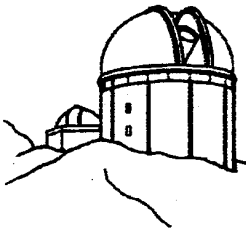

SJAA EPHEMERIS

Editor's Extras

(Layout Note: Dave has asked me not to put his "articles" on page 1, but because Fremont Peak is on everyone's mind, and composes a major portion of this month's issue, I felt it appropriate to insert his Extras here this month. So fire me, Dave.)

If there's a theme for this issue, it's Fremont Peak. And that may be fitting, since longtime astronomy advocate and FPOA mover and shaker Ranger Rick Morales is retired now (teaching), and the transition of administrations is something of a mystery to most of us. There is some concern about the astronomical future of the park, and as further information is available, we will publish it.

There will be a March meeting of the FPOA to discuss these issues; when the meeting is firmed up, we'll also publish more information.

This month's meeting could be very interesting, since it will be a collection of short presentations on various subjects by SJAA members. The downside is, I'll be one of them (explaining various arcane aspects of the Ephemeris).

The Beginning Astronomy Class on the 14th will be outstanding; Jay Freeman will be giving his presentation on binocular astronomy, and there simply isn't anyone I know of in the world better suited or more experienced to talk on the subject of using small refractors....

I got a copy of an interesting ad from Jane Houston of the SF Sidewalk Astronomers in (where else) Marin County that proves we have been negligent about the latest trends in astronomy. Jane sez:

Thought you'd enjoy a snippet about an event one of our Sidewalk

See **Extras**, p. 5

February

- **6** Houge park star party. Lyceum school group will be attending. Sunset 5:38 pm, 82% moonset 4:08 am.
- **7** General meeting 8 pm. Open board meeting 6:30 pm.
- **14** Beginning astronomy class "Binoculars For Astronomy" with Jay Freeman at Houge Park, 8 pm.
- **20** Houge park star party.
- **21** Star party at Fremont Peak.
- **28** Star parties at Fremont Peak, Coe. Sunset 4:56 pm, 3% moonrise 6:07 am.

March

- **6** Houge park star party. Sunset 6:07 pm, 69% moon sets 2:57 am.
- **7** Beginning Astronomy class "Telescope Types and Mounts" at Houge Park, 8 pm.
- **14** General Meeting at Houge Park, 8 pm, Speaker Don Machholz will discuss the Messier Marathon, which is ideally done later in the month. Open board meeting 6:30 pm.
- 20 Houge park star party. 6:20 pm, 52% moonrise 1:19 am.
- **21** Star party at Fremont Peak. Sunset 6:19 pm, 41% moonrise 2:08 am.
- **28** Star party at Fremont Peak, Coe. Sunset 6:25 pm, 2% moon sets 7:26 pm.

Please note that SJAA insurance only covers SJAA members at SJAA sponsored events.

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SJAA Hotline: (408) 559-1221
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Lost In A Northern Libration

Akkana Peck

Last Sunday night, December 13, I took advantage of a rare clear night and a good northern and eastern libration to try to find my way around the far-northern regions of the moon, using a 4.5" reflector and a low-power eyepiece.

Anaxagoras and its extensive ray system dominated the north pole area of the just-past-full moon. I wasn't sure until later that it was Anaxagoras; Rukl doesn't show ray detail in his charts, and it's sometimes difficult to guess which of many craters might be the one showing rays. Cherrington (*Exploring the Moon Through Binoculars and Small Telescopes*) came to the rescue with his labeled photos of the moon at different phases. Wouldn't it be wonderful to have a detailed lunar atlas which showed the moon in different lighting conditions?

On the eastern limb, Mare Humboldtianum showed a nice double-ring structure, like a smoothed and weathered Orientale. Belkovich wasn't visible, but its near wall showed as a mountain range on the northern end of Humboldtianum. Nearby Hayn extended its central peak up into the last rays of the setting sun.

North of Anaxagoras on the limb, a very prominent crater, already in darkness, caught my eye, and I tried to identify it. I tried tracing craters from Plato past Anaxagoras, but there were too many small

See **Lost**, p. 5

Volume 9 Number 2 Official Publication of the San Jose Astronomical Association. February 1998

In Pursuit Of Ursa Major

Jay Freeman

I got lost several times trying to find my friend's private observatory, in the Sierra Nevada foothill community of Bear Valley, California. It was dark — very dark, for those used to suburban sky, which is why several of us had responded eagerly to the generous invitation to come out and observe during the week after Christmas.

I was reluctant to try at random but finally I picked a likely driveway, turned in, and nearly ran over a big Dobson. "This must be it," I thought.

Did I say it was cold? Well, it actually wasn't, not by the standards of where I grew up, but temperatures were below freezing, and I did have occasion to put on my powder pants, down-filled booties, and three layers of sweat-shirt, down vest, and jacket. But the wonderful dark Sierra sky was worth a little discomfort, and soon I was happily chasing galaxies at 97x, listening to the rustle and scurry of happy little woodland critters in the deep night around me.

After an hour or two, the diners returned. I walked down the road toward where they had parked. "Hello," said someone cautiously, to which I replied in my deepest and most mysterious voice, "I am the ghost of James Lick...." Fortunately, I was in the right place after all, for that remark was met with laughter rather than alarm.

Four of us were present — my friend, her husband, me, and one more observer. First order of business was a tour. Having been shown where the sanitary facilities were, I was eager to learn more about the observatory. It is ten feet by twelve feet. The roof rolls off to the north, leaving a wall four or five feet high surrounding the pier for a Celestron 11, which tonight had a four-inch Vixen fluorite refractor piggy-backed. There is a level area for setting up the 18-inch Obsession, and much flat, open land for portable telescopes. The owner had done a fine job on the construction. I was envious.

We chatted for a while about astronomical topics, then I changed the subject to one of my other interests. "What kind of wildlife do you find around here?" "Well," she responded, "I found two bear tracks this morning." "Oh ... er ... wow!" I replied.

The bear's, er, lion's share of my observing for the next three evenings was the faint half of the 2514 or so faint objects discovered by William Herschel, the same program with which I have bored Internet readers for six months. It may be useful to reiterate that I have been using rather more magnification than many would think appropriate for such work with six inches of aperture: I experimented with 47x, 75x, 94x, 97x, 121x, and 150x, and finally settled on 97x — a Meade 15.5mm Research-Grade Erfle — as "right" for the Intes.

We were lucky to have three clear nights in a row in December. The second night was warmer, with enough moisture to cause dew and frost. The third had a temperature between the first two, but it was dry. One more observer joined us on the second evening.

Though the six-inch pulls in most of the Herschel stuff, there are a few objects beyond it entirely, and a few more cases where it can detect closely adjacent galaxies but not resolve them as separate. In such circumstances, more aperture is useful. "I'm a bear", I declared, walking up to the observatory to ask to use the C-11 to chase down some elusive fuzzies in Ursa Major — bears again! — near the wide, bright double star that Messier cataloged as no. 40 in his list. This area offers an interesting contrast in difficulty of observation. M40 is a binocular object, and within a quarter degree west lie two galaxies, NGC 4284 and 4290, which are bright enough to be easy in a six-inch in half-way reasonable conditions. The somewhat fainter NGC 4335 lies not quite a half degree north of M40, and to its east-southeast, a quarter degree away, are two similarly bright galaxies, NGC 4364 and 4362. I could see all of these in the Intes, but I could not see the faint companion, NGC 4358, of the westernmost of that latter pair, NGC 4364. Neither could I see any trace of a close pair of galaxies about a degree east-northeast, NGC 4547 and 4549.

At 108x, the C-11 found 4547/4549, and resolved them as separate, but the companion to 4364 continued elusive. One of the other observers had an 18-inch Dobson set up, so we tried it, and at 91x, NGC 4358 was visible. I would rate 4547/4549 and 4358 the most difficult objects that I have encountered on the Herschel list so far.

After three nights observing, I was tired, so I headed home the next day. I seem to have lucked out on the weather, for that day and the next one brought high clouds and haze to the Bay Area. I am very grateful to my friend for providing a holiday occasion to get away for some dark-sky observing; perhaps she will invite us back again in the future. Maybe I will even get to see a bear.

Fremont Peak Diary

Mark Taylor

The day started out with no plans to go observing; work has been demanding for the last few months, and with holiday activities I didn't expect to muster enough energy to attend even the in-town public events such as those scheduled by SJAA and TAC. I was planning to save my energy for Saturday night at Fremont Peak.

Late morning, upon checking my weather links for Saturday's outlook, I saw that the NWS was calling for clear-but-cold and possibly breezy for Friday night (December 19), and clouds and/or rain for Saturday.

That was enough to get me instantly motivated. Given the forecast, I decided not to spend the precious clear night observing from a city location.

I'll spare the prose from here, and just give a "diary account" of my observing session:

1830 - Starting up the hill toward the peak; saw 2 raccoons and 5 deer.

1850 - Parked at the closed gate to the ranger/observatory area and walked up to see if anyone was there. It was a very clear and crisp night, and I noticed the Milky Way standing out brightly within just a few seconds of shutting off the headlights for the walk. The prime observing area was empty, but I was unsure of the new ranger's policy on astronomers wandering in unannounced. That plus the white light shining brightly from his window made me decide to go to the south-west lot.

1900 - Looking north, I could see clouds and moist air hanging heavily over the SF Bay area, and presumably moving my way. The west, there was a thick marine layer and some high clouds which gave Venus a nebula-like appearance. I noticed how absolutely quiet it is at the peak when there isn't a star party or campers actively running around.

1915 - All set up. I was nearly dark adapted. Whoops! So much for that; a work truck just drove down from the radio towers on the Peak. Ouch.

1920 - Looked at Jupiter at 204x. It was a little fuzzy, but it's only about 20 degrees above the horizon. It was a pretty good view considering the elevation and thin clouds. I saw three moons all on the leading side, with no 4th in sight.

1925 - Wow! The fourth moon just popped out from behind the disk. Not a bad catch for an unplanned evening. It was interesting to see the four moons all lined up on one side like that.

193615 - Zing! A meteor just dropped starting midway between Dubhe (the "lip star" of the Big Dipper) and Polaris. It trailed about 6 degs toward "7 o'clock". It was slow and yellowish, and its magnitude was somewhere between Polaris and Capella.

1945 - Turned the scope toward Saturn. 204x again. Cassini's division was immediately obvious without trying. I noticed that the image was exceedingly still; better than any night I can remember locally all summer. Looking a little closer, and ignoring all the brighter moons, the dimmest I can see is just slightly north of the leading/west/left-in-my-reversed-view tip of the rings. I didn't concentrate enough to look for dimmer ones.

1949 - Put a Barlow in; now at 408x. Amazingly, it was still a razor sharp image. I rarely see this kind of image with this much power (given that 408x is just above the theoretical limit). I noticed a wide, dark SEB. The "break" in the rings (where they are in shadow) was small but obvious in the still image.

2015 - Finally decided to put on the rest of my warm gear (but my upper half has been toasty in my new, down jacket)

2025 - Counted 12 Pleiades. Thin haze seems to be encroaching from the north now, and the sky is brightening due to it's greater reflectivity. Actually, it now looks more like a typical night at the Peak. I also begin noticing some wide, lingering contrails.

2035 - Saturn is still rock-steady at 204x. 2036 - M42 at 204x is showing more whisky detail and fine "tendrils" around the Trapezium than I can recall ever noticing at this power before.

2050 - A couple arrived just to take in the stars, naked-eye. We talked for a while about telescopes, clubs, and light pollution, and I showed them Saturn at high power, M42 wide-field, the Trapezium "up close", and M37.

2145 - Where was I.... Oh yes. Counted 6 stars in the Trapezium.

2155 - Once again, I unsuccessfully try to claim the Horsehead. Although I know it's visible from this site, and especially on a night like tonight, it still escapes me.

2230 - A breeze is kicking up now. Thin haze has been coming and going all night. The moisture and clouds to the north and west are looking even more menacing, but it is still decent for most of my sky.

See **Diary**, p. 4

Diary, from p. 3

2230 - Quickly scanned M31, which is sinking into the western muck, and of course M32 and M110. There are no stars up to about 45 degrees over in the west.

2240 - I suddenly notice the Beehive rising. Where do the months go?

2245 - While munching a snack, I notice a bright orange glow appear in my peripheral vision. Car? Plane? Flashlight? Oh! It's the moon rising.

Wow, what a sight it is, glowing bright orange through the trees. The illusion of size is highly pronounced through the branches.

224520 - Zip! A meteor drops between the moon and Orion. It is bright green, below-and-left of Sirius, and moving toward "8 o'clock". Actually a nice image cutting through the naked tree branches.

2246 - Back to the moon, it is fairly deep in clouds to the east, and I realize I can see no stars in the east below about 30 degrees. Another horizon socked, but still clear for most of my usable sky!

2246 - Since dark-sky observing is coming to an end, let's investigate the seeing a little more with a Sirius acid-test. To the naked eye, the Dog Star was barely flickering; not really twinkling at all. Looking at it with 77x there is no sign of the usual "pulsing rainbow effect"; just an intense blue-white and slightly flickering star. Even at 204x, it really isn't moving. I can actually make out mostly-stable diffraction rings!

225215 - Return of the green meteor. Almost the same location, direction, and color. Perhaps two chunks formerly part of the same object?

2315 - Decide to "siesta" while waiting for the moon to clear both the trees and the eastern cloud line.

0025 - The moon is still doubly-obscured, and atmospheric moisture is quickly becoming apparent; there are huge contrails hanging in the sky, and everything is getting bright. Time to pack and head home. Amazingly, not a hint of dew on anything all night.

0050 - Driving down, I encounter a skunk trotting down the center of the road, making it difficult to pass without spooking it. I immediately set the air system to "recirculate", and drive one mph for a few moments until I can "safely" pass him.

It was another fine night at The Peak. I look forward to many more.

Retro-Astronomy

John Gleason

Frost along the Canyon road betrayed the cold temperatures as I ascended Fremont Peak State Park on afternoon of December 26th. Pulling into the path leading to the observatory I was stopped by a locked gate. Now that Rick Morales is gone, the park service has apparently decided to minimize access to the area behind the Ranger's house, at least until a replacement ranger is found. Several quick calls to those folks who might have the padlock combo were unsuccessful. Oh well, Coulter camp was empty, I would set up my AP Traveler there.

This was to be a night of equipment testing for the great Australia trip next Spring. The photographic field flattener finally came for the Traveler and it was an opportunity to perform aperture tests with several ultra-wide field lenses for the Pentax 67 camera. I also met Dave Cooper here who had brought along his Vixen 4" f/9 fluorite refractor on G11 mount.

At 6:30 pm, the digital thermometer in my equipment bag was reading 30 degrees F. Skies were crystal clear, the air dead calm and dry. The silence of our surroundings was only broken by the occasional inbound commercial jet overhead. We quickly slipped into our winter gear and broke open the hot coffee. The nice thing about simple equipment is the short setup time. My Losmandy GM-8, AP Traveler and 80mm guidescope were up and aligned in about 30 minutes. Of course my gloves were left at home which obviously hastened the assembly.

We expected to have the park to ourselves, but we were soon greeted by a camper who told us that it would be okay to set up where we were just as long as we didn't block the road. He was expecting some friends from Santa Cruz to be arriving later. Oh No!, I thought. Soon several trucks pulled in near us with about half a dozen folks piling out with the ubiquitous Dobsonion telescope and boom box.

For the next two and one-half hours David and I were treated to a 200 db Neil Young retrospective. Not quite the music I would have selected for an outing under the stars. The winter night silence had been broken with musical notes echoing across the entire park, bouncing off my equipment and into my ringing ears. It brought back memories of the late 60's and early 70's when many of us got started in amateur astronomy.

Back then the Dynascope RV-6 was the Newtonian of choice and most of us were the proud owners of the Tasco 60mm refractors with green moon filters that screwed into the barrel of .965 eyepieces. 500X was possible with

See **Retro-Astronomy**, p. 5

Extras, from p. 1

Astronomers is organizing! Sort of "Only in Northern California" material!

Ad: *"If you are interested in joining us for some late-night stargazing during the Quadrantids meteor shower while soaking in warm mineral water (in a clothing-optional setting, by the way), give me a call at one of the numbers below. We have plenty of room for carpooling..."*

She added the following observations, "Just how would they make meteor counts? What if you dropped your pencil in the water? What is the proper behavior when getting out of the tub, to run to the scopes? And wouldn't binocs get fogged up? Wouldn't it be considered rude to use them and then to snicker? And ruder yet to do some sketching of the observations? I can see a whole new classification of near-earth objects, with varying orders of magnitude. There are just so many hilarious aspects to this event, I almost wish I could be there to record it!"

December School Star Party

Jim Van Nuland

At Christopher School, we canceled due to clouds on Dec.4, and quickly re-scheduled for the 15th, this time with some success! We had four telescopes (thanks, Terry, Gary, and Dave), to show Mars, Venus, Jupiter, and Saturn, taken in that order — since the high haze was coming in from the west. There was enough haze to interfere with anything faint, and by late evening, the clouds had obscured the eastern sky, badly enough to hide the rising moon.

There were about 30 kids — a GATE group and the 4th-grade, all very interested and very up on what we were showing. With a small group, we could take time to answer questions, teach them how to focus (found one kid who needs glasses!), and how to look for small details, etc. Everyone had a chance to see each object, often through each scope.

Nobody tires of seeing Saturn one more time!

Lost, from p. 1

craters. I gave up and tried tracing up along the limb from Humboldtianum instead.

Past Hayn, the prominent pair of craters must be Petermann and Cusanus, and the next major dark indentation in the limb must be Nansen. A group of large, shallow craters in a group beyond Nansen — de Sitter and Euctemon. But the crater in question was well past these, and following libration chart II and comparing distances and sizes made me think that the large crater on the limb was not actually Byrd and Peary, at the north pole, but actually past the pole, perhaps Hermite?

In doing this crater-hopping, a friend's moon globe proved very useful. I found that trying to guess orientations when triangulating between Humboldtianum and Anaxagoras was often quite misleading (it's hard to compensate correctly for the foreshortening the charts show), whereas a globe can be held at the same orientation as the moon.

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Retro-Astronomy, from p. 4

Barlow lens! If you were well-to-do you had a Questar or a Vega Maksutov. The Unitron product line was prominently featured on the back cover of Sky & Telescope. I remember dreaming about owning the one that was loaded with finders and guidescopes.

These days we are privileged to have at our disposal such a fine array of equipment. David's 4" f/9 fluorite proved to be quite a performer as I added the Astro-Physics MaxBright diagonal and 35mm Panoptic eyepiece to it. With this combination, we were witness to one of the finest views of M42 that either of us had seen in a small telescope. Our old Tasco's showed nothing like this, but then again, this eyepiece and star diagonal combination could buy ten 60mm Tasco refractors in 1969!

The music played on as I finished my photo runs. The cold temperatures seem to have effected the electronics in the SBIG autoguider as I could not get it to stop tracking. Every time I pressed "interrupt" the device would ignore the command and continue to track on the guidestar. Now if it continues tracking when I disconnect it from the battery...

At 11:30 we decided that we had enough of the cold and Neil Young. But not before we took a quick look at the "Saturn" planetary and M81-82 with the fluorite. Splendid. Don't tell Roland, but the 4-inch Vixen fluorite has sharper on-axis images than the Traveler.

We packed up even faster than the setup and launched out of the park towards home. Intergalactic greetings and celestial wishes to everyone in the New Year.

The Season of Cold Skies

Mark Wagner

Each season brings a new feeling to observing at Fremont Peak. The change of temperature, color of sky and earth, the look and number of observers, the piece of our universe on the menu, all add up to distinct flavors. Each season is to be enjoyed, savored like a good slow, favorite meal spent with friends lost in interesting conversation.

This Sunday I spent at the Peak was the winter solstice: The longest night of the year. Everything from the drive up to the conditions at the Peak set it apart from any other night of the year. On the way out of town, I found traffic to be minimal, since the masses were probably heading home from their Christmas shopping, and the clear skies and brisk breezes made it feel unseasonably cold for the first day of winter in northern California.

My favorite part of the hour-long drive is that up San Juan Canyon Road, which is the turnoff from highway 152 east at the historic pueblo of San Juan Bautista. A few short turns off the main highway brings to view sheep with their coats growing thick, cows huddled together against the wind, horses in shelters, goats, and assorted non-domesticated wildlife on the ground and in the air. The oaks were all hanging with the Spanish Moss I had first seen at Point Lobos twenty five years ago. The moss will be here much longer than I.

Everywhere I looked on the drive up, the earth seemed to be pulling in its growth, like someone tucking their hands and feet into a nice warm blanket. Our orbit around our local star was bringing a more rugged time of the observing calendar to my part of the world. Still, I had done it before, and was prepared for what many, in colder climes, would laugh at, and dream of, a California winter. Still, for someone who has lived most of his life on the southwest shores of the United States, winter is cold, if only by local standards.

The drive up gave a message of caution for the drive back, which I planned for about midnight, since I had to work Monday morning. In the shady part, and the wet portions of the road, road crews had spread sand. Temperatures were now dipping below freezing in the area, and this was not anywhere near the elevation of the Peak. After entering the park, I looked up to my right to find Alan Nelms, my observing partner, waving from up on Coulter Row. He looked like he was doing some odd dance.

The trees were all bare, the grasses of spring and summer gone. I pulled into the observing site and got out of the truck. Alan Nelms immediately told me the temp was 41 degrees when he arrived, and felt even colder now. Up above us on the ridge line, branches of the oaks were swaying in the wind, but we were somewhat protected down in our area. Usually, we avoid Coulter Row because of the traffic and headlights on weekend nights, preferring the less trafficked southwest lot. But this was Sunday, and headlights were no problem after about 8 p.m.

Looking around, I began unloading the scope, and noticing what Alan then commented on. Wild pigs had torn up the bare earth all along the downslope below Coulter Row. These are the same swine the park service hopes to keep out by erecting a fence around the park (perhaps next year). Soon, Alan had his 18" and I had the 14.5" dob set up and collimated. We began to notice the chill and the tranquillity of winter at the Peak.

Soon, a Spanish speaking family hiked up the hill to meet us. I gave them views of Venus' crescent, a small reddish Mars sitting very close by, then up to Jupiter. The tourists were astonished to be able to view foreign worlds, seeing details such as banding and moons. It is always a rewarding experience seeing another person's universe suddenly expand.

The temps began dropping, and I was not bundled in much of my cold weather gear. Alan was putting on his ski bibs. A car full of day visitors drove by slowly, looking at us as if we were space aliens. I am sure they wondered what Alan was doing, standing there with his "pants" (ski-bibs) down around his ankles. Must have thought we were some deviants.

Robert Dannels appeared, and decided to move from the breezy southwest lot to where we were. And that was it for the night. Three TAC members alone on Coulter Row, atop Fremont Peak, on the longest night of the year. Only the appearance of Jay Freeman late in the evening would alter the makeup of our small winter observing party.

I began the night observing Jupiter and Saturn under low power. I did not think much of the observing conditions, but for the faint fuzzies Alan and I were hunting that night, somewhat soft seeing was not a disaster. So, we hunted down NGC 253 to begin the night, then it was off to the races. We hit a few big galaxies in Sculptor, part of the Herschel 2514, and had to leave the constellation unfinished, perhaps until some all-nighter in summer,

See **Cold Skies**, p. 7

Cold Skies, from p. 6

as the earth's rotation soon put it down toward the mountain and into the increasing light dome of Salinas.

So, we moved up into Cetus. Again, our quest was difficult, since we had already logged most of the Herschel's in that constellation, above mag 14.5. We found a few, and then headed for the fertile waters of Eridanus, the River.

Eridanus is without doubt one of my favorite places to poach photons. The area is teeming with galaxies. Some big and bright, others mere near-stellar smudges. Most are off in the void, away from many finder stars, making one work at seeing fainter and fainter naked eye targets with which to navigate to the proper eyepiece field.

This is why I do not use digital setting circles. The hunt, the perfecting of naked eye star hopping, the testing of visual acuity, and the increased skill that follows, is all part of amateur astronomy for me. Many are the objects that are really no more than a hint at the threshold of vision, but it is the hunt, and the reward when an object shows distinct character, structure, or is in a massive field of island universes.

The galaxy hunting was extremely rewarding early on, in Eridanus, with many large objects and multiple finds in one field, or near the original targets. A few of the more impressive sights were NGC 1600, accompanied by close by NGC's 1601, 1603, 1604, 1594 , 1611, 1612, 1613 and IC373. Also, NGC 1653 had NGC's 1654 and 1657 nearby.

There were several very large ESO galaxies in the area, but they were out of range for this particular night. Usually, Alan and I would have a chance finding them. It is great to observe with an accomplished fuzzy hunter like Alan, since there are times when he can identify something that I overlook, and vice-versa. Double teaming the universe!

But, on the winter solstice for 1997, the sky changed personality rather quickly. One minute Alan and I were popping faint fields of galaxies at will, then, after a quick check of the computer for another target, we both were back at our eyepieces when, I looked at the out of focus stars and began trying to focus them. I couldn't get them to pinpoints.

It quickly dawned on me the sky conditions had gone completely soft. Just then Alan said "the sky just went" and I laughed out "yeah.... I've been trying to focus" and he said "me too!". We played with fields full of planetary nebulae type stars for about an hour and a half, then I said let's pack it in, since we'd already had over 5 hours of observing, and this night of all was the least likely for an all-nighter.

I packed up the scope quickly and helped Alan with his. It was tough to bend down to lift the Obsession. I had on jeans, the bottoms of my gore-tex ski suit and a pair of sweat pants, three layers of socks and Sorrels, a heavy long sleeve shirt, rag wool sweater, lined wind-breaker, down jacket, large ski-jacket, neck gator and Soviet Ushanka hat. I was not cold, but I was not very mobile. :)

When we finally got ready to roll out just after midnight, the temp was 34 degrees. The sky looked deceivingly calm. Only under magnification can one see the turmoil nature hid in winter's longest night.

The ride home was uneventful, and the night enjoyable. I look forward to other good sessions in the season of cold skies.

The Shallow Sky

David North

The real story of the Moon this month is its elevation: the first half of the lunation, centering around the first quarter, is really high in the sky now, and even moderately good seeing nights will yield remarkably good views. If you want to start getting into the Moon, there is no better time than now. For an idea of where to look, and if you have web access, check out Akkana Peck's excellent *Hitchhiker's Guide To The Moon* at **http://www.best.com/~akkana/moon/hitchhiker.html**.

February's most favorable lunar libration will run between the third and seventh, when the first quarter Moon will be fairly high in the sky. This will be a good time to get a look at the northern and eastern maria (Marginis, Smythii and especially Humboltianum) as the light will be about perfect and the librations strong (between six and seven degrees). Don't forget to take a glance at Maria Undarum, Spumans and Anguis while you're there.

For those willing to do the penance to see a well-presented post third-quarter Moon, the 21st will offer a good view of the "spots" in Mare Orientale, though no crater or mountain detail will be evident (not my cup of tea).

There will be a lunar eclipse on the 26th, but we don't get to see it. Rats.

The slowly disappearing Saturn (which is past its prime) is still a reasonable target when good seeing allows. Jupiter and Mars are really nearly impossible for detailed observation, and there are no significant

See **Shallow Sky**, p. 10

The Celestial Tourist Speaks

Jay Freeman

At The Peak:

On 21 December, 1997, I took my Meade 5-inch f/9 ED achromatic refractor to Fremont Peak.

Weather was brisk — temperatures were in the 30s, with too much wind for high magnification — I use the 5-inch on a Great Polaris mount, which is at its limits.... I tried twice for the Horsehead Nebula. At first I could not see it, but later, with Orion higher, it was barely detectable without any filter at 36x, but only because I knew exactly where to look.

I have also been checking off the "big" Herschel list — all 2500-odd deep-sky objects found by William Herschel. I mostly use my 6-inch f/10 Maksutov, but I decided to try the five-inch. I logged five faint open clusters in Canis Major and Puppis.... As my evening closed, I switched to 74x to chase galaxy NGC 2481, in Gemini. It was easy, and to my surprise, with averted vision, I spotted its faint companion, NGC 2480, slightly north-preceding.

This observation surprised me, so I pulled a Palomar Optical Sky Survey image off the web next morning, and verified what I had seen. I doubt I would have noticed the second object without its bright companion as a guide. NGC 2000 gives magnitudes for these two as 13 and 15, and I add the usual caveat about ratty visual magnitudes for galaxies. Still, 2480 is not bad for a 5-inch — folks with medium-sized refractors can stop complaining about not being able to do deep-sky work.

On Backyard Astronomy:

Anxious to take advantage of a break in a long run of wet weather, I hauled an 80 mm f/11.3 Celestron refractor into my yard in Palo Alto... At 32x, I started ambitiously with M74, perhaps the most difficult Messier galaxy, on grounds of low surface brightness and small size. It took averted vision to hold it, but it was there. M77, not far away, was much easier, and M76 — faint but of higher surface brightness — showed its well-known two-lobed shape.

M33 was much easier than M74 had been. Still at 32x, I could hold it with direct vision, though it was tenuous. M1 was not difficult, and hinted of asymmetric shape. The clusters M34, M35, M36, M37 and M38 were all easily resolved, as were the Pleiades. I saw no hint of nebulosity in the latter. Dropping to Lepus, I found the fuzzy spot of globular M79, well down in the haze. M78, in Orion, showed two stars embedded in a stubby comet-shaped patch of nebulosity, and M42/43 were gloriously detailed, but revealed no color to my eye with this aperture on this evening.

My 80 mm Celestron is one of the older models, made by Vixen in Japan, It has very nice optics, which are well baffled.

How nice to be reminded that amateur astronomy which is interesting, and perhaps even subtle, can be done with small aperture from a suburban location. The rewards are particularly pleasant when the weather conspires against better-planned trips to darker sites, as they have been for almost a month. And tonight, it is pouring again....

On Buying Through The Mail:

I have bought expensive stuff from out of state through the mail (or UPS) several times. Once we used UPS COD to ship — this was not really satisfactory, for all UPS lets you do is inspect the outside of the package for damage, et cetera — when the check leaves your hands, for all you know the package is full of bricks. And on the other end of the line, there is nothing to keep you from putting a stop payment on the check as soon as the UPS delivery person is out the door.

The second time we did what was obvious — and though it sounds risky it really is no more so than COD — I sent a check at the same time the other person sent the merchandise. I got what I expected, and my check did not bounce, so all are happy.

Recently I have sold an expensive item through the mail; that time the buyer sent me a check, and I shipped on receipt.

I hear there are outfits that "broker" such transactions — the buyer sends them a check, the seller sends merchandise, and they check it out and forward, et cetera. But how do you know to trust them?

So I do not have an easy solution to the problem of trust in business through the mails. If you find one, let me know...

On Burnham's Celestial Handbook:

Burnham is very comprehensive, and chock full of information about all kinds deep-sky objects, including not only fuzzies but also double stars, variable stars, and the bright stars in each constellation. Many objects have detailed descriptions, above and beyond their tabulation in a list. Some of the scientific information is a bit dated — this work dates from the 1960s — and there are also better magnitude estimates now available for most of the fuzzies.

Comet Comments

Don Machholz

No new comets have been discovered lately, but there's still plenty of old comets to go around! The year 1997 will probably be remembered as the Year of Comet Hale-Bopp. Meanwhile amateurs visually discovered three new comets, and the SOHO satellite —while imaging the solar vicinity — found over two dozen comets crashing into the sun.

Each issue of *Comet Comments* (CC) can be found at **http://members.aol.com/cometcom/index.html**. This Web Site also contains the previous issue of *Comet Comments* and updates on my comet hunting program. Here newsletter editors can retrieve CC if their copy gets lost in the E-Mail. I now have a second Web Site, you can find it at **http://members.aol.com/donm353259/index.html**. At this location you can find comet positions for several months at a time, a portion of what I write as Comets Recorder for the Association of Lunar and Planetary Observers. Finally, please note that my telephone area code has now changed to 530.

Comet Hale-Bopp, as seen from the earth, continues to move northward and toward the sun in the evening sky. Those living in the southern portions of the United States have a final chance to observe it. Comet Meunier-Dupouy travels though our morning sky. Periodic Comet Hartley 2 and Periodic Comet Temple-Tuttle (disappearing fast!) remain in our evening sky.

COMET HUNTING NOTES: Of the last 100 visual comet discoveries, 23 were made by amateurs using refractor telescopes. The smallest was Genichi Araki's 3" scope to find Comet IRAS-Araki-Alcock. Toshio Haneda used a 3.3" refractor to find his comet and three other instruments were from 4.8 to 5.2 inches in diameter. The remaining 18 refractors were 6" in size, with William Bradfield finding 12 comets since 1975 (and two before) with his 6" telescope.

Orbital Elements

Object:	Hale-Bopp	Meunier-Dupouy	Tempel-Tuttle	Hartley 2
Peri. Date:	1997 04 01.1347	1998 03 10.4365	1998 02 28.1034	1997 12 22.0242
Peri. Dist (AU):	0.914008 AU	3.051015 AU	0.976639 AU	1.031725 AU
Arg/Peri (2000):	130.5787 deg.	122.6755 deg.	172.4930 deg.	180.7240 deg.
Asc. Node (2000):	282.4653 deg.	148.8429 deg.	235.2568 deg.	219.9547 deg.
Incl (2000):	089.4268 deg.	091.2731 deg.	162.4861 deg.	013.6191 deg.
Eccen:	0.995085	1.000760	0.905507	0.700391
Orbital Period:	~2500 years	Long Period	33.23 years	6.39 years
Ref:	MPC 30738	MPC 30738	MPC 30244	MPC 29880
Epoch:	1997 12018	1998 03 08	1997 12 18	1997 12 18
Absol. Mag/"n":	-1.0/4.0	4.0/4.0	10.0/10.0	8.0/6.0

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CC234XT 01-07-98 Don Machholz (530) 346-8963

Ephemerides (for 0h UT)

C/1995 O1 (Hale-Bopp) (All Dates 00UT)

Date	R.A. (2000)	Dec	El	Sky	Mag
01-12	05h48.6m	-64°09'	92°	E	8.0
01-17	05h38.1m	-63°47'	91°	E	8.1
01-22	05h28.7m	-63°18'	91°	E	8.2
01-27	05h20.6m	-62°43'	90°	E	8.3
02-01	05h13.7m	-62°03'	89°	E	8.4
02-06	05h07.9m	-61°19'	89°	E	8.5
02-11	05h03.3m	-60°33'	88°	E	8.5
02-16	04h59.8m	-59°45'	87°	E	8.6
02-21	04h57.3m	-58°57'	86°	E	8.7
02-26	04h55.6m	-58°08'	85°	E	8.8
03-03	04h54.7m	-57°20'	84°	E	8.9
03-08	04h54.6m	-56°33'	83°	E	9.0
03-13	04h55.1m	-55°48'	82°	E	9.0

C/1997 J2 (Meunier-Dupouy) (All Dates 00UT)

Date	R.A. (2000)	Dec	El	Sky	Mag
01-12	19h46.4m	+38°51'	61°	E	11.6
01-17	19h56.9m	+38°00'	59°	E	11.6
01-22	20h06.9m	+37°12'	57°	M	11.6
01-27	20h16.7m	+36°29'	55°	M	11.6
02-01	20h26.1m	+35°49	54°	M	11.6
02-06	20h35.1m	+35°12'	52°	M	11.6
02-11	20h43.9m	+34°38'	50°	M	11.6
02-16	20h52.3m	+34°08'	49°	M	11.6
02-21	21h00.3m	+33°41'	48°	M	11.6
02-26	21h08.1m	+33°17'	47°	M	11.7
03-03	21h15.5m	+32°56	46°	M	11.7
03-08	21h22.7m	+32°37'	46°	M	11.7
03-13	21h29.5m	+32°21'	46°	M	11.7

103P/Hartley 2 (All Dates 00UT)

Date	R.A. (2000)	Dec	El	Sky	Mag
01-12	00h26.2m	-05°33'	72°	E	8.0
01-17	00h52.4m	-04°31'	74°	E	8.2
01-22	01h18.4m	-03°23'	75°	E	8.4
01-27	01h44.0m	-02°13'	77°	E	8.6
02-01	02h09.0m	-01°01'	78°	E	8.8
02-06	02h33.3m	+00°11'	79°	E	9.1
02-11	02h56.7m	+01°21'	80°	E	9.3
02-16	03h19.1m	+02°28'	81°	E	9.6
02-21	03h40.6m	+03°32'	82°	E	9.9
02-26	04h01.0m	+04°30'	82°	E	10.2
03-03	04h20.5m	+05°24'	82°	E	10.5
03-08	04h39.0m	+06°12'	82°	E	10.8
03-13	04h56.6m	+06°54'	82°	E	11.1

55P/Tempel-Tuttle (All Dates 00UT)

Date	R.A. (2000)	Dec	El	Sky	Mag
01-12	12h06.3m	+61°34'	119°	M	10.4
01-17	07h05.5m	+82°59'	118°	E	9.7
01-22	01h53.2m	+60°49'	56°	E	9.5
01-27	01h28.9m	+41°41'	90°	E	9.6
02-01	01h21.4m	+30°10'	79°	E	9.8
02-06	01h18.1m	+23°00'	70°	E	10.0
02-11	01h16.3m	+18°13'	63°	E	10.1
02-16	01h15.1m	+14°47'	56°	E	10.2
02-21	01h14.3m	+12°12'	50°	E	10.3
02-26	01h13.7m	+10°09'	44°	E	10.5
03-03	01h13.2m	+08°27'	38°	E	10.7
03-08	01h12.7m	+07°01'	32°	E	11.0
03-13	01h12.3m	+05°46'	27°	E	11.3

CELESTIAL CALENDAR FEBRUARY 1998

Richard Stanton

Lunar *(all times PST)*

Phases	Time	Date	Rise	Trans	Set
FQ	14:53	03	11:27	18:15	00:05
FM	02:23	11	18:18	00:16	07:05
LQ	07:27	19	00:42	06:07	11:29
NM	09:26	26	06:42	12:28	18:20

Mercury 1.39 A.U. Mag. -2.0

Date	Rise	Trans	Set	R.A.	Dec.
07	06:43	11:42	16:41	20:41.8	-20:13
17	06:55	12:11	17:28	21:50.0	-15:20
27	07:01	12:41	18:22	22:59.2	-08:08

Venus 0.39 A.U. Mag. -5.5

Date	Rise	Trans	Set	R.A.	Dec.
07	04:59	10:13	15:28	19:16.3	-15:09
17	04:32	09:45	14:58	19:26.6	-15:41
27	04:16	09:29	14:41	19:49.3	-15:56

Mars 2.28 A.U. Mag. +1.0

Date	Rise	Trans	Set	R.A.	Dec.
07	08:09	13:46	19:24	22:48.4	-08:35
17	07:49	13:36	19:23	23:17.4	-05:29
27	07:28	13:25	19:22	23:46.0	-02:19

Jupiter 5.99 A.U. Mag. -2.0

Date	Rise	Trans	Set	R.A.	Dec.
07	07:44	13:09	18:35	22:12.4	-12:02
17	07:11	12:39	18:07	22:21.5	-11:11
27	06:38	12:09	17:40	22:30.6	-10:19

Saturn 9.97 A.U. Mag. +1.0

Date	Rise	Trans	Set	R.A.	Dec.
07	09:43	15:59	22:15	01:02.6	+04:07
17	09:06	15:23	21:40	01:05.9	+04:30
27	08:29	14:47	21:06	01:09.7	+04:55

SOL Star Type G2V Intelligent Life in System?

(HOD = Hours of Darkness)

HOD	Dt	Rise	Trans	Set	R.A.	Dec.
10:30	07	07:05	12:22	17:39	21:23.2	-15:19
10:10	17	06:54	12:22	17:50	22:02.5	-12:00
09:48	27	06:41	12:20	18:00	22:40.7	-08:22

Astronomical Twilight		Begin	End
JD2,450,	851	07	05:37	19:07
	861	17	05:27	19:17
	871	27	05:15	19:27

Siderealtime

Transit Right	07	00:00	=	09:01
Ascension at	17	00:00	=	09:40
Local Midnit	27	00:00	=	10:20

Darkest Saturday Night	28-Feb-98
Sunset	18:01
Twilight End	19:28
Moon Set	20:42
Dawn Begin	05:13

ACTIVITIES THROUGH OTHER CLUBS

TAC has reserved the Montebello site for every Wednesday, more or less indefinitely (weather permitting). To get there, take Page Mill Road off 280 (or get to it via El Monte Road) until you're near the top. Montebello's sign will be visible on the left.

First-quarter Friday star parties have become a "mobile" event, and checking their web page **http://www.rahul.net/resource/TAC/** is the best way to get times. Third-quarter Friday star parties are at Van Meter School when the skies cooperate.

PAS opens Foothill Observatory for public viewing every clear Friday evening from 8:30 p.m. until 11:00 p.m. PAS operates a 16-inch reflector and a 6-inch refractor. Solar viewing is also held every clear Saturday morning from 10:00 a.m. until noon with a very nice filter setup. Both of these programs are outstanding, and all SJAA members are encouraged to check them out.

February

13 PAS General Meeting "Project Phoenix And SETI"
18 PAS Board Meeting 7:30 Foothill Observatory
28 HVAG Starparty at Grant Ranch.

March

13 PAS General Meeting "Member's Night"
18 PAS Board Meeting 7:30 Foothill Observatory
28 HVAG star party at Grant Ranch

Shallow Sky, from p. 7

meteor showers this month. This might be a great time to check the ephemerides in Don's *Comet Comments* and see what the less famous comets look like...

Get up early and you'll catch Venus at its brightest on the morning of February 19.. a few days either way won't make much difference. Also, this is a good opportunity to view Venus in the daytime if you know where to look and are VERY VERY CAREFUL about Sun discipline (don't point anything even near it without a solar filter).

Speaking of which, the Sun is starting to act up again, and some of the sunspot groups have been spectacular. I have no idea (of course) when they might show up, but it's definitely time to dust off the solar filters and begin a daily check (when it's not raining). One group in December was as fine as I've ever seen. You might also consider attending a PAS Solar Observation sessions 10-12 Saturday mornings at Foothill College.

SUBMIT

Members are encouraged to submit articles for publication in the *SJAA Ephemeris*. Send articles to Dave North via e-mail to Timocharis@aol.com. Articles received by the tenth will be put in the following month's newsletter. Please include your name and phone number.

PERIODICAL PUBLICATION STATEMENT

SJAA Ephemeris, newsletter of the **San Jose Astronomical Association**, is published monthly, 12 times a year, January through December.

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TELESCOPE LOAN PROGRAM STATUS

Mike Koop

Current 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.

No.	Scope Description	Borrower	Due Date
8	14" Dobson	Steve Sergeant	2/7/98
16	Solar Scope	Mike Koop	3/13/98
23	6" Newt/ P Mount	Steve Wanamaker	3/13/98
28	13" Dobson	Gennaro Sorrentino	2/1/98
29	C8, Astrophotography	Dean Sala	3/13/98

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.

No.	Scope Description	Borrower	Due Date
1	4.5" Newt/ P Mount	Mark Cousins	2/24/98
2	6" f9 Dob	John Paul De Silva	?
3	4" Quantum S/C	David Manley	3/1/98
4	60mm Refractor	Del Johnson	Indefinite
6	8" Celestron S/C	Paul Barton	Indefinite, Note 1
7	12.5" Dobson	Nick Tucci	2/11/98
9	C-11 Compustar	Paul Barton	Indefinite
15	8" Dobson	Alexander Koczur	3/14/98
18	8" Newt/ P Mount	Cecelia Yarnell	1/18/98
19	6" Newt/P Mount	Madhava Kidambi	2/15/98

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 by email or at (408) 473-6315 for a scope pick up at any of the listed SJAA events.

No.	Scope Description	Stored At:
21	10" Dobson	Nathan Hill
24	60mm Refractor	Ravi Tembhekar
26	11" Dobson	Steve Sergeant
27	13" Dobson	Dean Sala
30	7" Newt/Pipe Mount	David Manley

Waiting List

No.	Scope Description	Standby
6	8" Celestron S/C	Ravi Tembhekar
29	C8, Astrophotography	Michael Lagae

Note 1: Scope #6 is in the shop for repairs. Currently, the secondary mirror is being resurfaced. Thanks to Bob Bootz for repairing the finder scope and pointing out the deficiencies of the scope. The repairs should be completed sometime in February.

Do you have some space to store a scope or two? Please E-mail or call Mike Koop. Thanks!

All scopes are available to any SJAA member. To reserve a scope, please contact Mike Koop at (408) 473-6315 or email at koopm@best.com.

San Jose Astronomical Association Membership Form

New __ Renewal ___
Membership - $15 ___
Junior (younger than 18 years old) - $6 ___
Sky and Telescope - add $27 to membership
(Sky & Tel will not accept multiyear subscriptions)

Make checks payable to "SJAA"

Bring this form to any SJAA Meeting or send (along with your check) to
Bob Elsberry, Treasurer
San Jose Astronomical Association,
5380 Pebbletree Way
San Jose, CA 95111-1846
Telephone: (408) 226-4483

Name: _____

Address: _____

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