



# SJAA EPHemeris

## Fingerhut On Schmidt Cameras At August Meeting

The exacting art of Schmidt camera photography will be Bob Fingerhut's topic at the general meeting on Saturday, August 16 at Hoge Park. Outstanding widefield images from the unique techniques used promise to make this a fascinating introduction from a highly skilled SJAA member.

Bob has photographed the southern skies from New Zealand and the northern skies from Fremont Peak using a 5" Schmidt camera. He will bring his camera and describe what it can do, how it works and how to use it. He will bring some slides and plans to bring along some technical literature from the manufacturer.

Don't miss it!



## New SJAA EMail List and Forum

Due to the efforts of Bill Arnett and the good graces of SEDS, SJAA now has a subscription email list.

We will be transmitting the Ephemeris each month for those who would also like to have a text copy.

It will also be useful for notification of current events that can't get into the Ephemeris due to time constraints, and discussion of ideas and issues that come up in relation to the club.

SJAA members can subscribe by sending an email message to:

[sjaa-request@seds.org](mailto:sjaa-request@seds.org)

...with the word "subscribe" (no quotes) in the body of the message.

## SJAA Activities Calendar

### August

- 2 Star parties at Henry Coe and Fremont Peak. Sunset 8:12 pm, moon absent. AANC Star-B-Que at Peak. SJAA and other clubs can participate.
- 8 Hoge park star party. Sunset 8:08 pm, 28% moonset 11:01 am.
- 9 Beginning Astronomy Class thoroughly covers use of Charts and Software. 8pm at Hoge Park. Also, benefit star party at Walden West (see page 7).
- 16 General meeting 8pm, Bob Fingerhut on Schmidt Camera Photography. Open board meeting 6:30 pm.
- 22 Hoge star party. Sunset 7:50 pm, 71% moonrise 11:34 pm.
- 30 Star parties at Fremont Peak, Coe. Sunset 7:37 pm, 3% moonrise 5:26 am.

### September

- 12 Hoge park star party. Sunset 7:23 pm, moon all evening.
- 13 General meeting 8 pm, Slide & Equipment night. Open board meeting 6:30 pm.
- 20 Beginning Astronomy Class: CCD Astronomy with Kevin Medlock.
- 26 Hoge star party. Sunset 7:02 pm, moonrise 2:28 am.
- 27 Star parties at Fremont Peak, Coe. Sunset 7:00 pm, moonrise 3:22 am.

24 hour News and Information:  
SJAA Hotline: **408-559-1221**

Web Address:<http://www.seds.org/billa/sjaa/sjaa.html>

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

## SJAA Invades Yosemite Jack Zeiders

After an absence of several years I decided to attend the SJAA Yosemite public event June 27-28. After a 3.5 hour drive via the Merced route I arrived at the park entrance, showed the letter from the park department, and was directed through at no charge.

We camped at the group site at the Bridalveil Creek about 8 miles from Glacier Point, where the event takes place. At 7000 feet altitude it takes longer to put together the tripod, equatorial head, etc. and you really don't want to drop that tube assembly when lifting it into the cradle, so it's much better to setup in daylight. Ranger Rick Balogh made an appearance and gave us the rundown on the evening's events.

Still in daylight, I pointed my 6" Astrophysics at the bridge over Nevada Falls across the valley and at 56x the people on the bridge over the falls were readily apparent. Paul focused in on three climbers scaling the face of Half Dome. We soon had a gathering of people standing in line to take a look.

Soon Jim Van Nuland, Dave North, Bob Elsberry, Bill O'Shaughnessy, Ed Voss, Terry Kalb and many others were setup, I'd guess about 15 scopes and 25 or so people in the SJAA group.

Paul and I tried our hand at some prime focus photography of the falls and climbers through the 6 inch refractors. As the crowd gathered, I selected a fine view of Piweack Cascade at the far North end of Tenaya Canyon.



continued on page 5, see **Yosemite**

## Lassen Star Party

Bill Arnett

The weather was beautiful all weekend. Daytime temperatures in the 80s and 90s.

The first night (Thursday), I went with the crowd to Devastated Area at about 6000 feet. There must have been 30 scopes in the little parking lot. But it was fun to see some new faces and different scopes (a 22 inch f/4.2 Dob on an equatorial platform was the star of the show). I was also glad to see at least 4 other LX200s so I didn't have to take the brunt of all the coffee grinder jokes.

After a year of hearing about the darkness at Lassen, my expectations were pretty high. It seemed to take forever for the twilight to fade. Finally a little after 10pm the Milky Way started to show itself. And what a show!

It was better than I've seen in a long, long time. And it was even better the next two nights at Bumpass Hell (elev. 8000). The whole of the Great Rift from Cygnus thru Aquila was obvious; the dim part of the Milky Way in Scorpius was bright and clear; the Pipe Nebula (a large dark spot in the Milky Way between Sag and Sco) was obvious; even the dark lanes separating the Scutum star cloud from the main part of the Milky Way were clearly visible.

I spent a lot of time each night just sitting in my chair gawking at the sky. It was simply and amazingly beautiful. Now I know why the Milky Way is sometimes called "the backbone of the night".

Others more organized than I will no doubt comment more on specific objects. For me the highlight of that first night was NGC 6888, the Crescent Nebula in Cygnus. Rod Norden had it in his 18" Obsession and was showing it to all comers. Wow! It was pretty nice in my 12", too. But the highlight of the evening was M 17 (the Omega, Swan, Horseshoe, or Lobster Nebula). I had never been able to see why it is called "Swan" but Joan picked it right out. Then it was obvious to me (I had had it upside-down).

Joan gave me a UHC filter for Christmas last year so I was intent on showing her how it worked. But the sky was so dark and beautiful that it didn't help nearly as much as it does at Fremont Peak. Anyway, the highlight of the night was the Veil. There were faint tendrils and streamers all over the place. Filters, smilters; don't need no stinkin filters! This is the way astronomy is supposed to be!

(The seeing was not excellent, however. Just before packing up I decided to kill my night vision with a peek at Jupiter. It was literally so bright that it hurt. But there wasn't as much detail visible as I've seen in the past. The theory going around the next day was that the wind blowing over Lassen Peak and down over Devastated Area messes up the seeing.)

Friday, Joan and I took a little hike up near the summit to Terrace and Shadow lakes. It was very nice, warm but not too hot, a little snow to walk over but not so much as to be a problem, not too many people.

Since it was so nice and warm Thursday night, I decided to try the dreaded Bumpass Hell (8000 ft) on Friday night. I was ready with two sweatshirts, down vest, double gloves, hat, winter expedition jacket and ski suit. There was a little breeze just after sunset that threatened a bitter night. So, thinking it is better to stay warm than to try to get warm, I suited up early. Wrong! By 10:30 the wind had stopped and by 11pm I was too hot.

And there were no mosquitos. I'm sensitive to the little bloodsucking bastards. At Devastated I was forced to use some repellent.

There were only 5 other astronomers at Bumpass that night. Fortunately for me, one of them was Jay Freeman. I shared my scope with him for a while and he shared his expertise. He found a number of interesting fields with many faint galaxies and helped me to see them, too. It is simply amazing how much more one can see with a little practice and

coaching. Otherwise, I was just bouncing around the sky more or less at random. While Jay was studying the nearly invisible faint fuzzies I would sit and marvel at the Milky Way. It was such a feast for the eyes that an organized program seemed wasteful.

Rod Norden was one of the others at Bumpass that night. His big 18" Dob saw (and my Powerbook with Starry Night verified) all four of Uranus's bright moons (Oberon, Titania, Ariel and Umbriel). They were almost too easy with the wonderfully transparent sky and the big scope.

By about 2am everyone else had left and I was alone with the mountain and the sky. Saturn was high enough to be seen well and (as usual) it captured me. I spent the better part of an hour just gazing at that fabulous world. Cassini's division was obvious, a little nick off the back of the rings where the planet's shadow falls on the rings was visible, too. I counted five moons easily but I was too captivated by the sight to bother with the computer to figure out which was which. By this time the seeing was pretty good; probably not as good as the best I've seen but close. It was with great difficulty that I tore myself away.

Saturday night was equally warm (well, OK, not warm but not really cold either). As I approached Devastated Area, the site of the big public star party, I saw the parking lot almost overflowing with scopes and headed up to Bumpass Hell again.

This time Joan was with me. By sunset the parking lot was empty and we had the mountain to ourselves. We spent most of the evening looking at easy stuff and just marveling at the Milky Way.

And oh how I love that mountain air! Each breath is a joy. Never mind the astronomical benefits, it just feels so good to get the pollution out of my lungs! The only problem is having to come home.



## Grand Canyon Starparty 1997

Bill Dellings

I popped in on Grand Canyon Starparty (GCSP) for three days and two nights on June 11th and 12th. This was my second GCSP, the first being a trip to the North Rim last year.

The South Rim GCSP is held at the Yavapai view point parking lot which can accommodate a lot of telescopes. About fifteen scopes were set up the two nights I was there. I'd guess there was room for four times that number. Scopes were set up on the teardrop shaped parking lot sidewalk as traffic flow precluded setting up in the lot per se. One gazer set up in a dirt field next to the lot which is sort of sunk down and affords protection from wind and car lights. In his letter to participants,

I think the street level site on the sidewalk is best for a public star party; people can find you easily.

Each night about a hundred folks checked out our scopes. By ten or eleven PM they were gone and the night was ours (not to say it wasn't fun hosting the public, after all, that's why we were there - indeed, our entrance fee of \$20 was waived by the park for rendering this public service). The north end of the lot near the view point has a public rest room. There is one light pole between the rest room and where the pathway starts up to the view point.

Surprisingly, most scope owners set up on this north end - I think because they felt people could find them easier after coming down from the slide show given at 8:00 PM each night at the view point by Dean or John Dobson.

Wind was a problem both nights I was there and I heard that it was a problem all week, shaking our telescopes. I believe it was a factor in many of "packing it in" earlier than we normally would. Wind also made the 40 degree night temperature seem a bit chilly, I had to wear gloves and borrow a sweater from my wife. It is 7000 feet elevation there.

I recall the following scopes: two 20" Dobs, a 9" Springfield refractor

(eyepiece stays in one permanent position near equatorial head regardless where scope is pointed), a Genesis 4" and Ranger 70mm on a Astro-Physics 400 mount, a T/V Pronto, Meade 2045 4" SCT, several midsize Dobsonians and Newtonians, and my old standby circa 1974 Celestron-8 (the only SCT there except for the Meade 2045).

Notable observations: seeing white clouds on the southern hemisphere of Mars through the 9" refractor at 375X! At first I couldn't figure out why I was seeing two polar caps, the clouds were that big and bright. The scope's owner told me they were clouds that he had been watching for a few nights - a first for me. Amazing, considering that the planet was over 100 million miles away and only 8 arc seconds in diameter!

Another object of interest was seeing NGC 6888 for the first time since the '80s when I saw it in a 17" Dob in the Sierras. I told the owner of the 20" about it and he said he had heard of it but never had seen it himself. So he used his NGC-Max computer to find it with the aid of an O III filter. There it was in all its glory, a huge "footprint" shaped emission nebula in Cygnus just below the center of the cross (I believe it's a S/N remnant). I've got to get me one of those filters!

Having befriended these two gazer with the 20" and 14" scopes, and seeing that they were (sort of) running out of things to find, I used the 14" Dob to locate NGC 7789, and open cluster in Cassiopeia and one of my favorite clusters (I love clusters). They were delighted. In apertures over 8", this 6000 L. Y. object is a wonderful sight, remarkably rich and uniform in faint stars. See Burnham's Vol. 3, p. 533.

Yavapai view point offers splendid views at day. One can peer down sheer 3000 foot cliffs, spy Phantom Ranch, the bridge spanning the river, rafters on the Colorado, and with binoculars, the lodge on the North Rim

11 miles across the canyon. Dean Kettisen had his 120mm battleship binocs set up there to show tourists these sights. I took a peek and was impressed with their performance, I would have liked very much to see what they could have done stargazing wise but never saw them set up at night.

Dean and another fellow had cleverly displayed a poster on a nearby tree advertising the nightly star parties. It incorporated an eye catching color enlargement of Comet Hyakutake over a Sedona red mountain - this no doubt brought a lot of people back for the evening star party.

Summing up, I'd have to say I really enjoyed myself at this event. It was a little too windy to suit me and of course the crushing summer crowds were a bummer (during the day) but the skies were clear, the stars plentiful, and the public star party fun as we introduced the night sky to many eager canyon visitors.

It's always fun too to meet other gazers, check out their scopes and make new friends. While the North Rim site has its positive points of being more quaint with fewer people to bump into, it suffers from the observing site being on the patio overlook right on the grounds of the lodge. It is somewhat light polluted, limited in space, and difficult to get big scopes to as they must be carried down narrow steps some distance from the parking area.

Loners might want to consider driving the 8-10 miles to Imperial Point (8800 feet) where a parking lot offers reasonable open views of the sky with zero light pollution. By the way, it's 214 road miles from the south rim to the north rim. From Flagstaff, the north rim requires another 125 miles drive compared to the south rim. I've mentioned nothing about the camp-ground because I wimped out and stayed at the Yavapai Hotel, a few minutes from the star party site.



## Ups And Downs Of Mountains (or Testing A New Lightning Rod)

John Gleason

Fremont Peak is a great place for testing optics and planetary observation. But lately, I've been disappointed in the overall transparency and general weather conditions. With so much time and money invested in telescopes and photographic equipment one must seek out prime viewing locations.

So I decided on an extended stay at an old haunt in the Sierra Nevada. I was quite pleased with what I found. Wow! 7th magnitude naked eye stars Friday, Saturday, and Sunday. How about a dozen naked eye stars in the bowl of the Big Dipper? At 2 am the Milky Way was a grand spectacle. Crisscrossed with dark lanes, the great Sagittarius Star Cloud glowed a pastel blue green.

The AP 7/7 with a 35mm Panoptic presented what I call "real time Schmidt camera" views. Every star

cluster and nebula observed was photographic in appearance.

Hey, why do photography at all with views as bright and as contrasty as these?

The Veil Nebula with OIII filter was "electric". Using 500X on the ring nebula, and looking along its outer edge, the central star could momentarily be glimpsed! Awesome.

The Sierras are of course not without their problems. Saturday night was made more interesting by the display of lightning due east of my observing site. Within 30 minutes some very black clouds, as silhouetted against the Milky Way, formed over my location.

So let's understand the situation. Continuous lightning flashes to the east illuminating the entire sky, clouds forming over my observing site, and I am standing next to the world's most

expensive lighting rod.

Hmm, what's wrong with this picture?

I had the 7/7 tube assembly off its mount and into the case in about 60 seconds. Unplugged all the electronics, put the guide scope and camera away. Headed for cover. Naturally, about 20 minutes later the clouds passed through and the lightning stopped.

Thirty minutes later I was operational again and came away with several fantastic photographic images of the Lagoon and Trifid nebulae as my reward.

At 4am Sunday morning, a zero magnitude meteor appeared out of Corona Australis and proceeded to skip through the Earth's atmosphere and out again some 80 degrees later NW. I applauded!



### What Children Should Know

Bill Arnett

The names of the 9 planets.

The fact that the Earth is but one of the nine all of which orbit the Sun. That the Earth goes around the Sun once a year.

That the Moon goes around the Earth once a month. That most of the other planets have moons, too.

And that the Earth rotates on its axis once a day.

That the Sun is by far the biggest thing in the solar system, thousands of times bigger than the Earth, that it only looks small because it is far away.

That the stars are really VERY distant suns.

That all the stars we see in the sky are but a tiny fraction of the "billions and billions" in the Milky Way.

That the Milky Way is but one of "billions and billions" of galaxies.

Don't expect them to really grok all these billions, but it is important to get them started thinking that the

Universe is really, really BIG. So big that even those of us who can quote the numbers don't really understand what it means in an intuitive way.

Arrange a sky watching night with your local amateur astronomy club and let the kids actually see some things for real. NASA pictures are great but the real thing is, too, in a different way.

Feel free to use anything you like from <http://www.seds.org/billa/tnp/>

It struck me that you might be able to teach them some history and some astronomy at the same time by simply retracing the history of astronomy with them.

Start with simple observations (like the ancients).

Then move up to Copernicus and the heliocentric model (so very much simpler!).

Then do the observations of

Jupiter's moons as evidence.

In the summer and fall you can find Uranus and Neptune with a small telescope and note that they were not discovered until 1781 and 1846.

(You can easily observe all the planets except Pluto with a little planning. Even Pluto is possible with an 8" or bigger scope.)

Find the HST picture of Betelgeuse's disk as evidence that the stars are really, really far away (and hence intrinsically bright like the Sun).

Note that better and better instruments are needed to increase knowledge (you can see six planets (including Earth!) naked eye, Jupiter's moons and Uranus and Neptune with binoculars, Saturn's rings and Pluto within 8", but it takes HST to see Pluto's moon Charon).



Paul continued to follow the climbers.

When light started to fade, I swung the EDT to Mars. The red planet showed a smallish ~8 arc sec apricot colored gibbous phase with the polar cap and just a hint of dark markings for the tourists at 152X in the Nagler 9mm.

Vega hung brightly over the snow capped peaks rimming the eastern horizon so Epsilon Lyrae was the next target. A fellow from South Korea mentioned the clarity of the image and noted the two pairs near right angle orientation. The next target was Albireo to show the color contrast in the not yet fully dark sky.

The night was shaping up to be a good one. The Milky Way was starting to show along the Eastern horizon and the crowd remained fairly constant at 6 to 8 near almost every telescope. I moved to M11 and reduced magnification to 51x with the 27mm Panoptic. The cluster stood out nicely against a lovely background of faint Milky Way start and dark regions. Next came M4, M80, and that NGC whatzis next to Antares. M22 was spectacular at 114X in the 12mm Nagler as was M21, M23, M24 & M25. Moving along to M8 I slipped in the Lumicon UHC filter and the 19mm Panoptic for a great view.

I had one young fellow ask about Pluto but had to defer due to the limitations of a 6" scope. I referred him to Dave North who was holding forth with his 12". While Dave was hunting up Pluto I slid over to M20 *The Trifid* which seemed to offer a hint of color difference between the emission and reflection parts.

As park visitor traffic began to thin, I noted Paul Mancuso who had set up about 20 feet South of me, was having a great time with his Starfire 6". I wondered over for a quick look at the Veil in a 55mm eyepiece -- wow what a nice widefield view. By now the sky was dark and quite transparent enough to allow the full glory of the summer Milky Way to cast shadows under our scopes.

Next up I moved to M17 and M16. Both the Swan and Eagle shown vastly better than one could see from our local haunt, Fremont Peak, in such smallish scope. While I had the UHC filter in, I next tried the North American Nebula with the 35mm Panoptic: it was huge and bright with the Pelican readily visible right next to it.

By now it was getting on towards midnight and I was feeling the effects of altitude and the drive up so a break was in order. I had not broken out the camp stove so had no coffee to help keep awake, just some bottled ice tea.

While doing some "Mark II eyeball" astronomy I noticed the sky had that granular look that means you are seeing faint dark stars just on the edge of vision -- a telltale of really good dark, transparent skies. I decided the 16x70 Fujinon binoculars might be fine for some cruising, so I settled back in my chair and used Jay Freeman's "Tai Chi" method of holding one hand near the objective and the other bracing the eyepiece end.

The bright arc of the veil stood out easily with no filtration as did the North American in the binocs. The Cygnus star cloud and rift were filled with gems to dazzle the eye. Sweeping down the Milky Way to the Aquila/Scutum area near M11 there is a vast complex of dark nebulae and star cloud that is great in binoculars, especially big ones. I continued down through Ophiuchus, Sagittarius and Scorpius noting many naked-eye Schmidt-camera like views of the pipe nebula and many Barnard objects.

About now the sky was brightening and most of our group had packed up and returned to camp. The public were long gone. The moon poked its nose over the mountains and quickly the area was awash in moonlight. Paul, Jim, David, and I packed it in and also headed for some sleep. That drive back to Bridalveil is one long 8 miles when you are so tired.

Saturday was spent playing photographer on the valley floor, so much material, falling water, lush meadows, big rocks, lotsa trees etc.

That evening I headed out to the point about a little early. This evening

there was a light breeze that was quite cool so on went the heavy layers. I had made a thermos of coffee and was prepared for a longer night since the moon would rise some 40 minutes later.

This evening was going pretty much as Friday had but with a much lighter crowd. The breeze faded away as soon as it got dark. I traded views with Paul, Dave, Bob, Jim, and others.

I spent some time hunting up Barnard objects in the Sagittarius Starcloud area. B86 is great, being easy to find and situated right in the bright cloud of "steam" at the "teapots" spout. While it showed nicely in the 6", it was really nice in the 12". Dave North had been showing some visitors Bock globules in M8 and someone else hunted up Uranus and Neptune. Paul Mancuso was showing someone M51 and someone else had M81 & 82.

Jupiter was looking better tonight; we could see the fainter yellowish bands near the poles as well as much detail in the equatorial regions. Pegasus was higher in the sky so I moved the scope over to M15, one of my favorite globulars. I really like the Gausian distribution of its stars.

Looking at Andromeda in the 6" at 28.5x with the 48mm Brandon, it filled the field with M32 and NGC 205 showing nicely and 2 dust lanes prominent in M31. In the 16x70s Andromeda went all the way across a four degree field, wow!

The sky was wonderfully transparent and dark with the huge central bulge of our galaxy very apparent in the south from the Ophiuchus "off-ramp" all the way out to the front of Scorpius.

I wondered how NGC 7331 would look so I put in the 35mm and quickly swept it up. Bumping the power up to 152x I tried to see if I could find any of the faint companions and sure enough there were two faint smudges nearby. Well, what about Stephan's Quintet? Foolish probably, but what the heck.



continued on page 6, see **Yosemite**

## Theophilus, Cyrus and Half Dome

Craig D. Wandke

As the moon rises over Half Dome at the Santa Cruz Yosemite Star Party on August 8, we will be treated to one of nature's most dramatic spectacles: a lunar sunrise over two of our satellite's most dramatic pair of craters, Theophilus and Cyrus.

Theophilus, 65 miles in diameter, is a magnificent ringed-plain whose commanding presence on the moon will be obvious through even the most modest of amateur telescopes.

Named for the fifth century Alexandrian bishop, Theophilus is a complex structure whose western rim rises 18,000 feet above its rugged floor.

So huge is Theophilus that its rims would be well below the lunar horizon for an astronaut standing in the center of the crater near the base of its central mountain mass.

A majestic multiple-peaked central mountain mass rises from the interior of its floor, splitting into two major and lower peaks with a crater-like depression on the north.

The peaks themselves rise over 4,000 feet, slightly less than half the elevation of Half Dome across the valley from our observation site at Glacier Point. While observing the peaks inside Theophilus, we should remember that they are nearly seven times as high as Nevada Falls in front of us, whose waters plummet for 594 feet before thundering onto the ground below.

As we study the central peaks of

Theophilus, we might also remember that it was W. H. Pickering of Harvard Observatory who in the early years of this century believed that their brilliance was due to the deposit and subsequent melting of lunar snow!

Theophilus intrudes on its companion Cyrus to the south, both reproduced here by the great English amateur selenographer Harold Hill. Mr. Hill captures the pair under very nearly the same lighting that we will see from Glacier Point on August 8.

For those interested in comparing his drawing with the actual objects as seen through our telescopes, consideration must be given to the fact that the moon librates or rocks in its orbit around the earth, and so, there are certain to be minute differences between this drawing and what we will see through our instruments in August at Yosemite.

Additionally, the earth and moon do not align in exactly quite the same manner with respect to the sun until the passing of one saros, or about eighteen years.

Though Mr. Hill's drawing was done in 1995, our Yosemite lighting will be quite similar, and it will be interesting to note the appearance of the crater Madler on Friday night, shown here by Hill as the broken ring of light next to the giant pair.

Cyrus, massive companion to Theophilus, is 55 miles in diameter, with finely sculptured terraces. As we study its battered interior, we might

pause to reflect on the awesome forces of nature which resulted in its colossal proportions.

Though it is probable that the pair was formed when large bodies slammed into the moon at incomprehensible speeds billions of years ago, it is possible, some students of the moon have argued, that both are volcanic in origin.

At any rate, as we look across Yosemite Valley to Half Dome and then up to Theophilus and Cyrus on the moon, we are humbled by the action of the processes in nature which have resulted in such awesome structures on earth and moon, created though they were through such entirely different forces.

By the evening of August 9, the terminator [the line separating night from day on the moon] will have crept 12 degrees further west across the face of the moon, and the giant duo will now be flooded in the harsh light of early lunar morning, presenting a much different view us than they did on the previous evening.

By Saturday night, additional structures will begin to emerge from the two-week lunar night into lunar day in the rugged southern highlands, and Theophilus and Cyrus, seen so dramatically on Friday night, will make their inexorable journey towards the blinding brilliance of lunar noon, as they have done for untold hundreds of millions of years, even before the creation of Half Dome itself.



**Yosemite**, continued from page 5

After a few minutes sweeping I had located a small group of fuzzies that looked about right.

I asked Paul and David to confirm; Paul said he saw two and David thought there might be three FFNs (faint fuzzy nothings or NGCs). Dave

suggested we try to find them in his 12". Paul had no luck and I've never gotten used to a Telrad and failed as well. Dave then gave it a shot and even broke out a chart for reference. Soon he confirmed the same field as the 6" held. The group was easy in the twelve inch. I was jazzed at finding the quintet in a 6 and confirming with the 12.

About this time I noticed I was totally blitzed and there was a glow on the eastern horizon from the soon to rise moon. All of us remarked about the two excellent evenings we had. Again Jim, Paul, Dave and I were the last ones standing at moon rise. We retrieved our vehicles from the parking lot and packed up wearily. It was almost 3AM when we left for camp.

## Class Notes

David North

July turned into something of a lunar month after Craig Wandke made his moon presentation at the Beginning Astronomy Class put on by Jack Zeiders on Saturday, July 12. Quite a few people showed up, and the talk was enthusiastically received. Afterwards a number of people set up for lunar observing on the lawn in front of Hough Park, which prompted someone to call the police.

When two patrol cars arrived, complete with spotlights, Jack invited them to stop for a minute and look through the scopes, which they did with great enthusiasm and compliments for what the club was doing.

Maybe they'll come back for the next class August, which will cover Charts and Software. This is always a confusing issue for beginners (which is all of us, really)... so that's another date to pencil in.

September is a "don't-miss" class, as Kevin Medlock will introduce the class to the use of CCDs.

As the driving force behind a number of astronomic innovations, including the 30-inch telescope on Fremont Peak, Mr. Medlock is uniquely suited to the task.



## Walden West Star Party

Walden West School is holding a fundraiser benefit the evening August 9, and SJAA will be helping out by throwing a star party. Sunset is 8:10 pm, but getting there early is a good idea since they mentioned something about free food.

Walden West is up Highway 9 near Sanborn Park. Go through the town of Saratoga on Hwy 9 until you pass Saratoga Springs, then take the left turn at the corner before the bridge (there's a sign for Sanborn) and go uphill until you come to a right turn with a sign for Walden West. Follow the road for a short way (about half a mile) until you get to the school driveway on the right.

## The Far Side Of The Moon

Akkana Peck

A favorable libration brought Mare Orientale, normally on the "far" side of the moon and invisible to earth, into view on June 20, 1997, and I got my first look at it from my driveway in Los Altos, CA, with the 6" Cave.

Seeing was somewhat shaky, and the view was better at 120x than at 181x. Grimaldi was visible in the finder as a prominent dark spot, like a miniature Mare Crisium, near the west limb of the moon, and southwest of Grimaldi, along the barely visible terminator (one day shy of full moon), Mare Orientale was visible in profile as a plateau surrounded by two concentric rings of mountain ranges (Montes Cordillera and Montes Rook).

Tracing the profile along the terminator was particularly interesting: the flatness of Orientale, then a steep drop to the valley to the south, then two rises where the concentric mountain ranges stood in relief against the unlit limb, and a pair of long dark streaks extending further northward, perhaps ejecta from the event which formed Orientale.

After exploring Orientale for a while, I couldn't resist swinging over to take a peek at Jupiter, still low in the southeast.

All four Galilean moons were visible, with two very close to each other -- an occultation either about to occur, or having just occurred. I watched for a while, and within some fifteen minutes, the occultation occurred. In the 6" in ratty seeing, there wasn't much to see -- two points became one bright point.

I hope to catch one of these events later in the summer when Jupiter is higher in the sky and more detail should be visible.

My Jupiter java applet (<http://www.best.com/~akkana/jupiter.html>) revealed that (1) the two moons involved were Europa and Ganymede, and (2) the Date class time zone bug is biting me, now, too (the applet showed the occultation as taking place at 2:30 PDT instead of at 1:30 when it actually occurred). I really need to find a workaround for that.

Having satisfied my curiosity about the Jovian moon occultation, I swung back to earth's moon for one last look.

The terminator had moved significantly while I was watching Jupiter, and now two craters which I had not noticed before stood out prominently off the north edge of Orientale, both with huge central mountains nearly filling the crater ("central peak" doesn't do justice to these mountains).

Rukli is somewhat difficult to read for "far side" features, but I might guess that the crater to the southwest of Grimaldi and inside the concentric rings of mountains may have been Kopff; the one to the northwest could have been Schluter.

I fought off the urge to sleep for a little while longer, long enough to make a sketch of this area which I may not have another chance to see for quite a long time (until the next such favorable libration).

I have added my comments on Mare Orientale to the Hitchhiker's Guide to the Moon, <http://www.best.com/~akkana/moon/hitchhiker.html>. Please use this resource and help contribute to it (all contributions are fully attributed to their authors), so we can all share knowledge of interesting things to look for on the moon!

## Exploring The August 12 Perseid Outburst

Mike Koop

If you are interested in observing the Perseids this year, then consider participating in an observing campaign, and watch one of nature's most impressive phenomena.

A NASA funded program at Ames Research Center aims to explore meteor outbursts (brief periods of increased meteor rates in the sky). Outbursts are of relatively short duration and are rich in bright meteors.

Starting in 1989, the Perseid meteor shower has produced a series of outbursts of 1-2 hours during which rates dramatically jumped, bright fireballs flashed the sky and persistent trains blew in the upper atmosphere winds.

Peak rates gradually increased until 1992, when parent comet P/Swift-Tuttle passed the nearest point to the Sun in December. Subsequently, rates gradually decreased. Each year, the outbursts are visible at a different geographic location. The last Perseid outburst visible from the Bay Area was in August of 1994, when the shower peaked at about 4 o'clock.

1997 is perhaps our last chance to see such an outburst of the Perseid shower on the west coast. This year the Perseid meteor stream is expected to have an outburst between midnight and 2 am PDT on August 12. Rates should increase to about twice the normal Perseid activity and a relatively large number of bright meteors are expected to appear.

Rates should be low in the first few hours, then sharply rise around midnight and stay at about the same level of activity for the rest of the night. The first quarter moon will not disturb visibility much, since it will set just about at the time of the peak of the outburst. (See Table 1 for the predicted outburst rates.)

To capture the meteor outburst, we employ photographic cameras at three sites in the hills surrounding the San Francisco Bay Area when such outbursts are expected. Observing sites are at Fremont Peak Observa-

tory, Holler Observatory (near Lick Observatory) and at Bonny Doon in the Santa Cruz mountains.

Each camera battery consists of twelve 35mm cameras, most with 50mm f1.8 lenses. A rotating shutter is used to determine the velocity of the meteor. Visual observers record the time of the meteor and its approximate position. This information helps identify the meteors on the negatives and to do the triangulation for determining the trajectory of the meteoroid in the atmosphere and its orbit in space.

Once the orbit for the meteor is found, analysis can be done to determine the dynamics and evolution.

This project needs a large number of volunteer visual observers to join us at the camera sites; people who watch the skies (with the naked eye) while the cameras are making time exposures.

Your task is to write down the time of each bright meteor and plot its position between the stars. Other volunteers assist with photography and recording camera shutter opening and closing times. Each site needs 8 to 10 volunteers to get full sky coverage.

Meteor observing will start at 9:00 PM commence through the night until morning dawn. This is to allow for some uncertainty in the time of the peak.

It is possible also to contribute to the project from your own favorite observing spot. Meteor observers throughout Northern California can contribute by recording meteor times and making plots on star charts. Meteor photographers can also join the network from other sites as long as the shutter opening and closing times are recorded to within 1 second and the camera is pointed towards the San Jose area. No tracking on the cameras is required.

To prepare for the observing on the night of August 11th/12th, two meteor observing training sessions will

be held on Fremont Peak Observatory on the evenings of Saturday August 2nd, (to coincide with the AANC Star-B-Que) and Saturday August 9th.

Participants will get instruction on observing and two hours of practice. We will gather at FPO at 9 PM on both Saturdays and start observing at about 10 PM until midnight. Please be prepared for meteor observing by bringing a lounge chair or ground cloth, a clipboard, a red flashlight, an accurately set watch, proper night clothing, and an adventurous attitude.

Other photographic/observing campaigns are planned for the nights of November 1st/2nd and 2nd/3rd, aimed at the Beta-Cygnid shower, and on November 16th/17th on occasion of the Leonid shower.

Contact: Mike Koop  
California Meteor Society Coordinator:  
Perseids 97  
email: koopm@best.com  
Phone: (408) 473-6315

Contact: Dr. Peter Jenniskens  
The SETI Institute  
NASA Ames Research Center  
Mail Stop 239-4  
Moffett Field, CA 94035-1000

For More information visit our web site:  
<http://www.best.com/~koopm/meteor/cms.html>

**PLEASE SEE TABLE ON NEXT PAGE FOR OUTBURST TIMES**



**Table 1: 1997 Perseid Outburst Predicted Rates**

SOLAR LONG.	% HR (1950)	UT	PDST HR	HM	ZHR	HR	OUTBURST
<b>DUSK</b>							
138.831	4	09pm	9.5	33.5	71	4	0
138.870	5	10pm	13.7	26.8	72	7	2
138.910	6	11pm	18.6	18.2	77	14	6
138.951	7	12pm	25.1	8.2	93	25	21
<b>138.98 PEAK OF OUTBURST</b>							
138.991	8	01am	32.3	-2.5	119	50	38
139.030	9	02am	40.2	-14.0	87	47	14
139.070	10	03am	48.2	-25.6	79	52	4
139.111	11	04am	56.0	-37.1	77	60	1
139.151	12	05am	62.9	-48.4	78	66	0
<b>DAWN</b>							

Table 1: Observing conditions on August 11th/12th, 1997, for California (-122W, +37N). Columns list the solar longitude (B1950), the Universal Time, the Pacific Daylight Savings Time, the altitude of the radiant (hr) in degrees, the altitude of the Moon (hm) in degrees, the total Perseid Zenith Hourly Rate, the actual number of Perseids that appears per hour visible for a single observer in good dark skies, and the percentage of those meteors that are part of the outburst.

#### Board Meeting Notes

David North

According to Treasurer Bob Elsberry, the club is functioning under budget for the first half of the year. Membership roles may have dropped slightly, but it's not yet known if this is merely because people forgot their renewal was due.

Secretary Jim Van Nuland added the Walden West Star Party to the August schedule, and outlined rough schedules for September and October. The general meeting topic for the latter month is still uncertain due to health issues of the speaker.

We are changing printers for the Ephemeris (free folding), and have a program to sort the mailing list rather than doing it by hand (should save some time for Bob Brauer and Lew Kurtz, who diligently handle the mailing chores each month). We may print on colored paper from time to time to further lower costs; comments will be appreciated.

The board approved a letter to Rick Morales, ranger at Fremont Peak Park. It addressed the dark sky issue, the trees behind the ranger's house, and offered some suggestions in relation to the idea of terracing the hill below the observatory (nicknamed Medlock Hill) and/or other park improvements.

Rick said he has had considerable success in talking to groups in San Benito and Monterey counties, and that Salinas in particular has adopted some stiff new ordinances limiting the lighting that can be installed. Similar efforts in Santa Clara and Santa Cruz counties would probably be fruitful also.

There appears to be nothing to be done about the trees behind Rick's house, and no further action is expected on that issue.

Though there has been some interest in the various ideas for enhancing the park, nothing has been done beyond casual discussion (aside from the letter).

This is not meant to be an official minutes of the meeting, but rather simply some notes and commentary by the editor.

#### Directions to SJAA places

Houge 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.

Henry Coe State Park is east of Morgan Hill.

From Hwy.101, exit onto East Dunne Avenue. Continue for 12 miles, far past Andersen Reservoir, to the park, atop the ridge. The current SJAA site is the parking lot on the right about 1/2 mile before the main entrance. There is now a fee for use.

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. Run for 3.0 miles, to a traffic light, and turn right onto county Hwy.G-1. Follow G-1 for 12 miles into the park. Be careful to note the "left/right jog" about 1/4 mile after the turn; signs are posted. The park charges a \$3 entrance fee.

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

From Alum Rock Ave. in San Jose, pick up Mt.Hamilton Rd. and go 7.7 miles to the park, on the right. Allow a half hour from the freeway. (ok, this is not really an 'SJAA place', it is where Halls Valley Astronomical Group has their star parties.)

**COMET COMMENTS**  
Don Machholz

A new comet has been recently discovered in the southern sky. Meanwhile, Comet Hale-Bopp continues to dim in the southern sky. Both comets will be briefly visible to many Northern Hemisphere observers in a few months.

The new comet was discovered by Vello Tabur of Australia on July 2. He used an 8-inch f/4.7 reflector to find the 10th-magnitude object, which was situated in the morning sky, far south of the Sun and out of view of Northern Hemisphere observers. It was Tabur who had made the last visual discovery -- nearly a year ago. Comet Tabur (C/1997 N1) will appear in the evening sky for northern observers in early September.

The solar-orbiting satellite SOHO has picked up five additional small comets as they headed toward the sun. Most of the 17 comets found by the satellite belong to the Kreutz Sungrazing Group, all were faint and seen only by the satellite. Most disappeared as they rounded the sun.

**Comet Hunting Notes:** With Tabur's find, six of the last seven visually discovered comets have been found south of the celestial equator; and 14 of the last 17 visually discovered comets have been found in the morning sky.

**Ephemerides -- Epoch 2000, 0h UTC**

**C/1995 O1 (Hale-Bopp)**

Date	R.A.	Dec	EL	Sky	Mag
08-05	07h24.3m -14o28'	39° M	4.7	08-05	08h42.8m -02o21'
08-10	07h29.6m -16o21'	42° M	4.9	08-10	09h10.9m +03o24'
08-15	07h34.7m -18o16'	45° M	5.0	08-15	09h37.7m +09o31'
08-20	07h39.5m -20o13'	47° M	5.1	08-20	10h04.2m +15o35'
08-25	07h44.1m -22o11'	50° M	5.3	08-25	10h31.1m +21o08'
08-30	07h48.4m -24o11'	52° M	5.4	08-30	10h59.0m +25o56'
09-04	07h52.4m -26o12'	55° M	5.5	09-04	11h28.5m +29o58'
09-09	07h56.2m -28o15'	58° M	5.6	09-09	11h59.7m +33o15'

**C/1997 N1 (Tabur)**

Date	R.A.	Dec	EL	Sky	Mag
08-05	08h42.8m -02o21'	20° M	6.2		
08-10	09h10.9m +03o24'	12° M	5.7		
08-15	09h37.7m +09o31'	5° M	5.5		
08-20	10h04.2m +15o35'	4° E	5.8		
08-25	10h31.1m +21o08'	11° E	6.4		
08-30	10h59.0m +25o56'	18° E	7.1		
09-04	11h28.5m +29o58'	24° E	7.8		
09-09	11h59.7m +33o15'	30° E	8.4		

**Orbital Elements -- Epoch 2000.0**

OBJECT	HALE-BOPP	TABUR
Peri. Date:	1997 04 01.13800	1997 08 15.24722
Peri. Dist (AU):	0.9141405 AU	0.3832189 AU
Arg/Peri (2000):	130.58915 deg.	345.44824 deg.
Asc. Node (2000):	282.47069 deg.	148.24000 deg.
Incl (2000):	89.42943 deg.	86.40198 deg.
Eccen:	0.9951172	1.0
Orbital Period:	~2500 years	Long Period?
Ref:	MPC 29568	IAU Cir. 6694
Epoch:	1997 06 01	1997 08 15
Absol. Mag/"n":	-1.0/4.0	9.0/4.0

**Celestial Calendar - June 1997**

Richard Stanton

Lunar Phase (pdt)	time	date	rise	trans	set
NM	01:14	03	06:39	13:34	20:23
FQ	05:42	11	13:59	19:26	00:09
FM	03:55	18	20:12	01:02	06:42
LQ	19:24	24	00:19	06:31	13:32

Mercury	Dist	0.70 AU	Mag	+0.1
date	rise	trans	set	RA Dec
07	08:34	14:53	21:12	10:49.8 +05:11
17	08:17	14:26	20:34	11:03.3 +01:49
27	07:17	13:28	19:40	10:47.0 +02:48

Venus	Dist	1.25 AU	Mag	-4.4
07	08:59	15:21	21:43	11:16.7 +05:56
17	09:19	15:25	21:30	12:00.0 +00:51
27	09:38	15:28	21:18	12:42.7 -04:18

Mars	Dist	1.56 AU	Mag	+0.5
07	12:07	17:38	23:08	13:34.7 -10:25
17	11:59	17:21	22:44	13:57.8 -12:42
27	11:51	17:06	22:22	14:22.1 -14:56

Jupiter	Dist	4.05 AU	Mag	-2.8
07	20:10	01:24	06:34	21:20.4 -16:33
17	19:27	00:40	05:48	21:15.2 -16:58
27	18:44	23:51	05:03	21:10.3 -17:20

Saturn	Dist	8.79 AU	Mag	+0.7
07	22:58	05:22	11:43	01:19.2 +05:34
17	22:18	04:43	11:03	01:18.6 +05:27
27	21:38	04:02	10:22	01:17.3 +05:17

SOL Star Type G2V Intelligent Life in System ?	Begin	End
07 06:15 13:13 20:11 09:09.3 +16:23	04:35	21:51
17 06:24 13:12 19:59 09:47.0 +13:22	04:48	21:35
27 06:32 13:09 19:45 10:23.9 +10:01	05:00	21:17

Sidreal Time	Transit Right	Ascension at	Local Midnite
	07	00:00=19:55	
	677	00:00=20:35	
	687	00:00=21:14	

Darkest Saturday	Night	20:17PDT
Sunset		21:58 PDT
Twilight End		21:25 PDT
Moon Set		04:29 PDT
Dawn Begin		



## Activities Through Other Clubs

### August

- 2 HVAG and PAS Foothill Park star parties.
- 6 TAC star party at Montebello or ?
- 8 PAS General Meeting at Foothill Park: Member Night.TAC star party at Van Meter School.
- 9 TAC lunar observing at Fremont Peak or Henry Coe.
- 13 TAC lunarobserving at Montebello or ?
- 20 TAC star party at Montebello or ?
- 23 TAC starparty at at Fremont Peak or Henry Coe.
- 27 TAC star party at Montebello or ?
- 30 HVAG star party at Grant Ranch.

### September

- 3 TAC star party at Montebello or ?
- 6 TAC starparty at at Fremont Peak or Henry Coe.
- 10 TAC star party at Montebello or ?
- 12 TAC School public night.
- 13 TAC FP or Henry Coe lunar observing.
- 20 TAC star party at FP or Henry Coe.
- 24 TAC star party at Montebello or ?
- 27 HVAC at Grant Ranch. FPOA public night.

### 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 10th 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.

San Jose Astronomical Association  
5380 Pebbletree Way

## Telescope Loaner Program Status

Mike Koop

No.	Scope Description	Borrower	Due Date
1	4.5" Newt/ P Mount	Available	6/2/97
2	6" f9 Dob	John Paul De Silva	?
3	4" Quantum S/C	Michael Lagae	6/11/97
3	4" Quantum S/C	Michael Lagae	8/31/97
4	60mm Refractor	Del Johnson	Indefinite
6	8" Celestron S/C	Bob Bootz	9/13/97
7	12.5" Dobson	Available	
8	14" Dobson	Available	
9	C-11 Compustar	Paul Barton	Indefinite
15	8" Dobson	Jack Kellythorne	8/2/97
16	Solar Scope	Jack Peterson	Indefinite
18	8" Newt/ P Mount	Available	
19	6" Newt/P Mount	Available	
21	10" Dobson	Nick Tucci	8/30/97
23	6" Newt/ P Mount	Bob Hess	8/8/97
24	60mm Refractor	Ravi Tembhkar	7/31/97
26	11" Dobson	Dean Sala	8/6/97
27	13" Dobson	Available	
28	13" Dobson	Ramin Ghafouri	8/19/97
29	C8, Astrophotography	Scott Wade	8/28/97
30	7" f/9 Newt/Pipe Mount	Brian Ambrose	7/31/97

### Notes:

There is no one on the waiting list and we have plenty of scopes available for immediate use. Check one out today!

### Officers and Board of Directors

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<b>VP</b>	Ed Erbeck	379-5413
<b>Sec</b>	Jim Van Nuland	371-1307
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<b>Dir</b>	David North	297-5257
<b>Dir</b>	Bill O'Shaughnessy	984-3985

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<b>Circulation</b>	Bob Brauer	292-7695

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### School Star Party Chairman

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### Telescope Loaner Program

Mike Koop	446-0310
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### Web Page

billa@znet.com	
Bill Arnett	

## 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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Phone: \_\_\_\_\_

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