May 2004 Volume 5

The Night Sky

A Publication of The Astronomy Club of Akron
Akron, OH USA
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2004 ACA Calendar	Summary
5/1/04 Sat 9 am	Observatory Clean Up—ACA Observatory
5/15/04 Sat	Dark Sky Party
5/22/04 Sat 8:30 p.m.	The Planet Saturn—ACA Observatory
5/28/04 Fri 8:00 p.m.	ACA General Membership Meeting—Kiwanis Club
6/12/04 Sat 9:00 p.m.	The Planet Jupiter—ACA Observatory
6/19/04 Sat	CVAS OTAA convention
6/26/04 Sat 7:30 p.m.	15th Annual Telescope Seminar—ACA Observatory
7/10/04 Sat 9:00 p.m.	The Jewels of Summer—ACA Observatory
7/17/04 Sat	CAA OTAA convention—Letha House
7/24/04 Sat 9:00 p.m.	The Summer Constellations—ACA Observatory
8/7/04 Sat 9:00 p.m.	The Autumn Constellations—ACA Observatory
8/14/04 Sat	MVAS OTAA convention
8/21/04 Sat 6:00 p.m.	Solar/Lunar/Hot Dog Roast—ACA Observatory
9/11/04 Sat 7:30 p.m.	The Planets Uranus & Neptune– ACA Observatory
9/18/04	Black River OTAA convention
9/24/04 Fri 8:00 p.m.	ACA General Membership Meeting— Kiwanis Club
10/16/04 Sat 7:30 p.m.	ACA Observatory Open House—ACA Observatory
10/22/04 Fri 8:00 p.m.	ACA General Membership Meeting—Kiwanis Club
11/6/04 Sat 7:30 p.m.	ACA Observatory Open House—ACA Observatory
12/11/04 Sat 7:30 p.m.	ACA Observatory Open House—ACA Observatory

2004 ACA Calendar-Detail

Saturday, May 22

ACA program at the observatory beginning at 8:30 p.m. Please bring your telescopes for a final look at this beautiful ringed gas giant. Saturn sets at 11:38 pm

Friday, May 28

General membership meeting at the Portage Lakes Kiwanis Club at 8:00 p.m. Clyde Simpson, from the Natural History Museum will be the guest speaker this month. This is the last meeting until September!

Saturday, June 12

ACA program at the observatory beginning at 9:00 p.m. Please bring your telescopes for a last chance to see the colorful bands of Jupiter which sets at 1:27 a.m.

Saturday, June 26

Fifteenth annual telescope seminar at the observatory. The program begins at 7:30 p.m. Please bring your telescopes and binoculars for the public star party which will follow the talk. We need several speakers for this event to speak on binoculars, reflectors, cassegrains, and accessories. Lynn Laux will give the talk on refractors. If you are interested, please see Ray Paul.

Sky Events for May 2004

Sunday, May 2

Venus officially reaches its greatest brilliancy today, a blazing magnitude -4.5.

Tuesday, May 4

The Moon reaches Full phase at 4:33 p.m. EDT. In colonial times the Full Moon of May was known as the Milk Moon or Corn Planting Moon. The first lunar eclipse of the year, a total one, occurs today. It's best seen from Eastern Europe, eastern Africa, and western Asia. Alas, none of it is visible from North America. We get our turn in about half a year, on October 28.

Wednesday, May 5

The Eta Aquarid meteor shower reaches its peak before dawn this morning. Although the shower produces a respectable 50 or so meteors per hour, its radiant (the spot in the sky from which the meteors seem to come) is not well placed for mid northern latitudes. This year the nearly Full Moon further hampers the event.

Thursday, May 6

Comet NEAT passes closest to Earth today, about 30 million miles or a third of the distance to the sun. The comet should also be near to its greatest predicted brightness of 2nd to 3rd magnitude. Tonight the comet stands about 10 degrees (a fist width) to the upper left of the bright star Sirius, low in the west-southwest toward the end of twilight. Use binoculars. The comet is rapidly climbing northward, so it will be higher each night. But look soon, since it's also fading. For a chart showing the comet's position, download the map from this website: http://www.pa.msu.edu/abrams/SkyCalendar

Tuesday, May 11

Last Quarter Moon occurs at 7:04 a.m. EDT.

Friday, May 14

Mercury reaches its greatest western elongation, which means it's at its greatest angular distance (26 degrees) west of the sun.

Saturday, May 15

Comet NEAT has climbed considerably since earlier this month. It now sets five hours after sunset. If predictions hold, NEAT will be 3rd magnitude. The comet sits between the Gemini Twins and Leo, within the constellation of Cancer. Use binoculars to scan along a line between Pollux, in Gemini, and Regulus, in Leo. The comet is 14 degrees (fist and a half) to the upper left of the former star, and 24 degrees to the lower right of the latter.

Wednesday, May 19

New Moon occurs at 12:52 a.m. EDT, or less than an hour after midnight this morning. .

Saturday, May 29

In the next few days Comet LINEAR should become visible to observers at mid northern latitudes. Tonight, an hour after sunset, the comet sits 9 degrees above the west-southwestern horizon. It climbs about one degree per night. You will need binoculars to locate the 4th-magnitude fuzz ball. Don't neglect NEAT, the other comet, still visible. Although a magnitude fainter than LINEAR, it's much higher -- between Gemini and the Big Dipper

Upcoming Astronomy Events

June 14 thru June 20
Laurel Highlands Star Cruise
Hazelton, West Virginia
http://www.lhstarcruise.org/

June 11 and June 12
Apollo Rendezvous &Telescope Fair
Dayton, Ohio
http://www.mvas.org/

July 8 thru July 11
Green Bank Star Quest
Green Bank, West Virginia.
www.caacwv.org or www.KVAS.org

August 17 - 22
AstroBlast 2004
Oil City, Pennsylvania
http://www.oras.org

Treasurer's Report May 2004

Period Ending May 5, 2004 by Gary Smith- ACA Treasurer

03-31-04 Disbursement- AA Blueprint
14.45
04-01-04 Disbursement- Astronomy Magazine
29.00
04-01-04 Disbursement- Sky & Telescope Magazine
32.95
04-01-04 Disbursement- Astronomy Magazine
29.00
04-01-04 Disbursement- Sky & Telescope Magazine
32.95
04-25-04 Disbursement- AA Blueprint
28.90
04-25-04 Disbursement- Ken Press (for 11inch Planispheres)
103.43
05-04-04 Disbursement- Jay Svitko (for paint & painting supplies at
249.23
discounted price for Observatory Clean-Up Day)
05-05-04 Balance of ACA Savings Account
2685.00
05-05-04 Balance of ACA Checking Account
1246.23
05-04-04 TOTAL 3931.23

Secretary's Minutes

1. Meeting began at 8:05 p.m. on Friday, April 23, 2004.
2. Dr. Bernie Richards spoke on Einstein's Theory of Special Relativity. Thanks Dr. Richards for an interesting and humorous lecture.
3. The business meeting was called to order by Gregg Crenshaw at 9:25 pm. Members were given ballots to vote for 2004-2005 officers.
4. The treasurer's report was read with Gary Smith noting that the Club had a major disbursement on 3-14-04 of $507.00 paid to Nationwide Mutual Insurance Company. This occurs every 12 months.
5. Secretary's minutes from March meeting were read.
6. Ray Paul, observatory director, reminded everyone that help was still needed for the annual clean-up day at the Observatory on Saturday, May 1. He also needed paint rollers, garden tools, and carpentry tools. Pete Flohr volunteered to help Ray pick up the lumber and paint needed on Saturday morning. Jay Svitko was working with Ray to obtain discounted paint. Ray offered to buy everyone lunch who volunteered to help 5/1/04.
7. Motion to accept all three reports as read was made and members voted approval.
8. **Old business**: nothing new to report on Club's plan to acquire a 16" LX200 GPS; the Night Sky newsletter posting to the ACA website in PDF format is approximately 2 weeks behind the mailing. Gregg reminded everyone that Astronomy Day was being held this year at Chapel Hill mall with ACA sponsoring a booth. We would have T-shirts and planispheres to sell, as well as coloring activities, a computer monitor for images, and a TV running. Tom Erikson from WNIR would be on hand in the afternoon to help as well.

9. **New business:** Jeff Hudson said he had been contacted by Camp CHOMPS and Camp Wunderlung for our annual visit. He thought the dates were June 11 and/or 12. He would get the exact dates and report back.
10. Clyde Simpson from the Natural History speaker will be the speaker at the May meeting.
11. Elections were held. Congratulations to the new officers for 2004-2005 year:
    President: Dave Jessie
    Vice-President: John Crilly
    Treasurer: Gary Smith
    Secretary: Pete Flohr
    Ass't Secretary/Treasurer: Rosa Villasenor
    Publications Secretary: Lynn Laux
12. Thanks for a job well done to last year's officers: Gregg Crenshaw (Pres); Jay Svitko (V-P); Gary Smith (Treas.); Lynn Laux (Sec'y); Dave Jessie (Trustee); Jeff Hudson (Publications).
13. Meeting adjourned at 10:05 p.m.

—Lynn Laux

Astronomy Club of Akron Discussion Group

A new discussion Group has been created for members and prospective members of the Astronomy Club of Akron. It is free, and supplied by Yahoo. It permits the posting and reading of Group messages, posting and viewing of photos by and of members, posting of useful links to websites of general interest, and posting of polls to learn how Club members feel about various issues.

Posts may be read either by logging onto the Group website or by email. A member chooses which option upon signing up for the Group, and can change the selection at any subsequent time.

This Group will be carefully monitored to ensure that only those with a bona fide interest in the Club will participate. There are few rules, but we will ensure that civility and decorum are observed so that ALL members and interested parties may feel welcome and comfortable.

Please join us - and please consider introducing yourself to the Group with an initial message and, if possible, a photo of you or your gear (or both!). To sign up, use your web browser to go to this address:
http://groups.yahoo.com/group/astronomyclubofakron
Hope to see you there soon!

—John Crilly

From the President

Summer is upon us...I know this because I just looked at a calendar, not because of the current weather - or the forecast. Despite present conditions, I'm sure we will have many beautiful nights under the stars and be able to share our collective wealth of observing experiences with many folks that come to our public viewing nights. When I first came to the ACA observatory in the summer of 1992, I was very pleasantly surprised at the number of members who unselfishly set up their telescopes to share with others. I joined the club after my second visit that year. I want us to get back to packing the house on all public nights - both with visitors to the observatory and members with their knowledge, expertise and equipment showing the 'tourists' what we do. Public outreach should be our number one priority since that is the only way the club can grow and prosper. We all love the heavens - we just need an audience with whom to share our enthusiasm. No one can do this alone...it takes all of us working together to make this happen. If you have any ideas for public outreach, please discuss them with any ACA board member. All suggestions are welcome and we'll take action on as many as we can.

On a different note, what a wonderful Observatory Cleanup Day we had on Saturday May 1st! Our observatory (and privy) got a major dose of much-needed TLC. Everything looks just great and the observatory roof no longer leaks. Many members donated the entire day in this major effort. Ray Paul, as always, did a magnificent job with planning and coordinating the entire event. Man, you'd think the guy was an engineer or something!

—Dave Jessie

Observatory Director's Report

Clean up day at the observatory on Saturday May 1st was a stunning success thanks to a lot of hard work by those who participated. The weather co-operated miraculously until the very last. All of the major repairs were accomplished and everything has a fresh coat of paint. As I pulled away from the building I slowed down and looked back at the observatory and privy and thought how good it all looked.

Bronze star medals to Jay for his stalwart defense against a platoon of flying roof panels and also to Dave for his rendition of the painter's mambo.

A roaring round of applause to Glenn Cameron, Jim Anderson, Dave Jessie, Rosaelena Villasenor, Pete Flohr, Ted Faix, Fred Huffman, Tom Mino, Lou Poda, Lynn Laux, Phil Creed, Paul Woodward, Gary Smith, and Jay Svitko. If I have forgotten anyone please accept my apology and my sincere appreciation.

—Ray Paul

NASA Space Place

Voyage to a Double Planet
By Patrick L. Barry
and Dr. Tony Phillips

Download a "nine planets" screensaver for your computer with spectacular photos of our solar system, and you'll notice that one planet is conspicuously missing: Pluto. Icy and mysterious, Pluto is the only planet never visited and photographed by NASA space probes.

In fact, the clearest image we have of Pluto is a tiny, pixilated blob of light and dark patches taken by the Hubble Space Telescope in 1994. It's tantalizing Š but not much more. Earth-based telescopes have succeeded, however, in

discovering one amazing fact: Pluto is not a lone world, but a double-planet system. Its companion, measuring about half the size of Pluto itself, is named Charon.

Work is underway to launch a robotic probe to visit and photograph Pluto and Charon. The project, called New Horizons, will map both worlds. Sensors will chart surface minerals and ices, and catalog the gases that make up Pluto's wispy atmosphere.

"It's the second epoch in the exploration of the planets," says Alan Stern, the principal investigator for New Horizons at the Southwest Research Institute in Colorado. "We're going to the very edge of the solar system."

The probe is scheduled to launch in January 2006. Its journey will be a long one. Pluto is more than 30 times further away from the Sun than Earth is! Even with a speed boost from a flyby of Jupiter, the probe won't arrive at Pluto until July 2015. Afterward, the probe will venture on to explore the Kuiper Belt, a distant "halo" of small, frozen objects surrounding the solar system, from which comets originate.

Aside from sheer curiosity about these distant worlds, scientists are motivated by questions about the formation of the solar system. Orbiting in the deep freeze far from the sun, Pluto and Charon have undergone less change than the inner planets during the solar system's 4.5 billion year history. These two worlds will provide a glimpse into the past.

Pluto could also shed light on the origin of our own Moon. Earth, with its single, large moon, is unusual. The Pluto-Charon system is the only other pair like it in the solar system. In fact, some astronomers consider Earth and the Moon to be a double planet, too. So knowing more about Pluto and Charon could give clues about how the Earth-Moon system formed.

And, of course, the spectacular, up-close photos of Pluto and Charon are going to look great as a screensaver!

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

Did You Know?

Density gradients in the atmosphere cause it to act as a lens. Rays bend towards the higher density. Higher density is associated with higher pressure and lower temperature so a useful guideline for atmospheric refraction or mirages is that rays bend towards higher pressure and to cooler air.

Incoming rays from the Sun curve downwards so that it appears higher in the sky than it really is. The Moon and stars and the whole sky are similarly raised and astronomical observations are routinely corrected for "atmospheric refraction".

The effect is small except near to the horizon when the rays are literally bent a little around the curve of the Earth. When the lower limb of the Sun just touches the sea horizon the whole Sun has actually already set.

Objects closer to the horizon are raised upwards most and the lower limb of the Sun is raised more than the top making it appear oval.

The flattening is up to about 20% for a normal atmospheric temperature profile and an observer close to sea level. It varies with atmospheric conditions especially when there are abnormal temperature gradients. From high aircraft or space the flattening is much greater.

—From Spaceweather.com

The Night Sky as the eNight Sky

It was not altogether that long ago when families would arise on Sunday mornings and go to the barn to hitch a horse to a buggy and then proceed to church. Then came the invention of the horseless carriage (also known as the automobile). Subsequently the horse was put out to pasture and the buggy was put up for sale. This single invention has changed our lives in many ways. In the same theme I am sure that most of us have seen movies where mom or dad would strike a match to light a kerosene lamp at sunset. Along came a man by the name of Thomas Edison and then it became unnecessary to buy so much kerosene.

All of the ACA members are familiar with the monthly ACA newsletter that is regularly delivered to our mailboxes a few days before the monthly ACA meeting. It keeps us informed of both current and upcoming events and allows any ACA member an opportunity to contribute an article about what is new in astronomy or express their view about matters that are relevant to the ACA.

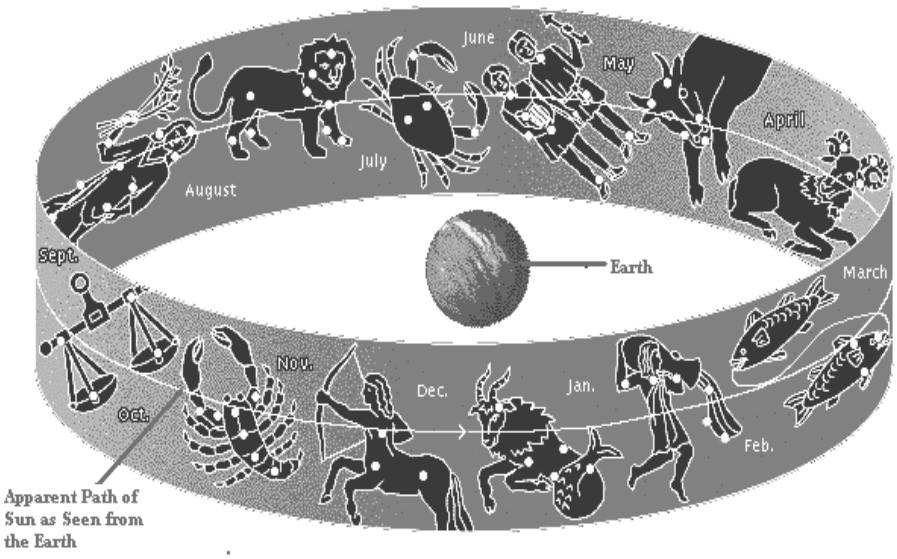
But now something has changed and it is called the INTERNET. Whenever I turn on the TV I cannot help but notice the advertisements for a computer made by this company or that company. Many televisions programs will list a web address to consult if they would like to see more information about the program that they have just viewed. It appears that the Internet is not just a passing fad, but is here to stay. I realize that while computer prices has dropped considerably in recent years, computers are not free and represent a significant investment of money. The decision to purchase (or not) a computer is an individual choice which depends on many different factors.

For those members of the ACA that have purchased computers and are online, an eNight Sky presents many advantages over the traditional printed Night Sky. It allows you to view the current issue and any of the past issues at the touch of a few buttons on the computers keyboard. You can transfer the file to a floppy disk, CD, or DVD and have a permanent copy of the newsletter. And, if you choose, you may also use your computer printer to print out any issue of the Night Sky that you would like. So, do I think that an electronic version of our clubs monthly newsletter is a good thing? I will give a most emphatic YES IT IS.

—Gary Smith

Don’t forget to pay your dues this month!!

The Zodiac Hit Parade



One day last year I realized that, though I'm a scientist at heart and put no amount of credence into astrology, I found it a trifle embarrassing that I couldn't remember the names of the twelve zodiacal constellations, much less their placement in the sky relative to each other. I know the path of the ecliptic across the sky and I can quickly point out the most easily identifiable patterns of Scorpius, Sagittarius, Leo, and Taurus. I endeavored to create a mnemonic, a verbal device to help one remember a list of names, to help me remember that mythological zodiacal hit-parade.

First, the non-mnemonic list. Sagittarius, Capricornus, Aquarius, Pisces, Aries, Taurus, Gemini, Cancer, Leo, Virgo, Libra, and Scorpius. Yes, I realize that Ophiuchus is now in the path of the ecliptic but that is a result of human committee rather than “divine” will.

Let's first see if we can just make a mnemonic abbreviation out of the first letters of the constellations. In this case we get SCAPATGCLVLS. H'm, no help there. How about dividing it in half? Then we get SCAPAT and GCLVLS. Well, that's a little better. SCAPAT at least sounds like it could be a word. We'd have to remember which 'C' constellation is in there (there are two in all) and we'd have to remember which 'A' constellation precedes the other. GCLVLS is just a mess. This method isn't too promising.

Okay, it looks like I'm going to have to figure out a word/sentence substitution mnemonic. My goal was to use words with beginning letters, sounds, or syllables similar to those of the constellation names. Using words with only matching first letters was fine if no other constellation name began with that same letter. Failing that, I tried to come up with words that began with the same first two or three letters as the constellation name. Since there is a dearth of words beginning with the letters 'AQ', I allowed a mnemonic word or combination of words that at least sounded the same as the beginning of Aquarius. Finally, I decided I would allow small words like 'a', 'and', 'on', or 'the' in between the actual mnemonic words if it helped make sense of the whole mnemonic sentence.

For the first six constellations, my favorite solution was: Sagan Captured A Quiet Pioneer on Arecibo's Telescope. I realize that this doesn't make much sense. A quiet Pioneer probe isn't going to be transmitting a signal that Arecibo will hear, but the astronomical references were irresistible to me. My second favorite effort was: Sailing Captains Accused Pirates As Terrorists.

I had less trouble with the last six constellations but for a while I couldn't come up with anything rated less than PG-13. I think the following is at most rated PG: Gems Can Let Virgins Liberate Skirts. Of course, the gems to which I refer are mounted on engagement and wedding rings with said liberation occurring after the happy nuptials.

Now I can apply my mnemonic devices to the heavens, plotting from West to East, the twelve zodiacal constellations, or at least, those that are visible on a given night. I encourage club members to offer their own mnemonic devices for learning the zodiacal constellations, as well as any number of other astronomical lists that come to mind. If nothing else, this can be a fun diversion on one of Ohio's too frequent cloudy nights.

—Glenn Cameron

Article Submission

The deadline for article submission is **two weeks after the last meeting.** In the summer months, when there is no meeting, the deadline is **two weeks after the fourth Friday of the month.** All word processing files should be saved in any version of Word to minimize import problems.
If you don’t have access to a computer, don’t hesitate to write something out long hand.
Send in your articles, items for sale, and comments to:

Lynn M. Laux
14274 Bridle Trail
Strongsville, OH 44136

Or email:
gemmalady@msn.com

If you have any pictures of club events, astronomical images, rig pictures and the like, please submit them to:

http://groups.yahoo.com/group/astronomyclubofakron

Thanks to Rich Ruggles (Double Planets) and Glenn Cameron for their contributions this month

Clean-Up at the Observatory: May 5, 2004

Photos by Lynn Lane

Dave

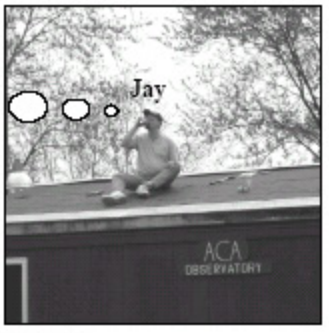
Paintbrush?! I don't need no steenkin' paintbrush!

They told me it was a party, no one said anything about work!

Tom

Phil, inspecting his handiwork.

If I just sit on the darn thing maybe it won't blow away!



How much is THIS gonna cost us?

Gary

Ted

And...smile everyone!

Fred

Looks alright to me, I say it's time for a break!

Quick, look busy, here comes the Boss!

Paul

Trying to get the last wall painted before the rain comes.

What IS Glenn thinking of?!!!

Rosa

Everyone pitching in to give the Observatory a fresh look for the summer.

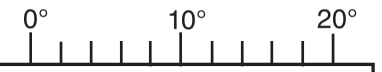
Jim, making sure the privy wall doesn't fall down.

Planetarium business office:
(517) 355-4676
Skywatcher's Diary on World Wide Web:
http://www.pa.msu.edu/abrams/diary.html

SKY CALENDAR MAY 2004

An aid to enjoying the changing sky

Use this scale to measure angular distances between objects on diagrams below.

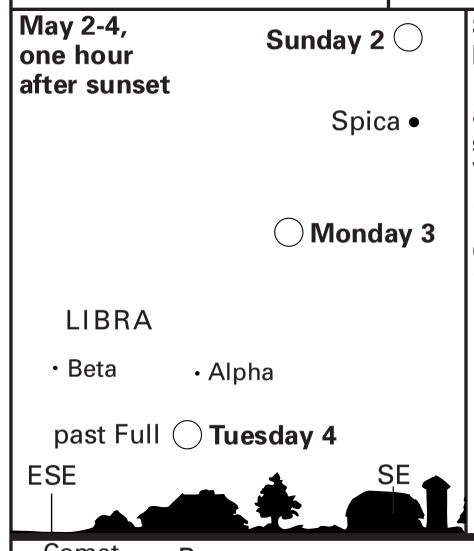


Evening planets: Venus on May 2 shines at greatest brilliancy, mag. –4.5 in WNW at dusk, and sets over 3½ hours after sunset. **Enroute to its first transit of solar disk since 1882** (see June ***Sky Calendar***), Venus drops closer to Sun, by 0.5° per day in early May, speeding up to 1.5° per day at month's end. By May 31, Venus, still of mag. –4, sets within an hour after sundown. The crescent Venus is large enough to be easily resolved with 7 to 10 power binoculars. Observing in daylight, locate Venus to upper left of setting Sun, by 40° on May 1, by 30° on May 16, by 20° on May 25, and 10° on June 1. In May, Venus' disk grows from 0.6 to nearly 0.9 arcminute across, while sunlit portion diminishes from 25 percent on May 4, through 10 percent on May 20, to just 2 percent on May 30. **Jupiter,** of mag. –2.1 at midmonth, drifts from high in south at dusk early in May into SW by month's end. **Saturn,** a 0.1-mag. "star" in Gemini, is well up in W early in May, and low in WNW by month's end. Locate Saturn to upper left of Venus, by 18° on May 1, decreasing to 15° during May 9-20, then increasing to 20° on May 31. **Mars** opens month 6° upper left of Venus and 12° lower right of Saturn. This faint 1.7-mag. red planet passes 1.6° N (upper right) of Saturn on May 24, and ends month 4° to Saturn's upper left. See **Moon** near planets on May 20-22, 26, and 27.

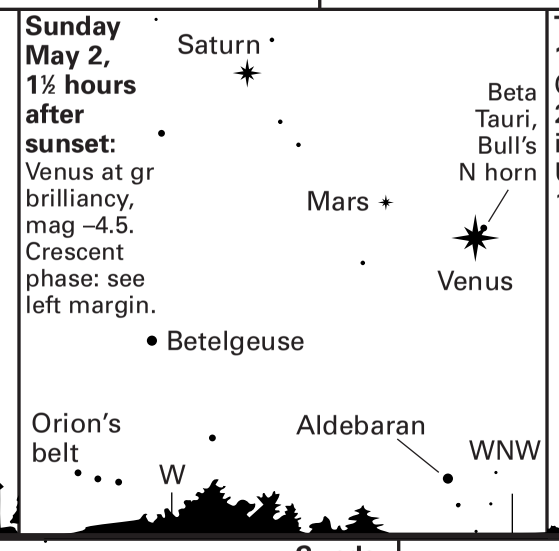
Two comets: During May 2-10, **Comet C/2001 Q4 (NEAT)** moves north 5°-6° per day and becomes visible in a dark sky from mid-northern latitudes. This sudden appearance is beautifully timed – there's no Moon at nightfall starting May 6, when comet passes closest to Earth (at a distance of 0.32 a.u. or 30 million miles). Comet NEAT is then near greatest brilliance, expected to be mag. 2.5 with a well-developed tail, and its visibility improves dramatically as it climbs higher in the sky nightly. **Binoculars give best views.** For NEAT's location against the stars, see calendar diagrams for May 4, 5, 9, 12, text boxes for May 6, 13-16, 24-25, and map, ***May Evening Skies,*** over. On May 14, NEAT crosses north through Earth's orbital plane and at nightfall appears 2° below the Beehive cluster in Cancer. That evening, as we look across 39 million miles of space to the comet, we find it 4 million miles sunward from the point in our orbit that we passed only 25 days earlier, on April 19. On May 15, the comet passes its perihelion, 0.96 a.u. (89 million miles) from Sun. On that date, Comet NEAT, still of 3rd magnitude, is well placed in western sky at nightfall, setting five hours after the Sun. Continuing northward and fading, NEAT enters Ursa Major May 28. **Comet C/2002 T7 (LINEAR):** See text for May 19, 25, 29, and diagrams on June calendar. **Forecasts of comet brightness are uncertain!** For updates, visit http://encke.jpl.nasa.gov/index.html and http://cometography.com/ From latter site, click on Currently Visible Comets and follow links to these comets.

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY

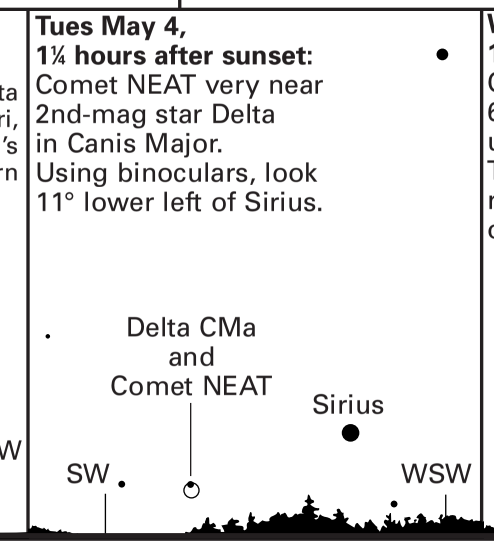
May 2-4, one hour after sunset



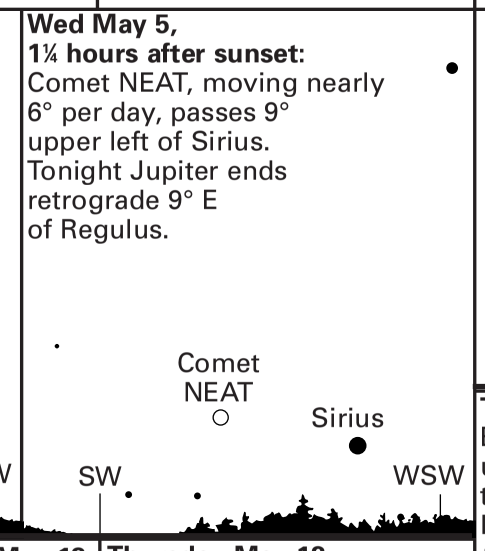
Sunday May 2, 1½ hours after sunset: Venus at gr brilliancy, mag –4.5. Crescent phase: see left margin.



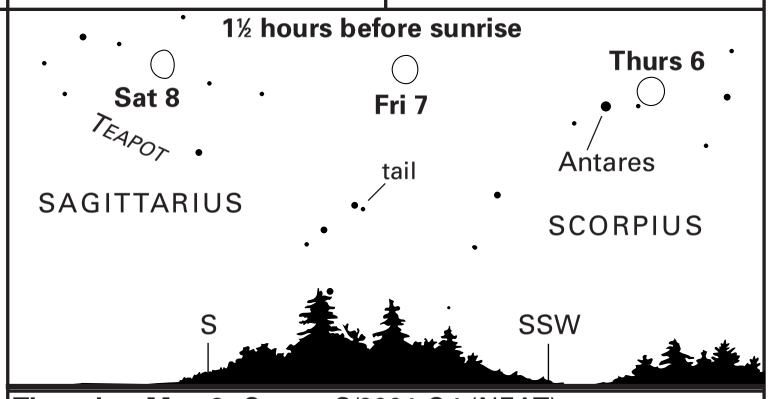
Tues May 4, 1¼ hours after sunset: Comet NEAT very near 2nd-mag star Delta in Canis Major. Using binoculars, look 11° lower left of Sirius.



Wed May 5, 1¼ hours after sunset: Comet NEAT, moving nearly 6° per day, passes 9° upper left of Sirius. Tonight Jupiter ends retrograde 9° E of Regulus.



1½ hours before sunrise

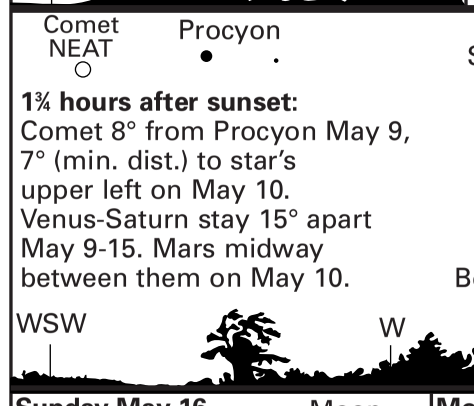


Thursday, May 6: Comet C/2001 Q4 (NEAT) nearest to Earth, 0.32 a.u. (30 million miles). Look low WSW, 11° upper left of Sirius and 21° lower left of Procyon. Starting tonight, sky is dark and moonless at end of evening twilight. See comet's positions plotted on chart, *May Evening Skies* over. Look lower left of Procyon, by 16° on May 7, 9° on May 8.

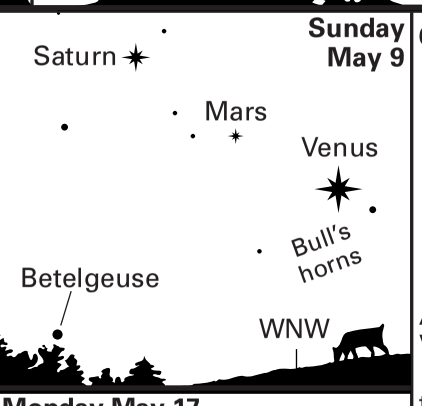
Friday May 14
Comet NEAT, moving northward, crosses through Earth's orbital plane. At nightfall, look 14° upper left of Pollux and 2° below Beehive cluster, as plotted on map, over. For more on tonight, see left margin.

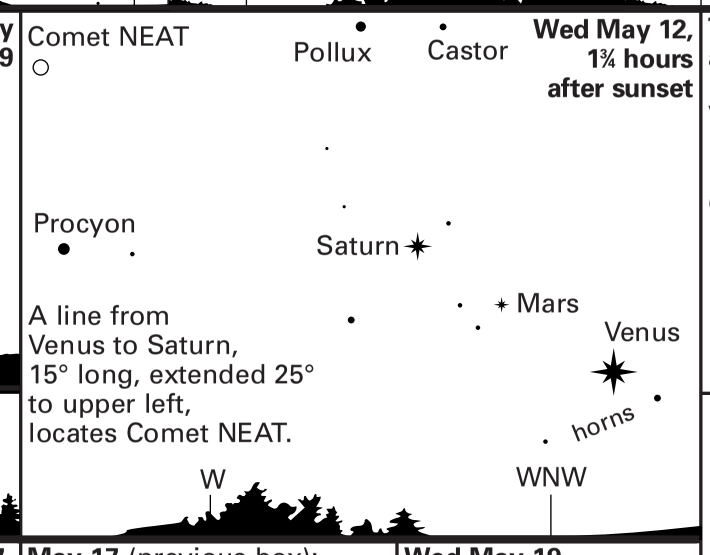
Saturday, May 15
Comet NEAT at perihelion today, 0.962 a.u. (89 million miles) from Sun and 0.44 a.u. from Earth. Look 2° upper right of Beehive at nightfall. Comet sets five hours after sunset.

1¾ hours after sunset: Comet 8° from Procyon May 9, 7° (min. dist.) to star's upper left on May 10. Venus-Saturn stay 15° apart May 9-15. Mars midway between them on May 10.



Sunday May 9



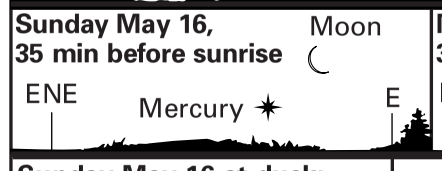


Wed May 12, 1¾ hours after sunset

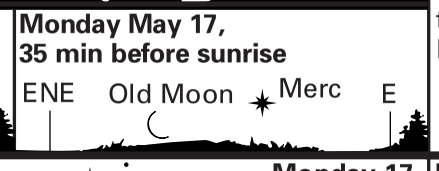
Thursday May 13 at nightfall

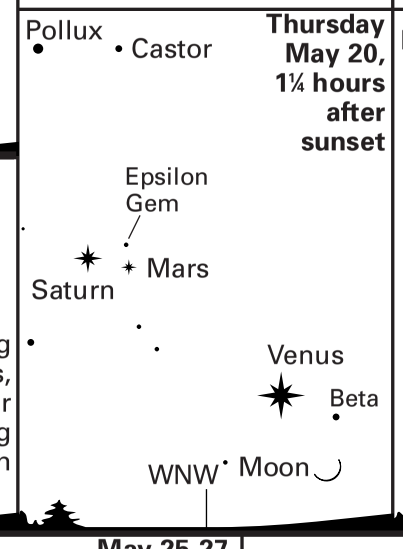
Venus-Mars-Saturn lie in nearly straight line, 15° long. Comet NEAT is 16° above Procyon and 16° left of Pollux.

Sunday May 16, 35 min before sunrise

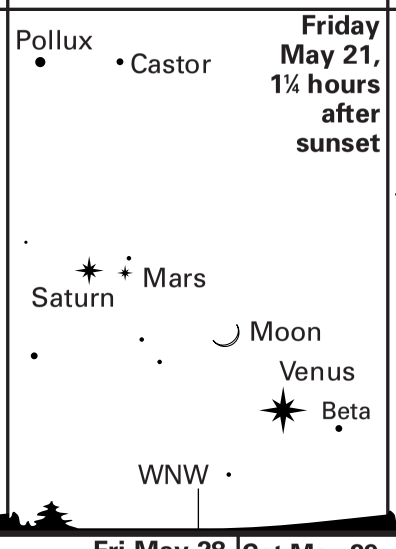


Monday May 17, 35 min before sunrise

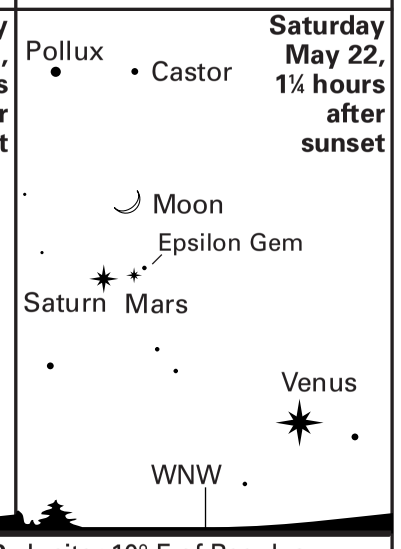




Thursday May 20, 1¼ hours after sunset

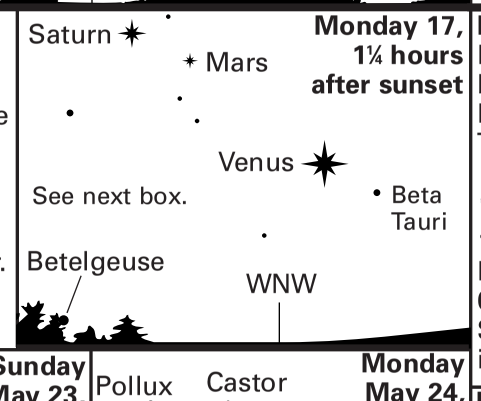


Friday May 21, 1¼ hours after sunset



Saturday May 22, 1¼ hours after sunset

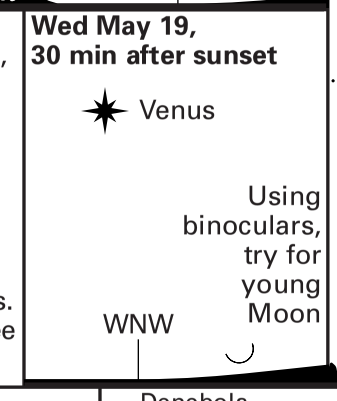
Sunday May 16 at dusk: Watch Venus sink lower nightly. Venus-Jupiter now appear at their least distance apart in this apparition, 73°. They'll appear within 1° apart in *morning* sky on Nov. 4 & 5. Comet NEAT: See map, over.

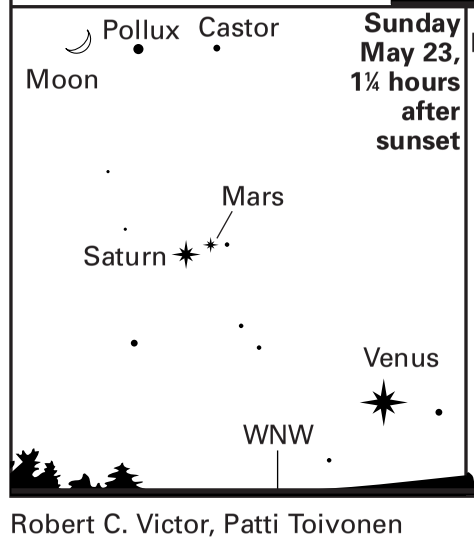


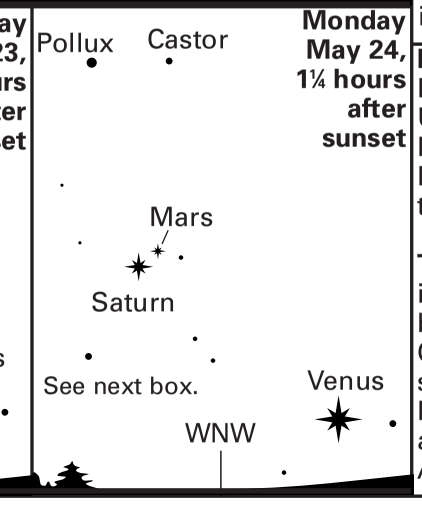
May 17 (previous box): Mars-Saturn 4 apart. Venus, beginning retrograde, lingers nearly 4° E of Beta Tauri May 17-20.

Wed 19
New Moon 12:52 a.m. EDT. Comet LINEAR closest to Earth, 0.265 a.u. or 25 million miles. S'most US & Hawaii may see it 3° S of Sirius May 22.

Wed May 19, 30 min after sunset

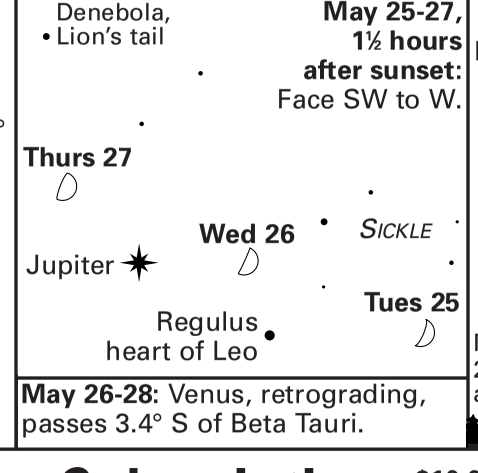




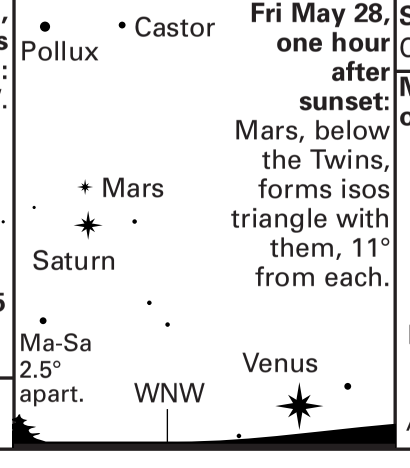


May 24 (previous box): Mars passes 1.6° N of Saturn. Using binoculars as sky darkens, look for Beehive cluster 3° lower left of Moon, and Comet NEAT 17° to Moon's upper right.

Tues May 25: Comet NEAT is now receding from Earth by 2.5 million miles per day. Comet LINEAR may now be seen from S states at nightfall, low WSW, 22° LL of Procyon and 24° LR of Alphard. (Find Alphard 23° LL of Regulus.)

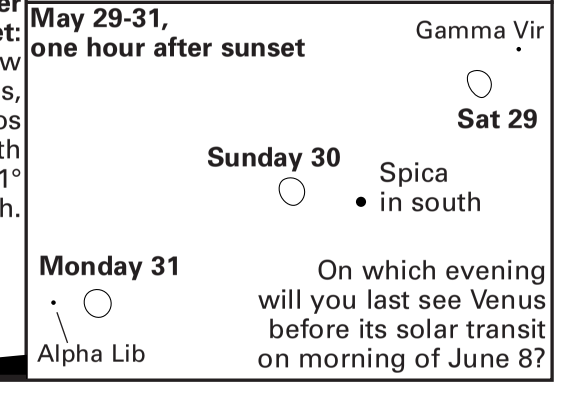


May 26-28: Venus, retrograding, passes 3.4° S of Beta Tauri.



Sat May 29: Jupiter 10° E of Regulus. Comet LINEAR in Hydra, 12° LR of Alphard.

May 29-31, one hour after sunset



On which evening will you last see Venus before its solar transit on morning of June 8?

Robert C. Victor, Patti Toivonen
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