peaks at 2:30 a.m.
Jan. 8	New Moon, 6:37 a.m.
Jan. 15	First quarter Moon, 2:46 p.m.
Jan. 17	The Moon is close to the Pleiades (M45)
Jan. 21	Mercury at greatest eastern elongation.
Jan. 22	Full Moon, 8:35 a.m., called the Full Wolf Moon by Native Americans as the wolf packs howled hungrily outside their villages. Also called the Old Moon, the Moon After Yule or the Full Snow Moon.
Jan. 30	Last quarter Moon, 12:03 a.m.
Jan. 31	Venus and Jupiter are very close in the dawn sky.

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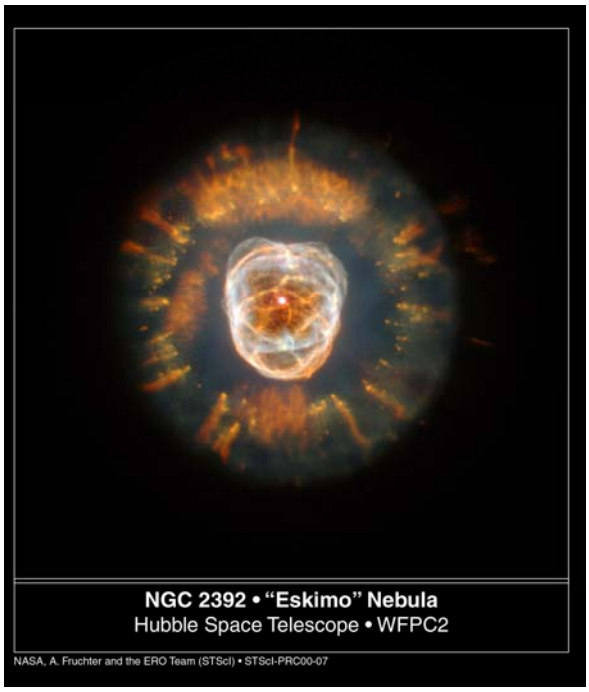
Through the Eyepiece: The Eskimo Nebula

by Don Knabb, CCAS Observing Chair

Now that we are into the really cold observing time of the year, I thought I'd write a short article about the Eskimo Nebula, since the Eskimos set the standard for dealing with cold conditions. The Eskimo Nebula, NGC 2392, is also called the Clown face Nebula.



Astronomer William Herschel discovered the Eskimo Nebula in 1787. Herschel described it as "A star 9th magnitude with a pretty bright middle, nebulosity equally dispersed all around. A very remarkable phenomenon."

From ground based telescopes the nebula resembles a person's head surrounded by a furry parka hood. In 2000, the Hubble Space Telescope provided the image above. The gas clouds of the nebula are so complex they are not fully understood.

The Eskimo Nebula is clearly a planetary nebula, and the gas seen above composed the outer layers of a sun-like star only 10,000 years ago. The inner filaments visible above are being ejected by a strong wind of particles from the central star. The outer disk contains unusual light-year long orange filaments.

NGC 2392 is included in the Astronomical League Herschel 400 observing program. It lies about 3000 light-years away and is visible with a small telescope in the constellation of Gemini. The chart on page 13 is from *Starry Night* planetarium software. Because of the dismal observing conditions of the holiday week I have not been able to try to find the Eskimo Nebula with my telescope, but as soon as the skies are more cooperative I will give it a try. Of course, I will be bundled up like an Eskimo when I look to the stars!

Information sources:
http://www.nasa.gov/multimedia/imagegallery/image_feature_762.html
http://archives.cnn.com/2000/TECH/space/01/24/hubble.awakes/
http://en.wikipedia.org/wiki/Eskimo_Nebula

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CCAS January Meeting

DATE: **Tuesday January 8, 2008**
PLACE: Room 113 – Boucher Building
West Chester University
LOCATION: South Church Street
West Chester, PA
TIME: **7:00 p.m. EST for Cosmology Class**
7:30 p.m. EST for regular meeting

A map of the campus showing the location is on page 15.

Cosmology Class: **The Evolution of Galaxies**

This month's Constellation of the Month (COM) will be **Andromeda**, presented by Don Knabb.

This month's main presentation will be **STS-125: Final Shuttle Mission to Hubble Space Telescope** by John Gallagher. John works at Pagnotta Engineering, Inc. in Exton, PA. Pagnotta Engineering is involved in the design and structural analysis of the support components needed in the shuttle's cargo bay to hold the new instruments and parts for the Hubble Space Telescope. This is sure to be a fascinating presentation; don't miss it!

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CCAS Observing Session January 11/12, 2008

The Observing Session will be on Friday January 11 at the Brandywine Valley Association, starting at sunset, if the weather is good enough. In case of bad weather ("mostly cloudy" qualifies as bad weather for stargazing, even if it's not raining) then we will observe on Saturday January 12 (if the weather cooperates). If the weather is good both nights, we can observe both nights. You can arrive before sunset to set up if you want to. CCAS Observing Sessions are free and open to the public. You can bring friends and family.

If you have any questions write to **observing@ccas.us** or **dknabb00@comcast.net**, or call Don Knabb at **484-888-1831**. Directions to the BVA are on page 11.

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CCAS Observing Sessions in 2008

February 8/9
March 7/8
April 4/5
May 10: Astronomy Day at Hoopes Park in West Chester
June 6/7
July 5 (Saturday only, due to holiday)
August 1/2
September 5/6
October 3/4
November 28/29
December 26/27

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CCAS February Meeting

Coming attractions for our meeting on **February 12**:

Cosmology Class (DVD): **Active Galaxies and Quasars**

Constellation of the Month (COM): **Orion**.

Main presentation: **"Aurora Expedition in Alaska"** by Deb Goldader (illustrated talk, lots of gorgeous pictures).

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Treasurer's Report

by Bob Popovich

November 2007 Financial Summary

Beginning Balance	$2,037
Deposits	123
Disbursements	443
Ending Balance	$1,717

Membership Renewals Due

01/2008: Hillenbrand
Padgett
Rodriguez
02/2008: Charitnonchick
Dautrich
Farrelly
Goldader
Kovacs
La Para
Marellla
Mau
McDevitt
Porreca
Reimer
Rowan
Von Wagenen
03/2008: Ballester
Cini
Dascaloff
LaFrance
Malloy
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 in this newsletter.

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Welcome!

This month we welcome four new members to the Society: Veronica Diaz of Philadelphia, Leroy Swisher of Philadelphia, Charles Triolo of Downingtown, and Gary Zabinski of West Chester. We're glad you decided to join us under the stars! Clear Skies to you all!

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CCAS Backyard Observing Class

The Education Committee of the CCAS is offering a class intended to introduce people to basic astronomy. **This year the class has been completely restructured.** This class will be very different from the Introductory Astronomy class taught in the spring for the last several years. There will be more emphasis on the different kinds of observing you can do from your backyard. The series of eight classes will be held on the first and third

Tuesdays of each month, starting at 7:00 p.m. and ending at 8:00 p.m. These are the dates on which classes will be held:

February 5	How to Prepare for Observing
February 19	Telescope Demo
March 4	Within the Solar System
March 18	Observing the Moon
April 1	Targets of Opportunity
April 15	Observing Stars
May 6	Finding Faint Fuzzies, Part I
May 20	Finding Faint Fuzzies, Part II

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. All attendees will receive a copy of Sky Publishing's *Skywatch '08*.

There will be two door prizes. One will be a copy of the book *Turn Left at Orion*. A second book will also be given as a door prize, *Falling Stars: A Guide to Meteors & Meteorites*.

If you would like to help, either as an instructor (or perhaps as an instructor's assistant), or with "logistics" (set up, clean up, registration, etc.) please call **Kathy Buczynski at 610-436-0821.** We can always use some extra help.

Our costs have risen, forcing us to raise the registration fees: to attend the class for non-members is $25.00 per person, and $35.00 per family (with the same address). **For current CCAS members, the cost is $6.00.** Space is limited to just 40 people, however, so call Kathy Buczynski to reserve your space now.

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Astronomy Day Plans Underway

This year the CCAS will celebrate International Astronomy Day on Saturday May 10 in a different way than in recent years. We will team up with West Chester's Department of Recreation to host a star party at Hoopes Park in West Chester. The Recreation Department will do advertising of the the event, in addition to providing support staff at the park that day. We will provide the telescopes and program.

Don Knabb is leading the planning for this event. If you have some ideas for what we could do for the program (note that offering an idea does **not** mean you have to run it or present it!), or can help with telescopes, making handouts, crowd control on the night of the event, please contact Don. Thanks!

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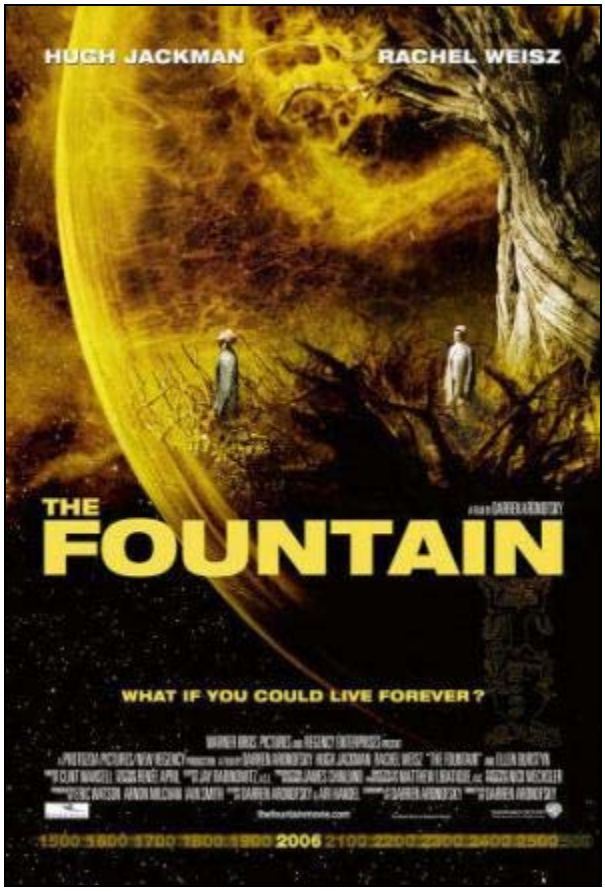
Movie review: *The Fountain*

by Don Knabb

A little over a year ago a movie was released titled *The Fountain*. It was not a major blockbuster release but it was at all the major movie theaters. Having seen the movie at the theater and on DVD, both Barb and I are surprised that such an unusual movie had such a wide release.

Yes, it is an unusual movie. How else can you describe a movie that has three story lines, spanning a thousand years, from the time of the Conquistadors, to the present day, to a journey through space in a crystal spaceship in the 26th century?



What is a review of this movie doing in our newsletter, you might ask? It's not a movie about astronomy, but there are several aspects of the movie that involve astronomy. The movie was classified as science fiction/fantasy, but actually it is best described as being a love story. It tells the story of one man in his thousand-year struggle to save the woman he loves.

As you can see in the photo below, the two main actors in the movie, Hugh Jackman and Rachel Weisz are using a telescope. They are looking at a nebula they call Xibalba, but any astronomer will immediately identify the lower half of Orion and the Orion nebula as the target of their telescope.

The three stories are not told in a sequential order. The movie jumps through time like we might jump from planet to deep sky object to stars at an observing session, returning from one, and then back to the others several times.

The image above is a scene from the conquistador time period.

I won't go into a detailed description of the story. You can get an excellent synopsis at http://en.wikipedia.org/wiki/The_fountain .

But I suggest you see the movie first, and then read about it. A great deal of the pleasure of this movie is the JOD (Joy of Discovery) as you try to figure out how the three stories tie together. Barb figured it out fairly quickly, but I would still be scratching my head without her help.

The astronomical highlight of the movie is the trip through space toward the nebula Xibalba. The star at the center of the nebula is about to go nova and Hugh Jackman is approaching the nebula. That event is an amazing sequence like none I have ever seen in a movie. I'm sure it is not astronomically accurate, but think of it as an artistic interpretation of a nova. If you would like to have some idea what it would be like to journey to a distant nebula and experience a nova, then give this movie a try. When the star goes nova, turn up your surround sound and let your subwoofer earn its keep.

This movie has amazing visual effects. They are mostly not computer generated, providing a more "art film" style of presentation. The sound track is also excellent, played by a famous string quartet, The Kronos Quartet.

The image above is the crystal spaceship enroute to the nebula called Xibalba.

If you only like Spiderman movies then this movie is probably not for you. But the acting is top notch, the soundtrack is beautiful and the visuals are stunning. The story is complex but rewards the viewer who enjoys a movie that sometimes leaves more questions than it answers.

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The Crater Copernicus on the Moon

by Vic Long

This photo of the region around Copernicus was taken on Oct 21th with a 200 mm meniscus Cassegrain telescope and a webcam. South of Copernicus is the double-crater Fauth/Fauth A—shaped just like a keyhole. A bit north of Copernicus is a wide rille, Rima Gay-Lussac, pointing toward the 26km crater Gay-Lussac to its east. Further to the east and a bit to the south is the beautiful crater Eratosthenes with its three prominent central peaks. To the southwest can be seen the outline of the 69km-diameter heavily flooded crater Stadius. To the north and slightly west of Stadius is a long chain of small craters. The most striking feature of this photograph to me, however, is the complex pattern of bright rays originating from Copernicus.

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The Amazing Comet 17P/Holmes!

This highly unusual comet continues to shine rather brightly in Perseus. Some reports claim that from dark-sky sites you can still see it with the naked eye. It is an easy find in binoculars or telescopes, and is a large oval-shaped object. A finder chart is on page 14, which also shows Comet 8P/Tuttle. We have **two** fairly bright comets in the same region of the sky! Needless to say, this is an unusual treat. Compare the greenish-blue color of Tuttle to the yellowish-white color of Holmes. There are also several other interesting objects in the same area; the finder chart also shows these objects.

The usually-faint periodic comet Holmes stunned astronomers on October 24 by suddenly brightening in one day from magnitude 17 to between magnitudes 2 and 3: a factor of over a million times! (the magnitude scale is a logarithmic scale.) Also, the comet's coma expanded several times over, until it's apparent size was as large as the Full Moon.

In tracing its orbit backwards in time, astronomers find that Comet Holmes' orbit passes close enough to Jupiter that the last pass moved the comet's perihelion point closer to the Sun, probably causing this outburst.

Ultraviolet Surprise

By Patrick L. Barry and Tony Phillips

How would you like to visit a universe full of exotic stars and weird galaxies the likes of which astronomers on Earth have never seen before?

Now you can. Just point your web browser to **galex.stsci.edu** and start exploring.

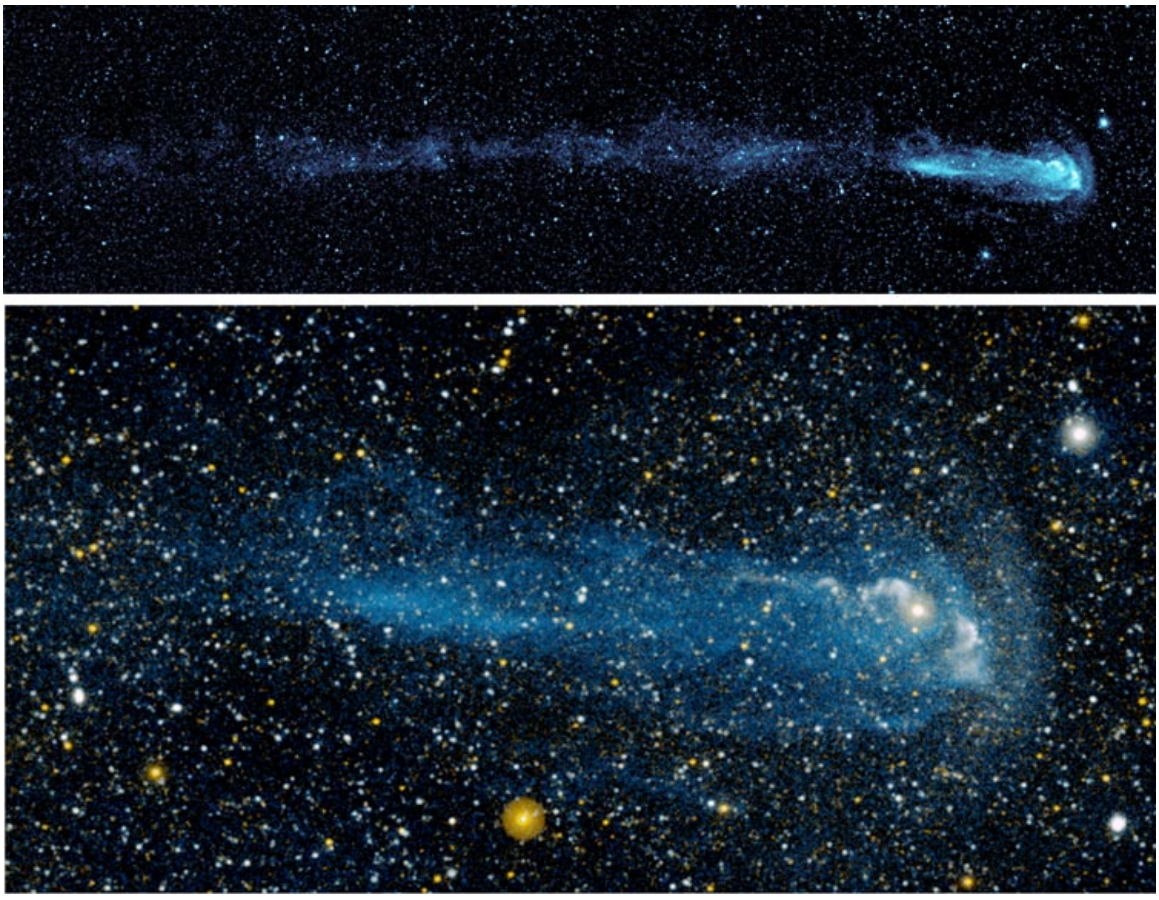
That's the address of the *Galaxy Evolution Explorer* image archive, a survey of the whole sky at ultraviolet wavelengths that can't be seen from the ground. Earth's atmosphere blocks far-ultraviolet light, so the only way to see the ultraviolet sky is by using a space telescope such as NASA's *Galaxy Evolution Explorer*.

About 65% of the images from the all-sky survey haven't been closely examined by astronomers yet, so there are plenty of surprises waiting to be uncovered.

"The *Galaxy Evolution Explorer* produces so much data that, beyond basic quality control, we just don't have time to look at it all," says Mark Seibert, an astronomy post-doctoral assistant at the Observatories of the Carnegie Institution of Washington in Pasadena, California.

This fresh view of the sky has already revealed striking and unexpected features of familiar celestial objects. Mira is a good example. Occasionally visible to the naked eye, Mira is a pulsating star monitored carefully by astronomers for more than 400 years. Yet until *Galaxy Evolution Explorer* recently examined Mira, no one would have guessed its secret: Mira possesses a comet-like tail 13 light-years long.

"Mira shows us that even well-observed stars can surprise us if we look at them in a different way and at different wavelengths," Seibert says.



Astronomers looking at new ultraviolet images from the Galaxy Evolution Explorer spacecraft were surprised to discover a 13-light-year long tail on Mira, a star that has been extensively studied for 400 years.

Another example: In April, scientists announced that galaxies such as NGC 1512 have giant ultraviolet spiral arms extending three times farther out into space than the arms that can be seen by visible-light telescopes. It would be like looking at your pet dog through an ultraviolet telescope and discovering his ears are really three times longer than you thought!

The images from the ultraviolet space telescope are ideal for hunting new phenomena. The telescope's small, 20-inch primary mirror (not much bigger than a typical backyard telescope) offers a wide field of view. Each image covers 1.2 degrees of sky—lots of territory for the unexpected.

If someone combing the archives does find something of interest, Seibert advises that she or he should first search astronomy journals to see whether the phenomenon has been observed before. If it hasn't, email a member of the *Galaxy Evolution Explorer* science team and let them know, Seibert says.

So what are you waiting for? Fire up your web browser and let the discoveries begin!

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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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

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Good Outdoor Lighting Website

One of the biggest problems we face in trying to reduce light pollution from poorly designed light fixtures is easy access to good ones. When you convince someone, a neighbor or even yourself, to replace bad fixtures, where do you go for good lighting fixtures? Now there is a web site and business intended to address that very problem. At this site you can find information on all kinds of well-designed (that is, star-friendly) outdoor lighting fixtures. This company, Starry Night Lights, intends to make available all star-friendly fixtures they can find, and information on them, in one place. Check it out, and pass this information on to others. Help reclaim the stars! And save energy at the same time!

http://www.starrynightlights.com/

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 610-269-1737
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

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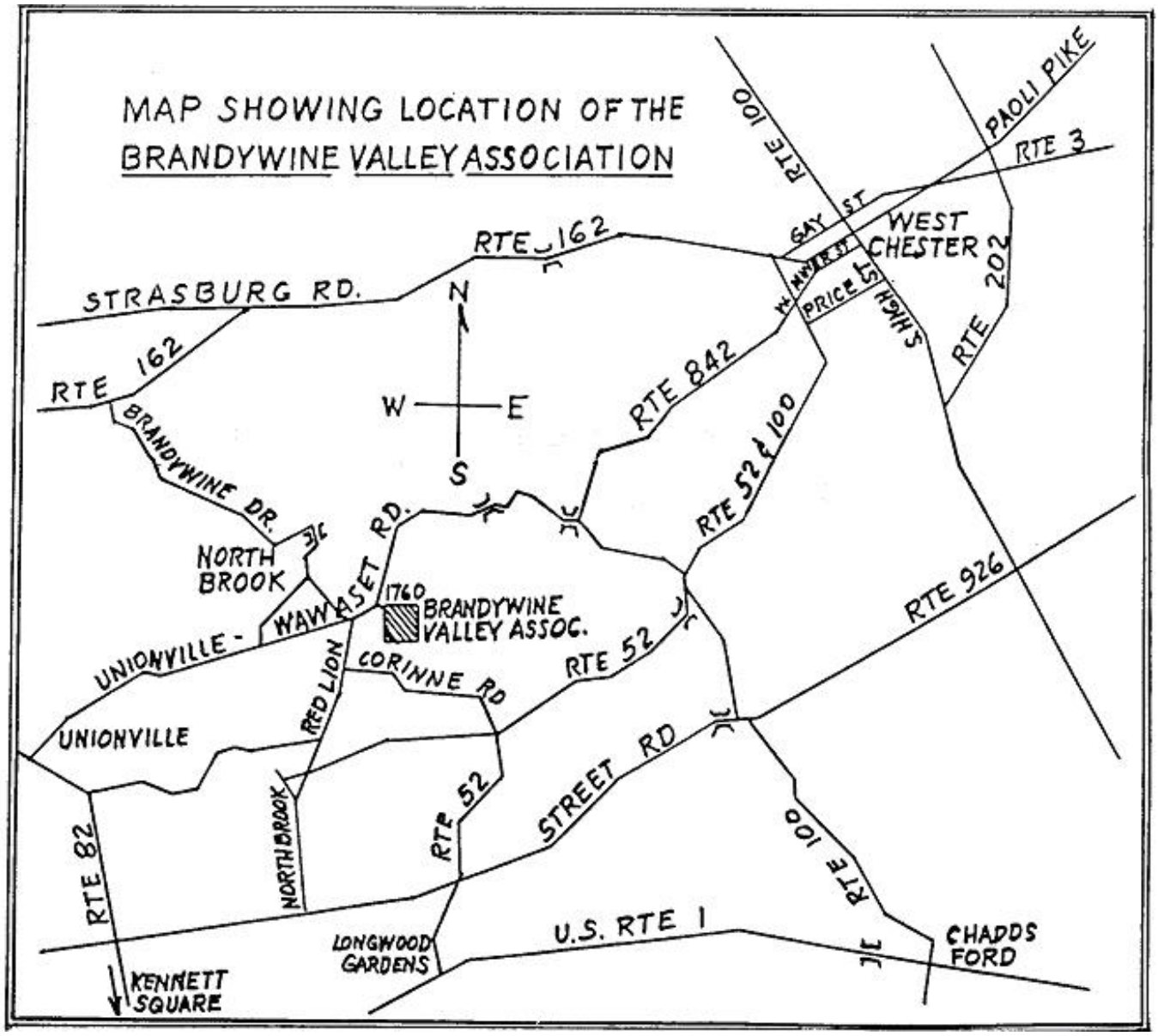
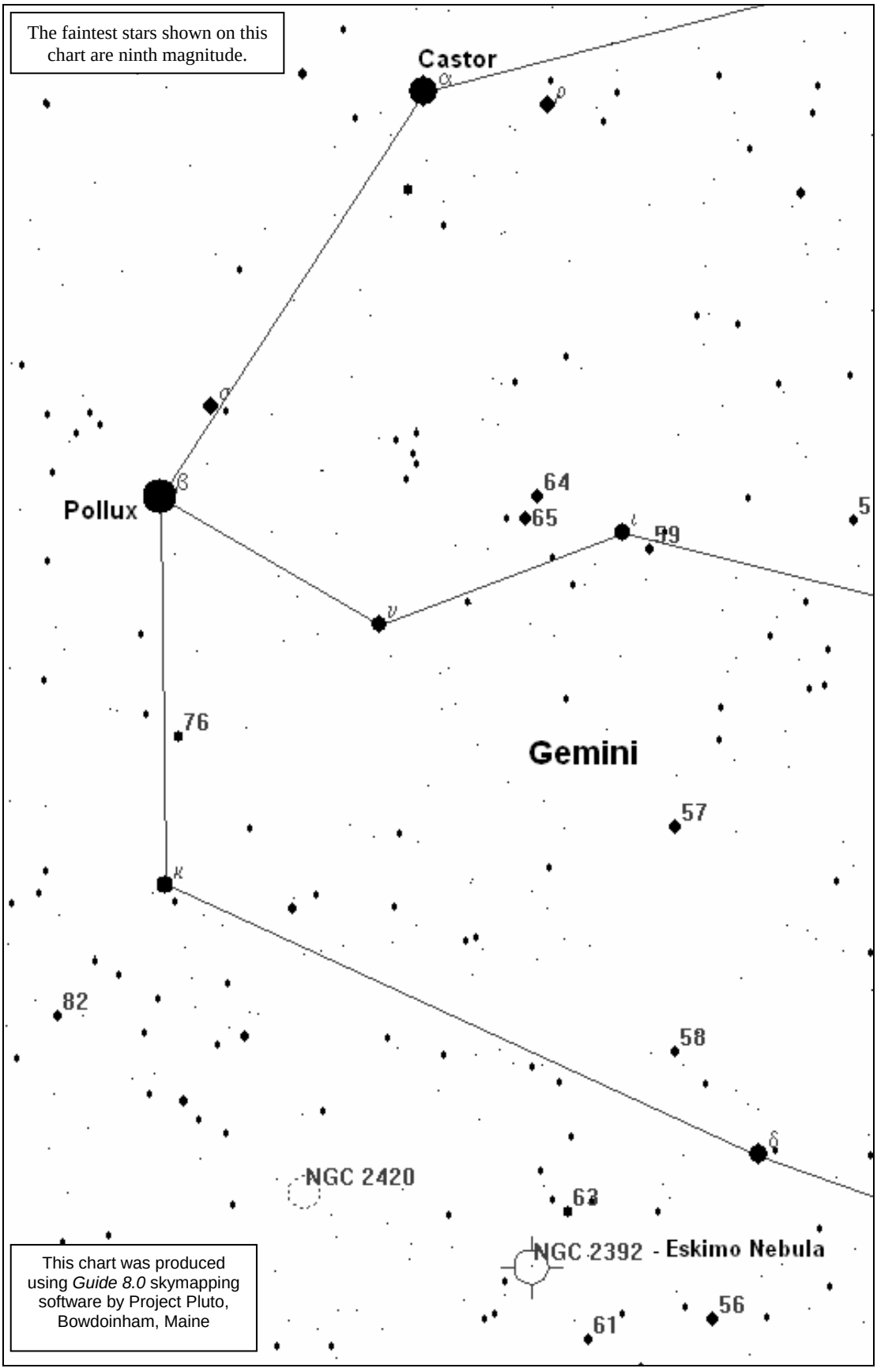


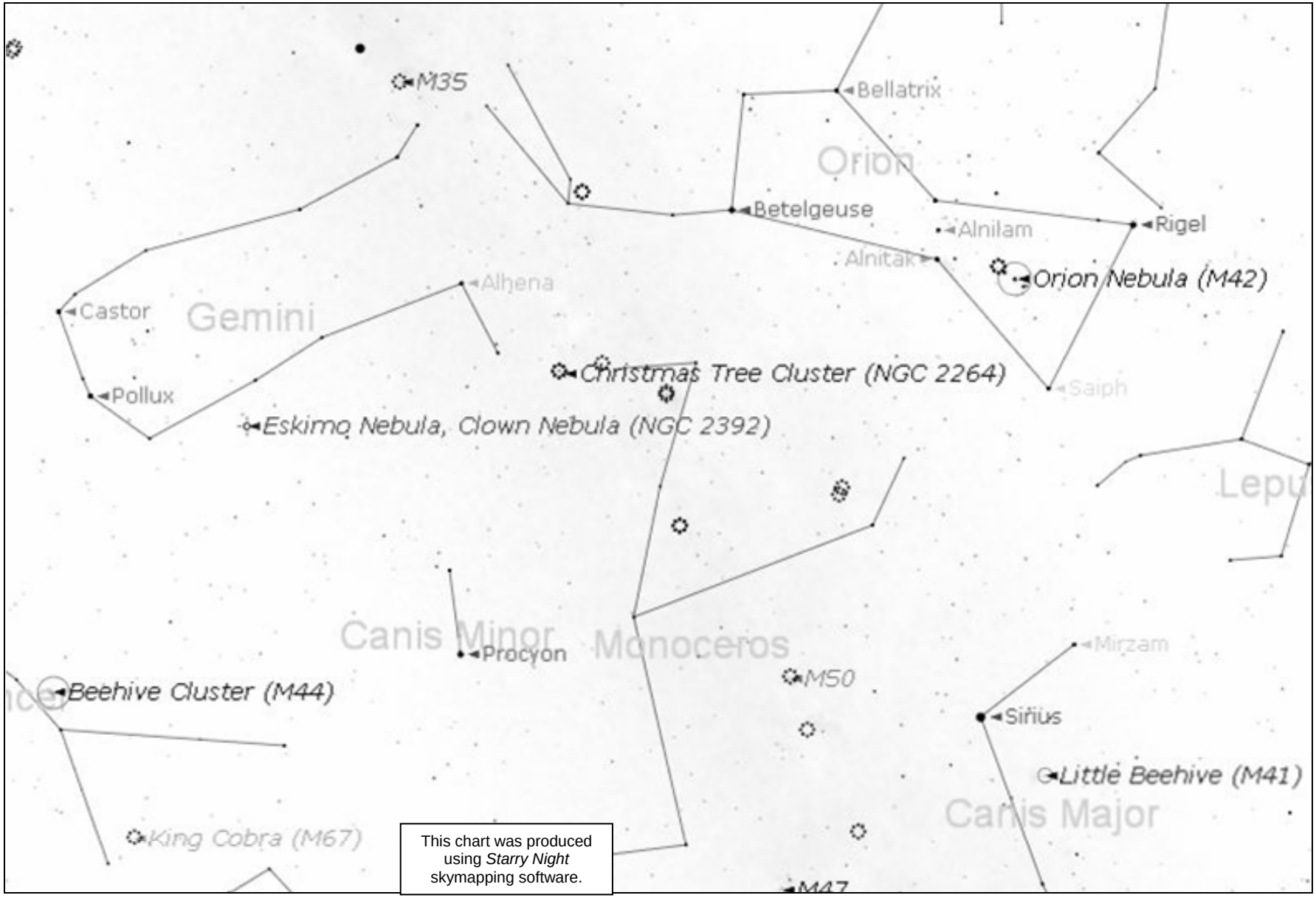
To get to the Myrick Conservation Center of the Brandywine Valley Association from West Chester, go south on High Street in West Chester past the Courthouse. At the next traffic light, turn right on Miner Street, which is also PA Rt. 842. Follow Rt. 842 for about 6 miles. To get to the observing site 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).

Close-up finder chart for NGC 2392, the Eskimo Nebula in Gemini.

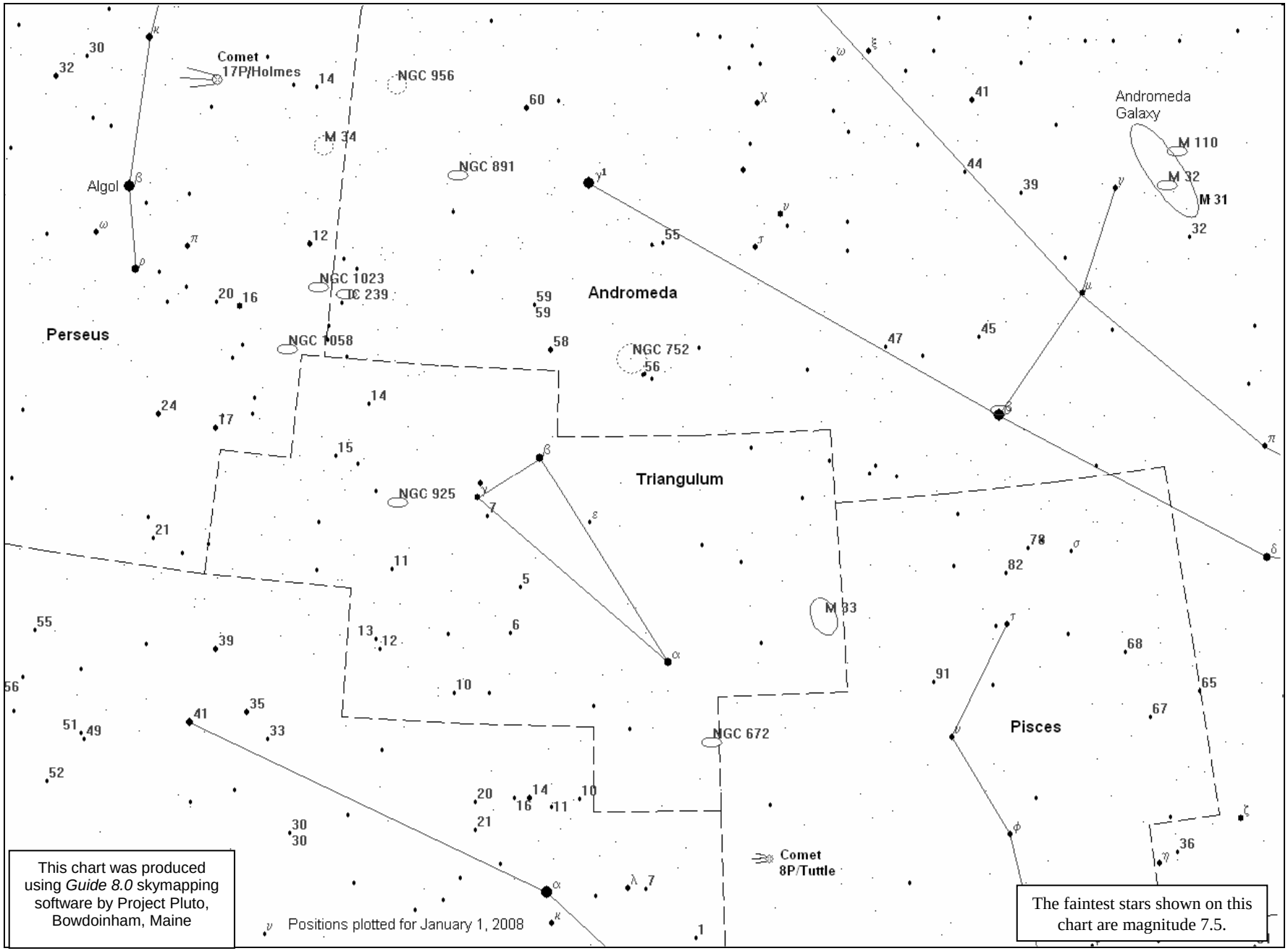


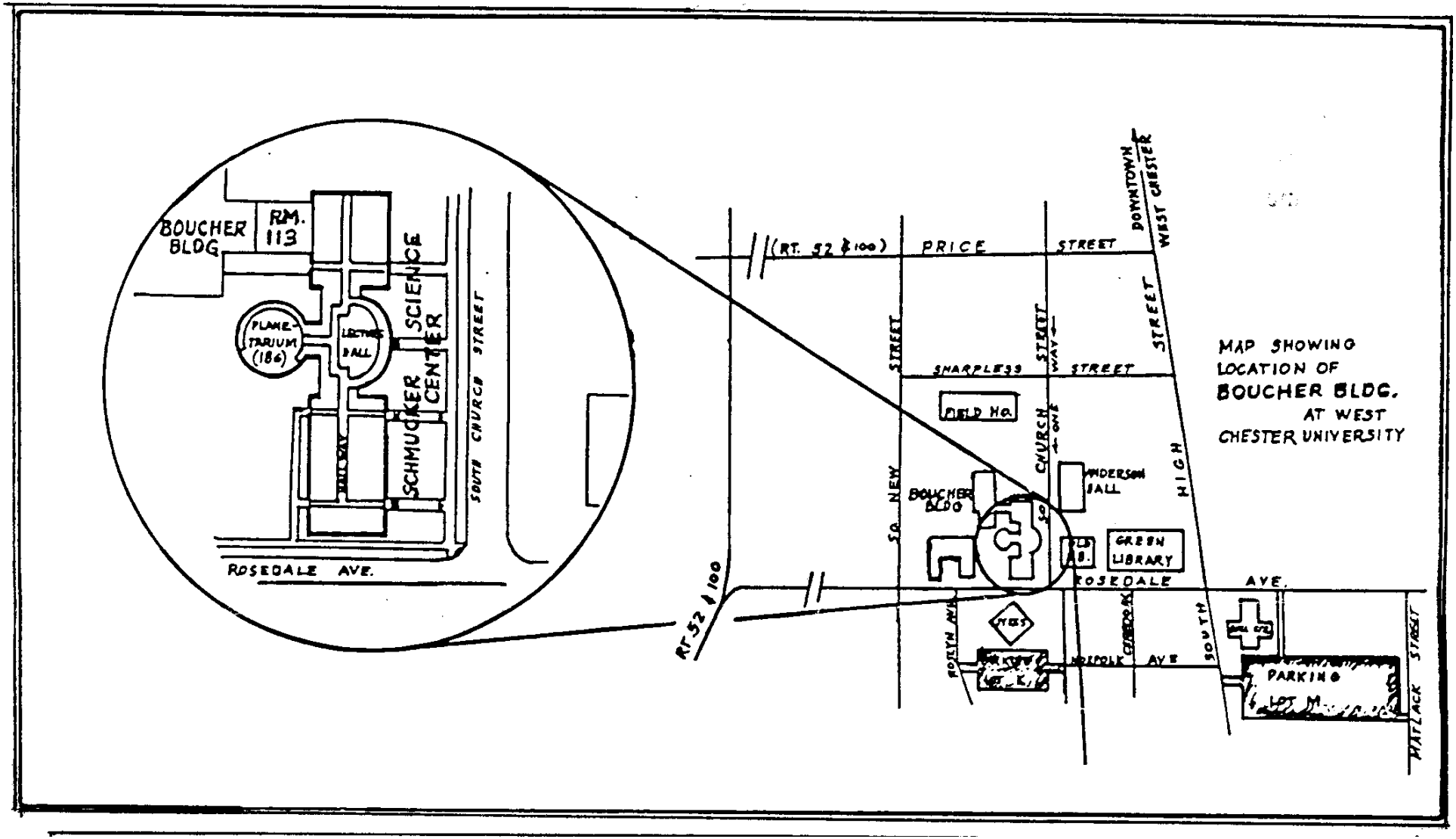
Finder chart for NGC 2392, the Eskimo Nebula in Gemini.

First find Castor and Pollux, the Gemini twins. They are near Orion, as shown below. From Pollux it is an easy star-hop to the Eskimo Nebula. The more detailed chart on page 12 (with more fainter stars shown) will help guide you from Pollux to NGC 2392.



Finder chart for Comets 17P/Holmes and 8P/Tuttle





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