

# SJAA EPHEMERIS

## SJAA Activities Calendar

Jim Van Nuland

### February

- 5** Fremont Peak star party. Sunset 5:35 p.m., New moon rises 5:57 p.m.
- 11** Hough Park star party. Sunset 5:43 p.m., 41% moon sets 0:11 a.m.
- 12** Observational Astronomy class, Hough Park, 8 p.m.
- 19** General meeting at Hough Park, 8 p.m., **Elections**, Jeff Moore, Mars Polar Lander and the latest results from Galileo
- 25** Hough Park star party. Sunset 5:57 p.m., 60% moon rises 0:21 a.m.
- 26** Fremont Peak star party. Sunset 5:57 p.m., 50% moon rises 1:15 a.m.

### March

- 4** Fremont Peak star party. Sunset 6:04 p.m., 1% moon rises 6:30 a.m.
- 10** Hough Park star party. Sunset 6:11 p.m., 27% moon sets 11:11 p.m.
- 11** Observational Astronomy class, Hough Park, 8 p.m.
- 18** General Meeting at Hough Park, 8 p.m., Mike Koop and Jane Houston Jones report on the Leonid Multi-instrument Aircraft Campaign
- 24** Hough Park star party. Sunset 6:24 p.m., 76% moon rises 0:02 a.m.
- 25** Fremont Peak star party. Sunset 6:23 p.m., 67% moon rise 11:59 p.m.

*Winter Fremont Peak star parties are "no host." See article inside for directions to observing sites.*

### *The Celestial Tourist ...*

## Observing Report and Telescope Report

### Stargazer Steve 3-inch

Jay Reynolds Freeman

Since I like to play with simple little telescopes, naturally I got around to ordering one of Stargazer Steve's 3-inch f/10 Newtonians. In late 1999, the price of this diminutive altazimuth beginner's telescope to customers in most of the United States was \$229 (US), plus \$34 shipping from Canada. That's not much for a complete telescope.

The Sgr-3 showed up six weeks after I placed the order, just in time for an observing trip to the Sierra Nevada foothills. It came very well packed in a generously oversize box, which I promptly managed to open from the wrong end. No matter — what was at the far end was a notice to watch the first part of the enclosed video before delving further into the box, and I didn't have a television — When would I find time for television? — much less a video player. I expect Steve chose video to introduce his equipment in order to make things as clear as possible to the technically challenged, but some of his customers may have chosen an inexpensive telescope because they can't pay more. They might not have a video player.

Fortunately, I had enough experience to figure out what to do next — spread the slender tripod legs, and slip the slotted hole of the wooden altazimuth head over the cylindrical pivot. Steve provided a square-tipped hex-drive bit to tweak the friction control, but I did not have to use it, the initial adjustment was fine. I removed the 17 mm Plossl eyepiece from the slip-fit

focuser tube, and verified that collimation was right on. Impressive — within a few seconds of getting the two assemblies clear of the packing, the telescope was ready to use.

For all its low cost and simple materials, the tiny Newtonian looked handsome and elegant. Light chains attached three hinged wooden tripod legs to the tripod's central pillar, a thick dowel that ran up through the tripod top to become the azimuth axis. A piece of thin wall chromed metal tubing, that looked suspiciously like sink trap J-tube stock, had been press fitted over the pivot end. The offset yoke that mounted there was also wood, as were the trunnions that held the OTA. The wood parts were nicely varnished. The tube was thick cardboard, finished with something more durable and waterproof that had a rough, dark-blue surface. A permanently aligned open tube provided a no-optics unit-magnification finder; it was finished black.

An old carry bag, bought for a 5-inch refractor OTA, would hold the entire new telescope, so I put it in, stopping only to add an improvised dust cap — a plastic-film refrigerator bowl cover with an elastic edge-band. Then I tossed the whole thing into my car, on top of the pieces of my Celestron 14, and set off for the weekend.

I had planned a lot of observing with the C-14, and wasn't even sure I would get to try the three-inch, but December weather put a chilly damper

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## The Celestial Tourist

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on my intentions. When I arrived at the site Friday evening, temperatures were dropping toward freezing, cold dew and frost covered all exposed surfaces, and masses of thin cloud drifted slowly past, covering much of the sky, but with tantalizing sucker holes now and then. It was a poor night to fuss with big iron, but just right for playing with an instrument with a 30-second setup time.

I spent most of the evening doing what I usually do with a new telescope — chasing Messier objects. Eastern Capricorn was well placed when I began, as was the summer Milky Way

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*For all its low cost and simple materials, the tiny Newtonian looked handsome and elegant*

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north of Aquila. During a few hours' intermittent observing, I looked at nearly all the Messier stuff from M30, M72, and M27 in the west, around to the Beehive Cluster in the east — forty-two objects altogether — plus Jupiter, Saturn, a couple of double stars, and a handful of other deep-sky objects.

The little reflector did well. I decided to simulate a beginner by using only the eyepiece that came with it, and at 45x, the instrument probably did not show all the planetary detail that more magnification would have provided. Even so, Jupiter revealed several nice belts and moons, Saturn's rings seemed too perfect to be real, and I could suspect the Cassini division.

At only 45x, none of the Messier globular clusters I looked at showed any sign of resolution, though several, such as M15, M2 and M30, showed noticeable central brightening. Many Messier open clusters were well resolved, some spectacularly so, such as M44 and M45. M57 showed its tiny doughnut, M27 resembled an apple core, and M76 was visibly elongated. I saw the Owl Nebula, M97, as a tiny featureless disc. Several Messier

galaxies showed elongation (M108) or hints of structure — I could sense the first bends of the big spiral arms of M33, and could see star cloud NGC 206 in M31. M42/43 was the prize view of the night, showing much detail in the wide wings of the Orion Nebula, four stars in the Trapezium, and, if not true color, at least a sense that some parts of the nebula had a warmer hue than others.

The three-inch probably would have needed more than 45x to do well on double stars, too. I split Polaris, and suspected the companion of Rigel, but closer pairs were merely tantalizing, and perhaps the seeing wasn't up to scratch as well. I will have to try more magnification on a better night. But it went noticeably deeper than the Messier catalog: A little to my surprise, I could easily see the Merope Nebula in the Pleiades: I would have thought 45x too much for such an observation with a three-inch. Near zeta Orionis, NGC 2024, the Tank Tracks or Flame Nebula, was not difficult, nor was the much smaller nebula NGC 2023, surrounding a star south and east of zeta. Several other stars of similar brightness, but without nebulosity, provided a check that what I was seeing for NGC 2023 was not mere scattering in atmosphere, optics, or my own eye. Near M35, the more distant galactic cluster NGC 2158 appeared granular, and I could see the blobby nebulous complex of NGC 1973, 1975, and 1977, just north of the Orion Nebula.

Conditions were much better the next night, so I mostly used my C-14. But as I was getting ready to leave the site, I hauled out the three-inch again, for another quick look. I

logged two more Messier objects and — since winter holidays were drawing nigh — chased down the Christmas Tree Cluster. Nearby, I could see the ghostly nebulosity of the Rosette Nebula as well as resolve the associated star cluster.

During the next week, a brief trip to a close-in site provided a chance to try a few more objects. The Moon looked wonderful, but it is hard to find a telescope in which it doesn't. It was nearly at half phase, and the three-inch Newtonian gave a fine view of the Straight Wall, just as its shadow was beginning to disentangle itself from the terminator. And I took a look at Albireo, whose wide separation and bright yellow and blue colors showed prettily at only 45x.

The 3-inch continued to be swift and simple to set up, and was quite easy to use. It moved smoothly but not

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*The Stargazer Steve 3-inch f/10 reflector*

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## SJAA Sports New Online Names

Morris Jones

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too freely, the tube was well balanced, and the eyepiece and finder sight were far enough apart not to get in each other's way. Even in the heavy dew of my first night in the Sierra foothills, the finished surface kept the cardboard tube dry.

To my surprise, I found the peep sight finder difficult to use — the problem was that the triangular sight at the eye end of the sighting tube was hard to see — it was in the dark tube, and close enough to my eye to be out of focus. I usually had to scan for objects, even when I had done my best to locate them with the sight. Perhaps I will improve with practice, but I suspect that even a minimal magnifying finder would have made it easier to locate

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objects. Furthermore, in order to use the sighting tube, I had to keep my glasses handy. I usually observe with them sitting safe in the car, since I have had too many experiences with glasses dropped or scratched while putting them on or taking them off in connection with looking through an eyepiece. Yet I am nearsighted, so I had to use them for the sight, then take them off for the main eyepiece. That kept me worried about breaking them, and sometimes encumbered a hand I wanted free. I will probably put a cheap straight-through magnifying finder on this telescope if I keep it for long.

All in all, the Stargazer Steve Sgr-3 is a fine beginner telescope, well thought out and well made, with many virtues and few vices. A beginner unable to afford a six-inch Dobson and wanted something more versatile than a binocular, could do far worse than order one.

The San Jose Astronomical Association has finally made a name for itself on the net.

It would seem that the logical internet name for the SJAA would be sjaa.org. Unfortunately that name already belongs to the South Jersey AIDS Alliance. SJAA.com belongs to the San Jose Arena Authority. In the "Big Three" domains, .com, .org, and .net, the sjaa.net name was still available. Now it's ours — sjaa.net belongs to the San Jose Astronomical Association.

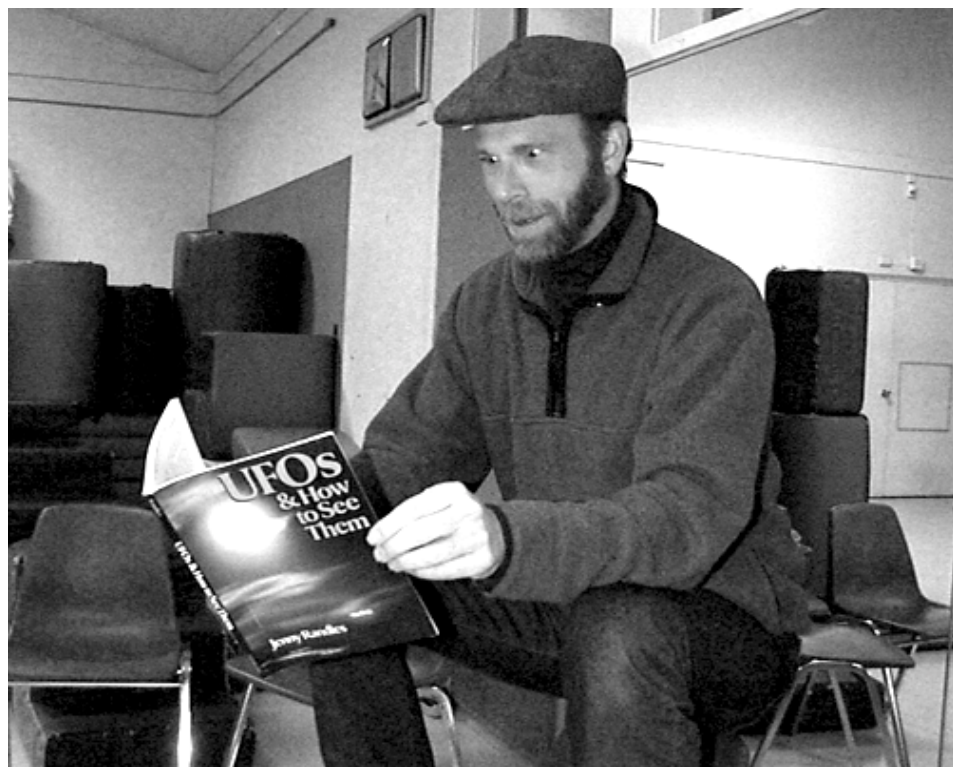
As of early this year, SJAA members can now reach our web page and mailing lists by using the nifty and mnemonic name of sjaa.net. Ephemeris articles may be sent to "ephemeris@sjaa.net." Email aliases will soon be available for SJAA officers as well. The member mailing list can be reached at sjaa@sjaa.net.

Before we actually acquired the .net domain name, we registered a

name in the free ".US" domain as well: astronomy.san-jose.ca.us. While obviously the sjaa.net address is considerably less typing, one must admit there is a certain attractiveness to the name astronomy.san-jose.ca.us. If only it weren't for that pesky required hyphen in the middle of "san-jose," that might have been our preferred name. As it is, we don't have to choose; both names will get you to the SJAA web site or email aliases.

The SJAA web site is graciously hosted by the University of Arizona Students for the Exploration and Development of Space, www.seds.org. Seds will continue to host the web site and mailing lists for the foreseeable future. The new SJAA domain names will direct you to the official web site wherever it happens to live.

All of the existing email addresses and web addresses will also work for the foreseeable future.



*"You have seen the UFOs, haven't you Dave?"*

## Mooning

David North

Probably you noticed last month I forgot to mention the actual date of the lunar eclipse ... a somewhat embarrassing omission. Ooops!

As far as I can tell, there are no hot moon events this month. We miss an Aldebaran occultation by being on the wrong part of the planet. There are the usual "moon near planet" events.

Librations are generally unfavorable for any unusual views. The northern and southern librations are fairly strong, but not that close to full, when they show to best effect. East and west occur when the limbs are dark.

So what's left? Elevation, of course! Maximum height in the sky. Over 73 degrees up, to be nitpicky, which is wayyy up. Less atmosphere, better seeing... incredible views.

But when?

The answer is basically around the 15th of the month, when the moon will be starting to seriously approach full, and many people are thinking about not looking.

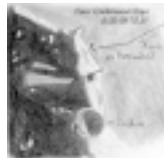
A serious mistake.

It's also when Mare Humorum and its next door neighbor Palus Epidemiarum are starting to do their thing — and these are two of the very best places on the moon!

(Also bear in mind that there are plenty of other worthwhile targets on the western quadrant, but we're only going to talk about these two right now...)

If I got the numbers right, showtime starts about 8pm on the 14th. You can start an hour earlier and it will make little difference, but this is the prime time.

At that point, the terminator will be cruising through Palus Epidemiarum, the "Marsh Of Disease."



*Palus Epidemiarum - sketch by Akkana Peck*

Not a very attractive name, but perhaps a little descriptive because of the "bad skin" look of the area.

Why bad? Because I also call this area "Rilleville." It contains the incomparable Rimae Ramsden, a crosshatch filigree across most of the floor of the marsh.

They are fine and rich in detail, yet not too difficult: I've nailed them all in fine seeing with a 4.5-inch reflector. And if we get any cooperation from the sky, this should be fine seeing indeed.

You should also be able to trace Rima Hesiodus from the eastern half of Palus Epidemiarum running eastward

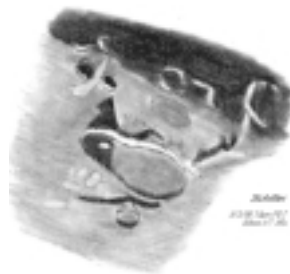
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### *They look as if some huge bird had drawn its talons in an arc across the opening ...*

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through maria, valleys, craters and mountains all the way to Hesiodus itself, over 15 degrees of the moon's surface!

During the evening, the front edge of Mare Humorum should also be coming into the light, showing the ends of the Rimae Hippalus clawmarks. These are really easy rilles, visible in practically any scope. But they'll be at their best the next night, the 15th, at around 9pm. Again, a bit earlier and later will be every bit as good, really. Then you should be able to see why I call them clawmarks. They look as if some huge bird had drawn its



*Schiller, one of the "worthwhile targets" in the western quadrant. Sketch by Akkana Peck*

talons in an arc across the opening of Mare Humorum... and there are plenty of other rilles around as well: just pay attention to the edges of the Mare especially. They should show in just about any scope.

But be sure to stop for a long visit at the spectacular ruined crater Gassendi.

Again, rilles. But this time they are spread all around the floor of the crater, along with a fascinating complex central peak.

There's plenty to see inside the old monster, but the rim also shows an interesting effect where it dips into the Mare and disappears — apparently melted by the flows of lava that formed Humorum.



*Schroter's Valley spots - sketch by Akkana Peck*

Please take the time both nights (and the nights before and after) to inspect the entire terminator zone, carefully. This is some of the best stuff on the moon, and this is as good a shot as you'll get at it any time during the year.

If there is any one thing I'd like to get across this month, it's that the area of Humorum/Epidemiarum is prime moon real estate, to be looked at whenever possible.

For some reason (perhaps that we are approaching full, maybe just because of all the silly names in this area) they are overlooked even by experienced loonies.

A true tragedy.

Get to know the western edge; in many ways it's the best the moon has to offer.

Want a huge bonus? Keep an eye out for Schroter's Valley up north. See if you can see the cobra, complete with head... might take another night.



## Directions to Observing Sites

Here are some of the observing sites used by SJAA members and other amateur astronomers around the Bay Area.

### Houge Park

Houge (rhymes with "Yogi") Park is in San Jose, near Campbell and Los Gatos.

From Hwy. 17, take the Camden Avenue exit. Go east 0.4 miles, and turn right at the light, onto Bascom Avenue. At the next light, turn left onto Woodard Road. At the first stop sign, turn right onto Twilight Drive. Go three blocks, cross Sunrise Drive, then turn left into the park.

From Hwy. 85, take the Bascom Avenue exit. Go north, and turn right at the first traffic light, onto White Oaks Road. At the first stop sign, turn left onto Twilight Drive. You will now be passing the park. Turn right at the first driveway, into the parking lot.

Between the parking lot and tennis courts is a strip of grass where public star parties are held. The meeting hall is directly ahead (south) of the parking lot. There are restrooms on the other side of the hall.

### Grant Ranch

Grant Ranch County Park is located on Mt. Hamilton Road, which is also Hwy. 130, leading to Lick Observatory.

From Hwy. 101 or Hwy. 680 take the Alum Rock Ave exit east. 2.2 miles from 680 turn on right (south) Mt. Hamilton Rd. (Hwy. 130) and go 7.7 miles to the park, on the right. (Mt. Hamilton (Lick Observatory) is 11 miles farther.)

If you're starting from south of 280, take the Tully Road east exit from Hwy. 101. Turn right on Quimby Road which curves around Eastridge Shopping Center. Continue over the hill and back down (about 6.5 miles). Turn right on Mt. Hamilton Road. Grant Ranch is on the right just 0.2 mile from the intersection.

After entering to park follow the main road to the tee; turn left into the parking area where the observing session is held. There is a \$2 fee.

Note that the park closes at

sunset and you will not be able to get in at night except for officially scheduled events (usually organized by HVAG) or by special arrangement with the ranger.

### Henry Coe

Henry Coe State Park is located east of Morgan Hill in the Hamilton Range.

Go south on Hwy. 101, past San Jose toward Morgan Hill. Take East Dunne Ave. Follow it east, past Anderson Reservoir, up the mountain for 12 miles. Eventually you'll cross a cattle guard, then an additional half mile brings you to a sign identifying the Park, and immediately afterward on the right, a parking lot; this is the SJAA observing site. The main park and campground are a half mile farther on. The park fee is \$5 per vehicle, payable in the drop-box at the park entrance. PLEASE NOTE that the Coe star parties are lightly attended, so there may be nobody there, even when the weather is favorable.

### Fremont Peak

Fremont Peak State Park is south of the village of San Juan Bautista.

From Hwy. 101, about 11 miles south of Gilroy, take the eastbound Hwy. 156 exit, towards San Juan Bautista. Go 3.0 miles, to a traffic light, and turn right onto county Hwy. G1 (San Juan Canyon Road). The traffic light is labeled "The Alameda". Go straight through the next intersection (don't turn left here) following a sign to the park. After a quarter mile or so, the

road forks. Take the left fork. It then immediately forks again, this time go right. You should see a small brown sign saying "Fremont Peak State Park 11 miles." The road follows up the canyon and the winds up a ridge into the park.

The park charges a \$3 use fee for day use, \$7 for camping (the fee for astronomy is \$3 unless you set up a tent, etc.; sleeping after observing in or next to your car doesn't count as "camping"), payable in any of several drop-boxes.

There are several areas within the park used by astronomers. Except for winter months, the Observatory is the contact point for SJAA activities at Fremont Peak. Check in there to find out who and where to meet. But note that only FPOA members are allowed to setup behind the ranger's house or next to the observatory. (In all cases, please be careful with your headlights.)

At first, of course, you'll want to have others around to lend a hand as needed. But feel free to go to the parks on your own time, as they are open to the public. One needn't attend the club function; go where you feel you'll get the most from it. Be aware, though, that the locked gates and closing times will apply, and the special arrangements are usually available only with prior arrangement. You might ask the ranger if he will put the SJAA lock in the gate for you, but don't be upset if he declines.

Maps are available from the SJAA web site, [www.sjaa.net](http://www.sjaa.net).

## SJAA Receives Cash Award

Jim Van Nuland

The Andrah Foundation has donated \$550 to SJAA for support of education and public awareness of astronomy. Since nearly all of our programs are educational, the direction will be easy to follow.

Thank you to SJAA members Paul and Ann Summers, who are the local representatives of the Foundation.

## School Star Parties

Following is a list of upcoming school star parties. To join in, contact Jim Van Nuland at the number in the back of the Ephemeris.

### February

- 2 backup for Bernal Elementary
- 8 Dove Hill Elementary
- 10 Working on this one. Hold the date.

### March

- 8 Haman Elementary

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## Shallow Sky In February

Akkana Peck

Planet watchers in February still have Jupiter and Saturn as early evening targets all month. Jupiter is getting low, though ... get your Jupiter watching in now, as it'll be too low by next month to see the finer details! This month, though, observers should still be able to see the many festoons and swirls which have appeared during this apparition of the giant planet.

Some possibly interesting transits (from my applet <http://www.shallowsky.com/jupiter.html>):

- Feb 4 around 7 p.m.: Io's shadow transits with the GRS.
- Feb 5 at nightfall, and ending a little after 7 p.m.: Ganymede and Europa's shadow transit together, with Ganymede's shadow following at 10 p.m..
- Feb 11 from 7-10 p.m.: Io transits with the GRS, followed by Io's shadow.
- Feb 12 around 8 p.m.: Europa, Europa's shadow, and Ganymede are all near transiting: watch one leave Jupiter's disk while another enters.
- Feb 19 (a new-moon Saturday), around 11 p.m.: Europa and its shadow transit, followed later by Ganymede.

Saturn still presents a showy ring tilt, several gaps in the rings for observers blessed with steady skies (which unfortunately are more difficult to come by during winter months), and lots of subtle shading on its rings.

Mars is still visible in the evening twilight below Jupiter, but won't show much detail in a telescope. During the first half of the month, Mercury joins the evening planet lineup, in the west-northwest and reaching greatest elongation on the 15th, but by late February it will be lost in the sun's glare. Shallow sky observers can watch fast-moving Mercury drop from magnitude -1.1 at the beginning of the month all the way to +4.3 by month's end, and change phase from nearly full to nearly new!

Venus hangs low in the morning

twilight sky, showing a small and very bright gibbous phase to a small telescope. On the 2nd, the moon will pass 1.4 degrees north of the planet, which should offer a lovely view for early risers; those of us who don't follow Ben Franklin's advice ("early to bed, early to rise ...") so closely might enjoy the challenge of looking for the crescent moon (3 days before new) during the daytime, then using that to find nearby Venus.

Uranus and Neptune are too close to the sun to be good observing targets this month, though morning observers might want to try for Neptune half a degree north of Venus (so the two

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*Late February is a good time for northern observers to look in the west after dark for the zodiacal light*

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should be visible in the same low-power telescope field) on Feb. 22nd, or Uranus just slightly farther from it on March 4.

Asteroid fans might want to try for the eighth-magnitude asteroid 2 Pallas this month, as it passes by M93 during the first few days of February or by M47 and nearby M46 at month's end. The February issue of Sky & Telescope magazine has a finder chart.

Since the ecliptic rises steeply from the horizon this month, Late February is a good time for northern observers to look in the west after dark for the zodiacal light, the faint band of light resulting from the sun's reflection off tiny particles crowding the ecliptic.

Finally, on the third planet out, don't forget the leap day on February 29th! Usually centuries aren't leap years, but every 400 years, we have to add a day to keep up with the earth's orbit.

## *The Central Bulge*

### The Honey Moon — Observing Tips for Lovers Jane Houston Jones

Are you looking for Mr. or Ms. Right under starry skies? Do you want to introduce a special person to your hobby? Do you want to encourage the love of your life to share your passion for spending long cold nights outside, bundled up like a sausage roll? Well, you've come to the right place!

Romance is certainly in the wintery air. February is a great month for romance. Valentine's Day is just one special night this month. How can you bypass the chance to whisper the 6 minutes of Christine Lavin's Planet X song into the ear of your beloved on Clyde Tombaugh's birthday, February 4th? Or observe Jupiter's four biggest and brightest moons on Galileo's birthday on the 15th? Copernicus was born on February 19th—a full moon night this month—the best night to view the gorgeous rays of his namesake crater on the moon! Zeppo Marx was born on the 25th. You can do what ever you like on his birthday. Tell silly jokes and make bad puns, perhaps? And on the 29th, it's national leap day! What a month! There's even a partial solar eclipse over Antarctica on the 5th, if you want to practice snuggling to keep warm.

There's no reason not to mix astronomy and romance, as long as you observe a few simple rules of the road. I've collected some of these from personal experience, and some from friends who shall remain nameless.

**Music:** Music can be good and it can also be very bad. If you are fond of new age music that never ends, and your love interest isn't, you may find that (s)he has gone on a long hike in the dark. Choose your music carefully. Perhaps saving the music for the drive home is the best advice. Why not just leave it home in the first place, and make your own music?

**Food:** Warm stuff like coffee or hot chocolate or Windsor 1996 Merlot

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are very good things to bring. Decadent treats like chocolate chip cookies (not the kind that come in a plastic tray from the grocery store) or brownies or anything chocolate are very smart choices. Huge cashews make me swoon — they are especially good with that Merlot! I'll bet I'm not the only one who loves chocolate and hot things on a cold night. The combination of fat and caffeine may extend your evening if you are lucky!

**Personal Space:** One of the real smart romantic tips involves helping your beloved to the eyepiece. It may involve holding his hands or steadying his backside while he negotiates a ladder. Or gently touching her shoulders, to assist in the positioning of eye to eyepiece. It is acceptable to remain close to your paramour during these

trips to the eyepiece. It is also acceptable to lean close and whisper sweet NGC's into her ear. "That's NGC 7331, isn't it lovely?" or "Can you see how close the small companion is? Don't they look nice together?"

**Sharing Telescopes:** If you both have telescopes, don't show off and quickly grab that galaxy he has been hunting for the past half hour. Express great pleasure at the sight through her telescope before saying, "Why don't you take a look at the same object through MY telescope, dearest?"

**Packing up:** It is advisable and preferable, if you must drop an eyepiece or telescope part, to do this with

your OWN equipment. This is especially important when transporting mirrors, at least on the first date.

**When is it time to go (but you don't want to):** If your beloved is prone to falling asleep, gently cover him with lots of warm things, so you can keep on observing for another hour.

**When it is time to go (and you really want to):** Pack up your telescope, sit in the car, and play that new age music!

I hope you all have a wonderful February observing with your sweetheart. Make every moon your honey moon in one way or another. I know I plan to do just that — every month!

### *The Central Bulge*

## Support Fremont Peak

Morris Jones

The most precious resources to amateur astronomers are a dark, clear sky and a comfortable place to set up a telescope.

Here in the South Bay we're fortunate to have unlimited access to an excellent place for amateur astronomy, Fremont Peak State Park.

When the marine layer conspires to cover the encroaching civilization, Fremont Peak is a magical place to spend a summer night under the stars. On many nights the coastal inversion layer gives the peak warm, shirtsleeve temperatures that make it easy to observe all night long. The camaraderie of fellow stargazers makes for a rewarding experience.

Astronomers presently enjoy a very good relationship with the state park service and particularly ranger Cameron Bowers and supervisor Mary Pass. The state park is pleased to have amateur astronomers use Fremont Peak, and the park service continues to provide support for astronomy activities at the park. In exchange, members of the Fremont Peak Observatory Association provide volunteer interpreters to conduct public astronomy sessions on dark Saturday nights.

More support for astronomy and astronomers is possible at Fremont

Peak State Park, and rumor has it there are a lot of exciting projects under discussion. In the next few years, significant amounts of money may become available for improvements to the park specifically to further amateur astronomy.

This year the cooperative agreement between the state park service and the Fremont Peak Observatory Association is up for renewal, and negotiations are under way. Now more than ever it's important to maintain the favorable impression the park service has of astronomy and amateur astronomers. You can help by cooperating with FPOA and the park rangers. Be a positive influence. If you observe at Fremont Peak, consider joining the FPOA and attending one of their volunteer orientation sessions.

Help make life easy for the park ranger as well. For us, Fremont Peak is a place for marathon astronomy sessions, but for Ranger Bowers, it's also his home. By respecting the few park rules, we can add to the favorable image amateur astronomers have with the park service. Fremont Peak is not just an observatory, it's also a park and wildlife habitat.

If we take care of Fremont Peak, we might be surprised at how well Fremont Peak takes care of us.



*SJAA Ephemeris co-editors Morris Jones and Jane Houston Jones tied the wedding knot on January 15, 2000. They met doing public astronomy at Fremont Peak Observatory in 1998.*

## Comet Comments for February 2000

Don Machholz

No bright comets are in our skies these nights so this Comet Comments contains no ephemerides or orbital elements. This gives us the opportunity to look back at 1999 and to discuss the comets we hope to see this year.

Amateurs Gary Hug and Graham Bell of Eskridge Kansas discovered a new comet on CCD images they took through a 0.3-meter Schmidt-Cassigrain reflector on Dec. 10. The comet was magnitude 19 and near the Beehive cluster when found. Comet 1999 X1 (Hug-Bell) has a seven year orbital period and stays outside the orbit of Mars.

The LINEAR program found its final comet of the year on December 20. Comet 1999 Y1 is more than a year from its perihelion, which is a distant 3.2 Astronomical Units.

Fifty-six comets were discovered in 1999. Only 7 of them are periodic-returning in fewer than 200 years.

Who made these discoveries? The LINEAR project in New Mexico, designed to find asteroids and comets that may hit the earth, found 20 comets. Many of them were first thought to be asteroids before closer examination (often by others) detected a coma or short tail.

The SOHO program found 19 comets. SOHO is a spacecraft in solar orbit, about a million miles from the earth. It constantly monitors the solar region and has taught us a great deal about the sun. SOHO's comets are very bright and are often part of the Kruetz sungrazer family. Most of the SOHO comets are seen entering, but not exiting, the solar region. It is believed that they disintegrate as they pass near the sun.

Amateurs visually discovered three comets. All were Australians: Tillbrook, Lee and Lynn. All three comets were found south of the equator.

Four other amateurs, in two teams of two, used their own CCD's to discover comets. Korlevic and Juric found a comet in February, while Hug and Bell found one in December.

The remaining twelve comets were found by those using professional equipment, often in the search for hit (or near-miss) asteroids and comets. Incidentally, for each comet they find there are hundreds of asteroids found.

The year 2000 doesn't line up to be a great year for comets, but you never know when a bright one will be discovered. Comet LINEAR (1999 S4) was expected to reach magnitude 3 in July when it will be placed in the northern polar region. However, recent observations show that the comet is slow to brighten as it moves toward the sun, and during one stretch the dust production decreased rather than increased. Now at 14th magnitude, it will be interesting to see what happens before we lose it in the solar glare in early April. Comet McNaught-Hartley (1999 T1) may reach magnitude 6 late this year, but it is within 70 degrees of the sun and far south until then. Finally, Periodic Comet Encke will be briefly visible from each Hemisphere late in the year.

**Comet Hunting Notes:** The first visual telescopic comet discovery was in 1680. In the 1760's Charles Messier and others competed to visually discover new comets. The first photographic comet find was in the 1890's. For one hundred years these were the two chief methods of finding comets. So what happened in 1999? 56 new comets were discovered. Three were visual. Two were photographic. Fifty-one were found by CCD's.

Don Machholz  
(530) 346-8963  
DonM353259@aol.com

## Celestial Calendar

February 2000

Richard Stanton

### Lunar Phases:

	Date	Rise	Trans	Set
NM	05:03 PST	05	07:21	12:38 18:00
FQ	15:21 PST	12	11:20	18:15 00:11
FM	08:27 PST	19	18:11	01:01 07:04
LQ	19:54 PST	25	00:21	04:58 10:27

### Nearer Planets:

Dt	Rise	Tran	Set	R.A.	Dec.
<b>Mercury ... 0.87 A.U., Mag. 0.0</b>					
07	07:53	13:24	18:55	22:22.0	-11:00
17	07:34	13:25	19:17	23:05.0	-04:13
27	06:42	12:35	18:28	22:57.5	-02:46

### Venus ... 1.40 A.U., Mag. -4.2

07	05:21	10:13	15:05	19:11.8	-21:56
17	05:29	10:26	15:24	20:04.3	-20:24
27	05:31	10:38	15:45	20:55.5	-17:52

### Mars ... 2.10 A.U., Mag. +1.0

07	08:50	14:48	20:46	23:47.7	-01:58
17	08:28	14:36	20:44	00:15.5	+01:11
27	08:07	14:24	20:42	00:43.2	+04:17

### Jupiter ... 5.35 A.U., Mag. -2.2

07	10:12	16:47	23:22	01:48.7	+10:03
17	09:37	16:14	22:51	01:54.7	+10:38
27	09:02	15:41	22:20	02:01.4	+11:17

### Saturn ... 9.40 A.U., Mag. +0.8

07	10:50	17:35	00:23	02:37.0	+12:57
17	10:12	16:58	23:43	02:39.1	+13:10
27	09:35	16:21	23:07	02:41.8	+13:26

SOL Star Type G2V Intelligent Life in System ?  
Hours of Darkness

10:31	07	07:06	12:22	17:38	21:21.1	-15:29
10:11	17	06:55	12:22	17:49	22:00.5	-12:11
09:49	27	06:42	12:20	18:00	22:38.7	-08:34

### Astronomical Twilight:

		Begin	End
JD 2,451,581	07	05:38	19:06
	591	05:28	19:16
	601	05:15	19:26

### Sidereal Time:

Transit Right Ascension at Local Midnight

07 00:00 = 08:59

17 00:00 = 09:38

27 00:00 = 10:18

### Darkest Saturday Night:

05 February, 2000

Sunset 17:36

Twilight End 19:05

Moon Set 17:58

Dawn Begin 05:39

Hours Dark 10:35



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## SJAA Loaner Scope Status

All scopes are available to any SJAA member; contact Mike Koop by email (koopm@best.com) or by phone at work (408) 473-6315 or home (408) 446-0310 (Leave Message).

### Available Scopes

These are scopes that are available for immediate loan, stored at other SJAA members homes. If you are interested in borrowing one of these scopes, please contact Mike Koop for a scope pick up at any of the listed SJAA events.

# Scope	Description	Stored by
7	12.5" Dobson	Jeff Crilly
8	14" Dobson	Darryl Lambert
19	6" Newt/P Mount	Dean Sala
23	6" Newt/P Mount	Glenn Yamasaki
24	60mm Refractor	Michael D. Turner
26	11" Dobson	Dean Sala
30	7" f/9 Newt/Pipe Mount	Mike Koop

### Scope Loans

These are scopes that have been recently loaned out. If you are interested in borrowing one of these scopes, you will be placed on the waiting list till the scope becomes available after the due date.

# Scope	Description	Borrower	Due Date
1	4.5" Newt/ P Mount	Esme Wong	3/23/00
3	4" Quantum S/C	Doug Hendricks	3/17/00
6	8" Celestron S/C	Richard Burks	3/18/00
15	8" Dobson	Gary Strawn	3/17/00
16	Solar Scope	Michael D. Turner	2/20/99
27	13" Dobson	Al Kestler	3/17/00
28	13" Dobson	Bruce Horton	2/14/00
29	C8, Astrophotography	Steve Sergeant	1/23/00
32	6" f/6 Dobson	Rob Dewis	3/18/00

### Extended Scope Loans

These are scopes that have had their loan period extended. If you are interested in borrowing one of these scopes, we will contact the current borrower and try to work out a reasonable transfer time for both parties.

# Scope	Description	Borrower	Due Date
2	6" f/9 Dob	John Paul De Silva	?
9	C-11 Compustar	Paul Barton	Indefinite
18	8" Newt/ P Mount	Dave North	Repair
21	10" Dobson	Ralph Seguin	Repair
31	8" f/8 Dobson	Lee Barford	1/23/00

### Waiting List

6	8" Celestron S/C	Al Kestler
26	11" Dobson	John Templeton
29	C8, Astrophotography	Douglas Hendricks

### Notes:

Thank you to Mike Rupe for the donation of two eyepieces and a barlow lens!

### Periodical Publication Statement

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### Submit

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Membership - \$15

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Make checks payable to "SJAA"

Bring this form to any SJAA Meeting  
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