The Denver
OBSERVER
FEBRUARY 2017

The Rosette Nebula, NGC 2237, in the constellation Monoceros, photographed through narrowband filters (H-α and O-III). Note the central cluster, which has a separate designation, NGC 2244.

Image © Jon Martin

FEBRUARY SKIES

by Zachary Singer

The Solar System

February will be a good month for planetary observers, with a few bonuses: **On the 10th, an eclipsed Moon** rises in the east just as the Sun sets. Unfortunately, it's only "penumbral"—that is, the Moon will enter the outer, more softly delineated part of Earth's shadow, but not the deep shadow, the umbra, that folks usually associate with a lunar eclipse. While there will be some darkening of the lunar surface, the evening twilight will make that less obvious initially, as well. Still, it should be interesting, and after the twilight fades to night, you'll be better able to witness the Moon's slow return to its normal brightness—try watching from perhaps 6:15 to 7:15 PM Mountain Time, or thereabouts. (Since there are no sharp shadows to delineate timings for casual observers, the eclipse will appear to gradually peter out—the Moon's actual exit from Earth's shadow occurs just before 8 PM our time, but the difference won't be visible to you by then.)

Also of note, **Mars and Uranus have a tight conjunction** later this month—see *Mars*, below.

Mercury begins February with a "waxing gibbous" appearance, a 5.6" disk, and a magnitude of -0.2. So far, so good, but the planet hovers a mere 5° over the southeastern horizon a half-hour before Denver's 7:06 AM sunrise, and gets lower, and closer to the Sun's glare, daily. Though determined observers might be able to track the planet through the first three weeks of February, the rest of us will lose sight of it much sooner. We'll have another crack at Mercury in early spring, as an evening object.

Venus starts out the month at a little over 31 arcseconds in apparent diameter, with about 40% of its disk lit, and a "curving lemon wedge" appearance. By mid-month, the disk will swell to 38", and the lemon wedge's curve deepens noticeably, on the way to becoming a thin crescent and an increasingly spectacular sight by month's end. At that point, the planet's disk will be a full 47" across, with just 17% illuminated and the rest in shadow.

Sky Calendar

3	First-Quarter Moon
10	Full Moon (Moonrise Penumbral Eclipse)
18	Last-Quarter Moon
26	New Moon
26	Close Conjunction of Mars and Uranus (evening)

In the Observer

The Observer is available in color PDF format from the DAS website: *http://www.denverastro.org/das/denver-observer/*

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PRESIDENT'S MESSAGE

by Ron Hranac

DAS Leadership and Our Upcoming Election

During the four years that I've served as President of Denver Astronomical Society, I've written a few times on these pages about the importance of volunteers for everything that we do. Our volunteers ensure the success of our monthly Open Houses and twice-weekly Public Nights at DU's historic Chamberlin Observatory. They also step up to support external outreach activities such as solar observing, star parties and presentations at the Denver Museum of Nature and Science (and other museums), Dinosaur Ridge, the Tesoro Cultural Center's annual "The Night the Stars Fell" lecture and dinner, and various schools, Scout meetings, and so forth. As I noted in January's "President's Message," 130 to 140 or more outreach events reached 5,000+ members of the public last year alone.

There are other important volunteer roles, too: Some of our members serve on the Edmund G. Kline Dark Site Committee, the Public Outreach Committee, and the Van Nattan-Hansen Scholarship Committee. I'd be remiss if I didn't mention the variety of individual and group volunteer and appointed positions (my apology if I missed any): Astronomical League Correspondent (our "ALCor"), Chief Observer, External Outreach Coordinator, International Dark-Sky Association Representative, IT Coordinator, Librarian, Membership Coordinator, New Member Ambassador, Newsletter Editor and Proofreaders, Public Night Coordinator, Public Night Speakers, Public Night Team Leads, Public Night Team Members, Quartermaster/Scope Loan Manager, and Webmaster.

DAS also has unsung heroes who mow the weeds, do general cleanup, and otherwise maintain the dark site. Some of our members help with maintenance and repairs at Chamberlin Observatory, including the Alvan Clark-Saegmuller 20-inch refracting telescope.

One group of volunteers is chosen directly by the general membership: the elected leadership of DAS, which comprises four officers and eight board members, and is known formally as the Board of Trustees and more colloquially as the Executive Board or E-Board. Annual elections to fill the positions on the E-Board take place each February. Nominations for this year's elections opened during last month's general membership meeting, and continue until the elections themselves at our annual membership meeting on Friday, February 10th. This year's E-Board members and officers will be officially seated at our spring banquet on Saturday, March 11th.

OK, just what is the E-Board? One must be a member of DAS to be a member of the E-Board, and all current DAS members are eligible to vote (one's dues must be paid up-to-date to do so). E-Board

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DAS SCHEDULE

FEBRUARY 2017

4	Open House—DU's Historic Chamberlin Observatory—Starts at 6:00 PM
13	DAS Annual Meeting—DU's Olin Hall, Rm. 105—Starts at 7:30 PM: Election of Officers and E-Board.
17	E-Board Meeting—At DU's Historic Chamberlin Observatory, 7:30 PM. All members welcome.
25	Dark Sky Weekend—EGK Dark Site & Brooks Observatory

During Open House, volunteer members of the DAS bring their telescopes to the Chamberlin Observatory's front (south) lawn, so the public can enjoy views of the stars and planets, try out different telescope designs, and get advice from DAS members. The Observatory is open, too (costs listed below), and its historic 20-inch telescope is open for observing with no reservations necessary.

Open House costs (non-members): If the skies are clear, $2/person ($5/family), $1/person in inclement weather. DU students with ID, and DAS members free.

Public Nights feature a presentation on astronomical subjects and a small-group observing session on the historic 20-inch telescope (weather permitting), at Chamberlin Observatory on Tuesday and Thursday evenings (except holidays), beginning at the following times:

March 10 - September 30 at 8:30 PM

October 1 - March 9 at 7:30 PM

Public Night costs (non-members): $4/adult, $3/child and students with ID. DAS members and DU students with ID: free.

Members of the public (non-DAS/DU, as above), please make reservations via our website (*www.denverastro.org*) or call (303) 871-5172.

DAS NEWS

Volunteer Opportunities

February 16, 2017, 1:00-3:00 PM. Clear Sky Elementary (4th grade), 1470 Clear Sky Way, Castle Rock, CO 80109. Solar Viewing/ possible presentation.

February 28, 2017, 6:00-8:00 PM. Wilmore-Davis Elementary, 7975 W 41st Ave, Wheat Ridge, CO 80033. Community Night: Night Observing.

March 3, 2017, during school hours, TBD. Coronado Hills Elementary, 8300 Downing Dr., Denver, CO 80229. Reading for Dr. Seuss Day/Share info. about DAS/ amateur astronomy.

March 30, 2017, 7:00-9:00 PM: *Homeschooled kids*—all ages, preschool and up (~ 65 people, including some adults). Highlands Ranch, CO 80126 (exact location TBD). Night observing.

To volunteer, please contact Julie Candia at *external@denverastro.org*—and thanks!

DAS Leadership: E-Board Elections

Denver Astronomical Society depends on many volunteers who do much, on a collective basis, to ensure the organization's success. But one important volunteer role that often operates behind the scenes is the Society's leadership: We're looking for E-Board and officer candidates interested in a leadership role with DAS. Prior experience isn't necessary, just enthusiasm and a love for what we do. If you've thought about running for a position on the E-Board or would like to nominate someone, nominations are still open and will continue until the elections themselves at our annual membership meeting on Friday, February 10th. Elected E-Board members and officers will be officially seated at our spring banquet on Saturday, March 11th.

At February's Open House: How to Use a New Telescope

If you have recently acquired, or soon will acquire your first telescope, the Denver Astronomical Society can help you enjoy your 'scope and use it successfully. Please join us at DU's historic **Chamberlin Observatory Open House, on Saturday, February 4th, for a comprehensive talk starting at 7 PM. We will cover the basics, and more, of telescope set-up and operation, and give hands-on instruction.** (You're welcome to bring your 'scope if you'd like.)

We will cover refractors, reflectors, and compound telescopes, the set-up and use of the finderscope and Telrad, and give tips on learning the sky, finding objects, and aiming at them. Other useful accessories will be discussed. (We'll touch on computerized, or "go-to," telescopes, too. If you need help with a computerized 'scope, we suggest you familiarize yourself with the instruction manual as much as possible ahead of time, and bring the manual with you.)

President's Message

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members are elected to one-year terms. The E-Board normally gets together monthly to set policies for and conducts the business of the Society. DAS members are always welcome to attend those meetings.

Among the 12 elected E-Board members are the previously-mentioned officers: President, Vice President, Secretary, and Treasurer. Here's a closer look at the general duties of each one.

The President, as you might imagine, chairs meetings of the E-Board as well as general membership meetings. The bylaws define formal responsibilities—the legalese part of the job—but some unofficial duties include occasionally being a face of DAS in the media and other venues (for instance, I've been interviewed on TV by all three of Denver's major network stations). The President also writes this monthly column. Contrary to my long-running tongue-in-cheek comments that the bylaws contain a hidden clause stating that one must be named "Ron" to be President, any DAS member can be President. (The joke stems from the fact that the last three people to serve as DAS President have all been named Ron—that's why I'm often called "Ron #3").

The Vice-President fills in when the President is absent and otherwise assists the President, heads up the occasional standing or *ad hoc* committee or subcommittee, and rustles up speakers for our membership meetings.

The Secretary records and manages meeting minutes, occasionally corresponds with outside organizations, and undertakes similar duties. Here, too, the bylaws define formal responsibilities and the legalese part of the job.

The Treasurer is our banker, accountant, and all-around money manager. This person pays the bills, balances bank statements, provides financial updates to the rest of the E-Board, oversees transfers of PayPal funds to our general fund, makes sure that donations to DAS are deposited in the correct fund (general, dark site, and scholarship), files certain government documentation related to the Society's non-profit status, and presents a financial report for the prior year during our annual membership meeting.

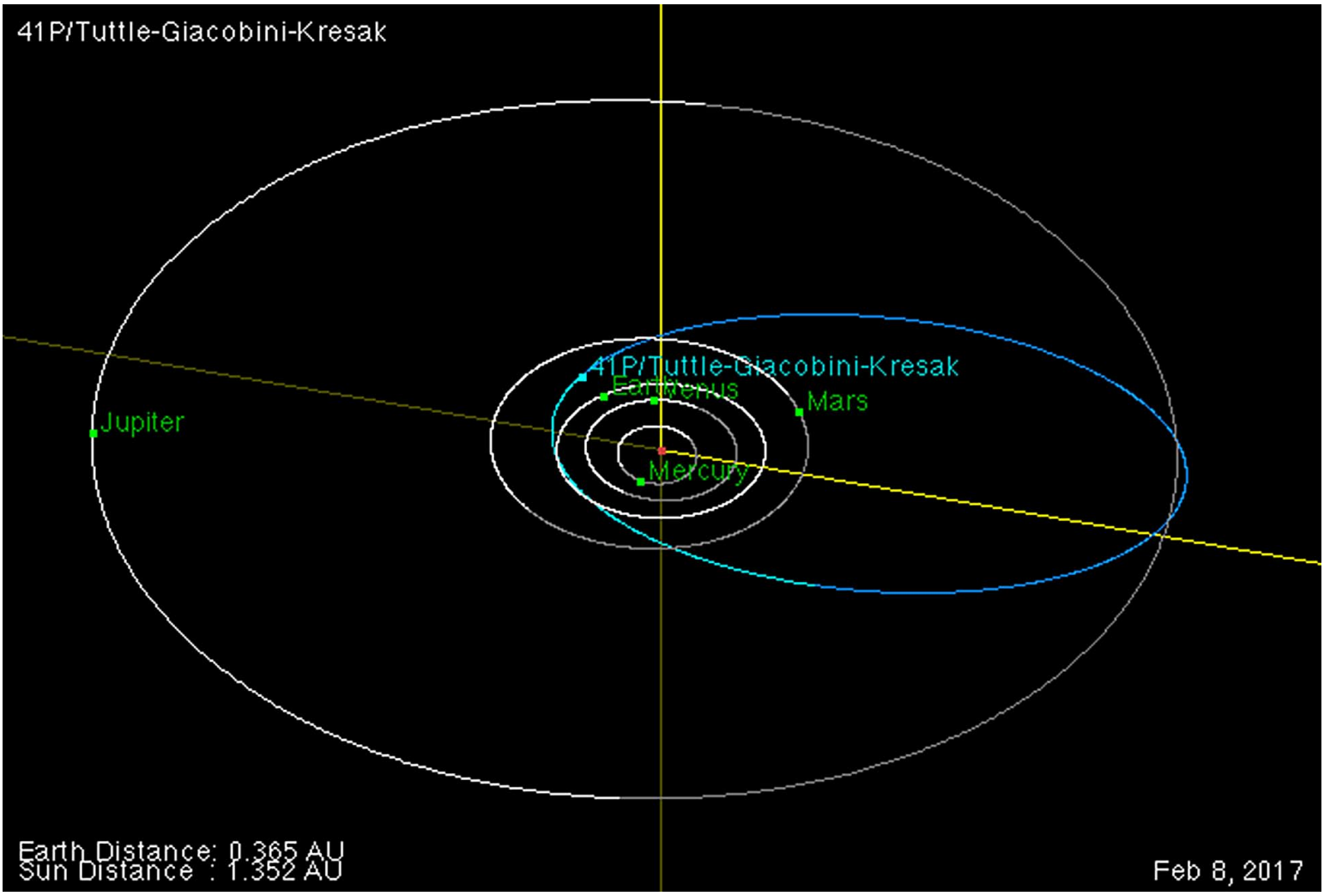
Examples of other tasks handled by various E-Board members include coordinating meetings and presentations, our banquets and our summer picnic; setting up the annual calendar; posting notices and responding to inquiries on our social media accounts; and many other tasks that keep the wheels of DAS turning.

If you'd like to be part of the leadership team, consider throwing your hat in the ring for the elections during this month's membership meeting at DU's Olin Hall. At the very least, plan on attending that meeting and making your voice heard by voting in the annual election.

COMET CAMPAIGN: AMATEURS WANTED

By Marcus Woo

NASA Space Place



An orbit diagram of comet 41P/Tuttle-Giacobini-Kresak on February 8, 2017—a day that falls during the comet's prime visibility window. The planets' orbits are white curves and the comet's orbit is a blue curve. The brighter lines indicate the portion of the orbit that is above the ecliptic plane defined by Earth's orbital plane and the darker portions are below the ecliptic plane. This image was created with the Orbit Viewer applet, provided by the Osamu Ajiki (AstroArts) and modified by Ron Baalke (Solar System Dynamics group, JPL). *http://ssd.jpl.nasa.gov/sbdb.cgi?orb=1;sstr=41P*

In a cosmic coincidence, three comets will soon be approaching Earth—and astronomers want you to help study them. This global campaign, which will begin at the end of January when the first comet is bright enough, will enlist amateur astronomers to help researchers continuously monitor how the comets change over time and, ultimately, learn what these ancient ice chunks reveal about the origins of the solar system.

Over the last few years, spacecraft like NASA's Deep Impact/EPOXI or ESA's Rosetta (of which NASA played a part) discovered that comets are more dynamic than anyone realized. The missions found that dust and gas burst from a comet's nucleus every few days or weeks—fleeting phenomena that would have gone unnoticed if it weren't for the constant and nearby observations. But space missions are expensive, so for three upcoming cometary visits, researchers are instead recruiting the combined efforts of telescopes from around the world.

"This is a way that we hope can get the same sorts of observations: by harnessing the power of the masses from various amateurs," says Matthew Knight, an astronomer at the University of Maryland.

By observing the gas and dust in the coma (the comet's atmosphere of gas and dust), and tracking outbursts, amateurs will help professional researchers measure the properties of the comet's nucleus, such as its composition, rotation speed, and how well it holds together.

The observations may also help NASA scout out future destinations. The three targets are so-called Jupiter family comets, with relatively short periods just over five years—and

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This article is provided by NASA Space Place. With articles, activities, crafts, games, and lesson plans, NASA Space Place encourages everyone to get excited about science and technology. Visit *spaceplace.nasa.gov* to explore space and Earth science!

ABOUT THE DAS

Membership in the Denver Astronomical Society is open to anyone wishing to join. The DAS provides trained volunteers who host educational and public outreach events at the University of Denver's Historic Chamberlin Observatory, which the DAS helped place on the National Register of Historic Places. First light at Chamberlin in 1894 was a public night of viewing, a tradition the DAS has helped maintain since its founding in 1952.

The DAS's mission is to provide its members a forum for increasing and sharing their knowledge of astronomy, to promote astronomical education to the public, and to preserve DU's Historic Chamberlin Observatory and its telescope in cooperation with the University of Denver. The DAS is a long-time member in good standing of the Astronomical League and the International Dark Sky Association.

The DAS is a 501 (c)(3) tax-exempt corporation and has established three tax-deductible funds: the Van Nattan-Hansen Scholarship Fund, the DAS General Fund, and the Edmund G. Kline Dark Site Fund.

*****JOIN US!** More information about DAS activities and membership benefits is available on the DAS website at *www.denverastro.org*.

NASA Space Place

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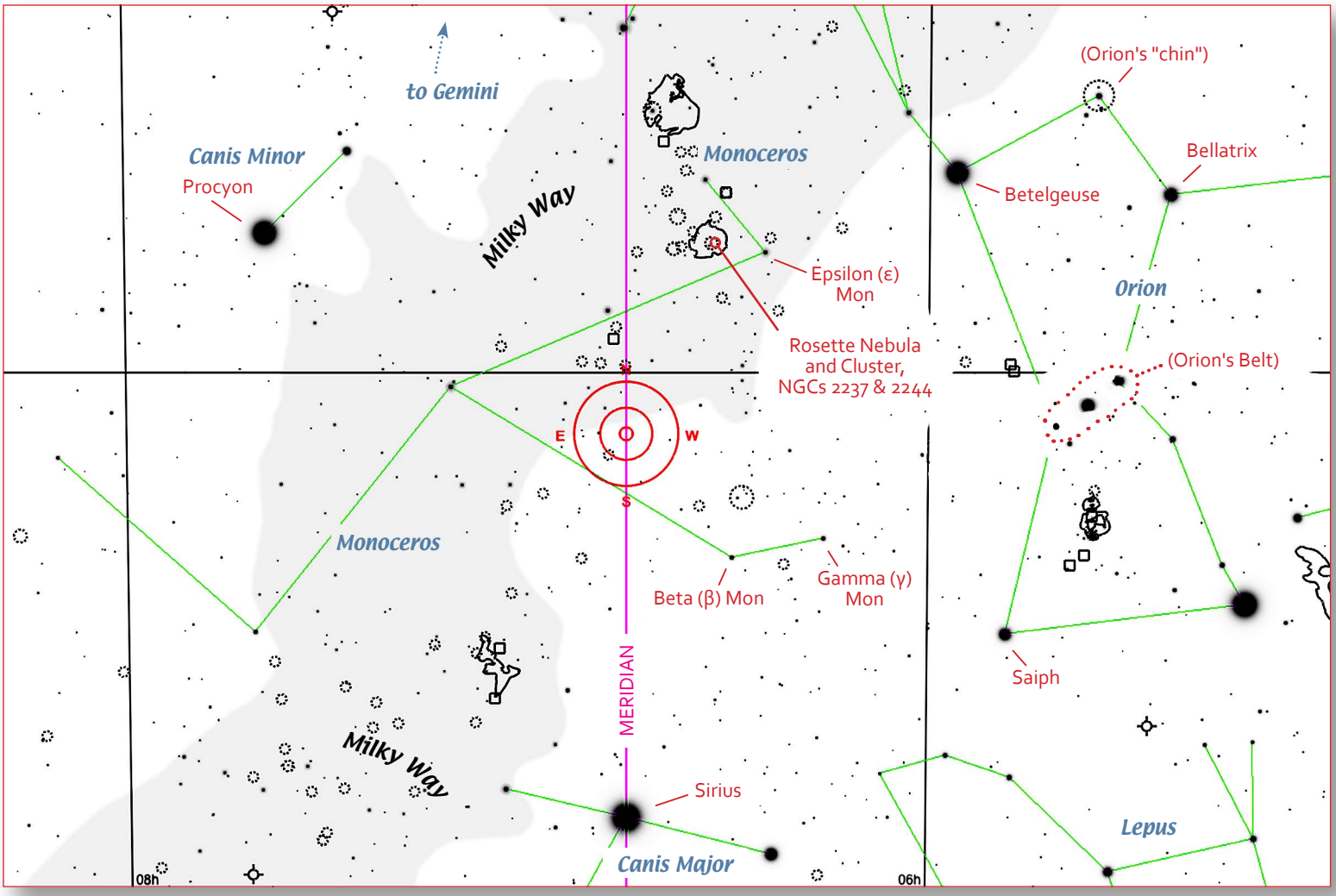
orbits that are accessible to spacecraft. "The better understood a comet is," Knight says, "the better NASA can plan for a mission and figure out what the environment is going to be like, and what specifications the spacecraft will need to ensure that it will be successful."

The first comet to arrive is 41P/Tuttle-Giacobini-Kresak, whose prime window runs from the end of January to the end of July. Comet 45P/Honda-Mrkos-Pajdusakova will be most visible between mid-February and mid-March. The third target, comet 46P/Wirtanen won't arrive until 2018.

Still, the opportunity to observe three relatively bright comets within roughly 18 months is rare. "We're talking 20 or more years since we've had anything remotely resembling this," Knight says. "Telescope technology and our knowledge of comets are just totally different now than the last time any of these were good for observing."

For more information about how to participate in the campaign, visit *http://www.psi.edu/41P45P46P*.

Want to teach kids about the anatomy of a comet? Go to the NASA Space Place and use Comet on a Stick activity! *http://spaceplace.nasa.gov/comet-stick/*



Viewing south and up in Denver at 9:00 PM in mid-February (10 PM early in the month, 8 PM late in month). Image center is 48° above horizon; Telrad included for reference. Note the large number of nebulae and clusters in this area—it's due to the proximity of the plane of the Milky Way.

Object positions, constellation and meridian lines charted in SkySafari, and then enhanced.

February Skies

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Considering that Venus glows brilliantly at -4.6 magnitude all month (according to SkySafari software; *Sky and Telescope* reports -4.8), the planet will be easy to find in the southwest-to-west during twilight—it's actually visible during the day, if you know where to look. With this in mind, observe as soon after sunset as you can—as Venus draws closer to the Sun from our line of sight, it will get lower each evening, lessening image sharpness (and perhaps getting lost in the trees), by the time the sky is fully dark. The thinner Venus's crescent becomes, the lower the planet will be.

Mars is now something of a running joke, much as Saturn was in late fall—"Is it dead yet?" Still, it's got an interesting trick up its sleeve near the end of the month: **A very tight conjunction with Uranus on the evening of the 26th.** Look for 1st-magnitude Mars within an hour after sunset (i.e., by 6:45 PM or earlier), when the planets will still be 30° above the western horizon—Mars and 6th-magnitude Uranus should both be visible in a binocular or moderate telescopic field, with Uranus a little over 34' (a half-degree) south of the red planet. Bear in mind that by 7:45, the duo is less than 20° above the horizon (and slightly farther from each other), sinking to a mere 7° up an hour afterward. (If clouds are forecast for the 26th, the planets will be less than 1° apart on the evenings of the 25th and 27th—still a close pairing.)

Jupiter is here, too! The great planet is already high enough to be a good target around 2 AM at the beginning of the month, but you'll get an even better view by midnight at month's end. Also, Jupiter's disk spans 39" and shines at -2.2 magnitude in early February, but grows to 42" (and just *slightly* brighter) by the beginning of March. Opposition is on April 7th, so observing will improve just a bit more—but put on a coat and get out to see Jupiter now, because it's already almost as good as it'll get.

Saturn is now a dawn object clawing its way above the horizon—at the beginning of February, the planet is about 16° above the southeastern horizon an hour before Denver's 7 AM sunrise, increasing to about 24° at month's end (sunrise is then at 6:33).

Uranus has moved eastward from Zeta (ζ) Piscium, one of the stars that helped make the planet easier to find, but they still easily share a finderscope field at the beginning of the month—Uranus is less than a degree from Zeta then. By the end of the month, that gap doubles, but that's fine—after the 23rd and through the end of the month, Mars will be a far more efficient stepping stone. For those of you without go-to telescopes, Mars' proximity will make finding Uranus unusually easy—just center Mars in your finderscope, and look for Uranus—it will be either the brightest or second-brightest

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February Skies

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object, other than Mars (and in either case, the bluest one).

Neptune is low over the western horizon an hour after sunset at the beginning of February and completely gone in the solar glare as the month progresses—superior conjunction is March 1st.

Stars and Deep Sky

This month, we're touring the constellation Monoceros (the Unicorn), just east of Orion. It's easily overlooked because its brightest stars are just 4th magnitude, and they don't demand attention like the platoon of 2nd-, 1st-, and 0-magnitude luminaries in the surrounding constellations. That's a shame—there are some interesting and challenging objects in Monoceros, and they're not too hard to find. They make good star-hopping practice for newbies, and worthwhile targets for experienced observers.

Our first stop, then is **Epsilon (ε) Monocerotis**, at **6h 25m, +04° 35';** it's also known **"ε Mon"** for short and **8 Mon** on many charts (*and in some "go-to" telescopes' controllers*). Epsilon Mon is a beautiful and easy-to-split binary star, about 125 light-years from Earth: Its primary shines at magnitude 4.4, bright even in small telescopes, with a companion just two magnitudes dimmer. To my eyes, the pair appears "pale butter-yellow" and "pale lavender;" historical references describe similar hues but suggest deeper color. (As with most such observations, the pair's perceived colors and their descriptions are highly subjective—but it *is* true that different magnifications will show the colors to greater or lesser advantage, so try a few.)

At ε Mon's distance, the pair's 12.7" separation works out to a physical separation around 500 Astronomical Units (AU)—that is, 500 times the distance the Earth lies from our Sun. The primary star has an unseen stellar companion thought to be just over an AU away and lost in the brighter star's glare, and the "lavender" star orbits that inner pair… For an even deeper sense of scale of this star-system, consider that this comparatively "dim" outer purple companion is class-F, or just over a magnitude brighter than our own Sun (when seen at the same distance), and the primary star is more than 20 times more luminous than ours.

Happily, ε Mon lies very close to Orion, so Orion's bright stars can be used to find ε Mon. To start, imagine a cross shape, formed by four stars: ε Mon, Betelgeuse (the bright red star that marks one of Orion's shoulders), Bellatrix (Orion's other shoulder), and Saiph (Orion's foot); ε Mon and Bellatrix mark the ends of the cross's arms. Though ε Mon is dimmer than the stars we're using in Orion, it's still the brightest star in its immediate area—and easily seen with naked eyes in dark skies—so all you need is a look toward its approximate position and this star should suddenly become obvious to you. Notice that this "cross" shape is quite symmetrical—so in city skies, where ε Mon needs optical aid to be seen, you can guestimate its position by imagining where the end of the "missing" arm of the cross should be. Then look through your finderscope—though the finder's field will suddenly be crowded with other stars, just remember Epsilon is the brightest of them.

As an extra help (or alternative method), start at the clump of stars that make up Orion's "head" or "chin" and look from there to Betelgeuse. If you follow this line for 1½ times the "chin-to-Betelgeuse" distance, you'll find ε Mon again. Though this approach is easier for beginners to understand, I've found it less accurate than the previous one—use whichever method works best for you.

Our next target, the **Rosette Nebula and Cluster**, **NGC 2237 (cloud)/ 2244 (cluster),** is just *half a Telrad-field* from Epsilon Monocerotis, at **6h 33m, +04° 55'**. This huge arrangement of dust and stars is rather like the Orion Nebula, M42—except that its inner cluster is easier to see than Orion's, while the nebula itself is much more difficult. Both cloud-complexes possess young star clusters—each cluster has yet to blow away the surrounding nebula that gave birth to it, and the very hot blue stars still within both clusters don't last long and must therefore be of recent formation. Newer observations in infrared or x-ray show that both complexes hold far more stars—*thousands* of them—than can be detected in visual wavelengths; in the Rosette, the stars have opened up a larger hole in the center, making more of them visible through amateur telescopes.

The Rosette's cluster, NGC 2244, is easily seen, even in a 9x50 finderscope in the city. In a telescope, the cluster is nice enough at low power, but boosting magnification to 100-125x helps reveal chains of stars and other detail, without missing much of the cluster's center. (Try higher magnifications, too.)

The surrounding nebula though, is another story! Unlike the Orion Nebula, which glows easily in a 6-inch 'scope (or for that matter, *in a finderscope)* in the city—the Rosette will be a challenge under dark country skies. There are two main issues to overcome: the first is the nebula's lack of contrast—a UHC filter will make a noticeable improvement. I've read more than one report of observers successfully using a UHC filter with otherwise-*naked eyes* to view the nebula—as well as reports from experienced observers on large 'scopes who went home empty-handed without it.

The second issue is field of view, which explains part of the problem the big-'scope folks encountered. The Rosette spans well over a degree, while its central "donut hole," where you see NGC 2244, spans roughly ½°. For many folks (those with using instruments with long focal lengths), achieving a wide enough field to encompass the whole nebula and *still leave room around it for comparison with the surrounding sky,* is a real problem; at the other end of the scale, tighter views can "shoot through" the central hole and miss the nebula. If you're stuck in this double-sided situation, either find a buddy with a rich-field (i.e.; wide-viewing) telescope, or try this: Use high power (and the UHC filter) on an 8-inch or larger 'scope, slowly work your way out from the center, and then wander around the nebula's perimeter. The increased contrast of the magnified view may help you pick out patchy detail within the nebula, though your field will now be much too small to see the entire cloud all at once. (That's how this nebula was first discovered—in bits and pieces that initially seemed disconnected—and it's why the nebula itself has other NGC numbers associated with it, like 2238; each corresponds to a chunk of the cloud.) If you're new to observing, the nebula may be a bit much, but you can still check out the cluster!

Finding NGC 2244—the cluster—is easy: Once you've centered Epsilon Monocerotis, the cluster's "bowtie" shape should be visible near the outer edge of your finderscope! As a further aid, an adjacent yellow-orange star, 12 Mon, is brighter than the rest—it's not actually a cluster member, but it looks like one, and helps the cluster stand out in the finder. If your finderscope's view is less than 5° wide, slowly nudge your 'scope in the direction of Procyon (the bright star about 20° to the east) and the bowtie will soon appear—a slew of a degree or less should do it.

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Last on the list is **Beta (β) Monocerotis**; at **6h 30m, -07° 03'**, it lies a bit more than 10° from ϵ Mon, or about halfway from ϵ Mon to Sirius. (Beta is also called "β **Mon**" for short, and sometimes appears in star charts as **11 Mon**.) β Mon is a gorgeous three-star system, and a fine target even in the city.

The brightest of the three stars, β Mon A, is of the same class as its companions, but it cranks out about double the light that either of the other two does—more than 500 times our Sun's visible light, and 3,200 times our Sun when ultraviolet is counted (because these stars are so hot, UV light is a major part of their output). According to Prof. James Kaler (University of Illinois), β Mon A orbits the inner pair at a distance of nearly 1600 AU, in a *minimum* of 14,000 years.

From Earth, β Mon A appears more than 7" from the inner pair, an easy split even in small 'scopes. On the nights when seeing permits, all three stars are separated in the eyepiece, a fascinating and beautiful group. On lesser nights, or at lower magnification, the inner pair can take on a startling appearance—like a "hyphen" in space next to the brighter star, a noticeable "dash" to the bright "dot."

The inner two stars (known as β Mon B, and β Mon C) are close together, with a separation of only 2.8"—they can be tough to split, especially for beginners, and more so here in Denver with our turbulent air. (For comparison, they have roughly the same brightness and separation as the wider pair in the "Double-Double," Epsilon Lyrae.) On average nights, 200x should split them well enough with a 6-inch 'scope; on a good night, a 12-inch can do it easily at 120x, though the pair looks very tight. On poorer nights, it may take a full 300x—or the pair may not split at all (and thus, the "hyphen" appearance with β Mon A). Interestingly, because of β Mon's estimated 690 light-year distance from us, this tight-looking inner pair must be still at least 590 AU apart (and they must take the better part of 4,200 years to orbit each other).

To get to Beta Monocerotis, look toward the intersection of two imaginary lines, the first from Sirius to Betelgeuse, and the other running straight across Orion's belt and extending through the first. In dark country skies, you'll immediately notice two 4th-magnitude stars standing about 4° apart near that intersection—the "left" one (when Orion is seen standing straight up) is β Mon.

In the city, though, light pollution easily obscures both Beta Mon and Gamma Mon (the other star) to naked eyes, but both are easily seen in a finderscope. If you're "flying blind" and can't point at Beta visually, you'll likely be able to pick it up in a finderscope by aiming your Telrad at the estimated intersection (all the other necessary stars should be bright enough to remain visible). If by chance your finderscope view winds up including both Beta and Gamma, Gamma is of a yellower hue than Beta—if you still can't tell which is which, check them both out in the main 'scope. Don't get distracted by the other stars in the field—both Beta and Gamma should be brighter than any other stars in the finderscope. (It's also possible you could get Gamma in the finderscope and not Beta—if the star doesn't split into at least two pieces in the main 'scope, slew a few degrees away from Orion and look in the finder again for Beta.)

—See you next month.

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