Observations

A Monthly Publication Of The
CHESTER COUNTY ASTRONOMICAL SOCIETY

JANUARY 2004
(VOLUME 12, NO. 1)
Visit us online at www.ccas.us

In This Issue

Important January 2004 Dates

2 U.S. spacecraft *Stardust* rendezvous with Comet Wild 2, passing through the comet's tail and gathering comet dust in a special collector. The collector with the samples will be returned to Earth for study in 2006.

3 U.S. Mars Exploration Rover *Spirit* lands on Mars in Gusev Crater to begin studies of the planet's surface.

Here in Chester County, the Quadrantid meteor shower peaks in the early morning hours.

7 Full Moon.

13 CCAS Monthly Meeting in Room 113 at 7:30 p.m. EST in the Boucher Building at West Chester University, on South Church Street in West Chester (see map on page 15). Steve Limeburner is showing a 35-minute time lapse video of November's Lunar Eclipse that he made with a 4" scope and a Stellacam EX Video Camera. Any members who have photos, images, etc. of this lunar eclipse or others are welcome to share them at January's meeting.

14 Last Quarter Moon

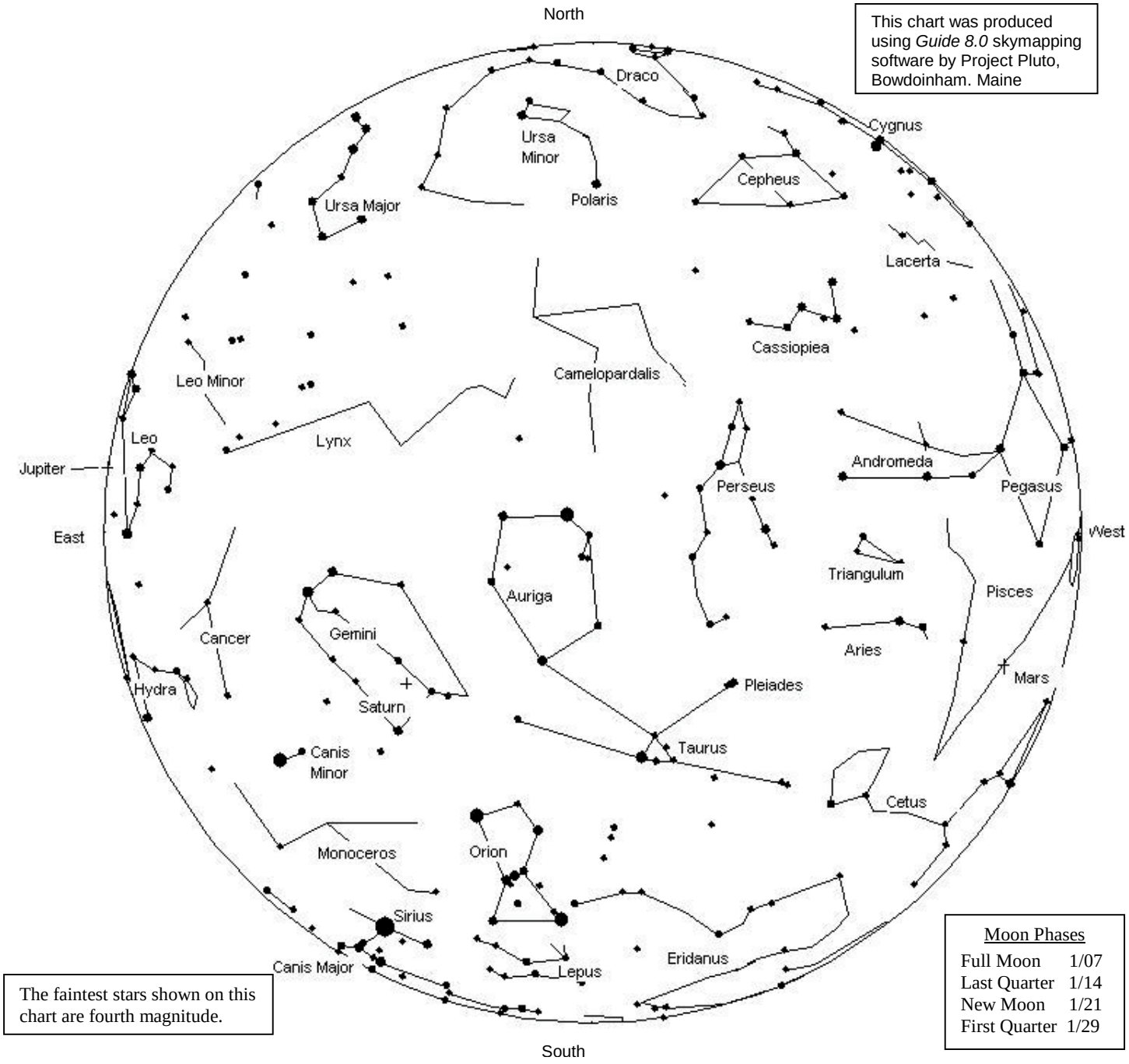
17 Mercury at greatest western elongation from the Sun. Meaning: this is a good morning to get up before the Sun if you want to see Mercury.

21 New Moon

23/24 CCAS Observing session at Myrick Conservation Center (BVA), starts at sunset.

25 US Mars Exploration Rover *Opportunity* lands on Mars in Meridiani Planum to begin studies of the planet's surface.

29 First Quarter Moon



The sky over Chester County
January 15, 2004 at 9:00 p.m. EST

The Planets

Mercury is in the morning sky, low in the southeast about 30-45 minutes before sunrise.

Venus is in the evening sky, setting about 2.5 hours or more after the Sun. You can't miss it, it's the brightest "star" in the sky after dark until about 7:30 p.m. or so when it sets.

Mars is in the evening sky, in Pisces.

Jupiter is rising earlier each night, but is still best seen in the early morning hours.

Saturn is now rising in the northeast as the Sun sets in the southwest. The rings are nicely tipped for good viewing, and as a matter of fact, this year is one of the best years to see the rings!

Uranus is in the evening sky in Aquarius. On January 14, Uranus will be about 1° north of Venus.

Neptune is too close to the Sun to find this month.

Pluto is also too close to the Sun to see it in January.

CCAS Education Committee Meeting

Kathy Buczynski has requested that the members of the Education Committee gather at the January Society meeting, after the presentation. This brief meeting is to finalize the schedule and details of the Introductory Astronomy Class, and to consider ideas for advertising.

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CCAS Introductory Astronomy Class

The Education Committee of the CCAS is offering a class intended to introduce people to basic astronomy. This series of eight classes will be held on the first and third Tuesdays of each month, starting at 7:00 p.m. and ending at 8:00 p.m. These are the dates on which classes will be held:

February 3	Spaceship Earth
February 17	The Other Kids on the Block
March 2	Planispheres/Star Charts
March 16	Stars by Design: Constellations
April 6	The Secret Life of Stars
April 20	Planetarium Field Trip (WCU)
May 4	The Moon
May 18	Telescopes, Binoculars and Mounts

The classes will be held at the University of Pennsylvania's Flower and Cook Observatory in Willistown Township. The FCO is located just a few miles south of Malvern. It is located near the intersection of Warren Avenue and Providence Road, just west of Warren Avenue on Providence Road.

The cost for non-members is $20.00 per person, and $30.00 per family (with the same address). **For current CCAS members, the classes are free!** Space is limited to just 40 people, however, so call Kathy Buczynski to reserve your space **now** (610-436-0821). Also, please call Kathy if you'd like to help at the classes. We have all the instructors lined up, but we can always use help with registration, setup/takedown, and (if it's clear) telescopes and expertise in pointing out constellations when we go outside.

Another way you can help is to make copies of the advertising poster included on a later page in this newsletter. Pass them out to friends, family, and neighbors. Hang them up on "community bulletin boards" at work, church, school, and other public places like libraries. Ask stores if they will allow you to display one somewhere in their store. Help us get the word out about this enjoyable and educational opportunity. Thanks!

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Goldaders Report Supernova Sighting

Members Jeff and Deb Goldader have reported a supernova first sighted here in Chester County! They made this wonderful observation on Thanksgiving morning at about 10:12 a.m. EST (15:12 UT) on the grounds of Paoli Memorial Hospital. They have given the name "Adele Maria Goldader" to the star, located at Right Ascension 7 lbs. 14 ounces, Declination 20 inches. Deb and Adele are doing well.

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Melinda O'Rourke Wins Book Drawing

At the end of our autumn class *Backyard Observing*, Melinda O'Rourke won the drawing for the excellent beginner's book *Turn Left at Orion*. Here we see instructor Ed Lurcott and Education Chair Kathy Buczynski presenting the book to Melinda (in center). Congratulations Melinda!

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Treasurer's Report by Bob Popovich

November 2003 Financial Summary

Beginning Balance	$1,145
Deposits	192
Disbursements	96
Ending Balance	$1,241

Membership Renewals Due

01/2004:	Kovacs
02/2004:	Carlucci
	Deeney
	Ehrgott
	Farrelly
	La Para
	Marcelli
	Picklo-Smith & Family
	Rahling
	Thomson
03/2004:	Grey
	Harmstead

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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 a later page in this newsletter.

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Calendar Notes

February 3, 2004 (Tuesday)	Introductory Astronomy Class Location: Flower & Cook Observatory 7:00 p.m. EST
February 10, 2004 (Tuesday)	CCAS Meeting Location: West Chester University 7:30 p.m. EST
February 17, 2004 (Tuesday)	Introductory Astronomy Class Location: Flower & Cook Observatory 7:00 p.m. EST
February 20/21, 2004 (Friday/Saturday)	CCAS Observing Session Location: BVA sunset
March 2, 2004 (Tuesday)	Introductory Astronomy Class Location: Flower & Cook Observatory 7:00 p.m. EST
March 9, 2004 (Tuesday)	CCAS Meeting Location: West Chester University 7:30 p.m. EST
March 16, 2004 (Tuesday)	Introductory Astronomy Class Location: Flower & Cook Observatory 7:00 p.m. EST
March 19/20, 2004 (Friday/Saturday)	CCAS Observing Session Location: BVA sunset
April 4, 2004 (Sunday)	Daylight Savings Time begins 2:00 a.m. EST (= 3:00 a.m. EDT)
April 6, 2004 (Tuesday)	Introductory Astronomy Class Location: Flower & Cook Observatory 7:00 p.m. EDT
April 13, 2004 (Tuesday)	CCAS Meeting Location: West Chester University 7:30 p.m. EDT
April 16/17, 2004 (Friday/Saturday)	CCAS Observing Session Location: BVA sunset
April 20, 2004 (Tuesday)	Introductory Astronomy Class Location: Flower & Cook Observatory 7:00 p.m. EDT
April 24, 2004 (Saturday)	**National Astronomy Day**
May 4, 2004 (Tuesday)	Introductory Astronomy Class Location: Flower & Cook Observatory 7:00 p.m. EDT
May 11, 2004 (Tuesday)	CCAS Meeting Location: West Chester University 7:30 p.m. EDT
May 18, 2004 (Tuesday)	Introductory Astronomy Class Location: Flower & Cook Observatory 7:00 p.m. EDT
May 21/22, 2004 (Friday/Saturday)	CCAS Observing Session Location: BVA sunset

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CCAS January Observing Session

The next CCAS Observing Session will be at the Brandywine Valley Association's Myrick Conservancy Center (see map on a later page) on Friday January 23, 2004 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 Saturday January 24, 2004. 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 always free of charge. Remember to dress warmly!

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CCAS Meetings

Any member's ideas for programs for the Society's meetings from March to May 2004 (and beyond) are welcome. Contact Steve Limeburner via e-mail at stevelime@hotmail.com or sboy_44@hotmail.com. Steve's phone number is 610-353-3986.

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Newsletter Deadlines

These are the deadlines for submitting material for publication in the newsletter, through the December 2004 issue.

Issue	Deadline
February 2004	01/28/2004
March 2004	02/25/2004
April 2004	03/26/2004
May 2004	04/28/2004
June 2004	05/26/2004
July 2004	06/25/2004
August 2004	07/28/2004
September 2004	08/27/2004
October 2004	09/27/2004
November 2004	10/27/2004
December 2004	11/26/2004

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For Sale: *Skywatch '04*

The *SkyWatch '04* annual magazine from Sky Publishing, which includes September 2003 to December 2004 monthly star charts, excellent articles about telescopes, 2004 astronomical highlights, astrophotography and much, much more, is now available to CCAS members at a reduced rate. Newsstand price: $6.99 plus tax. Buy it here for ONLY $6.00—WHILE SUPPLIES LAST (the proceeds, which aren't much, benefit the Education Fund of your Society). Call Kathy Buczynski @ 610-436-0821 to reserve your copy.

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CCAS Website Change

The Society's Website has moved to a new address, www.ccas.us; although the old one will work for a while yet please use this new one. Many many thanks to member Lisa Compton for finding us a better deal on site hosting, and for implementing this change.

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So Little Time, So Many Galaxies

By Dr. Tony Phillips

Fourteen billion years ago, just after the Big Bang, the universe was an expanding fireball, white hot and nearly uniform. All of space was filled with elementary particles and radiation. "Soupy" is how some cosmologists describe it.

Today the universe is completely different. It's still expanding—even accelerating—but there the resemblance ends. The universe we live in now is "lumpy." Great cold voids are sprinkled with glowing galaxies. In galaxies, there are stars. Around stars, there are planets. On one planet, at least, there is life.

How we got from there to here is a mystery.

Finding out the answers to that mystery is the goal of the Galaxy Evolution Explorer, "GALEX" for short, a small NASA spacecraft launched into Earth orbit April 28, 2003. GALEX carries an ultraviolet (UV) telescope for studying galaxies as far away as 10 billion light-years.

"GALEX is a time machine," says astronomer Peter Friedman of Caltech. Because light takes time to travel from place to place, pictures of distant galaxies reveal them as they were in the past. "GALEX is investigating the evolution of galaxies over 80% of the history of our universe."

The Hubble Space Telescope can see faraway galaxies, too, but GALEX has an advantage: While Hubble looks in great detail at very small regions of the sky, GALEX is surveying the entire sky, cataloging millions of galaxies during its 2-year mission.

GALEX is a UV mission for a reason. Friedman explains: "UV radiation is a telltale sign of star birth." Stars are born when knots of gas condense in interstellar clouds. The ones we see best are the big ones—massive stars that burn hot and emit lots of UV radiation. "These stars are short-lived, so they trace recent star formation."

Understanding star formation is crucial to studies of galaxy evolution. When galaxies collide, star formation surges. When galaxies run out of interstellar gas, star formation wanes. In galaxies like the Milky Way, spiral arms are outlined by star-forming clouds. The shapes of galaxies, their history and fate: they're all connected by star formation.

Even life hinges on star formation, because stars make heavy elements for planets and organic molecules.

"Our measurements of UV radiation will tell us both the rate at which stars are forming in galaxies and the distances of the galaxies," says Friedman.

How did we get here? GALEX will show the way.

Find out more about GALEX at www.galex.caltech.edu. For children, visit The Space Place at spaceplace.nasa.gov/galex_make1.htm and make a beautiful galactic mobile while learning about some of the different shapes galaxies can take.

This image of Messier 101 (M101), a.k.a. the "Pinwheel Galaxy," was taken in two orbits of GALEX on June 20, 2003. M101 is 20 million light years away.

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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Astronomical League Observing Awards: 2

By Jim Anderson

Last month I started a series of articles to describe the nineteen observing programs offered by the Astronomical League that you can work on. It turns out I was wrong, there are now 22 programs. Our AL Regional Chair John Goss reminded me of the new Comet Observers Club. This program I would categorize as an Intermediate Level program. Then you may have noticed in the latest *Reflector* from the national AL the announcements of two more observing awards I would place at the Novice Level. There's the Constellation Hunter Club, for making naked eye observations of all the constellations visible from your hemisphere (we're in the Northern Hemisphere, of course). And there's now a Sky Puppies Club, the first AL observing program designed specifically for children.

In the December 2003 *Observations* I gave a brief overview of how the programs work. If you missed that and would like a copy of that issue, let me know and I'll send you a copy (Jim Anderson at 610-857-4751 or e-mail at newsletter@ccas.us). You can also get fuller details of the programs from the Astronomical League's Website http://www.astroleague.org,

or by buying a copy of the booklet for the observing program from the AL's store. Details on the store and prices are in *The Reflector*, the AL's quarterly publication which all CCAS members receive as part of their CCAS membership.

The Universe Sampler Club

I'll describe the Universe Sampler Club this month. The Universe Sampler Club is intended to introduce newcomers to astronomy. It has a program booklet entitled "*Universe Sampler: A Journey Through the Universe for the Beginner*," available from the AL's store for $8.00 postpaid. In order to

work on this program you must get the booklet; this particular program does not have its list of requirements posted on the AL Website. They do, however, show you what the award's lapel pin looks like:

The pin has a nice star cluster in the center, a couple of double stars and single stars, the Moon, a planet (Saturn), a comet, and a galaxy on it. That shows the scope of the program: to introduce you to the many types of astronomical objects there are to look and wonder at in our Universe.

This award can be earned in one of two ways: working as a naked-eye observer only, or as a telescopic observer. If you decide to work on it without optical aid, you work on Object List I and Object List III. If you decide to use a telescope, you work on Object List I and Object List II. List I (required for both types of observers) involves finding bright stars and constellations, estimating angular distances in the sky (using your hand, as we teach it in our CCAS Astronomy classes), observing variable stars, meteors, and the Sun (using a safe but simple and cheap pin-hole "camera"). List II requires observations of three planets (your choice, but you can't include Earth), the Moon, a comet, and a list of deep-sky objects ("deep-sky" means "outside our solar system"). Use of "GoTo" computers and similar high-tech finding aids is not permitted in this program. List III also includes three planets, one comet, some Moon features, and a list of deep-sky objects. The differences between List II and List III are the specific objects you have to find, and how to document what you saw.

I've already acquired a copy of this program's booklet and started working on it myself; I've decided to do the observations without optical aid. I plan to attend the January CCAS meeting; I'll bring the booklet with me and you can look it over (no, you can't copy it, that is a crime). We can also chat about working on the program if you're interested.

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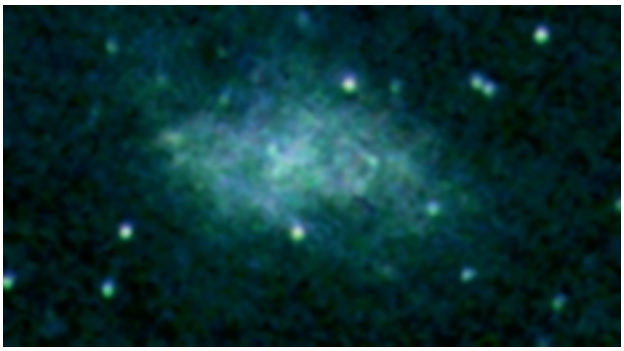
Members Start CCD Imaging

Steve Limeburner and Vic Carlucci have started working together to do some CCD imaging, and they've sent me some of their initial efforts (see images below). Vic writes in an e-mail: "Steve Limeburner and I have been doing some CCD imaging. Here are our first attempts for consideration for the *Observations* January issue.

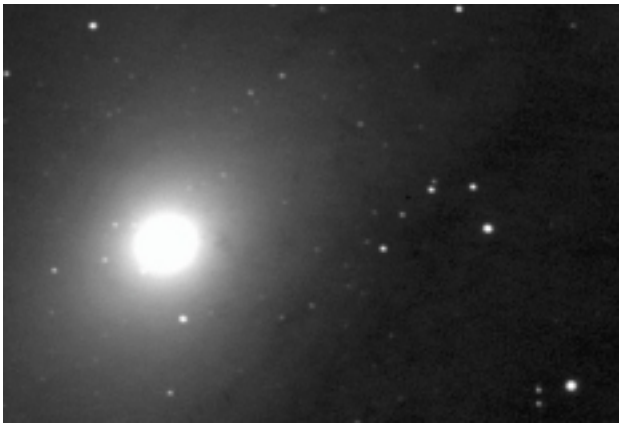
"These images were done using Steve's SBIG ST-6 CCD camera with my C-14 SCT using a F/5 focal reducer at prime focus at my StarCatcher Observatory. They were taken on December 26 and 27 between 9:00PM and 12:30 AM. Each frame was exposed for 20 seconds in RGB light. M31 was taken as a black and white frame.

"These pictures represent a begging in our learning curve; other than some color enhancement these have little image processing done on them. Any one from the CCAS who wishes to join us just E-mail or call and I'll get in touch with times. Thanks Vic"

You can reach Vic by phone at 610-458-7457 or by e-mail at pr@ccas.us



M1, the Crab Nebula in Taurus



M31, the Andromeda Galaxy in Andromeda

M103, Open Star Cluster in Cassiopeia

M42, the Great Orion Nebula in Orion

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Comet Alert

There is a comet in our evening sky, moving through the constellations of Pisces and Pegasus during the months of January through April: Comet C/2002 T7 (LINEAR). It was discovered by an automated sky search program called LINEAR that is specifically looking for dangerous Earth-orbit-crossing asteroids. That's why it's not named after a specific person or persons, like Comet Hale-Bopp. In January it is expected to be around magnitudes 8.3-7.5, getting brighter as the month progresses but remaining a binocular or telescopic object. By March, however, it may well brighten to naked-eye visibility, possibly to magnitude 1 brightness in April. Comet brightness "guesstimates" like these are always very "iffy"; however, this is a comet that most of us should be able to find with telescopes and binoculars, even if it never gets bright enough to spot without optical aid. I've included a finder chart on page 16. Notice that by the beginning of April the comet is getting pretty close to the Sun. The best time to look for it, especially with the naked eye, may be in March. You can start looking for it now with telescopes and binoculars. Don't forget, if you find it you can count it toward the Universe Sampler Observing Program, or the Comet Observers Program. If you image it, you can send me a copy to include in *Observations*.

If you'd like to enter its orbital elements into your favorite skymapping program, here they are (from MPC 49591, see URL listed below).

Date of perihelion: 2004 Apr 23.0604

Perihelion Distance (q): 0.614593

Eccentricity (e): 1.000519

Argument of Perihelion (ω): 157.7366

Longitude of Ascending Node (Ω): 94.8589

Inclination (i): 160.5833

You can get more information on its location, including a list of dates and the comet's coordinates on those dates along with brightness estimates, at

http://cfa-www.harvard.edu/iau/Ephemerides/Comets/2002T7.html

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Report on New Observing Site

By Vic Carlucci

At the November meeting we talked about trying a new observing site recommended by Karl Krasley, president of the ChesMont Astronomical Society. Weather permitting we talked about going the following weekend. Weather did not permit, however, on that following weekend.

Mike Turco and I took the easy two-hour drive on Saturday November 29 to try this observing site near Harrisburg. We arrived at around 6:00 PM on top of the mountain, where we discovered our VP Steve Limeburner already observing.

How dark is it at this site? About magnitude 6.2+ according to Karl Krasley, from Chesmont Astronomy Club. Stars are easily visible low in the sky in all directions. Early on, though, low in the sky toward the east it seemed brighter than along the other horizons. But it got better as the evening moved on. Steve got a great filter-enhanced view of the Veil Nebula with his 10" Dob. Mike's AP 6" refractor gave us the best view of Saturn any of us had ever seen at 300+ power. Saturn was about twenty-five degrees above the horizon at the time, which attested to the transparency on top of the mountain. This view alone made the drive worth while.

Is it worth the drive? You bet, however, I would recommend staying at least two nights.

Here are the directions.

It really is an easy drive, about 2 hours. Just go West on I-76 (the Pennsylvania Turnpike) to the exit for I-81 South. Then go about eight (8) miles to Route 233 South toward Pine Grove Furnace State Park (9 miles). You come to a stop sign, turn right, staying on Rt. 233 for another 150 feet. Turn left on Benderville Road. Proceed up the mountain for about 3 miles. The parking lot (600 ft. by 200 ft.) is to the right, and set back off the road. It also has a nice clean bathroom.

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Have you looked at Saturn this month?

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Astronomus

"What Time Is It?"

By Bob Popovich

Do you have the time?… What time is it?… When will such-and-such begin?…When will it end?

How often do we ask these simple questions in the course of an average day? But the simplicity of the question (and its subsequent answer) belies the complex history of the development of time keeping on Earth. Throughout the world, cultures evolved their own ways of keeping time and followed these ways for centuries. In fact, it was little more than 120 years ago that these systems came together as one. Yet even today there are parts of the world that keep a local time that's out of step with convention.

Rather than trying to tackle such an enormous topic here, let's see how the ancients told time at night.

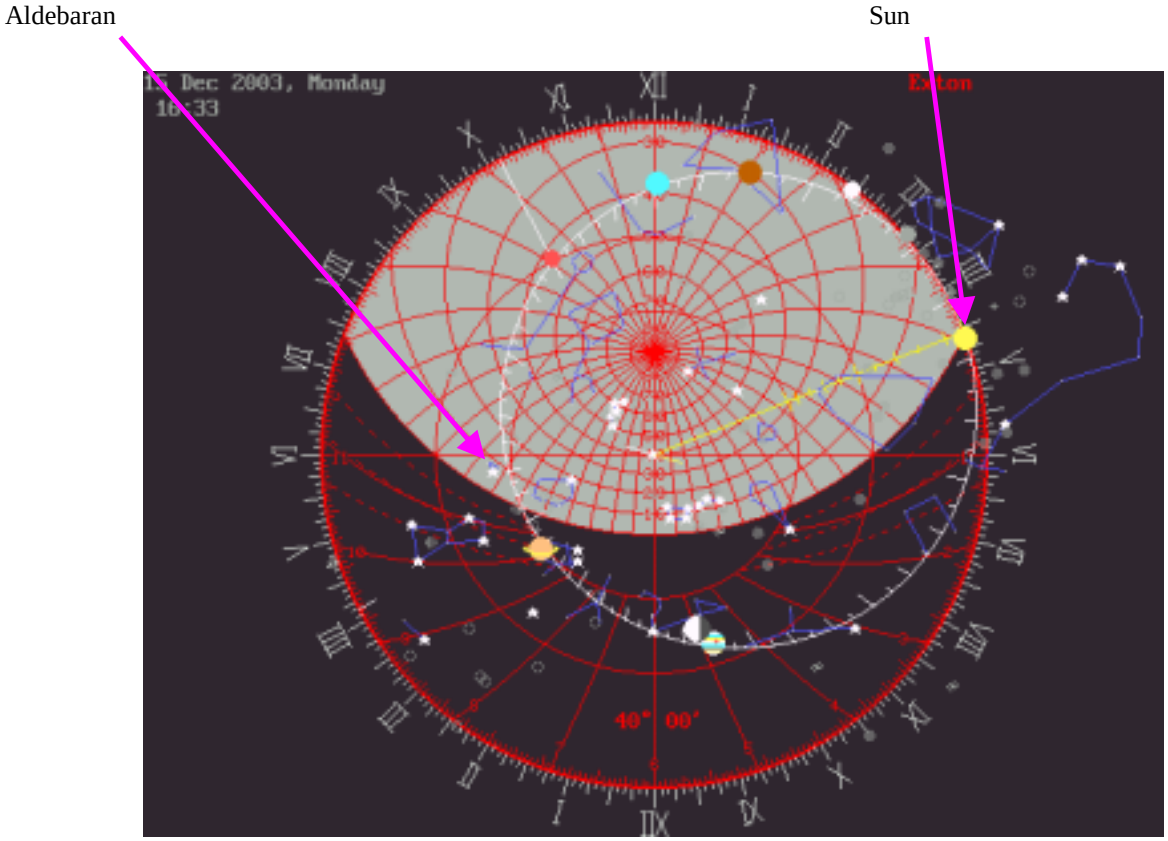
On sunny days, the idea of keeping track of the general progress of the day was simple enough—when the sun was half way up in the east the day was ¼ over. When it was at its highest point in the sky, the day was half over, and so on. On a cloudy day, it was a bit more problematic but still not a major concern for people who usually worked until dusk made its presence known or until they grew tired. But how was time keeping accomplished at night? Did it matter to keep track of the passing of a night? Well, it did.

Though activity at night in days of old was much more restricted than today, there were those who worked at night. And there were those who studied the night skies as well. For watchmen of the night, knowing when their shift was ended was important. For those who studied the night, be they magi or scientists, an understanding of time was simply a matter of learning.

It appears that the ability to tell time at night has been around for a long while. Even the New Testament references it. The 14th chapter of the Gospel of Matthew described Jesus' walking on the water as having occurred during the fourth watch of the night. Just how did they make such a measurement? The fact that it was included in the Gospel tells us that the concept was common enough to be understood by the average first century person living in that part of the world. How did they do it? The moon was excellent at tracking calendar time (months and years), but was not reliable for smaller increments like fractions of a single night. So what's left? Yes, you got it—they tracked the passage of the night by sidereal (star) time.

Fortunately for us, there exists a device by which we can better understand how this was accomplished. A clever device that allows its user to answer numerous astronomical and chronological questions—the astrolabe.

In the first illustration below the astrolabe is set at sunset on the 15th of December at 40° north latitude. The area shaded in gray represents the visible sky at dusk. In subsequent illustrations the visible sky will be black—representing full darkness. The arced gridlines mark altitude and azimuth—similar to right ascension and declination. The white circle with the hash marks is the ecliptic. Notice that on the ecliptic are representations of the sun, moon and the planets (except Pluto). East is to the left and north is at the bottom.

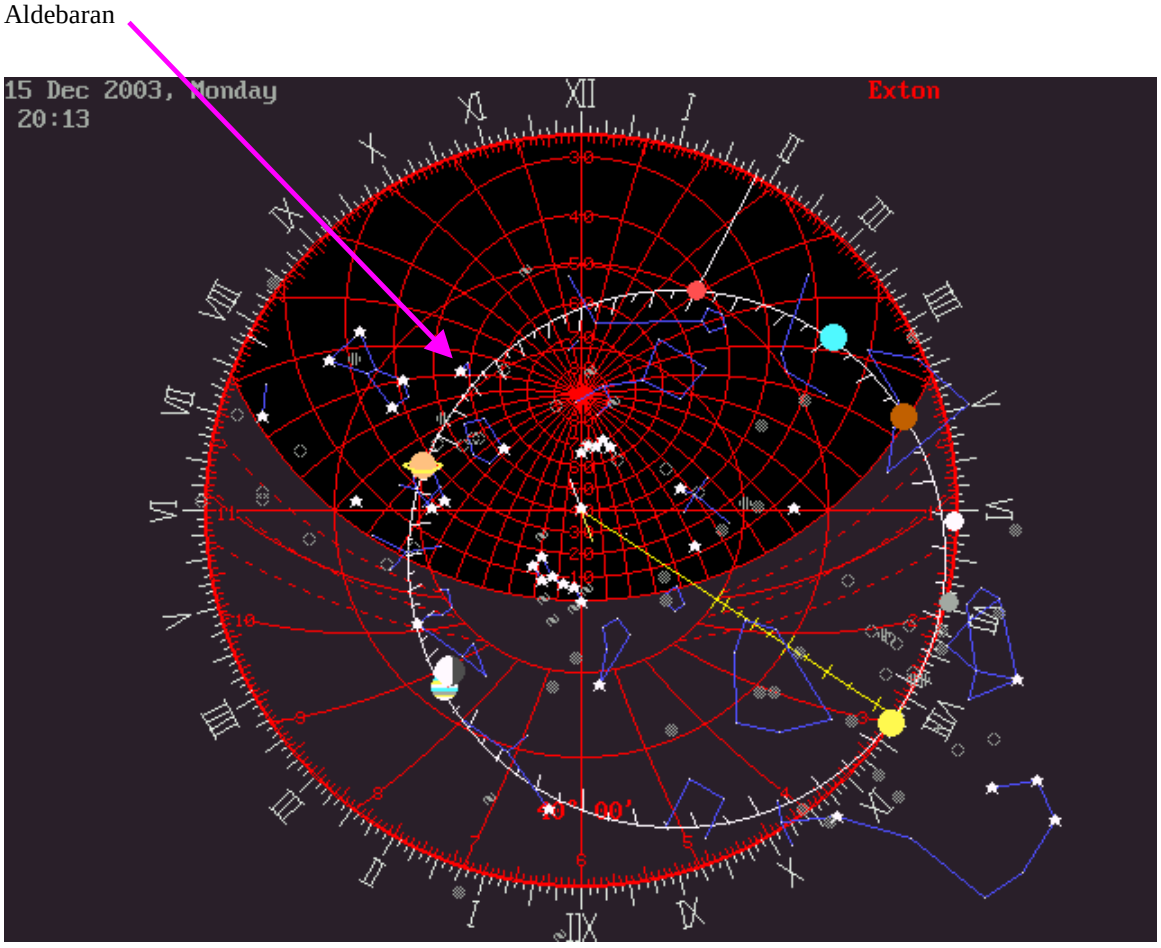


The sun is at the point where the visible sky meets the ground. In other words, the horizon (0° altitude). Selecting Aldebaran as our sidereal guide for the night, we note that Aldebaran is rising opposite the sun. Note also the bottom section of the astrolabe (the part beneath the visible sky) has arced red lines running inward from the edge of the instrument. These arcs are numbered 1 through 12. The ancients who developed the astrolabe had already settled upon the notion of a 12-hour day beginning at sunrise and a 12-hour night beginning at sunset. This is an important facet of early time telling. Day and night were divided into equal units though from month to month the units were of different lengths of time; that is, different as we measure it today. In other words, an 8-hour summer night was divided into 12 equal units just as was a 14-hour winter night. It's just that the summer nighttime "hour" was something less than 60 minutes as we measure it, while a winter nighttime "hour" was in excess of 60 minutes as we measure it.

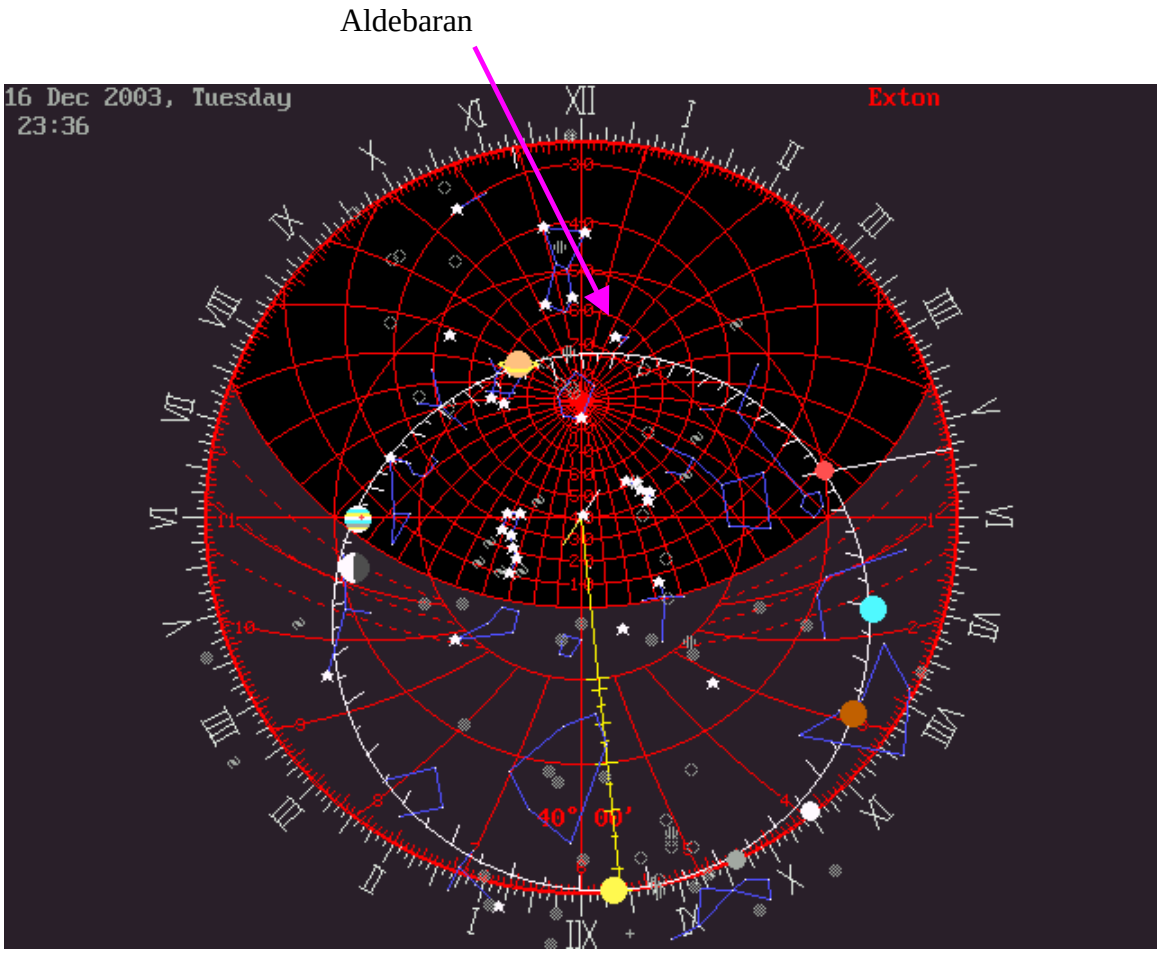
To us, this concept would be awkward at best. But for the people of bygone days, it was all right. They were comfortable with parsing the night out into easy fractions—one quarter, one half, and so on. Had there been labor unions in those days, they would have considered a 3-hour night shift a good deal in June and an unfair labor practice in January.

In the second illustration we see that by the time Aldebaran has reached about 45° altitude (or halfway to its culmination), we have reached the end of the 3rd hour (notice the position of the sun). This means that the night is ¼ over. Counting the altitude circles up from the horizon in increments of 10°, you'll see that Aldebaran is between the 4th and the 5th circle (i.e. between 40° and 50°). This is not an exact measurement, but it was relatively easy to do and everyone accepted it as the way to keep track of time at night.

Aldebaran



The third illustration (on the next page) shows Aldebaran at approximately its culmination with the sun nearing the end of the sixth hour. The night was just about half over. You get the idea.



With the number of relatively bright stars visible in an unpolluted sky, it was no problem for an average person to select a favorite star or two for telling the time at any point in the year.

Later on in history, placing marks along the edge of the astrolabe to denote the hours in a day made its time telling capabilities more exact. With my astrolabe, which incorporates modern features, I can usually come to within 15 minutes of the correct time. This calculation includes adjustments for longitude and the equation of time. But years ago minutes were not as much a concern as they are today. The drive for precision in tracking time was the domain of the scientist, not the watchmen.

How fascinating that even unschooled people of days gone by used sidereal motion in their daily lives. It seems that today we know more but comprehend less. Equally fascinating to me is how the astrolabe aids in the understanding of celestial mechanics. So, if you'll allow me, I'd like to delve into this a bit more next time when we'll look at the motion of **The Sky Gear**.

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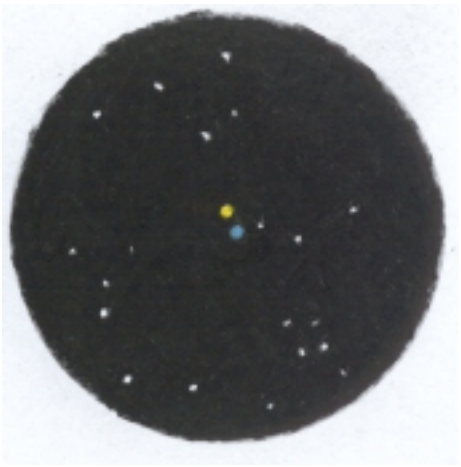
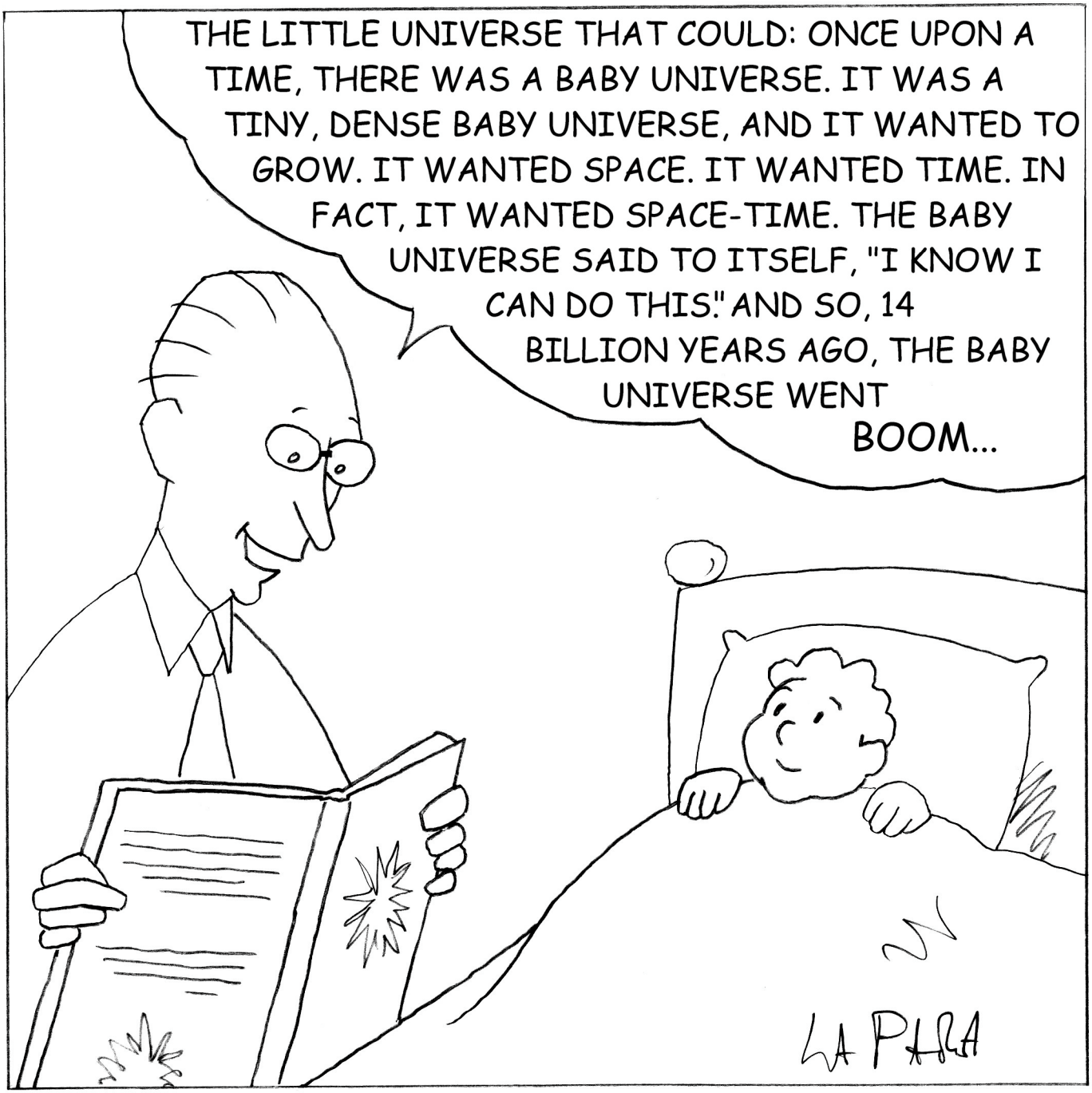


Double star 145 Canis Majoris as seen by Jim Anderson
Observation made with 10" f/6 Newtonian Reflector at 83x.
March 20, 2001 at 01:10 (UT)

Observing Notes: "**Beautiful** colorful binary star. Stars appear to be almost equal in magnitude. Primary was a strong, intense topaz yellow. Secondary was a strong sapphire blue. I think this pair is better than Albireo!" (comments as recorded at telescope)

Drawing note: used pastel pencils on paper (used very bright white ink-jet printer paper to preserve color purity). Black "sky" done with the black pastel pencil, leaving little white "holes" where the other stars were positioned on the original pencil sketch (which was done at telescope).



PROFESSOR DIMDORF READS A BEDTIME STORY

Cartoon by Nicholas La Para

★ ★

Introductory Astronomy Class

Flower & Cook Observatory

February 3
through
May 18, 2004

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

Cost

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

For ages 9 - 90

Location

University of Pennsylvania's
Flower & Cook Observatory

753 Providence Road
(near Warren Avenue)
Malvern, Pa.

Sponsored by the
Chester County
Astronomical Society

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

Price Includes

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

Learn:

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

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

Kathy Buczynski
610-436-0821

Note: Content of class sessions subject to change without notice

CCAS Information Directory

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, Bill O'Hara, to make arrangements to borrow one of the books in the CCAS lending library. Copies of the catalog are available at CCAS meetings. Bill's phone number is 610-696-1422.

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:

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

Get CCAS Newsletters via E-mail

You can receive the monthly newsletter by 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:

newsletter@ccas.us

CCAS A.L. Award Coordinators

These are the members to contact when you have completed your observing log for the Messier, Binocular Messier, Lunar, or Double Star Awards:

Messier (both): Frank Angelini
(610-873-7929)

Lunar: Ed Lurcott
(610-436-0387)

Double Star: Jim Anderson
(610-857-4751)

CCAS Purpose

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

CCAS Officers

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

President: Mike Turco
(610) 399-3423

Vice Pres: Steve Limeburner
(610) 353-3986

Treasurer: Bob Popovich
(610) 363-8242

Secretary: Caitlin Grey
(610) 918-9049

ALCor and Newsletter: Jim Anderson
(610) 857-4751

Librarian: William O'Hara
(610) 696-1422

Observing: Ed Lurcott
(610) 436-0387

Education: Kathy Buczynski
(610) 436-0821

Public Relations: Vic Carlucci
(610) 458-7457

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 date printed on the address label of this issue of *Observations*; "exp." appears in front of it, just after your name. If you are due to renew, you may send 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

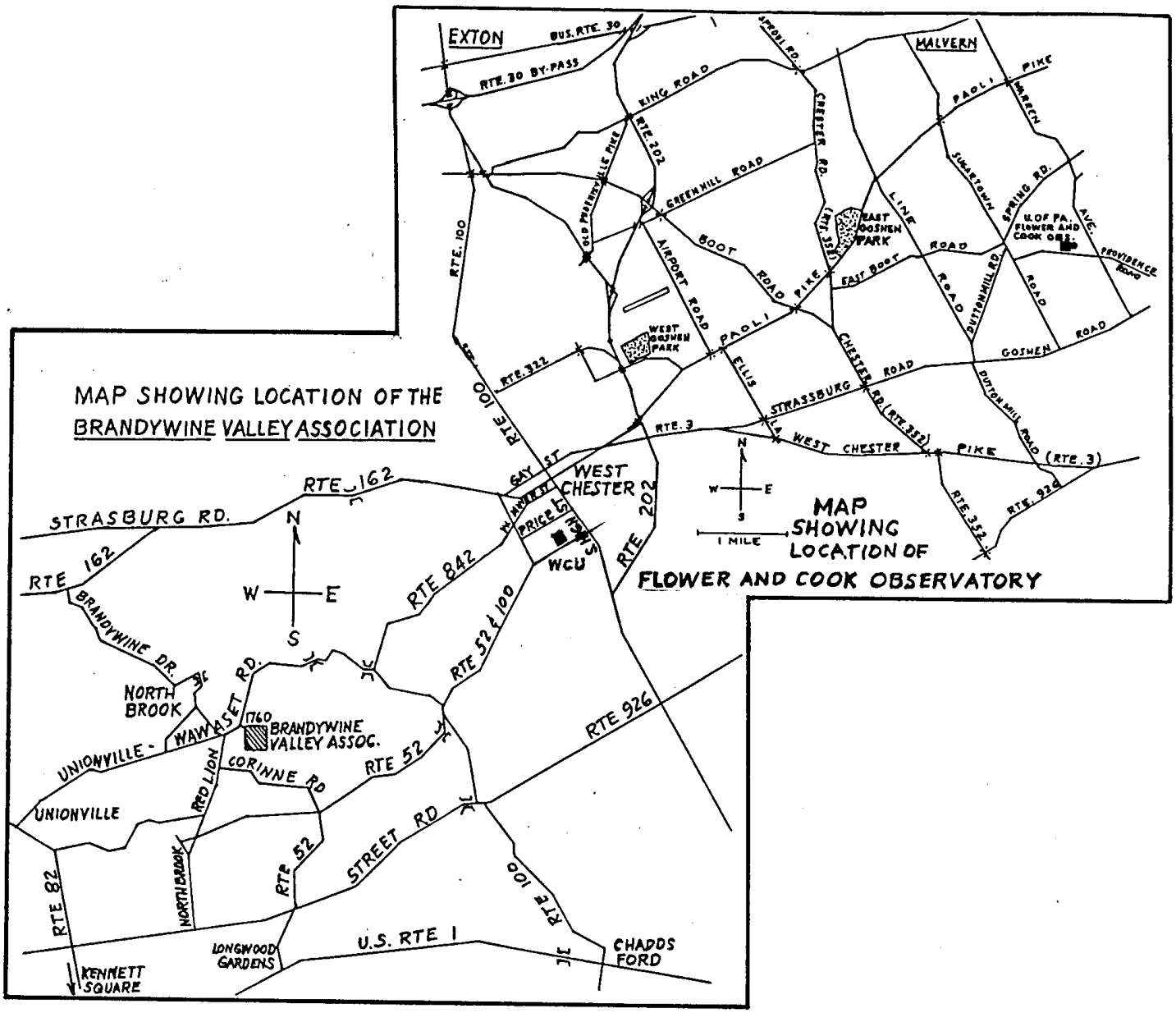
Subscriptions to this excellent periodical are available through the CCAS at a reduced price of **$29.95** which is much less than the newsstand price of $54.00, and also cheaper than individual subscriptions ($39.95)! Make out a check to the Chester County Astronomical Society, note that it's for *Sky & Telescope*, and mail to Bob Popovich. Or you can bring it to the next Society meeting and give it to Bob there. Buying a subscription this way also gets you a 10% discount on other Sky Publishing merchandise.

CCAS Website

Pete LaFrance is the Society's Webmaster. You can check our Website at:

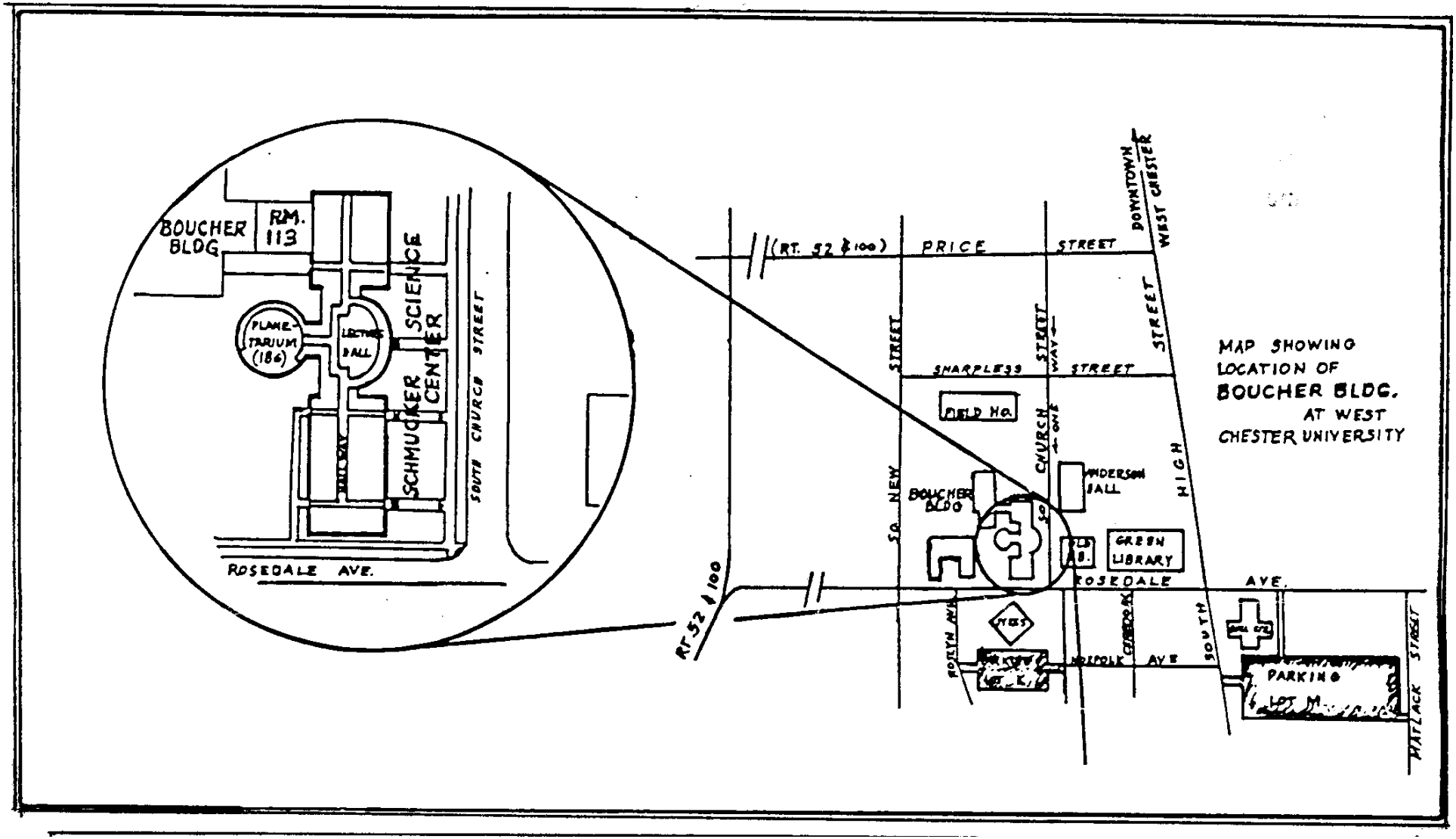
http://www.ccas.us/

Pete 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 Pete LaFrance (610-268-2616) or e-mail to **lafrance@kennett.net**

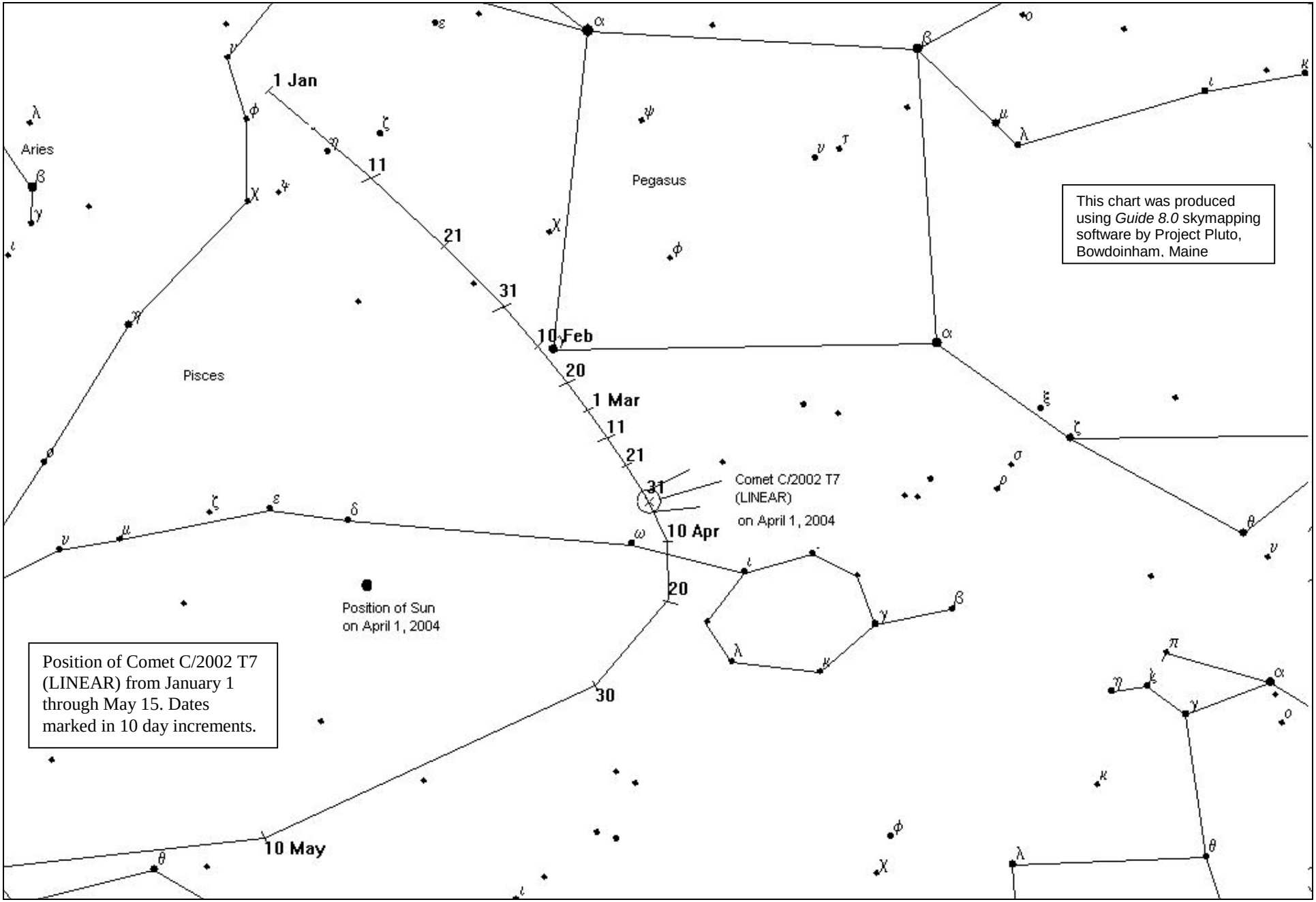


To get to the Myrick Conservation Center of the Brandywine Valley Association from West Chester, go south on High Street in West Chester past the Courthouse. At the next traffic light, turn right on Miner Street, which is also PA Rt. 842. Follow Rt. 842 for about 6 miles.

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).



Parking is available behind Sykes Student Center on the south side of Rosedale Avenue (Parking Lot K), and behind the Bull Center at the corner of Rosedale Avenue and South High Street (Parking Lot M). If you arrive early enough, you may be able to get an on-street parking space along South Church Street, or along Rosedale Avenue. You can take the Matlack Street exit from Rt. 202 South; Matlack Street is shown on the map at the lower right corner with Rt. 202 off the map. If approaching West Chester from the south, using Rt. 202 North, you would continue straight on South High Street where Rt. 202 branches off to the right. This would bring you onto the map on South High Street near Parking Lot M, also in the lower right corner.


1 Jan
11
21
31
10 Feb
20
1 Mar
11
21
31
10 Apr
20
30
10 May
Aries
Pisces
Pegasus
Comet C/2002 T7
(LINEAR)
on April 1, 2004
Position of Sun
on April 1, 2004
This chart was produced using *Guide 8.0* skymapping software by Project Pluto, Bowdoinham, Maine
Position of Comet C/2002 T7 (LINEAR) from January 1 through May 15. Dates marked in 10 day increments.